

with the title:

- CUL book located at Cambridge University Library
 CUL.1900 book donated to CUL in 1900: full list in *Cambridge University Reporter* 15 June 1900 pp. 1079–80; we have included only those annotated.
- a
 Down book located at Down House, Kent
 (other locations are in Cambridge unless otherwise stated)
- B book known to have been on board *Beagle*
 pre-B book owned prior to *Beagle* voyage but not known on board
 S book bears CD's autograph
 I book bears inscription to CD

b notes and slips:

- NB note written on back cover of book
 NF note written on front cover of book
 SA (pp...) sheet of notes attached between pp. . .
 SB sheet of notes pasted into back of book
 SF sheet of notes pasted into front of book

c type of marking:

- m* score-mark in margin; *md* doubtfully intended score-mark
 (eg 14–16*m* means 'score-mark against lines 14–16')
- u* underlining
 (eg 21*u* "*organs* | *mind*" means 'underlining in line 21 between the word "organs" and the word "mind"')
- w* word(s) written by CD: *wt*, at top of page; *wb*, at bottom
x CD places an 'x' or 'X' in the margin
o CD places an 'o' or 'O' in the margin
 (other kinds of shapes are reported as accurately as possible)
- z* drawing or other marking
c CD crosses out part of text of book

e other symbols:

- ◆ deletion: neat scoring through
 ◇ word(s) erased or faded
- e
 ♣ deletion: word(s) obliterated/errors corrected
 τ CD translates text of book
 ♠ CD writes/underlines a species-name in the text
 ↑↓ whole margin
 ∅ some pages uncut
- ↻ nondescript brown ink
 ∞ pale ink
 ◆ dark ink
 ⟨⟩ transcribers' editorial brackets
 □β smooth mid-blue paper
 □℞ rough grey-blue/mottled paper
 ⇨ pencil
 ↗ brown or reddish pencil
 ↖ blue or violet pencil
- g
 £ CD's editorial markings on text of book
 ✂ comment cut or damaged e.g. in rebinding of book
 ⊗ comment damaged because page ripped away
 u↔ whole line/sentence underlined
 u± more or less all of passage underlined
 ↑ count lines from bottom of page
 ∞ calculations in margin
 ● word(s) illegible
 ◐ part of word illegible
 ○ uncertain transcription
- h

CHARLES DARWIN'S MARGINALIA

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OF THE HUMANITIES
(VOL. 783)

*I dedicate this book to
David Kohn who sighted the fish in the first place;
Peter Gautrey who kept the nets in perfect repair, while
Nick Gill struggled to land what turned out to be a whole shoal.*

M.A.D.G.

CHARLES DARWIN'S MARGINALIA
Volume I

Mario A. Di Gregorio
with the assistance of
N.W. Gill



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1990

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*Laudata sii, Diversità
delle creature, sirena
del mondo! Talor non elessi
perché parvemi che eleggendo
io t' escludessi,
o Diversità, meraviglia
sempiterna . . .*

GABRIELE D'ANNUNZIO

'LAUS VITAE'

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In the first place I should like to thank wholeheartedly the three people to whom this volume is dedicated, and without whom it would have been impossible. David Kohn conceived the original project – though no-one anticipated the gigantic proportions to which it would grow. Nick Gill, my valued friend and collaborator, has worked as research assistant, general editor and 'typesetter', performing technical feats that baffle me utterly. Peter Gautrey, recently retired from the Manuscripts Room of Cambridge University Library, was always a superb source of warm and knowledgeable support: to this true gentleman, generations of Darwin scholars are deeply grateful.

It is also a pleasure to record our debt to the staff of the Darwin Correspondence project, especially Ann Secord, Janet Browne, Marsha Richmond and Stephen Pocock, who continually sustained us with encouragement and much valued advice and experience. Frederick Burkhardt kindly allowed me to take from the first volume of the *Correspondence* the list of books Darwin had with him on board the *Beagle*.

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M.A.D.G.
Cambridge
December 1989

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Epilogue

prologue and introduction

prologue

Some time ago David Kohn had the idea that it would be beneficial to have some kind of outline catalogue to Charles Darwin's marginal annotations. A long story and a number of years later, something rather more complex at last sees the light of day. Like all good stories, ours grew in the telling, and this volume is now intended as the first of three which will provide a complete transcription of the marginalia and a classified map of the whole corpus of annotations. The 'long story' by which the original germ has become a projected multi-volume set has involved the gradual addition of new layers, during which the bare catalogue became first a partial transcription and then a complete one, hence now entitled 'Catalogue and transcription'. By a parallel process, what started as a brief conceptual record of the principal content of the annotations in each book eventually gave birth to the huge document which forms Part two of this volume. We felt that the term 'conceptual concordance' would designate our purposes in Part two readily enough; further explanation is given on p. xviii. Finally, however, we concluded that our readers might be unnerved at the thought of a text of this density not having an 'index', and so the hybrid title 'Index and conceptual concordance' was eventually fixed.

The process has thus in essence been a continuous amplification of an at first very narrowly defined objective – almost echoing CD's request:

"Clean well the pencil marks.– Keep Book Clean. Write smallish on one side, number your pages." (see p. 227g)

We can fairly claim to have done a little better than that, given the latter-day wonders of camera-ready copy.

CD's instructions here were in fact originally issued to one of his amanuenses, probably Mr Norman, a shadowy figure for whom we came to feel a considerable sympathy. The ground level of our work has been just about as pedestrian as his, in copying everything out to provide the 'Catalogue and transcription' which forms Part one of this volume. At least in Part two, and more especially here in this Introduction, we have the luxury of spreading our wings a little into the realms of interpretation; such joys were not to be for the hapless amanuensis. "Mr Norman end here" (390c), CD instructs whenever the interesting bits seem about to begin.

Having established the foundations of our role, we headed off towards finding our material. The principal locations of Darwin's annotations are the margins around the text of the books, separate sheets or 'slips' of paper, and the front and back inside covers of the books. These different locations, we believe, constitute different layers of annotation emanating in the main from different occasions on which CD paid attention to a book. The 'slips' are now mainly found stuck or pinned inside the back cover – though we believe that is not where they spent the prime of their working lives. The quality and the colour of the paper used for these slips vary, again probably implying different bouts of attention. We have seen fit to distinguish three broad types: smooth blue paper; rougher yellow-mottled grey-blue paper; and the rest (mainly nondescript white or greyish paper). We report the material from these various locations in the following order: notes and/or slips inside the front cover; notes and/or slips inside the back cover; slips attached anywhere else in the body of the book; marginal marks and comments in the body of the book.

As to our presentation of the material transcribed in Part one, we have provided a 'Key to symbols used in Part one' on the sheet at the front of the book. The key is hopefully self-explanatory; the only further detail which needs mentioning is that each *column* in Part one is numbered, and is referred to as if it were a page.

So much for *our* code-marks; CD however has some of his own. The capital letters "Q" (for "quote") and "NQ" (sometimes apparently for "not quote", sometimes for "note quote") are frequent. There are also other much more occasional letters, such as "H" (for heredity or inheritance), "S" (for selection), and "D" (usually dichogamy). But others are less fathomable: e.g. brown or reddish pencil crosses: "X means used for 1st volume", he says at a certain point (122c) – but does this apply generally? As with the mysterious coloured ticks (or are they 'V's or 'L's?) which pop up here and there, and the 'O's in the margin in some plant books, we have not thought it part of our job as transcribers to decode these marks, and are indeed thankful to be able to hand such puzzles over to the wider company of Darwinists. It is worthwhile, however, to draw attention to the way these marks run through the craggy mass like thin veins of special little crystals, presumably meaning something.

Our fitful involvement over the years in the production of this material, at computer terminals and in libraries, both in Cambridge and at Down House, has included many hours spent in the U.L. archives themselves – a privilege which facilitated our work immensely, despite the curious effects of the changeless bookstack weather. The project has also survived a double bomb scare, a fire beneath the computer centre which put the tapes out of action for many a long week ('on a shelf gathering dust' becomes in these latter days 'on a tape gathering smoke particles'), and the near-arrest of the assistant author in a certain College library where he was mistaken for the key to a missing case (*cf* fn 12). CD's remark to the intrepid Wallace felt at times distinctly pertinent:

"I am astonished you ever returned alive" (842a)

introduction: (i) CD's reading habits

"(from now I shall skip largely)" (812d)

Here we find CD instructing himself to pay only cursory attention to the remainder of the book in question (Vaucher's *Histoire physiologique des plantes d'Europe*). What, more generally, has our reading of his marginalia revealed to us about his procedures in reading the scientific books he owned? Given how systematic CD seems to have been, it is not difficult to build a general picture.

CD acquires a book and begins reading. It does not take him long to make his judgment about the quality and usefulness of the book. If, as was quite frequently the case, the verdict was broadly dismissive, he would usually persist, but less intensively and only in the hope of encountering a handful of useful pieces of data: hence the large skipping, or comments to the effect "only skimmed". During this basic reading, intensive or otherwise, the margin is scored and peppered with comments. At the end of the reading, he would now list out the locations of his more important comments and margin-scores on an inside cover (usually the back cover), occasionally adding brief mnemonic notes.

The book will now probably lie fallow – maybe even for a number of years – until the lucky moment arrives for it to participate in the process of data-collection for a CD publication. At this stage, the list of locations is re-examined, and a new, shorter list made on a separate sheet of paper of the most important locations, now with details in the form of long-hand notes about the information to be gleaned at those locations. "I will cease extracting", he says at a certain point (668f), reinforcing our growing impression of him as a kind of intellectual dentist. We have the strong feeling that he hardly ever reread the book itself – a feeling underlined by his exceedingly rare self-instruction to "Read second time" (545c), which would scarcely make sense if he usually did this anyway. However many years later he returned to the book, he was confident that he had already 'extracted' everything of value.

The separate slips containing the vital gems at this point reach the prime of their working lives: we imagine those relevant to the publication in progress now collected in a heap (or in CD's systematic case, no doubt a pile) on the writing table, being finally reviewed. It is at this stage, we presume, that the code-letters "Q" or "NQ" are entered on the slips and/or at the original locations in the text against the items he has decided to use. The set of slips, together with CD's own notes and drafts, combine for a while into 'Portfolios of working notes' for the writing of the publication in question. Once the publication has been pieced together, "slips all put in proper places" (572h) – i.e. stuck for any future reference usually inside the back cover of the now fully-harvested book. A slip may take part in this 'cycle' a number of times – its important underlying content, as we shall see later, being the broad theoretical themes invoked by the data recorded on it.

There are of course exceptions to this general procedure – though not, we feel, all that many; and only two are worth noting specifically. The first concerns books that CD read early in his career, where one is likely to encounter inside-cover comments not referred to page-numbers in the text of the book, making recovery of the original data extremely tiresome. The other, more significant exception is the occasional set of slips stuck into the text of a book – these were quite possibly part of the initial thorough reading, and are there to facilitate understanding of the text, especially anything requiring calculation.

It is for the wider company of Darwinists to embellish this basic picture of CD's reading habits. Our brief outline here is but the prelude to analysis of his interaction with his scientific library.

We found one annotation particularly evocative as a metaphor of the contents of the marginalia as a whole:

"I suspect reefs of diff strata in diff parts" (536h)

Apart from reminding us of CD's early involvement in geology, this remark suggests a summary of our hypothesis about CD's main mode of 'processing' scientific reading matter: the margins, end-notes and the slips of various different paper types constitute physically discrete strata or layers, corresponding more or less closely to different bouts of attention. Insofar as these bouts imply an accumulation across different 'layers' of time, the metaphor of geological deposition seems quite reasonable.

In fact the 'layers' concept begins to unlock the inner nature of CD's mode of working with sources: and indeed, we should ideally look upon the whole great corpus of marks and comments not piecemeal, but as a *single* complex laminate – fused layers not only of time and attention, as we have seen, but also of types of *response* to the source-material, and also layers of *themes* reflecting CD's lifelong theoretical preoccupations.

(ii) CD's responses

It is CD's extraordinary single-mindedness, already apparent in his hyper-methodical reading habits, which is reflected in our perception of the marginalia as constituting essentially a single structure. Furthermore, CD had his theory pretty well framed before all but a handful of the books represented in this volume were seriously read. In the main therefore he was not reading to theorise. There are, rather, some half-dozen 'layers of response' we detect in the marginalia.

i) *"Many valuable facts referred to proper places" (159c)*

CD's principal 'layer of response' to a text, constituting the great bulk of the annotations, was in fact data collection, or 'extracting', to revive the CD term we encountered earlier. At first sight, the sheer detail, quantity and range of these 'extractions' might suggest vicarious activity, but that is absolutely not the case. On the contrary, the whole process was strongly purposive – namely, to assemble a vast store of sometimes tiny points of information in order to illustrate and support the Great Theory. This résumé is, as CD might himself have remarked:

"good but too hasty.–" (578f)

We qualify this résumé to some extent in pointing to the existence of *several* 'layers of response'; nonetheless we believe the reader will see that 'our man in the margins' appears more relentless, dismissive and self-regarding than his modulated public persona would imply. In a sense this is hardly surprising – anyone's personal notes are likely to have a greater curtness to them than their finished texts. Nonetheless two impressions may merit an airing here.

CD often judged a book on the sole criterion of its relevance to some aspect of his Grand Enterprise: "After p.109 not one word for me" (675d) he pouts, almost; "This only

useful for ancient History of Dogs . . . I doubt whether any use" (843e–g). There are other not infrequent remarks to the effect that books failing to minister to his need for data are *eo ipso* pointless – his dismissive sign "O/", meaning "Nothing for me", being tellingly close to the copy-editor's symbol for "delete" (which his sign can also mean when he waxes subeditorial, of which more anon). "Erase from memory" might be the late-twentieth-century translation.

The undercurrent of predation here is notable in itself; but the manner of it – i.e. its near-total absorption in pinning the already-formed *Weltanschauung* down to fact – leads to the first of our two impressions: that, from quite early on, CD's mind was no longer really 'open' at the level of high theory (however flexible he remained in respect of subvenient principles).

Our second impression is also connected with fixation. As giants of nineteenth-century creativity, two figures in particular make excellent subjects of comparison – Charles Darwin and Richard Wagner.

"What can I have said" (794c), CD might have been prompted to wonder . . .

We shall develop this line more fully later. The Darwin–Wagner similarity of relevance immediately is the power of their obsession with their work. Anything that crossed their paths was to be assessed for its usefulness in the construction of their creative monuments. This is reflected in Wagner's notorious personal exploitation of everyone he encountered. In Darwin's case everything tended eventually to be pressed into the service of the Theory. Thus the parts of his correspondents' letters not dealing with science were crossed out so that they would not distract from his rereading of the relevant parts. Furthermore, when he wanted to study infant behaviour, he began by watching the behaviour of his own son William, whose development, to cite Janet Browne in Kohn 1985,¹ he followed "as if it were [that of] a barnacle or a primrose". He even had ladies who obligingly made their children cry so he could watch the infants' reactions. These points tend to amplify our view of Darwin's public persona as a certain modulation of the 'inner man'.

ii) "quite opposed to my views!" (111g)

Connected with the enterprise of data-extraction, and accounting for a large minority of annotations, the second 'layer of response' we detect is CD's evaluation of an author and his work. These reactions are usually very forthright, again not infrequently self-regarding: "excellent summary of Whole; approves of what I have said" (239b); sometimes rather patronising: "Most interesting indeed quite amusing" (393g); or "Good Boy" (242b); and occasionally downright rude: "If I want to show what rubbish has been written a translation of this will do.–" (485d). There is plenty of generous praise – "all marked wonderful book" (857a) – but on balance negative criticism outweighs the positive variety.

"Unreadably dull" (738b) represents a quite noticeable type of reaction. CD certainly responded to a degree of entertainment – "2d part funny passage" (217d) – and disliked being bored by an author. CD himself is quite often entertaining in his reaction to an author and his work; naturally we will allow the reader to stumble across these little gems. Our own warped sense of humour detects a tendency towards poisonous wit, especially in putting an author down: "ass prevails – one here", he notes on Lucas' *Hérédité naturelle* (521a), along with a number of other remarks which sound scarcely straight-faced, despite the seriousness with which he took the book as a whole.

However, let us *en passant* charitably suppose that CD's reference to Haeckel as "Hack" (358d) owes more to abbreviation than to denigration . . .

iii) *"World simple"* (541a)

CD is evidently more forceful in his marginalia than in his published works, which are the province of what we might call 'Selection with a human face'. He appears aware of this as deliberate: "I must express things diffuse and with a most wearisome pretence to formulas" (516g), he moans, contemplating the requisites of public style. He has to be so to speak 'the Very Model of a Modern Major Scientist' – but in his inmost self he is perhaps convinced that the world *is* simple, and is quite impatient of all this deference to 'ifs-and-buts'-ism, disclaimers in face of irritatingly incomplete evidence, and opens to the effect 'it is therefore by no means inconceivable that'. CD himself might have thought this comment

"too strong" (425b) –

and it may indeed seem strong in description of someone who after all spent a lifetime reading and writing in meticulous and cautious detail. However, a further example may strengthen the impression; and one basic consideration may help dispel the paradox.

The example is the extraordinary tone of CD's final dismissal of the thrust of "Bronn's criticisms for New Edit of Origin" (181a–182c) – for example "As I cannot justify my opinions in any one single case, so I need not in any.– is as true as it is severe– Though I can in no single instance . . . explain changes yet the structures &c led me to conclusion.–" (182b–c). And that's that.

The consideration is that CD's 'diffuse and wearisome' complaint (and indeed this last quotation) implies that he had seen more fully and more definitively than he felt able to show. Other evidence for this takes us in the first place back to the Notebooks,² and specifically to that point where CD, in some apparent haste perhaps propelled by elation, sets down the finally formulated concepts underlying natural selection. He had held the workings of the living universe in his head with a sense of clarity and comprehensiveness hitherto probably given to no-one. He had struggled with the issues for a long while, but now he knew, and knew that he knew: he had the Key.

One probable lasting consequence of these hard-won certitudes of insight was that CD may never have felt in need of an elaborated methodology or philosophy of science, confident enough in his seemingly natural instinct for the relationships between solid evidence, creative intuition, the need for 'wearisome formulas' of ever wider explanatory power and for physically plausible models of the world. That something like this is the case is evident in the marginalia from the near-absence of our third 'layer of response': comment at the level of high theory.

Most of CD's comments at this level are really quite perfunctory, even when he is assessing work he took most seriously, or work by earlier evolutionists. It is as if from the security of his vantage point he would see others working (like Candolle?) on areas too specific to enable an appreciation of the Grand Process: "he has not the Key" (145b) – or attempting (like Chambers or Lamarck?) to scale the heights with an insufficient database and an insufficient respect for physically feasible mechanisms: "It is doubtful whether Lamarck has done more good by awakening subject, or harm by writing so much with so few facts" (477a). CD by contrast had the overview well before he came to the bulk of his reading, in which he was forcing himself by the systematic procedures we outlined before to acquire and retain the detail. He had no great need by this stage to rehearse his case in defence against the theories of others. Even his comments on the higher principles relating to his own theories are in the main quite cursory and matter-of-fact. "The Natural System," he comments during his reading of Herbert (probably during the 1840s), "seeks to know relationship & does not attempt date of separation" (376e), implying that the notion of descent with modification was already to be taken for

granted, and that any troublesome Grand Concepts found upon the lurk had merely to be pushed into line, or reduced to a purely 'operative' status no longer in control of the debate: "It is succession, not resemblance which makes 'a species'"; and within any one such line of succession "Comes to what I said, amount of difference deserving a name" (630b ; cf 317f). The conceptual pragmatism here sounds almost off-hand. But we should resist seeing it as a kind of opportunistic abdication of the old problems; it is, rather, the considered solution to them. Furthermore, this attitude is applied consistently, in his understanding of scientific method, his whole defence of his theory (see *Variation*, vol. 1, p. 9), his tiffs with Huxley over experimental proof of natural selection, and so forth. Further thoughts around these issues are to be found in Di Gregorio (1981);³ it can now be added that CD's remarks in the marginalia, and the fewness of them, clarify that his largely unargued philosophical position may owe more to feel, instinct and 'having the Key' than to intellectual decision at a philosophical level. Here the marginalia are the crucial bridge between the raw insights of the Notebooks and his considered but inextensively supported comments on method and theory made many years later.

Such, then, is our third 'layer of response', almost missing. In fact, of course, in a different sense it is there the whole time: it resides, as we shall see, in the thick weave of topics and themes underpinning the whole corpus of annotations, and is thus imprinted – "diffuse" indeed, and sometimes even "wearisome" – on every comment. However, the thinness of the layer of explicit 'remarks on high theory' may come as a disappointment to those who turn to the marginalia of a Great Thinker expecting them continuously to overflow with Great Thinks.

iv) "*must be a misprint*" (295d)

CD may have found formulae tedious, but he was by no means averse to a bit of genteel pendency now and then. He not infrequently trips a (living) author up on spelling or other detail; more significantly on misquotation of himself. Sometimes these minutiae are noted down alongside more substantial comments which look like scraps of drafts of letters to the authors in question: "Allow me to point out that you have unintentionally misrepresented me . . ." (223g); "I am glad of your somewhat changed views . . ." (838c); "eheu! date wrong" (537h). Our fourth thin but distinct layer is thus a combination of CD waxing subeditorial, and a scattering of footnote fodder for future volumes of the *Correspondence*⁴ . . .

v) "*What I do not understand*" (471f)

Here we find CD alluding to a fifth 'layer of response', requiring little comment as such – a relatively thick vein consisting of translation and/or close paraphrase of the original text, especially prevalent in German books, but not unknown in Italian or even French books either. In the case of German, this may in part have to do with the tribulations of the Gothic script adding themselves to the trials of the language. But in any event, the consequence for the reader is that the number and density of annotations in a book are no clear guide to the importance either of the book or of the marginalia it contains. Hence our annotation of the title page of Part one, taken from CD's annotation of Candolle: "Upon the whole nothing can be inferred from this list" – a light-hearted motto, but intended as a serious *caveat*. Indeed, any comparison of the entries for Candolle and Gärtner, the latter taking more space, will quickly show that the former is of far greater importance.

vi) Mention of Gärtner brings us to Darwin's Joke, and thus to our sixth layer, 'general wit and merriment'. It is pleasing to note that CD left a few examples of the art of being serious without being solemn – such as the *doubles entendres* attending the 'cross foxes' of p. 705h, the 'high fish' of p. 155a, and the 'boring sponge' of p. 673d – and that he also shows the tendency of the highly creative mind to put things to itself in a radically offbeat way, as with the comment about the 'man cut in twain' (see p. xxix). However, we will spoil the reader's fun of further discovery only in respect of the aforesaid Joke. It is to the effect that Gärtner, despite the name, was probably not much cop as a Gardener. It is actually more important than its flippancy might lead one to suppose: in the first place, it demonstrates that CD was good enough at German to invent a bilingual pun, and thereby lays to rest the myth of his alleged ineptitude at that language. Furthermore, CD liked his Joke. This we know because he chose to share it with the future mildew of the margins not just once, but twice (374c, 277a–b). 'It is therefore by no means inconceivable' (to coin a phrase) that this implies a simultaneous reading of the books in question. CD was sporadically given to dating his comments; following through the more, and less, serious cross-references may thus eventually enable the making of a workable historical map of the whole of his interaction with his scientific sources. As CD himself remarked, albeit in a rather different context:

"light will be thrown on the origin . . . The meaning of this cd hardly be misunderstood, but I can see is not the period of going into details." (358f–g)

vii) Nor indeed of going from the marginalia to CD's private life. Our last layer – another almost absent stratum – consists of very rare and insubstantial glimpses (always assuming, of course, that his rapturous "Flora!" of p. 839c does not address a mistress hitherto hidden from history). There are one or two mentions of (genuine) relations, and the occasional name of a pet or other animal. Most of these references analyse details of behaviour – reinforcing our earlier implication that CD was often unable to resist surveying even the domestic scene with the professional eye of a proto-ethologist.

(iii) CD's themes

We meanwhile must now pass back to surveying the world at large. Having provided a brief description of the strata visible in the mass of the marginalia, we need now to look more closely at our first layer, the 'data-processing' to put it crudely, that forms the bulk of the annotations. It is time to investigate its own internal stratification – the layers of themes and topics – and hopefully in so doing to discover what CD might have termed the

"whole key to theory" (164h).

The major layers we are considering here are the great themes and subthemes that CD pursued (or that pursued him) throughout his career. They function like the '*Leitmotive*' of a Wagner opera, or, to echo Sloan's not dissimilar analogy:

a complex keyboard instrument with several keyboards and registers, these registers each able to act sometimes in solo, other times contrapuntally, and at times in synchronous harmony.¹

A Wagnerian '*Leitmotiv*' has a comparable flexibility; the '*Leitmotive*' interwoven are the

constitutive matter of the whole composition, and they are repeated and evoked whenever logically necessary. None of them is ever forgotten or allowed to drop out. Similarly in Darwin's case:

Some themes and registers form dominant melody lines at various times . . . Other themes function more as a *basso continuo*, often submerged but nevertheless present if one looks closely enough. (Sloan again.)

This procedure enables continuous integration of detail into the whole, and enables detail constantly to refer to the big serious themes – for example the '*Leitmotiv*' of the Dragon in Wagner, or that of comparing wild and domesticated animals in Darwin. It is this which makes the exceptional range of research of a figure like Darwin mentally manageable. It also explains the many repetitions and (in)direct references to other parts of their work that both Wagner and Darwin introduce.

We believe we have captured the essence of this continuous state of inter-reference in the structure of the 'index and conceptual concordance' which forms Part two of this volume. The classification headings used in Part two reflect the themes and topics we detected in the marginalia. There is a relatively straightforward list of names of animals (under the category 'fauna', 'fa' in our code), plants (under 'flora', 'fl'), places (under 'geography', 'gr'), populations (under 'humankind', 'h'), and geological epochs (under 'time', 'ti'); and the document is rounded off with a list of people and works cited.⁵

Interwoven however with these name registers is a classified conceptual index, whose categories were as far as possible inducted cautiously from the annotations themselves, in order to reveal Darwin's '*Leitmotive*'. Work on transcribing the annotations in each book was accompanied by noting down the range of themes and topics in play. A brief cipher was developed for each of these topics, and these are recorded for each annotated book immediately beneath its title in Part one. The conceptual index was then prepared by taking *each individual annotation* and noting down the topics in play there, subcategorising as necessary within the broad categories previously developed, and adding a few new categories relating to CD's other 'layers of response'. The full list of the ciphers denoting these categories and subcategories is recorded on the sheet at the back of the book.

The 'concordance'-like aspect came in when we decided to enter each annotation into the index as a string of topic-ciphers, cross-referenced under each cipher in the string. Thus a statement involving the four ciphers A, B, C and D appears in the document four times, as A-B-C-D, B-A-C-D, C-A-B-D, and D-A-B-C. In this way Part two claims to have preserved intact the entire network of CD's thought.

The resulting document is rather large and very fine-grained. The structure of the entries under each topic-heading is as follows:

A [by itself] [pp.] 1 2 . . .
and [in combination] 3 4 5 6 . . .
infra:
A B C D 5
A C E 3 6
A D F G H 4

(etc).

This arrangement means that those wishing to do battle with the interplay in its full intensity can work from what one could call the 'infra'-structure . . . Those preferring to take their concepts so to speak lying down and one at a time can work with the same references as collected at the head of each entry.

The reader will no doubt be glad that we resisted the temptation to present the whole of Part two in the form of an irregularly branching tree. We did however fall for the idea of using coral- and tree-like diagrams to punctuate our presentation of the way our analysis of topics-in-play breaks the corpus of annotations down into their elementary strands, the '*Leitmotive*' of the Darwinian revolution. Thus those wishing to study the logical interactions of the '*Leitmotive*' as it were medium rare might do worse than start from these 'clustergrams'.

For our part, let us begin our presentation of these interactions at CD's own beginning:

"Diversity of organisms first condition of nature" (582a)

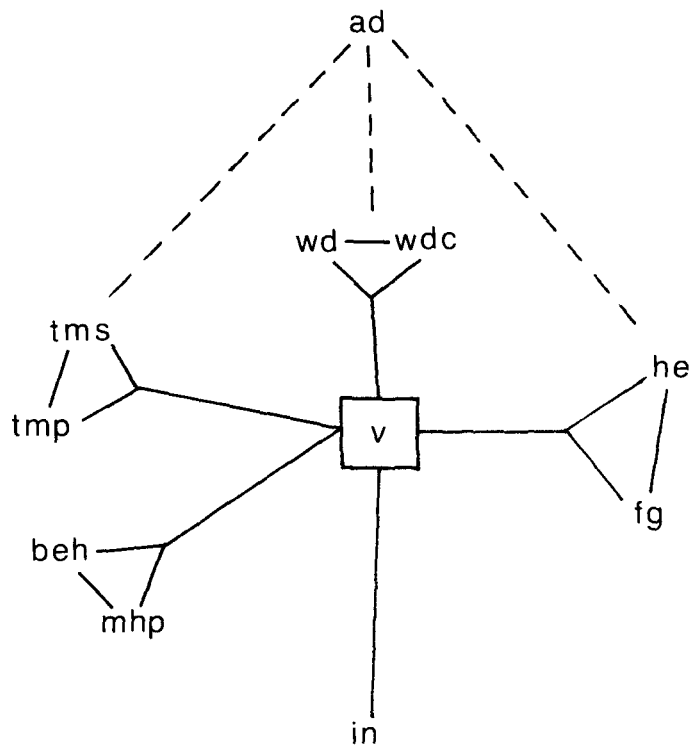
Variation ('v' in our code) just *is*, basic, unargued: "N.B When many pistils, then number variable [when many of any organs apt to be variable; Why. Hairs &c &c vertebrae of serpents" (253d-e). As we shall see further below, this emphasis on the reality of variation is essential to an understanding of the profound change in perspective away from Platonic notions that the 'Darwinian revolution' is all about. Real variation for CD plays something like the role played for Newton by the distribution of matter – the variable density of the universe, to make the analogy sharper.

All characteristics of organisms are subject to variation, the behaviour of animals and plants ('beh', 'mhp'), not just their physical structure: "Great diversity of instincts of Bees of same genus: variable in species also" (74e); "has seen axial twisting vary in same plant" (592c). Variation, as this last extract implies, distinguishes every organism at least minutely from its nearest relatives, and thus the primacy of variation brings the notion of the 'individual' ('in') to the fore: "as individuals differ in some respect . . . several must be experimented on.–" (267g). If, as Mayr claims, Darwin introduced "population thinking", then what matters for him is "variable populations consisting of uniquely different individuals".⁶

Variation occurs both in nature and under domestication, as the first two chapters of the *Origin* readily remind us; thus annotations on variation need to be related to those comparing the variations of wild with domesticated animals ('wd'): "tame cows more milk than wild: organs adapt themselves" (84g); or wild with cultivated plants ('wdc'): "old cultivated kinds tend to vary loose the hereditary quality of goodness" (595h).

This last extract pushes us onwards to take note of reproduction ('fg', for fertilisation and generation), and heredity or inheritance ('he'). If variation is Darwin's 'matter', then heredity, the passing of characters from parent to offspring which holds the chains of beings together, is perhaps his equivalent of Newton's gravity, the unexplained agency holding the chains of objects together. As we shall see below in mentioning pangenesis, Darwin never quite managed to make variation and heredity cohere conceptually – rather as it was beyond the Newtonian mind to conceive of matter and gravity as co-essential. In remarks which seem to show the shutters partly closing on the fully 'open' mind, he insists: "Contrast of adaptation and inheritance" (359f); or again: "Inheritance cannot be cause of variation has nothing to do with it" (514c) – an annotation which effectively sweeps all before it.

diagram 1



In this and the following diagrams we attempt to display some fraction of the densely woven threads of themes and topics constituting the bulk of the marginalia. The key to the topic-ciphers is to be found on the sheet at the back of the book. The diagrams summarise the text immediately preceding them.

"If all species varied equally all wd be in confusion" (430f)

But they don't: variation is itself variable. In the first place, this means that all is not in confusion – groupings of organisms are discernable, which we call varieties, races, species and higher groupings ('var', 'vc', 'sp', 'sph'); and this will refer us eventually to definition and classification, or systematics ('sy'). We have observed CD's pragmatism in these matters already; he pauses to praise Lamarck's scepticism: "good remark how arbitrary the distinction race and species is" (477h).

In the second place, the variability of variation has its own correlates, and brings into consideration the size of genera ('nos') and their wide geographical ranges ('gdw'): "but this is the very point that we are considering that large Families are wide rangers & most convertible [but that it is only a few which are wide rangers; the others changed into species] . . ." (115d–e). The whole time, we perceive in the background the fundamental questions of modification and speciation.

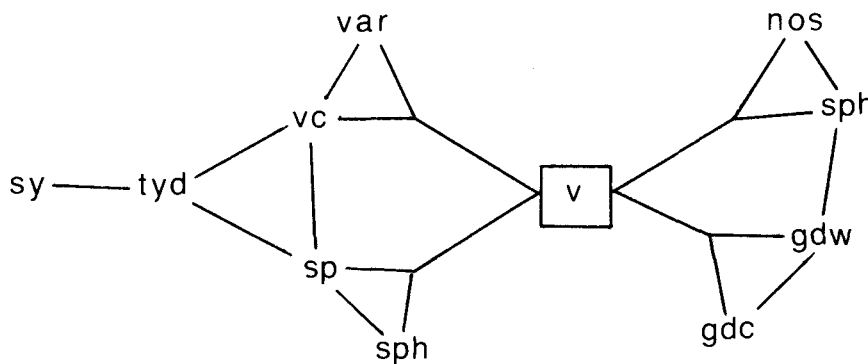


diagram 2

"Malthus and Franklin saw the law of increase in animals & Plants clearly" (562h)

The other basic condition of nature, again implied by reproduction, is 'increase' – our category 'no' for 'number' includes increase and decrease, and in its subdivisions wider concepts such as the 'amount of life'. Increase can be discerned directly in special cases like naturalisation ('gdn'), where introduced organisms ('gdi') at first increase swiftly: "Europe/U. States 716 in 26 years 600 miles of Lat. Many other good facts of rapidity/–" (124d); "Dr D. Owen says newly introduced Plants, first overrun the country & then become scarcer (Ask A. Gray)" (545e–f).

The finitude of any natural context means that there are checks on increase, principally struggle between organisms for relatively scarce resources such as food and space. The basic process of nature is thus increase checked by struggle ('oos'): "ie as far as food & climate (& enemies preoccupation by other species) ie conditions allow species & genera to range, so they will range . . ." (703e); "Beasts of prey destroyed others increase immensely, & drive others from habitation" (703f); "Every one of such species wd

cover ground if no other species present: if rarity here is step to exclusion, then the greater importance of other organic beings is shown" (109d).

The relationships of organism to organism ('oo') are not all directly antagonistic; and these complexities constitute perhaps the central focus of Darwin's world-model. Without a clear understanding of the place of the relationships between organisms in the model, one cannot understand either the notion of selection or the Darwinian conception of evolution. CD likes Hooker's "Good remarks on strife of Plants" (404d); and ponders Haeckel's "good criticism on my theory of struggle for existence – says ought to be confined to struggle between organisms for same end – all other cases are dependance – misseltoe depends on apple" (356b–c). CD also painstakingly wrote notes concerning the symbiotic relationships between insects and pollen.

In the competition for resources, death and destruction do not only visit themselves upon the old; indeed, the fate of the variably vigorous young ('y') (including eggs 'fge', seeds 'fgs', etc.) is in an evolutionary sense more significant, because dead young do not mature to reproduce, and thus their variations cease to be inherited. "<Young monkeys and humans> Cutting teeth die from fever accompanying" (700a–b). Killing ('ook'), predation ('oopr'), and food ('fd') are also of the greatest significance: "Several Pigeons killed by Hawks are white or yellow vars" (430a). External agencies other than disease ('pat', for pathology) complete the picture – the direct action of conditions ('cc'), interwoven with the indirect action of conditions on food ('fd'): "Many wild Pigs die in Hard winters & in very dry summers" (39b, 40f) – some from harsh weather as such, but most from hunger.

These agencies act most tellingly on variations between closely allied individuals and/or species ('spc'), because these are the most near competitors for the same resources: "closely allied species exterminate each other" (629c).

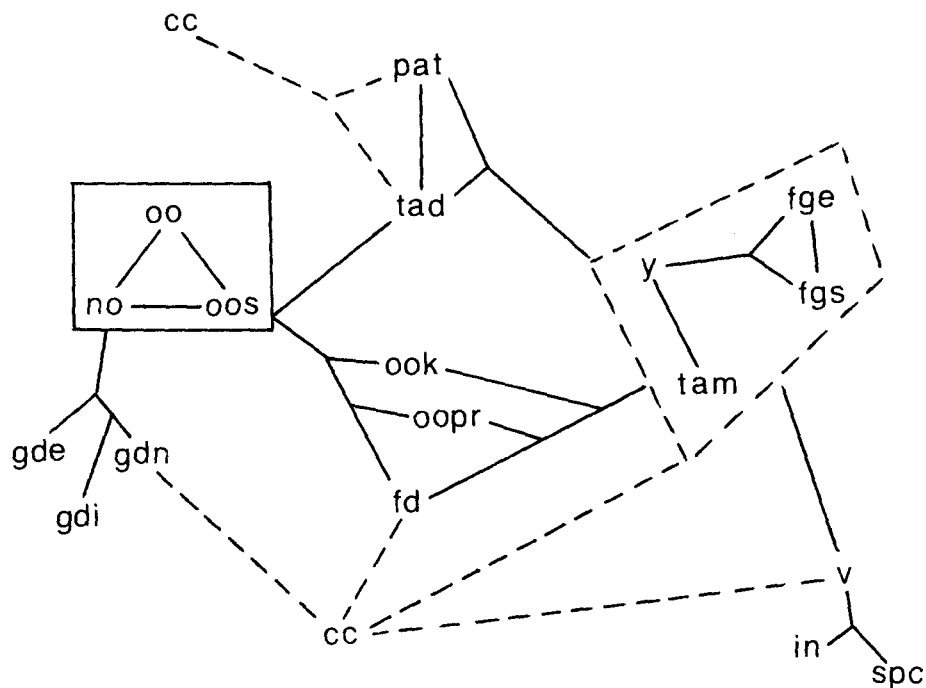


diagram 3

"selection wd act on a trifle" (448c)

The 'mere trifle' of the margins became the 'trifling characters' of chapter 4 of the *Origin*, which are on the contrary of the highest significance, as CD was fully aware in his comment, and in his collection of many details concerning variation in the colour, size and reproductive power of animals and plants ('tmp'). 'Natural selection' ('sl'), the heart of Darwin's vision, invites comparison with the effects and contexts of human selective intervention ('br', 'ooh'), and thus refers us back to the comparison of wild and domesticated productions: "such selection cd never apply to wild animals, as every parent must be adapted to same conditions" (509e-f).

One especially notable set of variations in not-so-trifling physical characters comprises sex differences ('sxd') and secondary sexual characters ('sxch'), leading to the topic of sexual selection ('ss'), and thence to the topics of breeding ('behb') and other social/sexual behaviour ('behs'). "Huia with Beaks different in 2 sexes & aid each other SS" (99b); "Sexual S. use of barb of fishes as exciting organs." "It is clear that characters sometimes go with sex – as sometimes polydactylism &c – Pouting & Wattle, & so if useful to one sex can be selected & returned <does he mean 'retained'?'>" (520c-d). This last point, with its passing mention of deformity, reminds us that some naturally occurring sexual characters, developed in the struggle between members of one sex for the attention or possession of members of the other, invite comparison with artificially produced 'monsters' ('mn'): "a breed of <silkworms of> which females had much finer & not so monstrous wings as in the South" (690g-h).

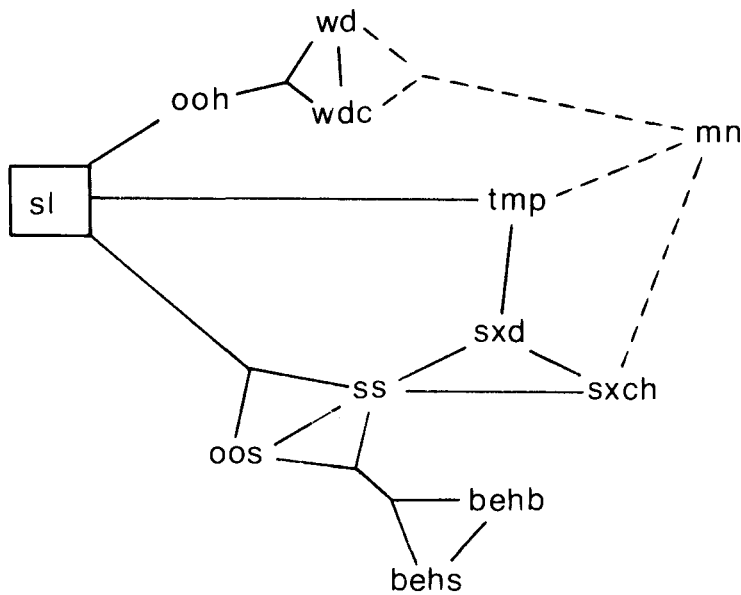


diagram 4

"I fancy not in time" (237f)

Au contraire, time is of the essence. Selective pressures act on an organism all its life – invoking our category of 'organic time and age' ('ta'): "Curious case of quick deterioration by neglect in Glamorgan Cattle showing some selection always going on" (885f). However as an evolutionary process, selection acts slowly over historical and geological time ('ti') – "Slow geological change important because domestication shows slowness" (88f-g) – struggle leading in the case of the less well adapted parts of populations to rarity and

extinction ('ex'), especially again amongst closely-allied forms. "Perhaps a decrease or unfavourable conditions might destroy the intermediate vars . . ." (483c). Selection thus leads to divergence ('dv'); distinctions between populations, sharpened by extinction of intermediates ('ig') as against increase of those organisms in favourable stations ('gds'), permit us to speak of varieties, races, species, etc. This is the meaning of 'adaptation' ('ad') and 'descent with modification' ('ds', 'ts'). "So Porcupine & Echidna Orchis & Asclepias Explanation same, in some degree similar constitution acted on same causes, but in latter case selection comes into play very importantly – Both, however, derived from modified pair" (516g-h).

The existence of 'stations' is independently demonstrated by the observation that broadly speaking a particular spot can support a greater amount of life ('noa') the higher the number of species ('nos') involved. "Much life causes much decay makes strata & c & c & many stations. for different times of year will have species all times of year. good. . . There wd not be many species without stations; yes, how many species can be introduced . . . Creations not easy work thus also shown.–" (110d-f).

It is worthwhile pointing out that CD uses 'creations' here to mean 'natural formations' and does not mean to implicate the Almighty. But equally it is worth pointing out that the facts about naturalised introductions often outstripping endemic and indigenous forms ('gde') (because they are able to colonise untenanted stations) is an important argument against those Creationists ('cr') who maintain that God necessarily made each form perfectly fitted for its circumstances, "because there were localities fitted for simplest animals as well as the most complex. therefore some remained simple, if not created. The incidental good that one race performs to others proves adaptation in Universe." (533g).

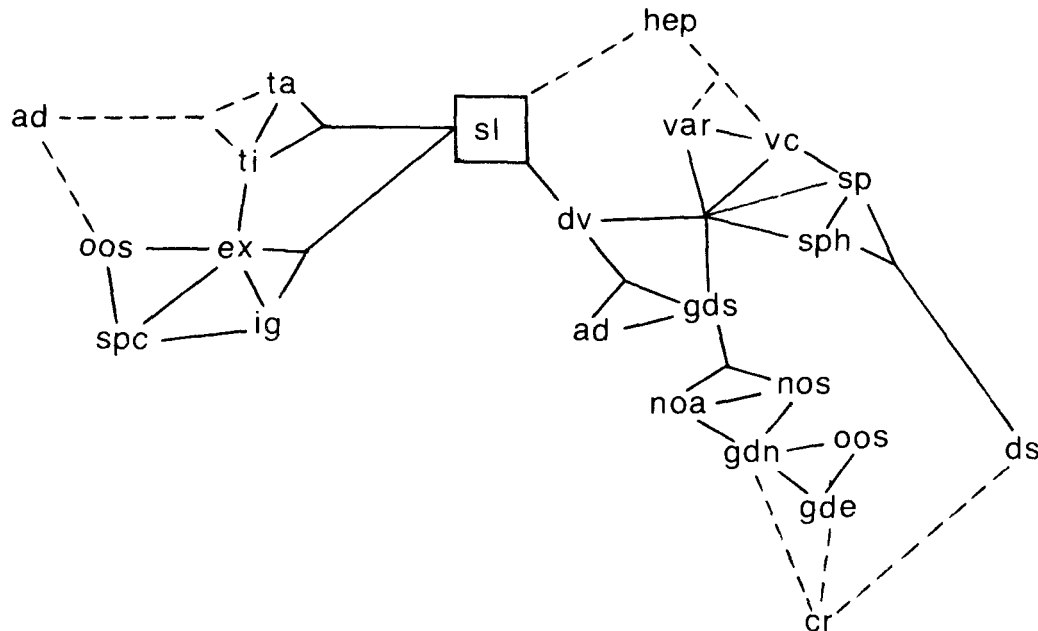


diagram 5

"It is important to observe no selection cd aid Horse in Falkland . . ."

Circumstances favouring selection include high numbers of individuals or species in any sizeable area ('gr') (because of competition); or isolation ('is') (because any variation in isolation is subject to changes specific to the location) ". . . or Horses in Paraguay except

strength of constitution & breeding at diff time of year; but that cd be effected only if a little earlier or later was more favourable" (244f-g). "In this case <isolation> we have fewness of number, sudden change (in organism & external conditions), but on other hand not many to select from.— especially changing island.—" (88g).

Crossing also aids selection: it tends to add 'vigour' and fertility ('phyfl', for plant physiology, and 'f'), whilst inbreeding ('bri') tends to reduce it: "The converse of the law ill effects of breeding in & in holds in Plants.— namely crosses being more fertile —" (836c-d). The subject of crossing takes us also to those of reproduction and transmission ('het'): "one might fancy that in Ass crossed with Horse there is a greater potency of race, & that this potency is transmitted more by male in this case than in others. Niata cow transmits with more force than Bull – Pouter cock & Hen equally" (515d-e); also to the existence of sexes ('sx'), the symbiotic relationships between the habits of plants and animals, and so forth, which together account for a very sizeable number of annotations. "Nectar is sought eagerly by various insects . . . The real object . . . is to ensure occasional cross . . . Think of number of Insects which feed chief on Nectar!" (472e-h, part of an extended comment of considerable range and detail).

"It may be that lower plants have survived owing to having this advantage of separated sexes." (378h) – sex thus being a topic of capital importance in CD's work. It was related by him to variation in his pre-selection theory of evolution (see Kohn 1980).⁷ It then remains connected with his lifelong preoccupation with generation (see Hodge in Kohn 1985), and continually surfaces in his mature reflections.

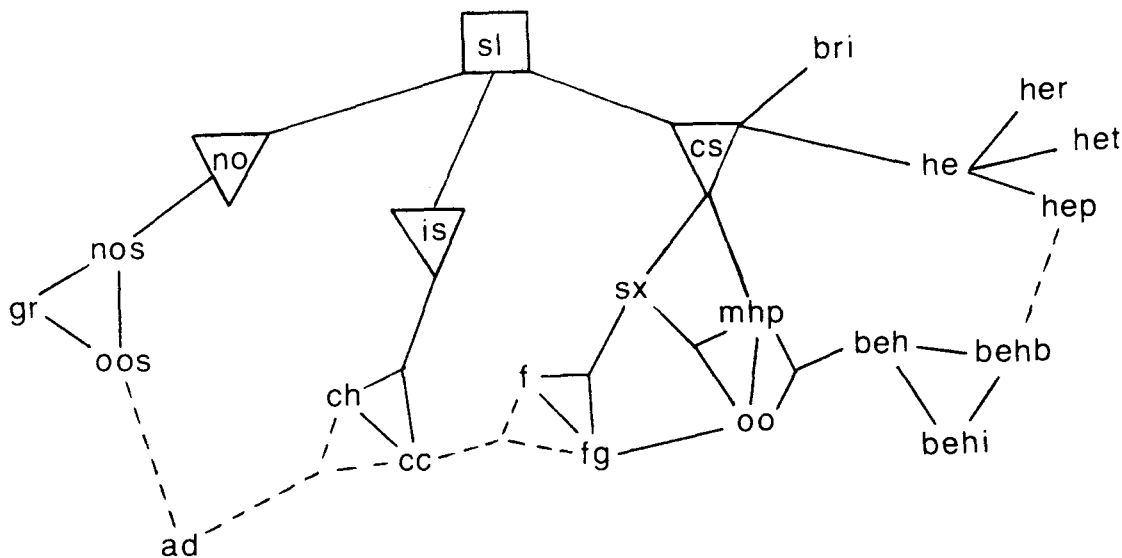


diagram 6

Annotations on crossing and its related concepts are frequently interwoven with those on hybrids ('hy') and the complex subject of relative fertility and sterility, distinguishing the possible mismatch between fully competent organs and instincts in an attempted cross from the possible inheritance by a hybrid of incompetent organs or instincts, or impaired vigour. "In Hybrids crossed with either parent, & thus assuming fertility & the ancestral form, yet fertility variable in such individuals . . . My point that plants often sterile & yet

not unhealthy not touched on.-" (275g-h) "Q for instinct Migratory & Home Thrushes can be distinguished – probably do not cross" (45d); "Certain that Hybrid Canaries & Goldfinches & Siskins will breed inter se [but first young are weak]" (45c).

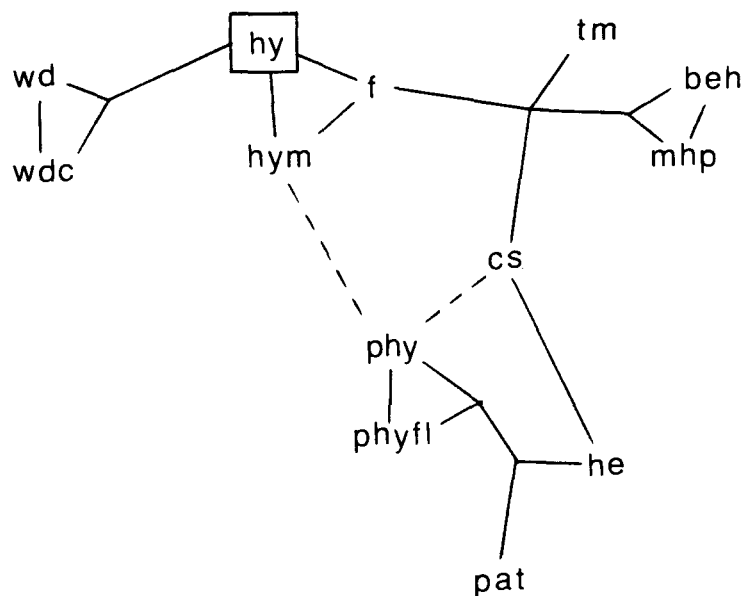


diagram 7

"Much intermediate variability" (632d)

Many annotations concern intermediate forms and gradations ('ig'). Again, as with variation, we are talking of gradations in behaviour as well as in structures – often interwoven: "on the exactly intermediate manner in which apes walk on Hands – good it might have been asked how cd there have been transition between hand & foot?" (97h).

The theory of gradual speciation by descent with modifications subject to selective pressure should in principle be able to show change ('ch') and transition over geological time, and grades of affinity ('af') between 'types' of organisms ('tma'). Embarrassingly, it is often unable to do so. This refers us back to extinction, and the fact that the record left by geological time is not perfect ('ir' for imperfection of record), so that the fossil remains ('fo') will never be able to reveal the whole story: "It is evident thus very few exceptions at whatever stage a genus or Family commences it is continued till it becomes extinct. This being capable of in fact strongest fact I turn against Imperfection of Record. Perhaps only shows no enormously long blank intervals" (673g-h). "How isolated would the elephant be without fossils . . . Mastodon older than Elephas & intermediate in structure of teeth" (649h-650e).

An important subtheme here is the 'succession of types' and their distribution ('gd'): "the succession of the genera . . . would be like showing connection in Geographical Range. so in space & time.- [I did not think of this, till beginning Gasteropods: easy to see to it in other orders] In Fish the law had better be tested by Families" (669g-670b). Another important subtheme in the study of the record is the relationship between shells ('sh'), deposition during subsidence ('se') (partly explaining the imperfection of the record) and thence to to the importance of geology generally ('geo'). It was probably geology that during the *Beagle* voyage had alerted CD to questions of distribution, through which he was able to connect geology with his early training in zoology (see

Sloan in Kohn 1985).¹ His own experience here was vital background to his reading of L. von Buch and the works of J.D. Hooker.

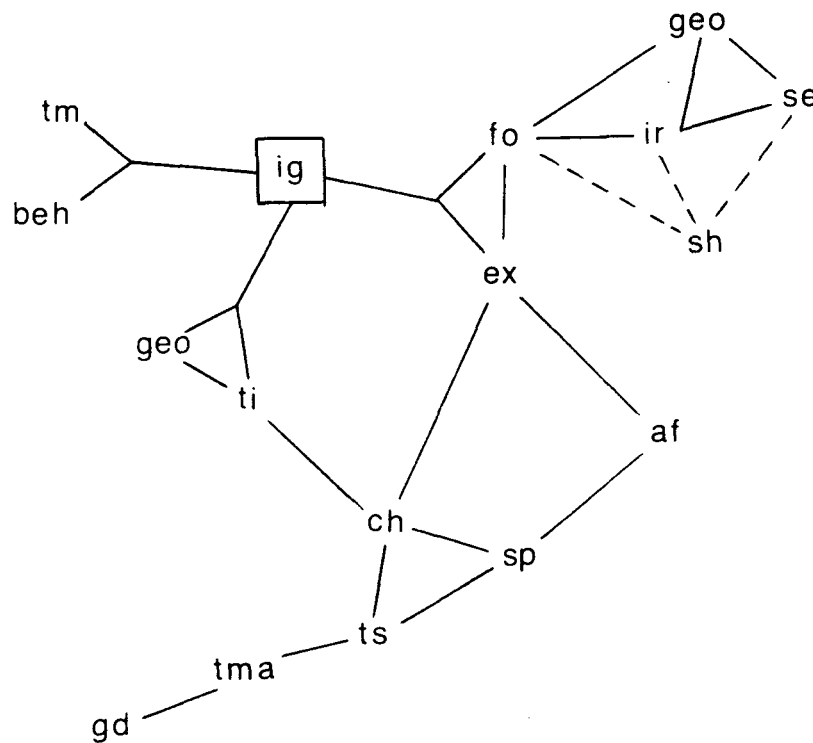


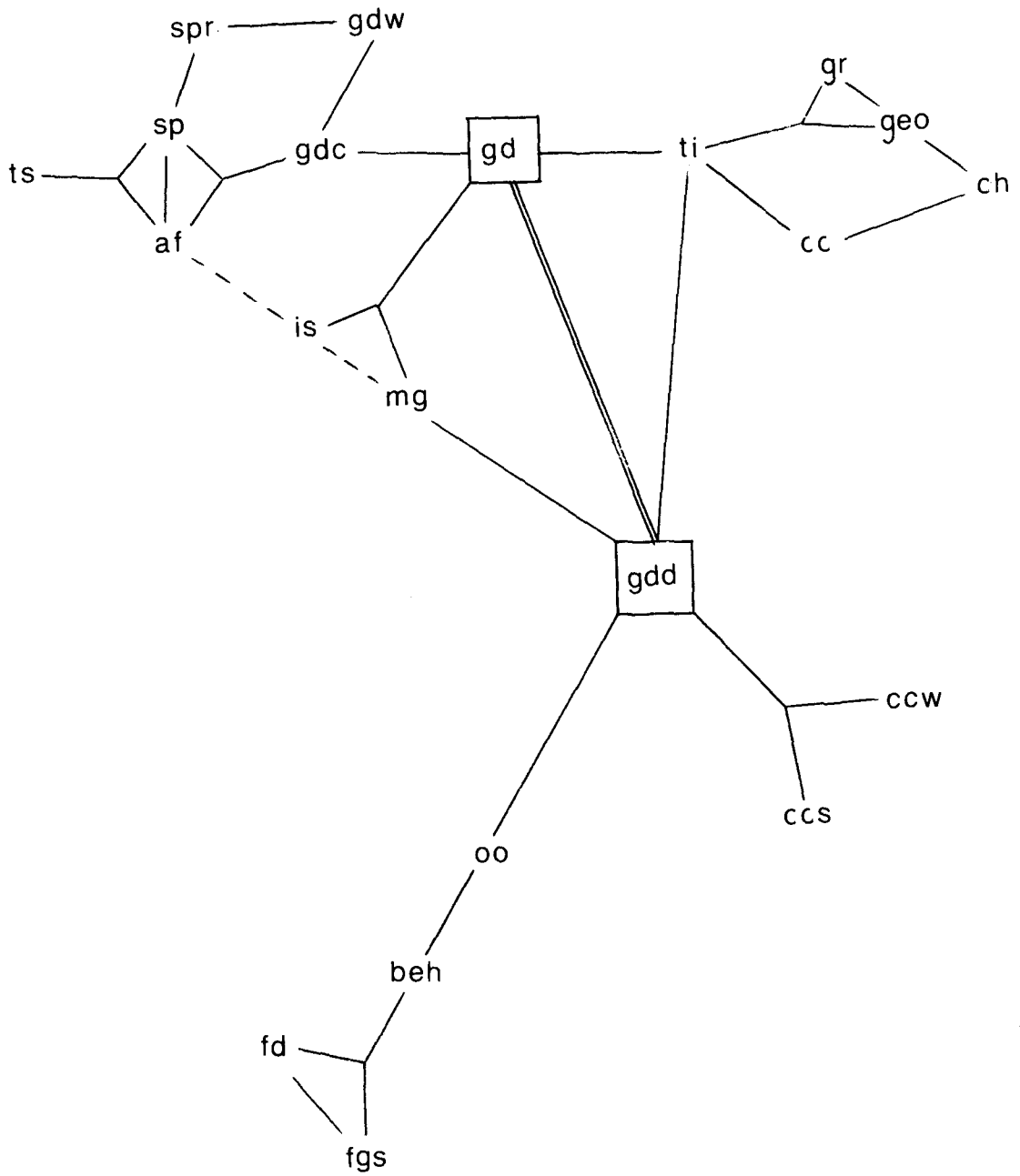
diagram 8

"This is case of animal being smaller northwards" (307d)

The topic of geographical distribution, both as a fact ('gd') and as a process ('gdd'), accounts for a large and very important set of annotations. The distribution of the representatives of common or widely-ranging forms ('spr', 'gdc', 'gdw') displays networks of affinities and reveals the results of geologically ancient community and subsequent transmutation. "Though we cannot explain same species common to Australia & Fuegoe yet the generic connection is in harmony" (391h); "It has always been my greatest fear that there has been so much modification since Glacial that it would upset view.— Some few genera may formerly have been mundane & Tropical & not now so.—" (398b-c). Distribution therefore refers us again to geological time and changes in conditions ('cc') and geographical features — a striking example is afforded in the comparison of glacial-period distribution and that of present-day mountain-tops.

By way of the subtheme of migration ('mg') and its near-opposite isolation ('is'), we are led to consider annotations on the manifold means of dispersion of forms ('gdd'): direct or indirect pressure from conditions; the action of wind and weather ('ccw') on seeds; the movement of animals and their capacity to carry seeds; sea-currents, icebergs ('ccs'), etc.

diagram 9



"Unknown cause prevents man cut in twain from reproducing . . ." (659h)

Halve a worm, and two may leave the scene of the accident; halve a higher animal, and the result is more likely to be two remnants of a very dead original – what does this imply about the principles governing growth and repair? It used to be said that Darwin did not know enough about physiology ('phy') and morphology ('tms') and was therefore left out of the mainstream of nineteenth-century biology (see E.S. Russell in his otherwise fundamental *Form and function*⁸). However, the marginalia do not bear this out. He seems to have been especially interested in many aspects of plant physiology ('phyfl'), since they bear on problems related to adaptation: "Movements become so firmly associated with certain external influences such as light & gravity that the latter suffices to cause the same process of growth or movement" (242e). A considerable number of annotations on physiology concern Helmholtz's consideration of the imperfection of the eye, directly relevant to CD's view of adaptations as non-perfect. Furthermore, there are a great number of annotations in Johannes Müller's *Elements of physiology*: "Plants going to sleep without the stimulus of darkness strongly analogous to a voluntary action from a diffused nervous system" (615a); "in playing a tune are the fingers connected with brain? or cerebellum" (615f-g).

Physiology leads back to heredity through the hypothesis of pangenesis and the gemmules ('pan'), whose existence CD postulated. This ill-fated hypothesis developed from CD's interest in the 'gemmules', stimulated in studying *Flustra* under the guidance of Robert Grant at Edinburgh (see Sloan and Hodge in Kohn 1985).¹ He retained this interest throughout his life; it surfaced particularly in *Variation*, and relates in the marginalia to pathology: "on same part attracting same substances, as in Tumours (Pangenesis)" (613h-a); embryology and growth ('em'): "Pangenesis on embryonic limb grafted & developing itself" (225f); cell theory ('ct') and physiology generally: "many gemmules may pass into cells – it certainly appeared in intestines & liver that fat passes into & out of cells" (822h); and monstrosity: "Double monsters Pang" (614a).

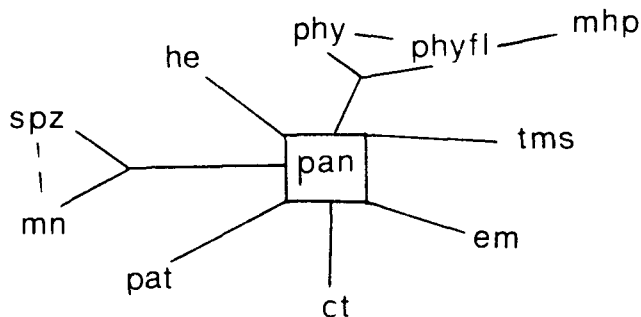


diagram 10

"intimate parallelism between the embryonic, zoological & teratological series" (313b)

Embryological resemblance reveals community of descent. Rudiments ('rd') do so also, by implying one-time use falling into disuse ('ud') through adaptive pressures. "Objects there might <be> 100,000 creations as well as one: I agree <but> then these would not have borne signs of common descent in homologies & embryology & rudimentary

organs." (181g–h). Morphological resemblances and homologies ('hom') demonstrate the affinities of organisms within their 'types': "Tissues of all Vertebrates homologous" (623d).

The concept of descent with modification therefore provides the ground-rules for that holy grail the 'Natural System' – although CD is too cautious to suppose that he could put much flesh on that particular skeleton: "I will not specify any genealogies – much too little known at present" (164a). Although in the *Origin* Darwin avoided arguing directly against what Russell called 'transcendental morphology' (1916, pp. 103–12), the marginalia throw light on his rejection of Richard Owen's Platonic concept of the 'archetype': "I look at Owen's Archetypus as more than ideal, as a real representation as far as the most consummate skill & loftiest generalizations can represent the present forms of Vertebrata.– I follow him that there is a created archetype, *the parent of its class*" (655c; italics ours). This annotation focuses Darwin's philosophical emancipation from the Platonic *eidōs*:

According to [this] there are a number of fixed, unchangeable 'ideas' underlying the concept of variability, with the *eidōs* (idea) being the only thing that is fixed and real, while the observed variability has no more reality than the shadows of an object on a cave wall . . . any commitment to an unchanging *eidōs* precludes belief in descent with modifications. (Mayr, 1964, p. xix).⁹

For Darwin, the 'type' is simply the ancestor of evolving, living forms, and the emphasis is on variety, i.e. the diversity of life, rather than its unity as with Owen.

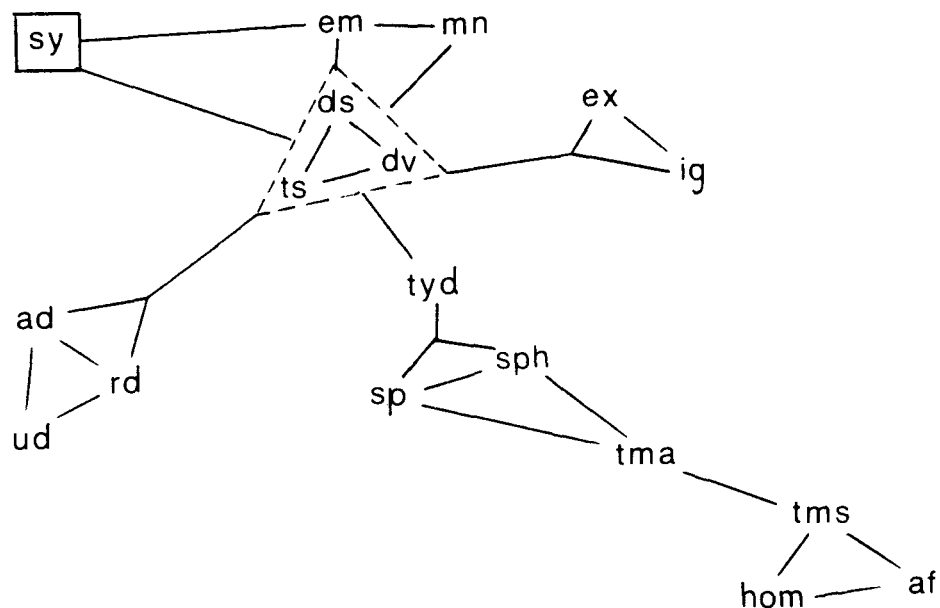


diagram 11

"How like my Book all this will be" (683e)

we catch Darwin musing quietly. The categories and subcategories of the index were, as we said before, inducted from our attempts to classify the annotations themselves. In our overview here of the principal categories and some of their logical interconnections, we have succeeded, as Darwinists and other conversants will have discerned, in recapitulating the ground-plan of the *Origin* (with some input from *Variation*) – i.e. in effect the ground-plan of the Big Species Book 'Natural Selection'.¹⁰ Our categories are, it

would therefore seem, CD's own to a very large extent. "This book is one long argument", CD says (*Origin*, p. 492): our argument was that CD's whole career is one long argument – and it is therefore useful corroboration that there are very few of our categories still left out in the cold, indicating that CD's reading, whether for 'Natural Selection' or not, did indeed continuously revolve around the same 'Leitmotive'. This, as CD himself might have remarked, is our

"Key-note of Book" (424c)

One senses further confirmation of this in a slightly curious way from those annotations in which CD collects material for particular chapters or volumes of his own publications: they all look exactly the same. He says, as it might be, 'use in ch. 5' – but ch. 5 of what? These notes, in not differentiating one book from another, suggest that the manner in which CD *wrote* coheres very closely with the manner in which he *read* – like a practised vintner sampling continually and laying down the selected vintages to support main courses concocted maybe years later. It is as if he experienced his publications as interim extracts from a single, endless conversation with nature.

Those of our index categories not much mentioned in the above overview in fact fall happily into just three groupings: a) reflecting CD's interest in geology and related topics; b) reflecting the reading which surfaced in *Descent and Expression*; and c) reflecting our own attempt to report CD's critical, reflective and other 'asides'. Our last diagram thus completes the analysis:

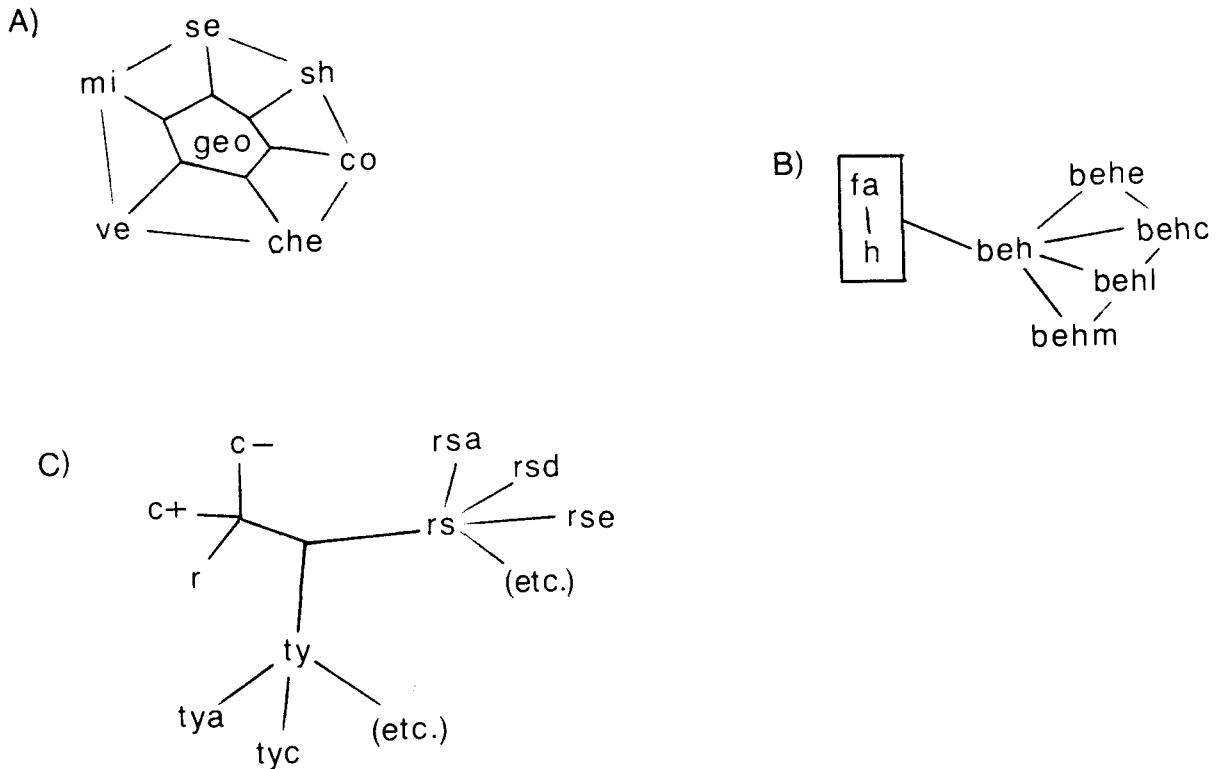


diagram 12 a.b.c

Mention just now of *Descent* and *Expression* provides a cue for us to add a few necessary words about the marginalia concerning humankind. Although there are many annotations around this topic, it cannot be said that CD was primarily interested in ethnology or anthropology as such. Their relevance is very frequently to other matters, principally variation and sex (indeed the greater part of *Descent* is about sexual selection). Humankind is just another test-case for the great Theory: "I am beginning to conclude that it is more difficult to account for small variations of man where there is no adaptation than great differences, where adaptation. Consider cases of Rabbits, mere law of growth . . . Nothing is more odd than similarity of Fuegians and Brazilians. Why puma shd range continent invaried and Monkeys differ in every province . . . I may contrast Man with Monkeys, for on my theory, the Monkeys have varied" (604a-c). Another example is provided by Mackintosh's *Ethical philosophy*; here CD relates conscience to habit, both in man and animals. The moral sense is seen from the viewpoint of what we would call 'animal behaviour' – for example the love of parents for their children is related to adaptation and selection. Such an attitude might be of considerable interest to sociobiologists.

It is instructive to see how CD used the great interplay of themes even in his so-called minor books. In *Contrivances* (1862) CD started with a specific problem, that of pollination. Consideration of this quickly leads to adaptation, and the vast theme of the relationship of organism to organism (insects and orchids). In the background lurk individual variation and the action of selection, within the framework of evolutionary transmutation, the major theoretical problem in play.

The case of worms is even more interesting: one might marvel that someone whose thought had encompassed the most broad-ranging and revolutionary theory in the history of his science should end on such an apparent low – *Vegetable mould* (1881). But even here the 'Leitmotive' are fully functioning. CD began observing the action of worms in 1827, 54 years prior to his publication, and continued working on them throughout his life (see Gould's revealing foreword to the 1985 Chicago reprint). The book is based on the relationship of organism to organism (worms and leaves), and touches on individual variation in behaviour. Last but not least, the action of the worm totally alters the face of the earth through small continuous changes (gradualism): we see the result of the process but scarcely the process itself taking place (geological history), on analogy with an annotation made many years earlier: "The glacier is a stream, though one does not see the streaming" (630d).

(iv) influence of particular authors¹¹

a) CD as part of the British tradition

Darwin's theory was an ecological one. The views of both Wallace and Darwin sprang from the established natural science tradition, rather than the relatively new laboratory biology. The still-flourishing tradition had its roots in the works of Ray and Willughby and reached its height immediately before and during Darwin's youth – such authors as Kirby, Spence, Fleming, Strickland, Henslow, Blyth, Bicheno, Westwood, Jenyns and Roscoe were familiar to and influential upon the young Darwin. Darwin's approach focuses on instincts (like Fleming and Blyth) and the relationship of organism to organism (like Fleming, Westwood and Strickland), and therefore tends to be an

ecological theory in the manner of Strickland.¹² In Ray's *Wisdom of God* Darwin discerned the ecological approach he made his own in the *Origin*; in Ray we find annotations concerning behaviour, adaptation, sex, morphology and the relationship of organism to organism.

The relationship between instinct and acquisition by habit is the main topic to be found in Kirby and Spence's *Entomology*; here Darwin focused on the problem of neuter insects which surfaces in the *Origin*: "one may suppose that originally many queens were ordinarily thus reared and a few workers and the instinct is thus retained" (454g-h). Much is to be found on reason in animals as related to instinct, along with annotations on the struggle for existence, selection, speciation, and distribution.

Fleming's *Philosophy of zoology* also prompted CD to analyse instinct: "it is strange according to my theory that habit which results often of intellectual processes . . . is related to instinct, which analogy of plants leads one to believe to exist, independently of intellect" (232b-c); and "The individual who by long intellectual study acquires a habit, & can perform action almost instinctively, does, that in his life time, which successive generations do in acquiring true instinct:- instinct is a habit of generations,- each step in each generation, being intellectual" (231h-232a) - where CD seems to leave a loophole for backdoor Lamarckism.

Our emphasis on the influence of British natural science requires a mention of Darwin's reaction to Natural Theology, and especially its central tenet of perfect adaptation. CD read and annotated Brougham's *Dissertation on natural theology*; but here the annotations mainly concern animal behaviour and pigeon-breeding. It is in Henslow's *Botany* that he distances himself definitively from 'perfect adaptation': "People constantly speak about every organism being perfectly adapted to circumstances, if so how can there be a rare species breeding power being efficient (food not sufficiently abundant is answer" (369d).

It is clear from the quality of annotation that Lyell was of paramount importance to Darwin's development; in fact Lyell is the most heavily annotated author. Other British authors who had a significant impact on Darwin include Blyth, Yarrell, Blackwall, Newman, Newport, Jenyns, Westwood and of course Henslow; and he had a lot of time for books on pigeon-breeding, whether British or continental.

b) CD and continental traditions

By observing the manner of annotation, we may deduce that CD was confident with French, less so but still conversant with German, and occasionally read some Italian and Spanish.

Only a few annotations are found in Cuvier's *Anatomie comparée*, and all of them concern morphology. There are a few more in *Le Règne animal*, concerning behaviour, sex, speciation, morphology and variation. Darwin also possessed *The theory of the earth* in English. Mentions of Cuvier are often marked in other people's books; but to judge by the degree and quality of annotation Isidore Geoffroy St Hilaire was much more important to him than Cuvier, though it seems something of a 'love-hate' relationship: "Believed in change of species . . . 'Modificateurs ambiants' sur l'organisme'. Yes this is his belief . . . Introduce in Preface" (301h-302a); however: "Remarks on small isld having small mammals . . . forgets Java & Sumatra! I contradict his statements flat" (302d).

CD annotated Milne-Edwards' *Histoire des crustacées*, accusing him in effect of creationism: "How explains this, except by single creations" (581e). On the same page there is an important annotation concerning isolation: "Without regard to anything else - make a Barrier and you will have different species on opposite sides" (581f). Other Milne-

Edwards marginalia, mainly on issues connected with classification, are found in *Introduction à la zoologie générale*: "Law of 'economy of nature' 'sober in innovations' has not recourse to any new creation of organ" (582a-b); "on value of characters in classification" (582g); and "Best way of putting superiority.— though each perfectly (?) (Can young be said to be perfectly?) adapted to conditions" (583a).

As far as Lamarck is concerned, his *Histoire naturelle des animaux sans vertèbres* bears very few annotations. More are found in the *Philosophie zoologique*. Darwin's relationship with Lamarck is very complex, and one should not take the disparaging remarks we partly quoted before as Darwin's only view — ". . . so few facts . . . very poor and useless book" (477a/478a). Basically Darwin charged Lamarck with failure to understand extinction and geographical distribution: "Therefore every fossil species direct father of existing analogies and no extinction except through man!— [Hence cause of innumerable errors in Lamarck]" (478g-h); "Does not pursue this into Geographical Distribution" (480c); but echoes our remark above: "The case of acquired hereditary instincts shows that instincts can be acquired" (478d).

Other important French-language authors are C.L. Bonaparte, especially on the connection between distribution and the struggle for existence; and F. Huber on insect instinct in *Nouvelles observations sur les abeilles*.

The annotations in German-language books are in the main much closer to translation/paraphrase. Gärtner, Kölreuter, Ehrenberg, Haeckel and others are well represented in his library. Gärtner's *Kenntnis der Befruchtung* is very heavily annotated on variation, fertility, hybrids, and the relation of organism to organism, very often interrelated. Many annotations concern contabescence and refer to Kölreuter: "most important compare Kölreuter experiments and Gaertner's" (253b). Some markings concern dichogamy as seen by Sprengel and Delpino.

Darwin read and annotated Haeckel's *Schöpfungsgeschichte*, liking its stance enough to mark out passages "good — for the beginning of my Book" (358d); interestingly, there is no annotational evidence that CD thought Haeckel had gone over the top with his 'phylogenies' — rather CD appears keen to play the same game, despite his public caution about 'specifying genealogies': "I shd prefer supposing that both classes descended from forms more intermediate than Dinosaurs & Solenhofen Birds" (359d-e). Incidentally, Haeckel kept sending copies of his publications to CD, who did not pay many of them much attention. Very often in their inscriptions to Darwin in their books German scientists, including Haeckel himself, wrote 'Sir' or 'Professor', not being able to believe that someone as distinguished as Darwin would not be one or the other — or both.

It is interesting too that there is no annotational evidence that Darwin read von Baer's *Entwicklungsgeschichte*, which is not even in his list of 'Books to read' (see Vorzimmer¹³). But he certainly read Huxley's translation of the fundamental fifth *Scholium*. Other German-language authors of some importance to CD include Nägeli, Nathusius and Rüttimeyer.

The marginalia suggest that two authors who had an enormous impact on CD were Alphonse de Candolle and Alexander Humboldt.

"I must read some Book on geograph distrib of insects or of one great class" (683e-f), CD instructed himself reading Prichard; it seems that that book turned out to be Candolle's *Géographie botanique*, probably the most densely annotated work in the whole library, which seems to have been the catalyst for much thinking around distribution, the struggle for existence, isolation, and consequently selection. The annotations in Candolle are difficult, and this is because Candolle is perhaps the only major work in whose

company CD is for a while noticeably confused and uncertain at a (quasi)-theoretical level; "A species might abound in some spot and yet be rare over all England, but is this so?" (109g); "Here isolation clearly comes into play; but this does not account for smaller range of plants within Cape District." (118g-h); "As far as I can see (which is very little) isolation of area seems to have little to do with confinement of species!! In this family" (118h); "I never shd look at it under this light; yet perhaps agree with Herbert's views. When there only few species, we must suppose either others extinct, or then few only are yet introduced" (119f); "This bears on few species inhabiting 2 areas, where there are many species – does it not come to this, that widely extended species break into varieties and these become species with confined ranges.– anyhow this shows how complicated a question it is" (120b).

By volume 2 he is beginning to recover his usual slightly declamatory poise: "England formerly connected, hence most plants which could live in England wd have immigrated. If any species had been introduced by Birds within the last century, & was not mentioned by old Books,¹⁴ it wd have been thought to have been overlooked.–" (134h-135a); "The more I reflect the more I come to conclusion that antiquity of man one of the most important elements in history of variation.–" (139b).

Finally CD succeeds in 'trumping' Candolle by reference to his own higher-theoretical insights: "He always leaves out struggle with other species.–" (142d); "He looks at extinction as due all to Deluges &c!!" (143h). Candolle has approached the 'right' problems, but lacks the focal concept in the understanding of speciation: without the idea of selection it is impossible to make sense of variation, extinction, isolation, distribution and the struggle for existence as forming a single complex nexus. Thus, as we quoted before: "(always this) he has not the Key.–" (145b).

Humboldt, especially in the *Personal narrative*, got CD thinking about distribution and the relation of organism to organism in the context of isolation, extinction and the breeding of wild and domesticated animals: "Camels abundant in Fortaventura and vegetation different from . . . other Islands – NB Numerous wild asses formerly in Fortaventura" (416f). If Humboldt's almost ecstatic tone excited CD, it seems to have been towards envisioning a raw elementalism incompatible with Humboldt's Panglossian optimism, his falsely a priori harmonious world where adaptations are basically perfect. On the contrary, the raw elementalism is hardly even hidden below the surface: "to show how animals prey on each other – what a 'positive' check . . . Think of death only in Terrestrial Vertebrates . . . Smaller Carnivora – Hawks – what hourly carnage in the magnificent calm picture of Tropical forests . . . Probably two or three hundred thousand Jaguars in S. America What Slaughter! Daily – & as many Pumas" (418f-g).

Thus we end our selection from the marginalia on a rather bloodthirsty note . . .

coda

The basic objective of publishing this 'marginal' material is to contribute to the reconstruction of Charles Darwin's place in his historical and scientific context, and so to facilitate a clear understanding of his importance for modern science. A principal bonus of these volumes will be an enormous increase in the accessibility of CD's primary, unmodulated thinking.

As such the *Marginalia* are expected to be of interest not only to Darwin scholars, but also to historians of ideas, to biologists, psychologists, naturalists and evolutionists alike. The marginalia show Darwin not only 'alone', but also as part of his historical and social milieu, and as a major protagonist at a vital stage in the development of science. In showing us the material Darwin chose to use or discard, and in recording his assessments of other authors, the marginalia reveal more candidly than any other source the nature of the influences upon his thought, and the methods he used in the formulation and application of his theory.

CD himself was well aware of the potential future importance of the annotations he was making in his personal library. For example, he makes certain, in a letter written to his wife Emma, to prescribe that in the event of his death 'some competent person' should receive 'all my Books on Natural History, which are either scored or have references at the end to pages, begging him carefully to look over & consider such passages, as actually bearing or by possibility bearing' on the subject of the sketch of his species theory, which he had just finished (5 July 1844), when the question of its publication in book form should arise.¹⁵

We make no claim to have taken up that challenge as laid down by the Master himself; but it is at least pleasing to feel that he would not have found our exposure of his 'private' scribblings unduly intrusive.

notes

1. Kohn, D. (ed.) *The Darwinian heritage* Princeton 1985
(chapters quoted:
Browne, J., 'Darwin and the expression of the emotions'
Hodge, M.J.S., 'Darwin as a lifelong generation theorist'
Sloan, P.R., 'Darwin's invertebrate program 1826–36: preconditions for transformism').
2. Barrett, P.H., Gautrey, P.J., Herbert, S., Kohn, D., Smith, S., *Charles Darwin's notebooks 1836–1844* (Cambridge 1987); see Notebook D (especially Inside Front Cover) and Notebook E (especially p. 58).
3. Di Gregorio, M.A. Order or process of nature: Huxley's and Darwin's different approaches to natural sciences *Hist. Phil. Life Sci.* 3 (1981): 217–42.
4. Burkhardt, F. and Smith, S. (eds) *The correspondence of Charles Darwin* (Cambridge 1985–).
5. The University Computer has occasionally had ideas of its own – curious rather than disruptive, fortunately – on where to put items in its sorting of the name registers: the ghost in the machine had to leave its mark somewhere, one supposes. The ghost is clearly no fan of Darwinism, to judge by the capricious appearance of the gooseberry among the place names. This is a genuine accident; we only wish we had thought of it ourselves, in its implication that we do after all materialise under bushes of that ilk, rather than by the agencies of evolution.
6. Mayr, E. *The growth of biological thought* Cambridge, Mass. 1982.
7. Kohn, D. Theories to work by: rejected theories, reproduction and Darwin's path to natural selection *Studies in the history of biology* 4 (1980): 67–170.
8. Russell, E.S. *Form and function* London 1916.
9. Mayr, E. 'Introduction' *On the origin of species* (facsimile of first edition) Cambridge, Mass. 1964.
10. Stauffer, R.C. (ed.) *Charles Darwin's Natural Selection* Cambridge 1975.
11. Parts of this introduction, especially this section, are based on a full reworking of Di Gregorio, M.A. Unveiling Darwin's roots *Archives of natural history* 13 (1987): 313–24.
12. Di Gregorio, M.A. Hugh Edwin Strickland (1811–53) on affinities and analogies: or, the case of the missing key *Ideas and production* 7 (1987): 35–50.
13. Vorzimmer, P.J. The Darwin reading notebooks 1838–1860 *J. Hist. Biol.* 10 (1977): 107–53.
14. "old Books": CD had a lively interest in such sources as the Bible, 'classical writers', books on ancient Egypt, and so forth, for information on the antiquity of varieties.
15. Burkhardt, F. and Smith, S. (eds) *The correspondence of Charles Darwin* vol. 3 (Cambridge 1987), pp. 43–5.



PART ONE

CATALOGUE AND TRANSCRIPTION

"Upon the whole nothing can be inferred from this list" (134a)



table of titles

"You may shorten name" (342a)

Thank you.

Full details of author, title, publication and current location are recorded with each entry in the text. These details also record if the book bears CD's autograph, or was inscribed by whomever gave it to CD; if it was in CD's possession before and/or during the *Beagle* voyage; and if the book contains uncut pages.

Abercrombie <i>Inquiries concerning the intellectual powers</i> 1838	1
Abernethy <i>Physiological lectures</i> 1822	7
Acébla <i>Les Impiétés</i> 1878	
Acharius <i>Lichens</i> 1803	
Adams <i>Field and forest ramblers</i> 1873	
Agassiz, Alexandre <i>Harvard College catalogue - Echini</i> 1872-74	8
Agassiz, A. <i>Harvard College catalogue - Acalephae</i> 1865	
Agassiz, A. <i>North American starfishes</i> 1877	
Agassiz, A. <i>Zoology of Challenger voyage - Echinoidea</i> 1882	
Agassiz, A., & Pourtalès <i>Harvard College catalogue - Echini, crinoids and corals</i> 1874	
Agassiz, Elizabeth and Alexandre <i>Seaside studies</i> 1871	
Agassiz, Louis <i>Humboldt centennial address</i> 1869	
Agassiz, L. <i>Bibliographia zoologia et geologiae</i> 1848-54	
Agassiz, L. <i>Natural history of U.S. - Classification</i> n.d.	9
Agassiz, L. <i>De l'espèce</i> 1869	11
Agassiz, L. <i>Lake Superior</i> 1850	
Agassiz, L. <i>Methods of study in natural history</i> 1863	13
Agassiz, L. <i>Nomenclatoris zoologici</i> 1848	14
Agassiz, L. <i>Florida reefs</i> 1880	
Agassiz, L., & Gould, A.A. <i>Principles of zoology - comparative physiology</i> 1848	
Alder & Hancock <i>British nudibranchiate Mollusca</i> 1845-55	
Allen, Grant <i>The colour sense</i> 1879	
Allen, G. <i>Der Farbensinn</i> 1880	15
Allen, G. <i>Physiological aesthetics</i> 1877	
Allen, Joel <i>North American pinnipeds</i> 1880	
Allman <i>Fresh water Polyzoa</i> 1856	16
Allman <i>Gymnoblastic or tubularian hydroids</i> 1871-72	
Allen, George James <i>Hydroida</i> 1877	
Altum & Landois <i>Zoologie</i> 1872	
Anderson <i>Yunan expedition</i> 1871	
Angelin <i>Iconographia crinoideorum</i> 1878	
Archiac <i>Géologie 1834-1845</i> 1847	
Argyll <i>Primeval man</i> 1869	
Argyll <i>The reign of law</i> 1867	17
Aristotle <i>On the parts of animals</i> 1882	
Arnott <i>Elements of physics</i> 1833	18
Askenasy <i>Kritik der Darwin'schen Lehre</i> 1872	
Aubuisson <i>Basalts of Saxony</i> 1814	
Aubuisson <i>Traité de géognosie</i> 1819	
Audubon <i>Ornithological biography</i> 1831-39	21
Audubon & Bachman <i>Viviparous quadrupeds</i> 1846	23
Aveling <i>The student's Darwin</i> 1881	24
Ayrault <i>De l'industrie mulassière</i> 1867	
Azara <i>Quadrupèdes de Paraguay</i> 1801	25
Azara <i>Voyages dans l'Amérique méridionale</i> 1809	26
B, J.P. <i>Spiritual evolution</i> 1879	27
Babington <i>British botany</i> 1851	
Baerenbach <i>Teleologie</i> 1878	28
Baerenbach <i>Naturgeschichte des Weibes</i> 1877	29
Baerenbach <i>Anthropologischen Philosophie</i> 1879	
Bagehot <i>Physics and politics</i> 1872	
Baildon <i>The spirit of nature</i> 1880	
Bain <i>The emotions and the will</i> 1865	
Bain <i>The emotions and the will</i> 3rd edn 1875	30
Bain <i>The senses and the intellect</i> 1864	
Baird <i>British Entomostraca</i> 1875	31
Baker <i>Botanical geography</i> 1875	32
Balfour <i>Elasmobranch fishes</i> 1878	
Balfour <i>Comparative embryology</i> 1880	
Ball <i>India</i> 1880	
Barclay <i>Life and organization</i> 1822	

Barker-Webb & Berthelot <i>Îles Canaries – Géographie botanique</i> 1840	
Barrago <i>L'Uomo</i> 1869	33
Barrande <i>Acéphalés</i> 1881	
Barrande <i>Brachiopodes</i> 1879	
Barrande <i>Céphalopodes</i> 1877	
Barrande <i>Defense de colonies</i> 1870	
Barrande <i>Distribution des céphalopodes</i> 1870	
Barrande <i>Trilobites</i> 1871	34
Barton <i>Geography of plants</i> 1827	
Bary <i>Die Mycetozen</i> 1864	
Bastian <i>The beginnings of life</i> 1872	
Bastian <i>The brain</i> 1880	35
Bastian <i>Evolution</i> 1874	
Bastian <i>Origin of lowest organisms</i> 1871	
Bate <i>Amphipodous Crustacea</i> 1862	
Bateman <i>Aphasia</i> 1870	
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Bechstein <i>Naturgeschichte der Stubenvögel</i> 1840	44
Beechey <i>Pacific voyage</i> 1832	47
Bell, Charles <i>Expression</i> 1844	
Bell, C. <i>The hand</i> 1874	49
Bell, John & Charles <i>Human body</i> 1826	
Belt <i>Nicaragua</i> 1874	
Beneden <i>Vers intestinaux</i> including Bronn <i>Essay on distribution</i> 1861	50
Bentham <i>British flora</i> 1858 two copies	51
Bentham & Hooker, J.D. <i>Genera plantarum</i> 1862–83	
Berjeau <i>Dogs</i> 1863	52
Berkenhout <i>Botanical lexicon</i> 1764	
Bernard <i>Animaux et végétaux</i> 1879	
Bernard <i>Tissus vivants</i> 1866	
Bernhardi <i>Pflanzenart</i> 1834	54
Berzelius <i>The blowpipe</i> 1822	57
Beudant <i>Minéralogie</i> 1830	
Bevan <i>The honeybee</i> 1827	
Bevington <i>Key-notes</i> 1879	
Bianconi <i>La Teoria darwiniana</i> 1875	58
Bianconi <i>La théorie darwinienne</i> 1875	
– <i>Bible</i> 1838	59
Bigg <i>Spinal curvature</i> 1882	
Billing <i>Scientific materialism</i> 1879	
Binney <i>Terrestrial air-breathing molluscs of U.S.</i> 1878	
Blackley <i>Catarrhus aestivus</i> 1873	
Blackley <i>Hay fever</i> 2nd edn 1880	
Blackwall <i>Spiders</i> 1861–64	
Blackwall <i>Zoology</i> 1834	60
Blackwell <i>General science</i> 1869	61
Blainville <i>Actiniologie</i> 1834	
Blumenbach <i>Anthropological treatises</i> 1865	
Blyth <i>Cranes</i> 1881	
Boitard <i>Entomologie</i> 1828	
Boitard & Corbié <i>Pigeons domestiques</i> 1824	62
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Bonaparte <i>Birds of Europe and North America</i> 1838	
Bondi <i>L'Uomo</i> 1873	66
Boner <i>Transylvania</i> 1865	
Bonnal <i>Une agonie</i> 1877	
Bonnet <i>Insectologie</i> 1780	
Bonnet <i>L'Usage des feuilles</i> 1754 two copies	
Boott <i>Carex</i> 1858–60	
Borrelli <i>Vita e natura</i> 1879	
Bosquet <i>Crustacés fossiles de Limbourg</i> 1854	
Bosquet <i>Entomostracés fossiles de France et Belgique</i> 1852	
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Boué <i>Autobiographie</i> 1879	
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Bowerbank <i>British Spongiadae</i> 1864–72	68
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Boyer <i>Royal dictionary</i> 1819	
Brace <i>Dangerous classes of New York</i> 1872	
Brace <i>Races of the Old World</i> 1863	
Bradley <i>Husbandry and gardening</i> 1724	
Brady <i>Copepoda</i> 1878–80	69
Bree <i>Species not transmutable</i> 1860	
Brehm <i>Illustriertes Thierleben</i> 1864–67	
Brehm <i>Tierleben</i> 2nd edn 1876–78	71
Brent <i>The canary</i> n.d.	
Brent <i>The pigeon book</i> n.d.	
Briggs <i>Flora of Plymouth</i> 1880	
Briosi <i>Embrioni vegetali</i> 1882	
British Association <i>Third meeting, report</i> 1834	
British Association <i>Eleventh meeting, report</i> 1842	
– <i>British aviary</i> n.d.	72
British Museum <i>Marine Polyzoa</i> 1852–54	
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Broca <i>Hybridity in Homo</i> 1864	
Bronn <i>Handbuch einer Geschichte der Natur</i> 1841	76
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Bronn <i>Entwickelungs-Gesetze</i> 1858	91
Brookes <i>Insects</i> 1763	
Brookes <i>Waters</i> 1763	
Brougham <i>Natural theology</i> 1839	
Broun <i>New Zealand Coleoptera</i> 1880	94
Brown <i>Botanical works</i> 1866–68	
Browne <i>West Riding lunatic asylum reports</i> 1871–75	
Bruguières <i>Encyclopédie méthodique</i> 1789–92	
Brunton <i>The Bible and science</i> 1881	95
Brunton <i>Digitalis</i> 1868	
Brunton <i>Pharmacology</i> 1880	
Buch <i>Îles Canaries</i> 1836	
Buch <i>Norway and Lapland</i> 1813	96
Büchner <i>Aus Natur</i> 1862	
Büchner <i>La Théorie darwinienne</i> 1869	
Büchner <i>Die Darwin'sche theorie</i> 1876	97
Büchner <i>Liebe und Liebes-Leben</i> 1879	
Büchner <i>Vererbung</i> 1882	
Büchner <i>Man</i> 1872	
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Büchner <i>Sechs Vorlesungen</i> 1868	
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Candolle, Alphonse de <i>Géographie botanique raisonnée</i> 1855	
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Candolle, A. de <i>La Phytographie</i> 1880	
Candolle, Augustine Pyramus de <i>Mémoires</i> 1862	
Candolle, A.P. de <i>Prodromus</i> 1824–25	
Candolle, A.P. de <i>Botanique</i> 1819	
Candolle, A. de & A.P. de <i>Monographia phanerogamarum</i> 1878–81	
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Carlier <i>Darwinism</i> 1872	
Carneri <i>Gefühl</i> 1876	
Carpenter <i>Foraminifera</i> 1862	
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Playfair <i>Huttonian theory</i> 1802	
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– <i>Public libraries in the U.S.</i> 1876	
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* The annotations in Rolle were reconstructed from Martin and Uschmann *Friedrich Rolle 1827–87, ein Vorkämpfer neuen biologischen Denkens in Deutschland* Leipzig 1969. CD's copy of Rolle seems to have disappeared.

ABERCROMBIE, John *Inquiries concerning the intellectual powers and the investigation of truth* 8th edn; London; John Murray; 1838 [CUL]

beh, che, fg, h, he, pat, phy, sx, t, ta, ts, y

NB1 Origin of shame & blushing, fear & anger mixed??

NB2 It requires much attention to observe in self an habitual action.

Nothing for Species Book

vi 25m, 26m viii 14-16m 2 21-22m/21u "organs | mind"/22u "external | brain" 7 wt/wt ♦ It is clearly common to animals, the dogs ♣ does not doubt, that the smell of a partridge shows partridge there. XX |? 3-6m/w X Is it with animals? Yes. V. p.8 wb XX His master taking a gun, is to the dog a law of nature that he is going out shooting.- he learns this by his own experience.- he learns instinctively, that ♣ |? 8 wt What is cause of difference.- if dogs sees take up hat, it is long before he knows this means to go out of doors.- Association & Causation united somehow. 7-11m/w This applies to animals wb as simple animals must also have causation the conviction of truth may be owing to ♣ simple causes followed by uniform effects, only affecting such beings. 9 4-6m 10 1-4m 12 24-27m 13 4-5m, 8-13w Hope love joy sorrow 8-11m/w sublime terrible pleasure of imagination 14 19-29m/w do not understand wb Is fear active or passive emotion? 22 4-6m/x/u "wills", wb How far can these be simplified? 26 2-5m 27 8-11m/w functions of the nervous system, as gravitation of matter. 17-23m/22x, 19-20m/w 1/2 instincts wb & by these laws, such as of gravity, of crystalline arrangement of particles 28 1-10m/1".../1-10m, wb By Materialism, I mean, merely the intimate connection of kind of thought, with form of brain.- like, kind of attraction with nature of element 29 wt Here organ produces life! - & life & thought intimately related 3-19m, 19-22w ?will my theory apply here? 27w z Generation! 28u "functions", wb Elective Affinity is a thing not analogous to others qualities of bodies, yet is supposed property of ♣ matter, so would I say thought was - from analogy of organs.- 30 1-20m, 21-26m 31 wt/1-9w X From the myriads of animals that have existed We may assume thought as function of matter, & then say, to what function of matter, shall we compare the phenomena of attraction? - This assumption is as justifiable as the other we only know thought, as a phenomenon attendant on

structure, & we only know elective attraction, as function of matter. 18x/w X But why should not matter have such function, as plain facts indicate, as well as they have attraction 32 wt What a poor argument, liver continues to secrete bile, & testes same vivifying semen! 1-3m, 5-10m/!/? 33 wt ♦ a Then animals immortal.- wt xa. As the elective affinity of a salt changes, when its elements unite in composition, so may mind.- 2u "thing mental"/2-4m/w xa 9-29m, 13-29m/22x/wb good 34 1-25m, wb It is sufficient to point out close relation of kind of thought & structure of brain 35 9-13m 39 wt/ 1-11w But some of these impressions may be hereditary.- but they are habitual impressions & therefore ♣ about which there is no consciousness, otherwise, mind could act, without having had perception. & why not? would not simple mind feel lust?- 7-9m/x, 23-29m/25w emotions? 40 8-14m, 15-17m/ 16u, 17-21m 42 wt whether dog first time smells partridge knows there is something there. 3-7m/? 54 18-29m, wb p.59 On other hand by attention perception becomes more perfect, & likewise willing does - 55 1-29m, 28-29m 56 14-17m/1-25w ought this not to be expressed as willing becomes unconscious.- as perception becomes unconscious,- so do impressions, & hence ideas, & actions consequent on these ideas.- wb a person whistles - & tricks are wholly unconscious actions.- great effort of attention to perceive them these acts are only unconscious in the steps 57 wt An action becomes habitual if repeated without at same time, without much attention at first as taking off cover to tea-chest. 66 3-21m, 3-4m, 9-11m 67 wt, 21-23m, wb Is Conscience effect of certain lines of action, useful on the large scale having been done on the less scale 80 3u "marvellous", 4-8m/5u "miraculous" 92 18-20m 93 1-9m, 12-26m 94 1-4m 97 28-29m 98 wt X is not an indistinct idea seldom repeated, because unsatisfactory? 2-3m, 11-12X 99 wt like manner we learnt to repeat at school - I think by same association. 1-16m/8X, 17u "attention"/w repetition? 101 wt Conception of a view or is a perfect instance of association of many impressions 4-11m, 28x/u "reverie", 11-29w X As far as the mind is concerned nearly like sleep. the relations of ideas just past not quite so broken - body different state wb argument for mind working always during sleep wb habit must be associated will.- 104 19u "of emotion"/18-24w Does thinking of vexing thing, bring other

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disagreeable thoughts? 105 18-29m 109 24-28m/x, *wb* Scarcely ever a new thought arises from this process - only old associations 110 11-13m, 19-29m/29w imbecility of age? 111 1-4m, 23-29m/x/wt x I know from experience ♣ memory of many unconnected facts is far most easy to me by such local associations. 114 11-14m/?/14u "are little acquainted"/15-16w what difference? 116 *wt* A dog. when he has had good hunt after any animal in a spot in a hedge recollects it, & always go there with pleasure & eagerness *wb* Horse sweating, when he hears hunting horn in stable. Euphrates if he guessed he was going to race by little water being given him mad with eagerness all night. 117 *wt* Horses wonderful local memory 20-24m 122 2-3m 132 19-24m 134 17-19m 143 *wt* 3 These cases like Miss Cogans, & serve to show that affections of brain will recall facts in ♣ an individual life after long periods.- 1-8m, *wb* 3 These may be adduced as nearly as wonderful a priori as instincts - an habitual action being repeated would be more to my purpose.- 144 14-24m 147 17-29m (Prichard) 148 1-3m 149 1-6m 150 3-8m, 19-29m 151 9-13m/x, 26-29m, *wb* Exactly like my Father's case of Archdeacon Corbet 152 11-15m 154 3-7m, 22-27m/?, *wb* Animals minds are influenced by age, like that of man 155 13-16m/14u "Dr. Beattie", *wb* X What has he written? 156 5-10m, 18-26m 157 11-15m, 19-28m 158 10-13m/[...]/w (1)(a) 14-16m/[...]/w (2) *wb* (a) Does not a bird when it builds its nest, use abstraction respecting place, & softness & elasticity of materials, which are not constant in kind, but only in quality.- 159 1-5m, 10-13m/11w (a) *wb* animals have ideas of colour.- mad horse (?Cline) dread of scarlet. of any kind.- - Smells. do - 161 19-29m 162 *wt* Peacock has idea of beauty?- 3-8m/[...], *wb* Animals sometimes suffer from abstraction. Thus the Casarca which bores through walls, has an abstract idea of vertical surface of hard earth as the requisite, & does not combine, such conditions as imply a cliff of earth 163 *wb*/7-24w When cat pounces & runs after feather, it knows it is not mouse, but does it not use imagination or picture to itself it is.- X → quote Madam Necker. on playing of children- 164 20-22m, *wb* What are the feelings of a dog, when he bays the moon? 165 *wt* When two Male birds are rivalling each other in singing is it not a work of imagination? 167 *wt* Is not imagination, abstraction of several different parts of

several ideas & their unions, instead of as in pure abstraction of same qualities (as colour &c) ♣ several ideas? 23-24m/? 168 27-28m/? 172 1-6m/w common to animals 10-13m 173 1-29m/4-18w very Poor 174 26-28m 175 *wt* If because such combination is observed in an animal, it is called instincts.- there is an end of argument. 1-6m 176 8-14w Yet imagination must be always checked by reason - otherwise dreaming 9-17m, 21u "Reasoning"/22u "reason", 26-27u "Discursive Faculty", *wb* I suspect the Paper in Zoological Journal will be worth study.- 177 3-7m 179 *wt* Perhaps mathematical reasoning does not.- each step there does not require the memory & knowledge of all contingencies,- it is merely to find the step, & then to pursue the deep train.- 4-6m/w requires properly arranged memory XX 181 12-13m 185 12-13m♦, 24-29m 187 17w All Poor 17-23w But yet must be thought over with regard to Transmutation of species theory 191 *wt* Would not simple association of ideas lead to this expectation, which would be believed in till contradicted (which it is not) by experience.- 13-19m/14x, 21-22m/→ [*wb* Surely all this may be resolved into simple fact we trust our memory, until taught to contrary. 199 *wt* A man may wish to jump from a bridge to save another, but absolutely will not let him.- Makes the muscles fall, & heart sink - 4-12m 202 *across whole page.w* See following Pages & Copy all this ↓*w/wt*♦ H believed - pretty world we should be in!- But it could not be believed excepting by intellectual people - if I believed it - it would make no difference in my life. for I feel more virtue more happiness - Believers would ♣ will only marry good women & pay detail attention to education & so put their children in way of being happy. *wt*♦ It is yet right to punish criminals for public good. *wt*♦ All this delusion of free will, would necessarily follow from mere feeling power of action.- *wt*♦ View no more unreasonable, than that there should be sick & therefore unhappy. men *wt*♦ What humility this view teaches ↓*w*♦ A man ♣ hearing bible by chance becomes good. this is effect of accident with this state of desire (neither by themselves sufficient) effect of birth & other accidents: May be congratulated, but deserves no credit *wb*♦ P For wickedness is no more a man's fault than bodily disease!! (animals do persecute the sick as if were their fault). If this doctrine were. H 203 7u "consideration"/*wt* Yes but what determines his consideration?- his own previous

conduct – & what has determined that? & so on – Hereditary character & education – & chance (indepdt of his will) circumstances. 3-8w♦ Changes of character possible from change of organization 11u "desires" "conduct"/w What has given these desires & conduct 13a "agent" but not desired 4-27w♦ When opposed desires are absolutely equal which is possibility. May free-will then decide.– but it must be decided by habit or wish & these all originate as before 15-27w♦ Then why does not act of insanity give shame?? wb According to all this ones disgust at villain ♣ is nothing more than disgust at some one under foul disease, & pity accompanies both. Pity ought to banish disgust.– P→ 204 29"... 205 1-4m/4...", 15-17m/"..." 206 9-12m, 16-20m, wb♦ A man may put himself in the way of above accidents. but desire to do so arises as before; & knowledge that the effect will be good, arises as before. education & mental disposition.– wb♦ One feels how many actions, not determined by will, passion – When the motive power feeble & complicated & opposed we may free will (or chance 209 4-5m/27-28m (Stewart) 210 wt I presume these first truths are something quite distinct from instinctive knowledge. or passion – as fear of death.– sexual desire – pleasure of affection or charity – 1-5m/"..."/w How many of them do animals possess? 212 10-15m 213 9w The following pages – very poor 217 14-17m 218 8-17c/12u "required"/11-14w so much the better! Fee-hunting doctor wb In short that your hypothesis shall be real cause with respect one item at least in group of facts – if it be only possible cause. hypothesis of very poor kind. V. M. le Comte 219 18-20w to 256. wretchedly poor – as far as originality goes 221 3-6m 233 wt Main difficulty of judging probabilities multiplied into probabilities. & the alternatives omitted.– present always, except in mathematical reasoning 1-20m/w again the chance of several independent proofs from probability tending to one end, if not true 241 1-5m 251 8-12m, 10-12m/z/w yes 257 wt X| In insanity, there is belief, though opposed by many of the senses – in dreaming, mainly passive belief from absence of evidence of senses 29m/X, 26-29w drunkenness more ♣ closely allied than dreaming 258 wt no, a vivid thought neither pleasant nor painful but merely vivid cannot be dismissed even by strongest will,– is insanity an unhealthy vividness of thought. 7-8m/u "is|insanity", 9-19w they ought not

to be classed together, ♣ the reality of the thought or absence of doubt in one case being owing to the weakness♦ absence of contending impressions, & in insanity opposed to many present impressions. 17m/ → /wb In Spectral illusions, what is history of kind of impssn 259 wt (a) There is some sophistry here: insane man has perfect consciousness – somnambulism has not.– 2-5m/w a 7-16m, 12-17m, 21-23w 5th Drunkenness Nitrous oxide 260 21-22m, wb It would be worth while to write down every dream 275 wt & double consciousness & likewise many which from repetition have ceased to be objects of conscious memory – namely all habitual movements 8-17m/12x/ 17? 287 16-19m, 23-28m 289 1-8m, 10-19m, wb I have a distinct recollection of solving some geological puzzles in my sleep – what it was I forget, which I am surprised at for I have so clear an indistinct notion. 291 19u "dream"/w ? dream – wb Mem: my father's cases of quick oblivion – 311 wt like the memory after apoplexy in some cases – "Clubs are trumps" ♣ V. ante 1-5m 312 24-29m (A. Comte) 313 18-20m♦ 314 1-4m/2u "pleasure"/?, 8-19w No account is here taken of the consciousness of people, that they are insane 315 5a "is not corrected" can not be corrected in the one case, dreaming, 6a "would." , & in the other case, is so vivid, that external world is almost wholly neglected. 10a "state" partially 10a "will." ; insane people do to certain extent vary, & forget the insane train♦ ideas. 15u "higher states" "mania"/w♦ My father considers the two as wholly different. 27a "some impression has" any impression is 28a "of the mind" by the mind /wb the thinking machinery acting with unequal & praeternatural force 28a "and" accordingly 316 2a "are calculated immediately to" though often rightly perceived (as in D Ashe & in case of man eating porridge) do not immediately 318 14-15m 320 wt Surely as in passion from fatigue, (or fear from sickness) from long habit some object must be fixed on & it scarcely signifies what it is. 2-4m, 26-28m, wb just as passion of the above kind is generally most unreasonable 321 11-14m 330 wt low spirits is to melancholia : : passion to mania – frame of mind in the state & any idea fixed on.– 4-7m/7u "occasional cause", 12a "constitutional peculiarities" diseased state of brain. 349 19-21m 355 26-29m 356 2-12m, 13-26m 357 12-13m 363 1-5m 375 wt if an idea was called up, with this degree of vividness, like a conception – no one would doubt it was a

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concepcion 8-11m/w how completely un-
governed 379 1m/w All trash 431 11-15m 433
2-12m

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136 15u "trowel"/w a mistake

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part of the *Introductory lecture for the year 1815* [publ 1819]

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ad, beh, fg, gd, mg, oo, ss, tm, v

NB p60, p69♦

Sexual Selection Birds good- p76♦ Q

Rein-deer Horns - 89♦

139

S. Selection - Birds Wax-wings - 153♦ Q

167, 182, 190, 192

SB ⇔ p.60. Two differently coloured vars. of sable with fur of qualities live in different kinds of wood, & colours apparently of service to them in each case; but both vars. highly variable

p.69. Racoons first expelled & now returning in numbers to cultivated trails.

p.139 Dung of Bears almost made up of seeds - Dispersion.

p183 Birds common to America and Europe & vice versa- depends on winds. during periods of migration

p190 several sp. of duck which occasionally nest in trees

60 15-23m, 30-35m 61 33-36→ 62 11-18m 69
12-20m 76 26-35m 77 6-8m, 9-11m 89 7-9m,
12-14m, 26-27m, 31-33m 139 33-35m 153 29-
32m, 32→ 154 1-5m 167 26-35m (Baird) 168
2-16m 182 26-35m 183 1-10m, 27-35m, 35→
184 1-3m, 14-29m 185 27-31m 190 10-20m
192 20-27m

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NB Pediallariae○ p105 no 105 18-26m, 18-22m, 27→ 106 1-3m, 6-12m, 10u "certain lines", 12-16m 111 1-5m, 4-5m

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gd, or

vol. 1 NB Brehm origin of Cat Isis 1829 VI. p.639, Brehm do on Pigeon Columba Isis 1828 11 p136

3 29-31m 12 11m 157 36-37m (Audouin and Milne-Edwards) 414 28m 416 3m

vol. 2 175 12x, 16x, 20x, 22x, 23x, 26m, 26w P 29m, 29w P 33m 176 1m, 1w P 25w P 26m, 30m 272 "Dufour.2"m 273 11m 276 "Dufour.62"m

vol. 3 NB1 E. Lankester on animals of Sulp. Springs

NB2 Karsten Nova Acta omitted. Vol XXI p.643 - important paper on Distrib of Indian Archipelago

p185 – On the Loves of Ants & Aphides
 106 4–6m 153 3–4w Reisen omitted 177
 "Hamilton.1"u "Proc. III"/w p545 "3"u
 "Proc. III", "6"u "Journ. I", "8"u "Geol. V"/
 wb Last Paper.

vol 4 NB p.419 Temminck on Indian
 Archipelago–
 62 "126"m 186 "Richardson.1"u "1823", "6"m,
 "13"m 187 "19/20/21"m, "27"m, "30"m,
 "31"m, "Richardson & Swainson.1"u "1831",
 "Richardson, Swainson & Kirby.1"u "1829|
 Quadrupeds" 419 "20"m 532 "Waterhouse.25/
 33/34"m 533 "58"m 534 "85"m 550
 "Westwood.22"m 551 "48/49"m 552 "76"m 553
 "86/95/103"m 554 "111/117/118/121/122/125"m
 555 "135/153"m 590 "Yarrell.23"m 591 "40"m

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 [CUL, I]

af, cc, ch, co, em, fo, gd, geo, in, is, mn, no,
 oo, or, rd, sp, t, ta, ti, tm, v

SB □ β, ⇔

Agassiz on Classification

p.5 My valuation of Groups

10 Agassiz explanation of Rudiments
 15 Ambylopsis very remote affinities. p.15
 Proteus affinities of
 24 Admits the Vertebrata p.31 probably
 arose with other types. Well may he say
 what changes (p. 24) has 30 years pro-
 duced. ⇔ in date of appearance of groups
 30 Isolated Fam. of Fishes.– p.42. do Fresh-
 water abnormal
 37 Admits that conditions do not explain
 distribution
 38 No class exist without having some
 cosmopolitan genera
 39 On creation of number of individuals
 41 Quotes Waterhouse of representation of
 all orders by Marsupials in Australia
 44 curious tables of relation of *Scincus* with
no relation to geograph. Distribution
 49 Aquatic Animals bigger than terrestrial
 53 Same species have lived for 30,000
 years or 200,000 years as inferred from
 coral-reefs.
 58 Chelonians much individual variability
 61 On Lungs of spiders not really two kinds.
 74. Possible explanation of the strange
 Mollusc within Synapta
 82 On Classification of Fishes
 100 & 113 & 115 On Embryological &
 geological Succession 107 to 111 Clas-
 sificatory rank & Geolog. Succession.–
 102 Lund on succession of Types.

117 On combinations of characters in old
 Forms

124 Parasites belong to all orders (no
 Strepsiptera)

(line across page)

162 the sentences from Linnaeus about
 genera

166 idea of sp. proceeding from single pair
 almost given up by all naturalists!

172 On the development of parts in order of
importance: I suspect ♣ importance applies
 solely to being important for classification; if
 so simple case as might be expected.

225 on degrees of resemblance of embryos

3 9–10u "peculiarities|structure", 12–13m/w
 Geograph Distribution? 4 21–25m 5 2–8w I
 believe species genera & classes all equally
 good or false, as one pleases to call it 9–
 12w Botanists far better authority than
 Zoologists. 10 11–15m 15 11–12m, 4–26m/25u
 "Proteus anguinus"/26u "North|Japan" 17 27–
 31m 23 20–21m/w Agassiz himself 23–25m 24
 4–7m/!, 36–38m 29 13–16m/14a "Classes" in 4
 great kingdoms 16–18m 30.a 33–34m/34u
 "Labyrinthici", wb How large a group 30.b
 30u "Goniodonts", 31–34m/31u "Chaca"/wb
 What? Abnormal? Amblyopsis is so 31 1–4m/
 !, 5u "Radiata"/w♦ Planaria 37 1–6m 38 19–
 22m/?♦/u "class", 22–24m/23u "majority" 39
 32–34m/! 40 15–19m 41 12–24m/21u♦/w♦ no
 42 19–25m/20u "Labyrinthici"/22u "Cestra-
 ciontes" 43 17–19m 43.a 17–19m 44 3a/2–13w
 but is this a natural arrangement? May there
 not be parallel differences in different
 countries; those in same countries being
really allied.– 45 26–31m 46 8–12m 49 13–15m
 53 25–26m 54 8–10m 57.b 32–34m (T.W.
 Harris) 58 13–15m/13–14u "seen|identical" 60
 9–10m, 18–20!!/19u "tolerable precision" 61 35–
 36m/m 65 zb 66 6–11z 67.a 31–36m 74.b 16–
 31m (J. Müller, De Bosset, Gegenbaur) 75 13–
 14m 82.a 28–38m 85 2–6m 89 1–2m 94 4–8m
 100 1–13m, 24–28m 102.a 29–33m (Lund)/31u
 "1841" 104 22–25m 107 25–26m 108 22–25m
 109 6–13m, 22–29m 110 9–16m, 30–31m/31u
 "See|26" 111 29–35m 113 34–36m 114 12–
 15m, 27–29m 115 4–9m, 15–17m, 20m, 27–
 29m, 30–34m/"..."/31–32u "very|ground"
 117 10–14m/14u "Ichthyosauri"/?/w Mere
 analogy 22–23m, 25c/w€ 119 19–21m (J.
 Müller) 120 1–7m 121 wt All rubbish 3–4m/w
 oldest 12–14w !!Eocene Monkey 32–35m 124
 7–10m/w Strepsiptera 140 30–36m 148 4–10m
 151 13–18m (Cuvier) 162 1–6m (Linnaeus) 163
 27–30m 165 6–10m 166 4–9m, 33–36m 167 19–
 24m, 25–26m, 28–30m 169 13– 18m/w
 Assumes that these points are not variable

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170 31-34m/!, *wb* All this discussion merely shows that no talent can really plainly define principles of Classification 171 6-8!/6u "sub-orders", 12u "sub-families", 15-16m/u "sub-genera", 20-21u "large subdivisions", 23-26m/!, 33-34m, 38m 172 3-5!, 13-17m, 31-35m 173 26-27m/w ● 174 22-24m 175 9-11m, 14-15w but the teeth are in gums 15-17m 189 23-26m/25u "successively limited" 194 3m 195 31-32m, 37-38m 221 26-29m 225 6-7m, 11-12m, 15-16m 225.a 24-26m (Huxley, von Baer, Baden-Powell) 225.b 27-31m (Huxley, Cuvier, von Baer) 228 26-32m

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NB 97 ◊ Animals have conscience and soul Man

◆ 106 Love making of Snails

380 varieties See ↗

97 27-37m 99 11-15m (Ehrenberg, I. Geoffroy) 100 1-9m 106 13-20m/13-17[...] 380 3-11m

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ad, br, cc, ci, dv, em, fo, gd, geo, hl, ig, mn, no, or, sl, sp, sy, t, ti, tm, v, y

NB p.406 Scratches

SB1 p.13; p.34; 36; p.141; p.142; p.150; p.154; p.186; p.192 to 200; p.239; p.240; p.241; p.246; p.252; 255 to 377; 398

SB2 □ ☞

1.

33 Gar-pike-Ganoid of F.W. in N. America

34 Another rather ancient Fish in F.W.

36 on lowness. because like Embryo.

150 On analogy of recent of N. America & Miocene of Europe

175 List of F.W. Plants of Lake Superior; I doubt whether any use

187◆ 193 On ant. & post. extremities of the Bat, being alike at early age – so in Birds

195 on relation of embryology to geolog succession.

198 on order in Cephalopods – Nautilus simplest

239 – On entomology of ♣ L. Superior – No. American forms. – a common Fauna with Europe & N. Asia – species different but most close (Mem. Kirby thought same) admit identity in Arctic, & most close analogies in L. Superior.

240 on greater range of aquatic Beetles

247 F. Water animals under similar latitudes are uniform as vegetation

2.

♣252 On embryonic forms fish not deserving a separate class.

255 Ganoids & c in F.W.

257 on impossibility of making groups of equal value

260 Reptilian character of Ganoid, "embodying prospective view of another class"

265 on Families intermediate in character & in space or position.

285. Excellent case of Percopsis of Chalk, which combined characters, which soon diverged, intermediate between Ctenoids & Cycloids.

289. Hardly one Family in which some species are not both Marine & F.W.

292 – case of variability in a Perch, good as for Agassiz

♣317. *Esox boreus* is made distinct by Agassiz

327. Account for uniformity of Salmonidae by uniformity of conditions

352 Range of Cyprinoids p363

374 Are F.W. Fish of N. America distinct (over) 3.

375. On F.W. Fish being analogous with those of Europe & Asia

377 On shoals created as shoals

13 38-40m 33 15-16m, 31-34m 34 4-8m, 16-22w Percopsis p.285 20-23m, 29-32m 36 24-27m, 31-33m, *wb* * an entomostracous animal is lower than cirripedes 141 36-42m 142 15u "any|living", 16u "guidance|man", 17-20m/!/18u "the|lover" 143 18-24m 150 1-6m/!/? 154.a 16m 155.a 3m, 7m, 9m, 11m, 13m, 19m, 20m 156.a 15m, 28m, 30m, 31m 157.a 3m, 5m, 24m, 25m, 27m, 35m 158.a 13m, 25m, 29m, 35m, 36m 151.a 4m, 7m, 8m, 12m, 15m, 16m, 20m, 22m, 29m, 32m, 34m 162.a 3m, 6m, 8m, 10m, 13m, 16m, 18m, 19m, 37m 163.a 8m, 11m, 19m 164.a 9m, 25m 165.a 10m, 31m, 33m 166.a 11m, 13m, 18m, 20m, 24m, 27m, 37m, 38m 167.a 3m, 5m, 11m, 14m, 20m, 22m, 25m, 29m, 30m, 31m, 33m, 37m 175.a 4m, 5m, 7m, 8m, 14m, 15m, 16m, 18m, 20m, 22m, 24m, 25m, 31m, 33m 176.a 8m, 9m, 10m, 17m, 18m, 23m, 27m, 31m, 34m, 38m 177.a 9m, 11m 186 5-9m, 24-27m 187 8-11m, 34-39m 192 25-34m 193 25-28m, 35-41m/→ 194 8-18m, 27-29m/28u "equally|fin", 34-37m 195 29-37m 197 2-6m, 14-21m 198 11-26m 199 6-8m, 10-13m, 31-36m 239 7-14m/7-8w see to Plants 10-12w very singular 14-15w Europe

first cold 14-19m, 23u "many genera", 24u "Europe|Asia", 25m|→, 34-35→ 239* 3-7m, 11-16m, 16-20m/19u "analogous species", 24-27m/25u "equivalent species", 27-31m/w Subgenera 33u "Arctic circle", 35-36u "Well points" 240 11-15m, 19-22m, 28-31m 240* 32-37m 246 18-23m! 247 26-27!!, 27-28m 249 7-8m 252 wt X It comes to this that arrested development ought not to weigh with difference of full development; I doubt truth 9-18m/?/X 255 22-27m/?/23u "ten|species", 29-32m, 34-37m 257 6-13m, 13-15m 258 1-6m 259 14-21m 260 20-22m, 29-31m/"..." 261 13-17m, 17-19m, 28-30m 262 1-7m 263 32-35m 264 1-4m 265 17-19m, 20-21m/w New Law 15-28m, 32-36m, wb insects wd illustrate this or Plants. Mem. Hooker these are a wandering species is often aberrant 266 11-13m 284 10w F.W. 285 4a "never" with this exception 6-9m/8u "chalk", 10-12m, 14-15m, 19-21m/w I wonder whether this agrees with Müllers classification, as seen in Owen Lectures XX 24-26m/25u "Ctenoids and Cycloids", wb XX if Fish properly classed, whether so related to geologi. formations. 289 22-25m, 24-31m/24-28w opposed 30-33m 292 15-20m, 26-35m/30-35m 293 30-33m 294 19-23m 295 7-11m (Richardson) 297 24-29m 318 2-6m, 9-11m 327 27-30m/? 328 20-24m 329 2-10m, 7-21m, 23-25m, 27-29m, wb The fact of existence proves some advantage in the two types else one wd outbreed the other.- 348 31-34m 352 22w Yes Sir J Richardson 24-28m, 25X, 29-32m/29-30u/30-33w p.353 353 15-16m 363 36-37m 374 7-12m, 19-22m 375 16-17m, 16-20m, 20-21m, 23-25m, 27-30m, wb I think Behring St. must have been land before Glacial epoch 376 12-15m, 21-23m, 33-37m 377 16-22m/17-18!!!!, 25-28m/w Andrew Smith wb argumentum ad absurdum 398 4-9m/w i.e. W. of Lake Superior 31-37m 406 19"...♦, 23u "eastern"/w N 24u "western"/w S 29-34m/"..." 408 wt Why scratches all N. & S. or near it - for any current temporary or permanent from S. wd not tend to scratch.-

AGASSIZ, Louis *Methods of study in natural history* Boston; Ticknor and Fields; 1863 [Down, I]
af, tm

NB p.105 Snakes and certain Lizards compared & Lizards and Salamanders Excellent cases of Analogy of Form

105 23-29m 106 9-13m 107 13-16m

AGASSIZ, Louis *Nomenclatoris zoologici index universalis* Soloduri; Jent & Gassmann; 1848 [CUL]

AGASSIZ, Louis *Reports on the Florida reefs* Cambridge, Mass.; 1880 [Down, I by Alexandre Agassiz]

AGASSIZ, Louis and GOULD, Augustus Addison *Principles of zoology: part 1, Comparative physiology* Boston; Gould, Kendall & Lincoln; 1848 [CUL]
beh, cc, em, gd, hl, sx, sy, t

SB1 p.5; p.31; 123; 156; 165; 170; 179; 192
SB2□ β
Gould & Agassiz

5. On Highness & Lowness.

31. Blind Cavern fishes & Crabs

123 Speaks "if order of formation is in relation to importance" - I infer he think so

106 Male toads carry eggs on Back

157 Admits difference in C. of Good H & S. America, & admits some higher law

165 Arctic Regions not one bright bird or Fish with varied hue proof of action of external conditions.-

179 Rivers of U. States some fish in common, some distinct.

5 21-26m/22u "perfect|proportion", 30-34m 31 21-27m 106 19-22m 123 2-6m, 8-21m/9w (a) 30-34m, wb (a) There is nothing to show this in previous chapter 156 14-21m 157 5-12m 165 4-5m/5u "fish|hues" 170 25-26m, 28-29m 179 25-27m 192 3-10m

ALDER, Joshua and HANCOCK, Albany A *monograph of the British Nudibranchiate Mollusca* parts 1-7; London; The Ray Society; 1845-55 [CUL]
em, hl, sh

Part 7

SB

p.25 Larvae in operculated shell

26♦

34 ♣ It is sign of lowness an animal undergoing its metamorphosis in a free state - some mollusca undergo a free metamorphosis & in some it is in egg state.-

25 29-32m 26 13-18m 34 27-31m

∅

ALLEN, Grant *The colour sense: its origin and development* London; Trübner; 1879 [CUL]
ad, beh, cc, cs, fg, hy, oo, phy, ss, t, v

NB1 why shd the exercise of certain gustatory nerves by sugar ♣ give grt

ALLEN, COLOUR SENSE

pleasure & the exercise say of the tactile nerve of the tongue give little or no pleasure NB2 Hybrid – Error This is mere cross fertilisation in Aphys p39♦ 39?

Wiesner – coloured scales of tip of short to moderate height

73 Saaf-maal

131 134 ?

like Hook.bug new 186

xi 8m, 10m xii 3m 4 wt/1–17w Fritz Muller years ago maintained that surrounding coloured flowers influenced s.s of Butterflies Self Galapagos 12–18m 39 19–21m♦, 19–20?♦, 23–24?, 26u "essentially" 40 13–17m 41 16w ? Lilies 16u "monocotyledons", 28w Pinks 28u 45 29–35w Hazel and P♦ crimson female flowers 48 3–4m 73 25–28m (Lubbock, Fritz Müller) 131 5–20w I believe specially acquired 18–29m 143 26–32m, 26–28w ValerianO cats 152 5–23w my Copridae magnificent do the splendid Curculid live on flowers 186 1–35m (Wallace) 190 13–14w Peacock!?

ALLEN, Grant *Der Farbensinn* introduction by Ernst Krause; Leipzig; Ernst Günther; 1880 [Down] ∅

ALLEN, Grant *Physiological aesthetics* London; Henry S. King & Co.; 1877 [Down] beh, phy, t

NB 194; 159 appreciation of colour

vii 1–21m viii 1–4m 20 14–28m (Bain) 21 1–11m 22 12–16m, 28–29m 23 1–29m 24 1–29m 25 1–29m 26 1–29m 27 1–28m 36 17–27m 37 1–4m 39 8–9w association omitted 10–13m/?, 11–12m, 19–29m 40 1–23m 42 23–29m 43 1–29m 44 1–29m/19u "nerves\calibre"/w Why? 46 23–29m 47 1–9m, 19–23m 48 11–21m 49 19–24m 67 5–26m 68 1–29m 69 1–29m 70 1–29m 71 1–18m 72 18–29m 73 1–20m 74 1–29m 75 1–3m, 20–29m 76 1–4m 79 25–29m 81 15–28m 82 1–27m 87 12–29m 90 3–29m 91 1–29m 92 1–13m 99 1–23m 100 1–16m 105 13–28m♦ 106 1–20m♦ 108 14–19m 109 26–29m 111 6–28m 112 1–28m 113 22–29m 119 1–11m, 19–27m 120 1–16m 123 19–29m 124 1–15m 125 4–29m 126 1–23m 128 7–13m 150 1–29m 151 1–27m 152 1–28m 153 1–29m 154 1–29m 157 1–26m 159 3–17m 161 18–28m 163 23–29m 164 1–29m 165 1–13m, 25–27m 168 27–28m 169 1–9m 194 12–18m

ALLEN, Joel Asaph *History of North American pinnipeds* Washington; Government printing office; 1880 [Down]

ALLMAN, George James *A monograph of the fresh-water Polyzoa* London; The Ray Society; 1856 [Down] ∅

ALLMAN, George James *A monograph of the gymnoblastic or tubularian hydroids* 2 vols.; London; The Ray Society; 1871–72 [Down]

vol. 1 NB O/

105 37–38m

vol. 2 NB 201 like Galls

201 10–17m

ALLEN, George James *A report on the Hydroida* Cambridge, Mass.; University Press; 1877 [Down, I by A. Agassiz] ∅

ALTUM, Bernard and LANDOIS, Hermann *Zoologie* 2nd edn; Freiburg im Breisgau; Herder'sche Verlagshandlung; 1872 [Down]

ANDERSON, John *A report on the expedition to Western Yunan viâ Bhamô* Calcutta; Office of the Superintendent of Government printing; 1871 [Down, I] ∅

ANGELIN, Nils Peter *Iconographia crinoideorum* Holmiae; Samson & Wallin; 1878 [Down] ∅

ARCHIAC, Étienne Jules Adolphe d' *Histoire des progrès de la géologie de 1834 à 1845* vol 1 (1847) Paris; Soc. Géol. France [CUL]

fg, geo, phy

NB Possibility that ♦

X 287 seeds

↪ p.287 Blocks actually transported from Terres de L. Philipe & Graham Land

↪ Self on Mould/223

222 7u "terre végétale", 7–10m, 10...", 15–19m/16–17u↔, 21–29m 223 ↑1u "vol\1837" 224 6–7u↔↔ 287 10–20m/w seeds

ARGYLL, (Campbell, George Douglas) *Duke of Primeval man* London; Strachan & Co.; 1869 [CUL]

beh, ds, h, hl, is, t, ta, tm

NB ♦ p60; 66; 70; 100; 130; 162; 165; 172 to 174; 178 to end; Only Man all used I doubt whether low intellectual state & high moral state would ever concur.–

♦If one of the Lower animals cd reason & he heard that man was ashamed of being a co(descendant)O with him he might laugh with scorn & ask what of ♣ practices →

◆X Degradation of Man in Partricide – Polyandry ♣ Bloody sacrifice Superstitions causing life to be miserable, & abject fear justice by administering poison & other fatal schemes – Despotic government (& abject obedience) with right of life & death)

60 14–15z 70 10–16m 100 1–5m 130 12–16m 131 10–13m/11–12u "acquire|knowledge"/10–16w No an old Rat does all but transmit, & perhaps this How transmit by example? 132 wt ie state in which we now see savages 1–3m 136 wt I must rest my conclusion on descent & not on traces of savagedom.– wt Say animal nature – not necessarily like present Barbarians, 1–4m 139 3–7m 145 10a "use" the fashioning 11u "fashioned|purpose"/w over 147 3–7a/c/m/u/w/x€ 148 4–6m 156 9–13m 162 1a "weaker" or smaller 163 6–7w But not the least civilized 165 6–12m 172 10–14m (Darwin) 173 1–7m 174 14–17m 175 13–17m, wb & for Islds. man obeys usual law of no mammals, in Isld except by boat building races 178 4–6m 180 1–5m, 8–11m, 8–13w No India N. Africa Syria China New Zealand 181 11–13m 182 13–17m 185 2–5m (Lubbock) 188 13–17m 189 9–14m 190 9–13m (M. Müller) 194 4–8m 199 2–10m (Lubbock), 11–17m

ARGYLL, (Campbell, George Douglas)
Duke of *The reign of law* London; Alexander Strachan; 1867 [CUL, S]
beh, he, sx, t, tm

NB1 187; 196; 198 sexual; 203 Argus Pheasant; 206 Narwhal Sexual; Humming Bird tails 246 do; 253; 324, 326 inherited mind; 256 Correlation of Growth
NB2 8; 14; 30; 84; 89; 102; 133; 178
(also attached: p. 590 of *The Saturday Review*, 15 November 1862); ♦To be returned

10 14m 13 8m 14 9–12m 30 19m 84 17m/w see p.285 102 3–5m 133 7–14m/? 136 4z 142 7–8m 171 10–13m 177 6–9m 187 10–11w Wryneck○ Creeper 196 4–15m 198 5–15m/wt/ 1–13w But there is no such thing as beauty, except to eyes of some living creatures 199 24m 200 8–13m 203 5–12m/8u "a sphere" 206 9–16m 212 19–20z, 23m 217 3– 7m 221 19–24m 228 19–23m 232 4–7m 246 6–24m/24u "central feathers" 247 5u "which|the", 7c/w€, 8u "Tufts|of", 9u "greens|violets", 12–14m, 16–19m 251 20–22m 253 7–14m 268 10–13m/w no no 279 17–22m 285 15–16m/w See p.84

ARISTOTLE *On the parts of animals* tr. W. Ogle; London; Kegan Paul, Trench & Co.; 1882 [Down]

ARNOTT, Neil *Elements of physics or natural philosophy* 2 vols.; London; Longman, Rees, Orme, Brown and Green; 1833 [Down]
geo, ve

vol. 1 279 22–28m, 22–29w Volcanoes offer certainly some counterbalance to the effect of running water though perhaps not one equal to it.–

vol. 2, 5 12–15m 10 21m, 30–32m 11 1–4m, 9–18m, 20–25m 19 16–24m 23 22–24m 24 11–13m 25 22–30m 28 3–10m 29 21m 34 21–29m 135 28–29m 198 30–33m 199 1–5m 266 13–16m

ASKENASY, Eugen *Beiträge zur Kritik der Darwin'schen Lehre* Leipzig; Wilhelm Engelmann; 1872 [CUL]
cs, fg, gd, in, sx, v, t

NB p.54

I have only skimmed this Book – too difficult Supports Nageli on everything

4 11m 7 wt Argues against quite undirected variation 1–33w I admit not even individual variation in all directions, as in case of colour of rose – no marked variations is no evidence against some variation in many ways.– 8 21m 27 9m 36 11m 53 9m 54 1–15w Yes if strong tendency to vary 12–16m, 13–26w Plants in distant localities remain the same but they cross within same locality 26–32m, wb variation supervenes only by sexual generation 55 1–26m, 2–24w This all in fact explicable 66 25m

AUBUISSON de Voisins, Jean François d'
An account of the basalts of Saxony, with observations on the origin of basalt in general trans. P. Neill; Edinburgh; A. Constable & Co; 1814 [CUL, pre-B]
mi

NB p180 Lead volatilised into vesicular cavities of Basalt when used as the wall-stones of a furnace
97 18c/w€ 180 1–12m 275 8–13z

AUBUISSON de Voisins, Jean François d'
Traité de géognosie 2 vols; Strasbourg & Paris; Levraut; 1819 [CUL] S: C. Darwin HMS Beagle
co, fo, geo, mi, se, sh, t, ve

vol 1 NF C Darwin
Saussure voyages dans les Alpes Study works of Cordier & Dolimen
Strength of salt water diminished on sea coast – Cocos p43

AUBUISSON, GÉOGNOSIE

The Sandstone craters of Galapagos allied to Salses. (salt & mud) but differs in size & some other respects.— p.189.—

Saussure says laminae & strata of Slates same p291

Cleavage p.297

Proofs from Orbicular structure of movement in particles of Felspar & Hornblende p.308

Globular porphyry p.311

Empty concret. Ferrug. Balls. Chiloe 318

22 (markings signed RF) 28 (some marks signed RF), $\uparrow 15-1m$ 43 5-9m/"..." 61 $\uparrow 8-1m$ 62 $\uparrow 5-1m$ 77 $\uparrow 9-5m$ 86 $\uparrow 4-1m$ 189 $\downarrow m$ 291 $\uparrow 10-3m$ 297 $\uparrow 15-1m$ 298 $\downarrow m$ 308 $\uparrow 17-4m$ 311 3-10m 318 $\uparrow 12-1m/wb$ The \diamond spots \diamond C. of Good Hope 442 table.w 46°-47°lat $wb \lll$ 443 $\downarrow w \lll$

vol 2 NF1 Ma \blacktriangleright Hydrate of iron

N.B. I see the only way of describing Porphyrys & Greenstones, is by describing each base. & each crystal

Beyond secondary rocks, no page marks without reference; excepting the Volcanic rocks & Mineral Veins

Voyage Mineralogique en Hongroi et Pais Bearn

Brongniart Traite de Mineralogie

Breislac Voyage physique en Campana

NF2 \blacktriangleleft Ch. Darwin

Secondary formations

Coal form: 276 Conglomerates

Porph. base to Conglomerate 309 Maclure N. America

Angular concretions of Limestone 346 K. George Sound

Cellular limestone rauchwak 345 angular cavities Coquimbo

Stinkstone connected with 390 gypsum beds Andes

Seashells in salt bed 395

Part of tree silicified 452 part Carbon \diamond

Hydrate of Iron C of Good Hope 456 do 476

Gold watering 479 Valparaiso

Alluvial salt form 483-485

5 14-19m/x/wb X This is remarkable if all rocks are metamorphised 6 1-7m, $\uparrow 13-10m/x$ 7 17-19m 8 2-5m/w Maldonado Portillo V. p.15 16-20m, wb X Analogous to sedimentary beds where quartz sand is alone found pure or lime in masses: What would result from calc. Sandstone? Would calc be removed by Volcanic agency? 15 2-8m/x 25 $\uparrow 4-2m/w$ C of G Hope $\uparrow 1x$ 43 $\uparrow 12-8m \diamond /X$, $\uparrow 5-1m$ 44 13-20m/x, wb It is remarkable no tin in such rocks in Cordilleras.— from Cornwall Tin miners at

Copiapò 47 1-10m/x 48 4-5? 49 5-10m, $\uparrow 7-1m$ 50 $\uparrow 10-1m$, wb two cases.— 66 6x, 7-12m/w Very abundant 72 $\uparrow 10-2m/x$ 73 1-4m 75 $\uparrow 16-1m/x$ 79 wt Not in Chonos \circ grand form 1-3m 80 $\uparrow 15-4m/x/13u$ "quelquefois" 83 6-12m/w Chonos \circ No 85 15-24m 95 $\uparrow 11-1m/x/w$ turn over wb Therefore materials must be separated by some process: & not layers of siliceous sandstone & less pure layers.— 96 1-10m, 15-20m 100 $\uparrow 15-1m/x/wb$ Falkland Isld.— 101 10-20m/18-20m/x 102 1-5m 104 $\uparrow 10-4m/x$, wb Mention in T del Fuego the Lydian balls from Laguna 108 $\uparrow 12-1m/x$ 109 1-10m/w Maldonado 114 $\uparrow 10-3m/x$ 125 $\uparrow 7-3m$ 132 $\uparrow 8-6m/x$ 133 2-5m, 8-15m 151 1-8m/w T. del Fuego 154 $\uparrow 15-3m/w$ Andes 155 1-15m 157 $\uparrow 15-1m/x/w$ False C. Horn 158 1-7m 189 4-8m/x/x, wb Therefore subsequent action purified it.— 211 $\downarrow m/x$, wb X Ponsonby Sound 212 1-15m 223 1-10m, $\uparrow 3-1m$ 224 1-3m 228 $\uparrow 15-1m$ 230 14u "druses" 236 6-16m/12-16m 276 $\uparrow 20-1m$ 309 6-11m, $\uparrow 8-1m$, wb Turn over 310 $\uparrow 5-1m$ 311 1-6m, 15-20m 312 1-11m/6-11m 345 wt Cavities owing to dissolved angular fragments Mem the Coquimbo limestone shows facility or small difference causing redissolution $\uparrow 15-10m/x$ 346 13-22m 347 1-8m 389 $\uparrow 6-3m$ 390 1-12m/3-6m/5-8m 392 1-10m 395 wt It is clear from fineness of sediment that salt beds true deposits, not Subsided salines 12-20m 452 $\uparrow 12-2m$ 456 $\uparrow 10-1m$ 457 $\downarrow m$ 476 $\downarrow m$ 479 $\uparrow 12-1m$ 483 6-20m 484 11-15m/m, $\uparrow 5-2m/m/w/wb$ Mem: How universal this character. Copiapo. Galapagos. Patagonia How far is dryness a general characteristic 485 wt NB At Iquique, the fresh water shows that Nit. Soda is not beneath the surface. 1-6m, 12-16m, $\uparrow 15-1m$, wb The formation of salt is more probable if the Carb of Soda effervesces. & that may as well as Nitrate of Potash. 520 \blacktriangleleft "L'olivine".m, $\uparrow 4-1m$ 523 \blacktriangleleft 1-9m/w Ascension 7u "globules" 526 \blacktriangleleft "L'argile".m/w Cauquenes \circ 528 $\uparrow 4-1m/w$ Galapagos $\uparrow 4-1m/x$ 529 1-20m/wt These Greystones some of the commonest Volcanic rocks 4-7m \blacktriangleleft /m 530 \blacktriangleleft 1-5m/w Ascension 531 10-15m \blacktriangleleft /x \blacktriangleleft /m/x/w \blacktriangleleft Ascension 532 5-10m/x/w A 533 wt In Galapagos & Ascension, in Basalts, or at least dark Trachytes 6-12m/x 534 9-15m/x \blacktriangleleft , 9-15m/x/w \blacktriangleleft Ascension $\uparrow 12-1m/z$ \blacktriangleleft /w A 535 wt \blacktriangleleft Ascension 1-2m/A, 9-18m/m \blacktriangleleft /w \blacktriangleleft 4 Analyses in Beudant 77X $\uparrow 5-1m/m$ \blacktriangleleft , wb \blacktriangleleft Felspar 64 May be taken as percentage of Silica Hornblende 44 Augite 50 536 4-8m/w \blacktriangleleft therefore diff. comp. 537 wt (a) Mem The trachyte below wells, decidedly prismatic or irregularly columnar 1-4m, 11-22m/14-17m/w

(a) ↑3-1m, wb Ascension! Phonolite. My felsp. this state 538 wt The basal hills of oldest series, allied to base of Phonolite cones, St Jago 1-4m 539 1-4m, 5-8m, 7-11m/w At SSt Jago, not slaty from force of pebbles neither decomposes 13-14*/u "habituellement", ↑11-1m, wb * Therefore Ascension not Phonolite 540 2-8m/m/w Characteristic of St Helena 6-12w Phonolite same relation to Trachyte as basalt to basaltic lava ↑12-5m, ↑2-1m 542 ↑10-1m/w Ascension 545 ↑10-1m 548 ↑10-1m/↑6-2m, wb Mem Ascension 549 wt I think from these descriptions the Galapagos trachytes, must be very singular rocks. ↑15-5m/x 550 ↑12-9m 552 4-6m/4u "phonolites"/5u "porphyre siénitique", 11-19m 560 15-20m/w Steam cause of vesicles 562 7-15m/13-15m/x 563 ↑11-10m 564 1-4m/wt Does ● say that Sapphire are found at the Galapagos?— 565 1-7m 568 3-8m 569 1-4m, 6-11m/8-11m/x/w Van Diemen's land ↑4-1m/w C. de Verde 573 1-8m 574 15-17! 575 17-21m 578 3-10m 580 ↑6-2m/w T. del Fuego 581 wt Wackes being often amygdaloid & therefore porous explains greater decomposition ↑11-8m 582 1-2m 590 ↑17-1m/m, ↑17-13w Coral Paper ↑13-10w Coral B Paper wb If trachy, where eruption happen, is generally missing, there is less chance of alternations than if subsiding; agrees with facts in Pacific 591 1-15m/w Is this true? 593 ↑10-1m, wb Dolomieu in Voyage to Lipari Isld talks much about effects of Vapour. says deposits crust of oxide of iron or outside fragments. 595 ↑8-5z 596 ↑15-10m 605 1-5m/x 608 1-6m/w St Jago 609 1-6m/w Copiapò wb NB The existence of sea shells on several of the sandstone craters at Galapagos, argument for mud eruptions. 616 ↑17-5m 627 ↑12-1m 636 1-10m 637 3-17m/13-17m 645 ↑8-1m 647 ↑15-3m 648 ↑13-5m, ↑4-1m 649 1-5m, ↑13-6m, ↑4-1m 651 ↓m/w Mem: Yaquito○ Gold Mines ↑7-6!

AUDUBON, John James *Ornithological biography* 5 vols; Edinburgh; Adam Black; 1831-39 [CUL, B]

beh, br, ch, mg, sp, sx, ta, tm, y

vol. 1, 4 35-37m 5 35-38m 13 36-38m 14 32-37m 15 16-17m, 18-20m, 21m, 22-29m 34 3u "colours | duller" 110 11-18m 113 14-16m 139 12-14m 174 29-32m 175 27u "a | yellow", 34u "fine yellow", 35u "brownish-olive" 193 22-25m, 27-31m/30-31u "equally | sexes", 36-38m, 39u "when | line" 203 4-9m 216 27u "sides | domestic", 33-36m 221 4-10m, 19-21m, 26-

27m, 30-32m 222 18-21m, 37-38m 223 11-14m, 16-18m 229 14-17m 233 wt Male all vermilion 2u "male | them", 8-12m, 15-18m 234 31u "whole | vermilion" 235 2u "light brownish-green" 254 19-20m 257 3-4u "Head | blue", 15-16m 280 15-22m 327 27-33m 352 8-11m 377 32-33m 378 7u, 8-10m/8u "brightest | green"/9u "three years", 11-13m, 14-16m 379 21u "general | blue" 380 2u♦ 389 20-23m 393 16u↔, 21-22m 394 19-22m 396 16-17m 486 16-20m

vol. 2 NB 407 Expression Owl puffing out feathers

SB Vol. 2.— Audubon

p10; 22; 51

55 Jay — attend whether young like old in other jays

75, 79 woodpeckers alternately incubating

87 sexes very different & young not like female

89, 92; 143; 153; 170; About sexes of Birds

195 all Thrushes spotted on breast How in Blackbird

198; 202; 326; 364; 407; 420; 450; 475

♦ 493, 497 T. cupido

509; 529; 538; 545

561 do not get mature plumage soon

10 3-5m/3u "all | resembles", 5u "Young | acquiring" 13 7-9m 22 19-20m 51 23-26m/26u

"they | in"/27u "second"/26w sexes alike 55 4-7m, 14-15m/w sexes nearly alike 75 24u

"both | incubating" 79 20u "differs from", 26-27m/26-27u "differ | distribution" 87 4-5/10/

11m/u (colourings), 14-15w nest in Hole 15/16/17u (colourings) 89 9-17m/10-12w both sexes

change 92 6-10m 143 11-13m/w sexes differ & young differ 144 5/13-14/15u

(colourings), 20-23m 152 21-23m 170 5-8m, 19-24m 195 19u "female | paler"/w this

common to other species 23-28m/23-24w How are Blackbirds? 198 8-10m 199 20-21u

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"general | with", 27-32m, 29-30u "general | black"/30u "and a broad", 31u "yellowish", 33m

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ad, beh, br, ex, gd, ig, mg, no, oo, rd, sp, tm, v

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NB 178 & 180 } ⇨ Different fertility of ass & Horse when reciprocally crossed.

178 24–30m, 30m 179 1–2m, 4–6m 180 16–18m 199 2m, 4m, 11m, 19m, 24m 200 5m, 6m, 11m

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beh, br, cc, ds, gd, no, oo, sx, ta, ti, tm, wd, y

vol. 1 NB p3 Tapir striped when young
p136 Puma curls tip of tail when young to spring & purs like a Cat, when scratched.--
(Copied)

3 3-6m 136 9-13m/10u "extrémité\queue"/11-12w purr

vol. 2 SB1 □℞

p209; 296,298; 306; 319; 332; 339; 349; 359; 363; 364; 368; 371; 376 - 1783-1796

℞ References for my 1st Vol. copied out

SB2 □β ℞

296 Date of introduction & increase of Horses in La Plata p298

332 Wild Cattle Horses in Falklands removing snow

339 on Cardoon & Cattle destroying entire pasture

349 Mares which produce mules get old sooner

359 increase of Cattle in Falklands & dates given ⇨- Introduced from La Plata

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368 Cattle killed by flies

- On natural rate of increase of Cattle in the Estancias

372 Rudiment of Horns in Cattle. descended from Hornless Bull.-

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beh, ex, oo, sp, ti, tm, ws, y

vol. 1 SB Azara Vol I

p.100 - struggle for Existence.

p.165 - Wasps nests - 215 - worms in navels of Beasts

247 - ℞ Young Tapirs striped

375 ℞- Horses

381 ℞wild Dog Q⇨

386 ℞- on some species & others rare of same group.-

376 White Horses swim best

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vol. 3 NB p8

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p33 Caracara makes ♣ Vulture disgorge prey Lestris take advantage of natural instinct to disgorge

8 25-29m (Buffon) 33 19-25m/20-22u↔

vol. 4 NB p10. Habits of Woodpeckers

327 Habits of Musk Duck

328 Measures of do

I have not read all this Book.-

3 20-21m/ 21u "parcourent\grimpant", 22u "dominicain\guêpes", 23-24m 253 wt Philomachus cayanus 327 19-24m 328 26-29m

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fg, gd, oo, sp, t, tm, v

NB1 *Tragopogon porrifolius* (p. 188)

seeds of ray & centre very different

Verbascum 5 stamens differ in length & structure – in *Veronica* only 2 stam – in other Scrophs, 4 & of unequal lengths
Penstemon

NB2 ∞ p. 31 *Subularia*

p. 120 var.; p.301

Abstract

120 Similar vars in allied genera

301 *Pinus mughus* in Scotch Bogs a var. exterminated by present vars?

viiia 30w p.65 viiib 17w p148 xi wt This seems all quite artificial 12w ♦ xiii 19u ↔, 21w ♦ xiv 3u ↔, 5w *Corolliflorae* 20u ↔ xv 24u ↔ 4 28u "in | fields" 5 26u "floating", 26w Nor 33m 7 28w Nor 8 26–27m, 34w Nor 9 26m 12 19w Nor 13 14w Nor 27–28m 14 14–15w l. of W. 24w Nor 27m 15 31w Nor 31 2m, 13u ↔ "often | margins", 16w l. of W. 32 4w ? l. of W. 33 1w l. of W. 8w Nor 34 43u ↔ "spur" 35 ↻ 1u "the | short", 9u "spur | straight", 18–19u "spur | end", 34u "cor. | cordate" 36 4w Nor ↻ 5u "blunt | roundedly", 22u "cor. | blunt", 34u "spur | calycine" 37 3w Nor 4–5u ↻ "spur | calycine", 27w Hartf 38 24w Nor 43 7w Nor 44 10w Nor 45 34w Nor 42–43w White Nor 43u "l. | hairy", 44u "calyx | lanceolate" 46 1u "elongated | erect", 6u "st. | calyces", 6w Nor 8–9u ↔, 14w Nor 27w Nor? 50 27w Nor 51 1w Nor 20w Nor 54 41w Hartf? 55 12w Nor 56 7w l. of W. 57 22w Hartf 32w Hartf 39w Hartf 58 15w Hartf 61 29w Nor 62 8w Nor 15w Nor 31w Nor 64 1w l. of W. 66 12w Nor 70 3w Nor, Hartf 18–20w Hartf Down, 37w Nor 71 27w Nor 72 17w Nor 73 3m, 40w l. of W. 74 11m 77 7m, 18m, 28m 79 37m 80 35w Down 82 9–13w Down l. of W. 23w Down 29–33w Isle of Wight 87 38w Nor 88 34w Nor 90 12w Nor 40w Nor 91 6w Nor 92 19w Mr Norman omit 106 29w Nor 36w Nor 107 8–9w Mr Norman omit 112 12w Norfolk 113 32w Nor 114 7w l.W 32w Hartfield 116 10–13w Hartf. l. of W. 120 28–32m, 32w l. of W 36–39m, 41w l. of W 121 2–6m, 2–6w similar vars in allied genera 128 17w Nor 143 32–33w Down everywhere 144 27–29w Down everywhere 32–34w orchis Bank 145 3–7w Below Stonfield Field 12–14w Down everywhere 33–35w Down everywhere 147 33w Norfolk 151 14w Nor 29w Nor 152

12w Nor 35w Nor 153 42w Nor 154 17w Nor 35w Nor 155 5w l of W. 28w l of. W 35w l of. W 156 22w l. of. W? 157 zb 158 zb 159 25m, 29m, 33m 160 3m 166 32w l. of W. 167 20w l of W 181 10w l of W. 182 16–24m 183 22w l of. W 188 9–10w l of. W. 28w l of. W. 192 25w Mr Norman omit 203 33w Hartf. 206 28–29w Hartf 213 8–11w Nor. l of. W 29w Nor 215 32w Nor 217 30w Hartf 221 5w l. of W. 222 11w Nor 35w Nor 223 10–17w I think my plants clearly this species 40m/w Nor 224 16w Nor 225 21w Nor 231 26w Nor 232 38w l.W 233 12–15w l of Wight 234 29w Nor 235 1w Nor 236 3–4w Hartf 30w Nor 41w Nor 237 38w Hartf 238 11–12w l of W. 40w Nor 239 5w Nor 12w Nor, 24w Hartfield 240 20w Nor 241 37w Nor 244 34–35w 2 vars 245 1m, 6–7m, 37–38w 3 246 4–5m, 23w Nor 248 22–27c, 31w Nor, 38w Hartf 249 7w Nor 38w l of W 250 40w Nor? 251 5w Nor, 27w Nor 39w Nor 252 25w Hartf 253 18–22c 255 29w Hartf 256 4w Nor 28w Nor 259 5w Nor 38w Nor 260 1w Nor 8w Nor 18w Nor 275 33w Nor 277 22w Nor 283 9w l of W. 285 29–33m, 24–25w l of W. 286 14w Nor 288 26w Mr Norman omit 301 26–30m 302 22w Nor 303 7w Nor 306 37w Nor 307 6w Nor 308 15w Nor 44w Nor 310 7w Nor 9w ♦ Down 12w Hartf 16w Nor 18w Down 25w Nor 312 9w Nor 28–31w Hartf l. of W. 40w (Var. of dat) 313 14w (var of d) 26w l of W 322 3w Nor 328 4w Hartf 335 22w Nor 336 12w Nor 353 31w Mr Norman omit 356 18w var 358 12m, 25m 360 17–18w omit 365 40–41w ? var 366 33–34w var 369 24w var 34w var 372 10u "flowered | a", 10u "Glumes nearly", 24a/w 1-flowered 373 13u "Fl. | hairs", 26–27u "1 | and", 28u "2 | of", 39u "1-flowered" 374 4u "2 | fl." 375 11–12m, 21w water 377 4u "one | flower" 378 26m 379 21–22m, 39m 380 17–18m, 20–23w Down Ch Lane 381 31–34w Honeygrove Jul 53 382 22–23m, 30–32? 385 24–25m 386 9–10w Hayes 16–19w Larch wood 41–42m 387 21–22m, 40–41m 388 7m, 13–14m, 24–25w Hartfield 32–33w orchis Bank 389 3w Down 10w =Molica 11w Hayes 39w Down 390 42w Honeygrove 391 33w passim 39–40w passim 392 5–7w Larch wood, 14w wall 44m 394 38–39m 395 1m, 11–12m, 38m 396 31–32w Honeygrove 33–34m 397 8–9m, 24m, 30m, 38m 398 31–32m, 42m 399 40m 400 13–14?, 21m 401 6m, 15m 402 17–18w Beckenham 18–19m, 30–31w Hartfield wb Mr Norman end here 403 wt Mr Norman end here

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57 6-28m

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beh, h, sl

SB ♦

☞ Bain Emotions & Will

p.5.6 to under qu.

p.111; 119

127, 129 Expression

176

Laughter 247

Moral sense

254 Moral sense

Q² 267 481- good to quote

269 - social instinct apparently denied by Bain

B. seems to think moral sense acquired during life-time - seems to give too deep a feeling for this wd never resist Hunger, Revenge or lust.-

277; 279; 283; 289; 290; 308

p 270 Mohamedan ♣ woman covering her face

♦² 283 imitation of external government !!!

284 obedience (Monkeys slapping their children)

viii 8-10m, 9u "Feeling | misery", 32-33m, 32u "Will" ix 17-20m x 26m xi 13m xii 6m xiii

20-21m xiv 33m xv 23m xxv 30m 5 23-26m 6

wt The love of a mother for her child is a strong emotion, but this is hardly shown by any action or expression, but ready to lead, if her child requires assistance, to energetic or heroic actions. 2-37w a mother may be feeling the warmest love for her child, & yet how is it exhibited? When poets ♣ speak of

green-eyed jealousy they must find it impossible to give ♣ actions & plain characters. Perhaps Bain calls love a Sensation & not emotion.- → No p.37 9-13m, 26u "secondarily automatic" 7 31-33m 8 12-15m 9 12-13m, 34-35m, 36-37m 37 17-21m 54 15-30m, 29m 55 5-15m, 5-9w to make appearance dreadful 56 28-31m 58 28-34m 65 19-22m 67 32-37m/w/wb Dog when going to fight; Birds erect plumage; Lynx sets up its back & spits 73 19-27m 111 32-37m 119 32-37m/→ 120 6-9m, 11-12m, 14-17m 127 25-28m 128 21-24m 129 26-28m 176 34-37m 247 7-29m, 35-37m/→ 248 10-13m 249 7-12m, 13-14m, 32-33→ 250 6-10m 254 26-29m 255 1-2m, 5-11m 267 1-5m 268 26-29m 269 4-6m, 8-9!, 8u "rational appreciation", 22-28m, 29-30→ 270 7-11m, 30-34m, 36-38m 271 7-11m 277 10-14m, 10-11w But what the importance 279 12-14m, 13u "to | pig" 283 10-18m, 20-23m, 22u "performance | social", 26-29m, 36-37→ 284 1-4m, 15-17m, 25-30m 285 3-5!, 4-7m 287 5-11m 289 27-30m, 37-38→ 290 12-18m 308 1-14w so the associated state is advantageous 4-7m, 10-14m, 12u "the blood", 34-35m 309 7-13! 481 18-22m

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 beh, h, phy, t

SB ♦

p 12 Intellect & size of Brain

50 can this bear on sobbing

52 Expression

96 do - theory of -

121 Expression of Man pain; ☉ & such movements wd get mingled with true expression of distinct emotions

BAIN, SENSES

152. ♦ effect of imagination on the body admirable 1

225 Muscles of eyebrows

264 Expression

274 a child twisting tongue about in writing, perhaps connected with idea of speaking.—

277 V 279 Expression; 288 do; 292–297 do it is expectation of pleasure when ♦ (a dog wags tail before food given him & while eating in quiet) – so when scratched

332 association

411 The mind is never intently concentrated on a merely pleasant idea

626 expression

Bain the Senses & intellect

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ci, no, phy, sp, t, tm

NB1 Cirripedia p.50; p.74; p.144; p.248; p.250; p.253

p.265 circulation

p.303 XX cementing organ

NB2 Sp Theory; p85♦; p189 Rate of Increase in Cyclops; ♦Synopsis Brit Mus 1842; ♦ p.244 Diaptomus with worm-like body full of Spermatozoa.—; ♦ Apus Nebulia Chirocephalus Cyclops Canthocamptus Caligus Lerneocera

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cc, gd, gr, ti

NB 46 – Alpine plant on Tropical Mtains

53 – Heat-lovers & cold-fearers

90 – plants which have become widely naturalised

99 – certain wide ranging plants

102 – relationship of S. Africa & S. America & latter with Australia, good

109 – independent of present geographical features

46 16–26m 53 8–13m 90 9–21m 99 21–30m

101 10–19m 102 8–12m, 22–27m 103 6–10m,

10–14m, 23–27m 106 6–11m 109 17–24m

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NB 156, 455

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gd, gr, is, no, sp, wd

NB Marked Chapter on Distribution

title page wt Barker-Webb 5 7–9m, 9–10m, ↑15w 14. fam 29. spec ↑12m/x/u "variété | autres" 6 16m, ↑7–3w 17 peculiar? 7 8–9m 8 12–15w peculiar species in W. group. ↑7–6m, ↑3–1m 9 ↑8–2w broken nature of country species abundant in one isld rare in another 1200 ft of = difference of station = ↑1m, zb

12 7-8m 16 4m 17 10m, 12m 22 11-12m/w
Isolated plants – do not know yet, whether
indigenous species or not.– 16-17m, 19-20m,
↑3-1m/w X does this mean plants found
nowhere else? Galapagos♦, ↑2x/u "espèces
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on Teyde elsewhere? 24 ↑5u "observations
analogues", ↑14-11m/↑14x/u "Canaria"/↑13u
"représentent", ↑10-6w I suppose ♦ plants
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↑8u♦/↑7u♦/m/w 7,234 ft Palma 26 1-2m 32
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8m 71 5-7m 72 9-10m, 18-19m 74 ↑10w
Salvia Canaries ↑4-1m 75 ↓m, 11u
"buissons", 11-12u "provenant | graines", 15u
"facies", ↑9!/u "chétif" 76 ↑9-8m 78 ↑3-1m/w
must read 79 3-4m, ↑12-1m 80 2-3m, 4-5m
82 13-15m/w not from cultivation 95 ↑2-1m/w
important Read 97 ↑2u "quatre | bien"/m/w
different stations 103 12-13m 104 8-10m 122
↑13-10m, ↑6-4m 123 ↑1m 124 6-21m 167 10-
17m 175 ↑3-2m, ↑1w Galapagos?

BARRAGO, Francesco *L'Uomo fatto ad
imagine di Dio fu anche fatto ad imagine della
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[Down, I]

title page wt (translation of title) 11 w
throughout page (translation of page)

BARRANDE, Joachim *Acéphalés* Chez l'auteur,
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and replaced by FD] ∅

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l'auteur, Prague; 1879 [Down, I] ∅

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l'auteur, Prague; 1877 [Down, I] ∅

BARRANDE, Joachim *Defense de colonies*
Chez l'auteur, Prague; 1870 [Down, I] ∅

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Chez l'auteur, Prague; 1870 [Down, I]

3 21-25m 15 11-12m, 13-15m 19 25-27m 111
24-29m 117 32-38m 121 31-35m 137 15-20m
(Salter) 163 19-23m, 40-43m 164 5-9m 165 7-
13m, 14-15m, 26-28m, 26-27m, 29-33m

BARRANDE, Joachim *Trilobites* Chez l'auteur,
Prague; 1871 [Down, I]

BARTON, John A *lecture on the geography of
plants* London; Harvey and Darton; 1827
[Down, pre-B, S]

4 20-26m 7 4-9m, 5w Oak 22 13-18m 27 4-
5m 30 12-23m 31 wtee, 22-25m 32 1-3m 36
1-13m 38 13-17m 39 14-26m (Humboldt) 41
6-11m

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Leipzig; Wilhelm Engelmann; 1864 [Down]
∅

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life* 2 vols.; London; Macmillan; 1872 [CUL,
I]

cc, che, ct, ds, fg, h, hl, phy, sp, t, v

vol. 1 NB xi; xii; 160; 167 on Cellular
Theory; 215 do.; Nothing for Man

xi 17-31m xii wt But are these supposed
Heterogenic changes due to Environment?
1-20m, 1-17w can this throw light or accord
with the variability of higher form, as they
are compounds of separate units? 160 16-
28m 167 23-28m 215 10-16w plastide Hackels
term best, 25-29m 316 25-28m 433 19-22m
456 1-3? Catalogue ∅

vol. 2 NB1 Nothing for Descent of Man
NB2

♦lix variability of algae

♦lxii variation

♦lxxxii variation in relation to conditions in
Infusoria Cohn

♦31 Drosera

♦79, 88, 596 Pangenesis

255 objection

259 variation

377 Drosera

I think there is a tendency to plasticity var.
but not proved – 594 error on my views

597, 599 variation

604 I admit so far

608 I think I am in error

Frequency of generalised forms in old times
quite opposed to independent origin of the
diverse orders of same class

1 14z 31 2-7m 79 13-23m 88 4-27m 255 15-
30w Vorticellae; He omits altogether the
conditions; Why not eggs in the infusion.– I
do not yet see the reason– 259 12-26m 261
3-9m 377 5-29m 594 3-6m, 4u "hetero-
geneous" 596 24-31m 597 2-8m 599 20-24m
604 wb like polarities of crystals 1-4m 608
14-23m lix 20-30m lxii 13-20m lxxxii 2-34m

BASTIAN, Henry Charlton *The brain as an organ of mind* London; C. Kegan Paul & Co.; 1880 [Down] pat

NB 188 Douglas Spalding; 213 Blind Horse – self; 216 my Horse – Isle of Wight 213 14–17m 215 30c/wæ
 ♂

BASTIAN, Henry Charlton *Evolution and the origin of life* London; Macmillan & Co.; 1874 [Down, I] ♂

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BATEMAN, Frederic *On aphasia, or loss of speech* London; John Churchill & Sons; 1870 [CUL] beh, h

NB1 Descent of Man p.27; 31; 53; 100, 102; 109; 110; 112 Expression; nodding & shaking Heads; p27 Concepts

NB2 p111 Gartner

27 4–5u "fell|door", 15–19m, 16–17u "memory|substantives", 18–24w(CD?) one case of only the infinitive mood being retained 29u "is|cut", wb How does this bear on concepts? 31 2–5m 53 12–16m 100 9–10m, 17–20m 101 17–18u "defect|language", 19–22m 102 1–2m, 3–5m, 16–18m, 19–21m 104 8–11m 109 22–28m 110 4u "commonly unaffected", 6–15m, 12–15m, 12–15w 2 cases 16–21m 112 3–8m

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beh, br, cc, cr, f, gd, h, ig, mm, no, oo, phy, rd, sl, sx, tm, v

vol. 1 NB p251

SB1 ☐☒ vol.1

p. 20; 23; 30x gradn in worker ants; 52; 55; 68; 99 monkeys not breeding; 102; 182.–analogy of Moth & Humming Birds; 193 sterile in confinement; 207; 210; 252; 254; 258–262; 304; 312; p 53 Sipo Matador

SB2 ⚡ (not CD)

Bates Amazon vol 1

p. 20 on tropical insects not being more

beautiful & on differences in sex.

23. on worker ants of 3 kinds

27. tunnell under river – 30 gradations between workers

52 Male & female butterflies haunting different stations.

55 competition in the Tropics.

68. Trees with buttrefres.

102. 700 butterflies within an hour's walk

182. analogy between Sphynx moth & humming birds.

207 widely different insects imitating sand in colour.

210 insects of same family having widely different habits.

252 male crickets being musical to attract female.

254 a kind of thrush with nest lined with mud 258–262. discussion on variability of butterflies & on mimetic butterflies.

304. local vars. of butterflies

312. Ditto –

20 7–19m, 20–21u "almost|only", 21–26m 21 2u "more|coloured", 3–31m, 3u "females|often", 5u "tropics", 6u "between the", 7u "any temperate" 22 2–10m, 18–22m 23 8–10, 31m 24 10–14m 27 13–16m 30 8–12m, 19– 22m 31 26–29m 51 23u, 29–31m 52 2–12m, 4u "less dense" 53 7–14m, 25u "fig order" 54 1–31m 55 21–29m, 31→ 56 18–24m 68 14m, 15–21m 69 2m 99 10–16m 102 21–26m 182 10–16m 183 5–8m 193 2–6m, 2–3u "paca"/w 2 Rodents p. 202 9–10m, 11–13m 207 23–31m/→ 208 22–27m 210 13–30m 250 23–26m, 29–31u "Locustidae"/w probably Gryllidae of Welland○ 251 1u "Acridiidae", fig.w toothed lobe left wing 252 11–15m, 15–27m, 31a "crickets" Achetidae wb Cicadidae again different 253 1–2m, 4–5m, 8–9m, 18–24m 254 15–20m/w a kind of Thrush 258 25–30m 259 fig.→ 260 5–9m, 14–19m, 28–31m 261 22–27m 262 ↑11–1m 263 4–7m, 14–17m, 21–26m 304 22–31m 312 18–30m 313 1–8m

vol. 2 NB 238 Toucans; 341

SB1 (not CD?) 39 Palm; 49 Tonka bean: fruits on stems; 51 Palm; 53 General descrip; 169 Bulging palm; 217 Fruit conspic ripe; 218 Gulielma palm; 237 Eriodendron; 263 Turtles eat fallen fruit

SB2 ⚡ (not CD) Bates vol 2.

35 a young savage with instincts of finding his way.

44 Bees using hind legs to collect mud & using gum.

46 Parasitic fly – like bee.

61–70 – neuters of termites.

228. butterflies of several sp. males living in

sunny places & females in wood

⇒ (CD) 307 Short-tailed monkeys, yet arboreal.—

↷ (not CD) 313 range of monkeys separated by a river

347 butterflies with males 100 times more numerous than the female.

347 range of butterflies depending on wind

351 gradation in workers of ants

364 great difference in the castes of worker ants.

⇒ (CD) 204 man essentially same in mind

284 strong sexual characters. Umbrella Bird rudiment in female

349 tubes for caterpillars

357 gradation of instincts

SB3 □✕

35; 44; 45; 61—to 70 Termites; 113 sterility; 128 expression; 159; 162 God & Man; 194; 219 Cultivated fruit – by Natives; 228; 313; 347; 351 gradation in workers; 364 ants; ♣ close mouth & part front of tongue forming the palate & open mouth suddenly & this makes the click – open mouth sign of surprise.

35 1–9m 44 9–12m 45 13–23m, 29–30→ 46 8–20m, 18–23m, 23–27m 51 3–5m 61 7–14m, 15–18m 65 3–8m, 28–31m 66 5–9m, 19–22m 67 17–27m, 28–31m 113 4–12m 128 29–31m, 31u "to|a" 159 20–29m 162 28–31m 178 5–9z 194 16–29m 197 10m 204 1–9m 219 5–12m 228 4–9m, 9–12m 237 3–5m 284 12–18m 307 12–28m 310 24–29m, 24–26"...", 30–31z 313 17–31m 338 21–23m, 22u "seven|more" 339 22–23m/u "deficiency|used" 341 7–11m, 15u "considered|instrument" 347 4–11m, 27–30m 349 22–31m 351 22–26m, 27–30m, 30–31→ 352 21–32m 357 20–24m, 20–22w is it true, stinging 364 14–17m 365 15–20m, 22–26m 419a 20m, 29m 419b 1m, 12m, 26m, 31m 420a 8m, 9m, 19m, 29m, 35m 420b ↑3–1m 421a 1m, 6–9m, ↑2m 421b 16m, 22m, 23m, 25m, 31–37m, 40m, 40m 422a 1–4m, 9m, 10m, 14m, 27m, 30m 422b 20m 423a 1–3z, 16m, 22m

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BEALE, Lionel Smith *On the structure and growth of the tissues and of life* London; Robert Hardwicke; 1865 [CUL]
ct, phy, t

NB Used for pangenesis and of no other use

10 24–30m 21 wt♦ cell contents 1–5w or as some♦ several authorities object dispute♦ the reject○ the present○ ex|ion of cells, Beale's term been very useful 14–18u±, 21u "Formed|matter", 29–30m 25 27–30m, 29–30u "composed|tissue" 26 3–7m, 18–20m 27 23–28m, 27u "lastly|surface", 28u "of|and" 28 3–7m 29 12–14m, 13–14u "comparatively|matter", 24–27m 31 3–21w says before it has become completely passive 19–21m 34 wt the germinal matter in a fully developed muscle must be formed or modified by the development of the muscle. 36 11–13m, 12u "is|or" 37 19–21m 62 wt/1–21w says the nuclei or germinal matter of the various tissues are ♣ continually forming 12–15m, 12u "Cells|parts" 63 21–23m

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beh, br, cc, ch, cs, dg, ex, f, fg, gd, h, he, hy, ig, in, is, mg, mn, no, oo, or, pat, rd, sp, sx, ti, tm, ud, v, wd, y

vol. 1 NB Blumenbachs HandBuch of Nat Hist

17♦; 26 Book; 227, 228 – do.; 232–6 Horse; 241 Canines varying

275; 285,6; 294; 300; 309; 310,12; 324; 358; 362,5; 378; 404; 425; 432; 434; 448; 457; 470; 491; 505 to 508 to 536; 546 – Dog

It wd be good to investigate the 4 teeth of upper jaw of Dogs to see about abortion

SB1 □✕

Vol I Bechstein – V End of Book for early references

p548 to 579 to 702

♦ p609 to 627; end; p.653

795; 850; 932; 950; 984; 1032; 1046; 1078–83,1084. Squirrels; 1095 Hare; 1119 Rabbits to p.1135–

A Calendar at end with periods of coupling of all wild animals.

SB2 □β

p241 Mares Eye Canine teeth either absent or very short – sexual & rudimentary characters variable (Bechstein Vol I)

p 294 Hinney more like Mother (ie Ass) than Horse, but ears Horse-like Q↷

p 309 Nine Breeds of Cattle in central Europe

310 Pale-coloured cattle more plagued with Flies than darker colours

359 She Sheep have horns smaller or none

362 In Hornless sheep some have small loose Horns

BECHSTEIN, DEUTSCHLAND

379 Certainly Ram gives fleece
 432 2 Breeds of Chamois inhabiting different heights
 505 Wild & tame Pigs produce fertile offspring Q
 508 Var. of front teeth in Pigs N.Q
 530 Sort of pad defending Boars
 536 Many wild Pigs die in Hard winters & in very dry summers.—
 548 Bitch 5, seldom 4 Q, mammae on each side — Iceland Dogs different voice (u)
 574 Newfoundland Dog — skin between toes — Not in Newfoundland, when discovered.
 584 time of gestation
 638 Stutz — Dogs are easiest crossed with Foxes Q
 654 Cats with wavy hairs N.Q
 663 Astonishing increase of mice in Isld of Placida off Naples, when Cats destroyed.
 682 In Lynx tufts of hair 2 inches long
 795 Ferret procreates quicker than Polecat, ● parent
 950 Black & Brown Rat cross in nature Q
 1032 Marmot or Arctomy inhabit only highest alpine height of Europe
 1084 Squirrels in same nest, one finds 2 colours, when parents of two colours
 1095 variation in upland & lowland hares
 1119 Hares & rabbit will not breed after many attempts made Q
 1123 Rabbit can produce in 4 years 1274, 840
 1133 Grey♦ Rabbits turned out after some generations assume grey colour

26 $\uparrow 2-1m/wb$ On variation 227 $\uparrow 5?$, $\uparrow 2?/x/u$ "deutscher|ausländischer" 228 3m 233 6u "dünn", 14u "Der|ist", 15u "Ohren|lang", 16u "Mähne dick" 234 1-2m/u "vorzüglichsten|Andalusien", 5-10m/w He means x — Hunter cross 13u "Yorkshire", 17u "die|haarig", $\uparrow 3u$ "Tigerpferde" 235 9u "Calabrien", 10u "Apulien|vorzüglich", 15u "Polnischen|gleich", $\uparrow 3u$ "dass|abnützen"/wt 236 2-7m, 10w Pony 18u "Holsteinische", 19u "Mecklenburgische" 241 (err. printed 235) 4u "Hundzähne", 6-7u "fehlen|kurz", 4-6m/w Fem♦ Mares Eye teeth absent or small: variable Owen says absent 275 $\uparrow 5m/u$ "von Natur" 285 wt There does not appear to be race of asses in each country. 4-8m/w Arabia Donkey very fine 8u "glattes", 12-18m/w smallness owing to climate (Peacocks do not flourish) 286 $\uparrow 8-5m/w$ various colours 294 12u/a "mehr mütterlich" i.e. Ass 12-13w sometimes much mishapen 300 $\uparrow 5-1m$ 309 zt, 1-2m/wt 9 Central Europe Kinds of large Cattle 4u "übrigen Deutscher" 310 10-16m/w

These colours more plagued by Flies (I wonder if true) might bring in 312 $\uparrow 3-1m$ 324 15-20w Change Bull to prevent inter se 358 5-7m/u± 359 $\uparrow 14-13m$, $\uparrow 9-8m/w$ Horns in Female fail or are smaller 362 1-2m, 13-17m/w Q Hornless but sometimes appear, & are then not well fixed.— 365 8u↔/m/w Hellenius case 378 12-14m/w Sheep with least mark often bring quite dark lamb— like Fox's fact 379 3-10w Certainly Ram gives wool most strictly hereditary $\uparrow 13-9m/w$ not interbreed 404 4-6m 425 6-7m/7u "lang herabhängenden", 16-17m 432 $\uparrow 11-1m$, $\uparrow 10-9u$ "klein|höchsten", $\uparrow 7u$ "obersten Theile", $\uparrow 5u$ "dunkelbrauner", $\uparrow 2u/wt$, wb might be 2 species 433 3-4u "Feld|Bershirschen" 434 14- 15u "Pyrenäischen|Gebirge", $\uparrow 6-5m/u$ "Steinböcke|mittlern" 448 15-20w Fallow Deer various colours 449 $\uparrow 8-4m$ 457 $\uparrow 14-10m$ 458 7-8u "gemeinisch|sind", 6-14m/w Q differences according to habitation 470 4-6m 491 $\uparrow 3-1m$ 505 11u "abgerundete", 12u "zugespitzte", $\uparrow 7-1m/w$ Pigs wild & tame breed together & offspring fertile Q Q 507 $\uparrow 8u$ "vier", $\uparrow 7u$ "etwas" 508 4-6m/w front teeth vary; sometimes 2 more in upper sometimes 2 more in under 5u/wt 509 $\uparrow 4-1m/w$ Breeds $\uparrow 4-1u±$ 510 11-12u "Die|Schweine", 16u/wt 517 6-15w white sows frequent 15 weeks speckled 18! Q 14u "zweymal"/w breed twice 529 5-7w Wild Boar Dark colour 9u↔, 12-13w short more projecting ears 15u "hängende Schwanze" 530 10-15w Black hairs have brownish tips $\uparrow 13-5[...]$ 534 $\uparrow 7-5m/o$, $\uparrow 4u↔/w$ Twice a year on Heat 535 wt Wild Sow 18-20 weeks 3u "fünf|zwölf" 536 (err. printed 436) 9-10m, 12-16w Many die of hunger in hard winters 14u "doch|für", 16u "sechs|acht", 19u "zuweilen|aussterben" 546 8-16m/w Believes in multiple origin of Hound 548 1-2m/1u "nur|Brüste" 549 5u "den|murrend"/w voice different. 551 1-6w Fox like dogs like our Spitz 554 6a "2" subspecies Mastiffs $\uparrow 12-1w$ Big thick upturned snout; falling chops; slaving mouth; small hanging ears; Breed had flat long neck & thick — smooth short hair 558 6w Pug(?) 559 $\uparrow 1w$ 3d subspecies Hounds 560 4-12w Head round with ridge Ears very long — Body long — claws on after-toes 568 1a "4" Spaniel♦ Poodle 569 8w Spaniel 572 8-10w hairs like Lion 15-16w Danish Dog 573 $\uparrow 2w$ Newfoundland 574 5-7m/w Q skin between toes 14-15m/w not there in 1622 15-16w Greyhound 576 1-2w Italian Greyhound 578 $\uparrow 5-4w$ Terrier 579 $\uparrow 2-1w$ Skye Terrier 584 $\uparrow 6-5u$ "neun|Wochen"/w Wolf p.617 wb 63-70 days 609 $\uparrow 10-9m/u$ "jeder|Backenzähne",

↑8-5w teeth different from Dog 617 ↑12w 77 days ↑11-10m/↑10u "2|trächtig", ↑9-5m/↑8u "selbstgegrabenen Loch" 627 6u "Spielarten", 9-10m/u±, ↑9-5w Q tip of tail variable ↑3-2m/u± 628 3-8m 638 ↷ 5-7m/w Q 653 ↑11-8m/w differ in habits ↑11-8w degenerate easily ↑6m/wb Tortoiseshell! 654 6u/wr 663 ↑10-3m, wb Extraordinary increase of Mice in Isld of Placida when cats all destroyed.- 674 15m/u "bringt|blinde" 675 4-8m 682 5u "zwey Zoll"/w ear tufts 2 inches long 702 5-12m/! 786 4u "gewöhnlich|selten" 795 ↑11-7w more than litis wild Mard○ on prowlo p786 850 2-4m, 7-8m, 13-16m 932 11-14m/11u "zweyen Jahrhunderten", ↑2m/u↔ 950 9-11m/w Q Black & Brown Rat ↑9-5m/w Q 984 ↑14-7m/w Water Rats like Snakes inhabit dry & wet places 1032 ↑11w Arctomys Marmot ↑10-9m, ↑8-4m 1046 ↑4-1m 1047 3-5m, 7-9m 1078 wt In relation to mankind - we cannot account for it.- 9-12m/w black very common 12u "gewöhnlich|Bauch", ↑3-1m/wb these 3 seem to arise out of cross of red & black, but no evidence. 1079 wt N.B It must be remembered that B is not to be trusted about species 9-10u "mit weissen", 11-12u±/w ♦ Then this is Fox var. 13-14u "mit|Schwanze", ↑7-5m/x, ↑4u/wr, wb when these vars cross offspring intermediately blended. 1083 ↑5-3m/wb all the vars of colours cross 1084 ↑12-8m 1095 ↓w In several cases he has utterly rejected the Hunters varieties & therefore may be trusted, when he admits them. ↑11w He has the L. varieties, besides. ↑11-9u±, ↑2-1m/→, wb no difference in any respect 1096 7w Nothing ↑1m 1097 2m 1119 ↑6-1m Rabbits will not breed with Hares, after many attempts 1121 ↑8-6m 1123 6m/u "vier|acht", 14m/u "mehrentheils viermal", ↑7-3m 1128 ↑5m/u (colours) 1131 ↑10m/u "vier|Junge" 1133 ↑9-5m/w become grey after some generations. 1136 16u↔/w short ears, round head 18u "oft|lang", 19u/wr

vol. 2 NB p4♦; Frisch Birds - Not in Linn Soc

Pigeon Pl. 143-151

Cock Tab. 127-137

p400 on Pigeons of this Book to p404

p396 Fowls nothing in Frisch

p1150; 1168; 1170; 1184; 1187 to 1204; 1271

SB □β

p400 Trumpeter in 1739

p404 some crossing domestic Pigeons I think read

396 1-4m/w From same parents legs feathered & not. 400 wb Frisch 1739 402 1-

3m/w will cross with others, & has crossed with Trumpeter & Jacobin.- 9u "Schleyertäbin", 11-16w It is not true that Hawks cannot catch. 404 5u "weisswarzigen", 5w Pavodetto 8m/w very large 463 "143".m 1150 ↑10-7m, ↑3-1m/↑2u "trifft|voll" 1151 13-14u↔, ↑5m 1168 ↑11-9m 1170 12-14m, ↑12-9m/↑11u "habe ich"/↑9u "gesehen"/w C corone & cornix 1171 6-9w Dwarfs occasionally born ↑11-8m, ↑7u "Jungen|Alten", ↑5-1m, ↑5u "gemischt|gesteckt" 1174 5-7m 1184 ↑17-1m/w crows following a little dog which used to catch mice 1186 "Naumanns Vögel".w where 1187 3u "Raubenkrähe|hat"/3-4m, 9-10m/u↔/w Beyond Ober ↑12u "Siel|grösser" 1189 ↑13-9m/w The grey colour only an exaggeration of base colour of all crows 1194 15-16m 1204 ↑10-7m 1271 ↑12w Magpie ↑9-5m

vol. 3 SB □β

299 Peacock more fertile in India, but Temminck Gallinaceae better reference

309 Caudal feathers vary in Turkey - Q

316 number of eggs in Tame Turkey

335 Range of wild Fowls - Acosta only authority for American Origin

337 Fowl has 14 Caudals

339 Breed of Hens with Spurs. good layers p.410

355,6 In Capons, Tail & Comb continue growing. They ● castrate Hens. NB Great variability of Comb, & in Spurs, variation of Secondary Male Characters

400 Cocks have not enlarged skull in Polands, only Hens!

406 Frizzled Cock with split Feathers Spurs various; Hens have sometimes.

N.B. Ld Spencer has shown how maturity & size of cattle increased & quite lately we have seen this in Ducks & Geese.- When no record kept, wd not be observed & yet cd go on slowly.-

xv ↓m/w Read (refers to pp. 293-500) 299

↑12-11m 309 4u "Anzahl|ist" 316 ↑5u/wr, wb

54, ie 27 each 335 14u "Acosta"/w Acosta alone says Fowls American ↑2-1m/u

"Morella|Hühner" 337 4u "vierzehn"/w 14 tail

339 ↑8-5m/w Q↷ Breed of Hens with spurs good layers; but the spurs disturb the nest

355 ↑10-6m 356 5-9m 396 ↑8u "Kamm|Fleischlappen" 399 ↑14u↷ "angefressenen Kopf", ↑16-13m/w

Canaries ↑7-5m 400 5w Has Cocks 8-12w Cocks can withstand this deformity. What says Blumenbach? 10-11w

Hen-poultry ↑7u "habe|bemerkt", ↑4u/wr, ↑3u/wr, wb Hähn Hühne 403 4-6m/Q↷ 406 4-8w

wing feathers always split ↑12u↷ "Japan"

BECHSTEIN, DEUTSCHLAND

407 wt Spurs but in Cochin? tuft 1-4m/w spurs various Q, 4u "sehr langen" 410 15-18m 434 ↑3-1m/Q 796 5z

vol. 4 SB1 □R

p3; p13; p14; p.31 edge of caudal.— coloured to p.47 — swallow-tailed Pigeon Pigeons Canary Birds

p454 difference in disposition of Canaries

p462 — if 2 top-knotted canaries are paired there come bald or birds with wound on head

p465 lay 3-4 times

p468 Hybrids.

487♦ 487♦ 478

SB2 □β

Bechstein Vol 4

p5 C. oenas Q pairs with tame (nothing said about fertility of offspring)

p14 C. livia varies most in colour of rumpi & is not true in this respect Q

17 do not mix♦ associate readily with Fancy Pigeons

47 Swallow-tailed Pigeon Q

31 Outer Tail feather on outer edge coloured like body of Pigeon X

454 Great differences in disposition in Canary Birds

462 If you pair 2 crown-turned Canary Birds, crown will be bald, & skull fail.

465 Canary Birds will lay 3- to 4 times (no ♣ wild Finch will do this)

468, 478 Q Hybrids of Canary Birds, various genera — Hybrids of Siskin & Goldfinch breed inter se, but at first small eggs & weak young

vii 4-8m/w Read ix "Canarienvogel".m/w Read xi "Zweyter Anhang".m♦ xii 6-9m 3 ↑9u "paart | bleiben"/w pairs with tame → 4 2u "zahnen | zu" 13 ↑9-5m/w House Pigeon with black Bars common in Germany 14 1u "Feldtauben"/wt The field Pigeon great vary in rump 1-6m/w For those with blue rumps bring grey, with white & reverse 15 ↑5m/u "bey | dunkler" 16 15-22w with Bars & white Rump 1/2 wild in towers &c. &c.— 17 ↑2-1m 18 8-15w Field Pigeons vary when fed by man ↑11u "Liebhaber", ↑5u "gedüpfelte"/w the chequered Dovecot ↑12-8m/w, wb has watched how the wild vary as he gives order of appearance, I suppose may be trusted; but then gives Jacobin! Did he judge by commonness of variation? Does not say that crossing avoided.— 19 ↑2-1u "dass | setzen" 21 ↑3-1m 23 13-17m/w chequered ↑7-1m/wb The ash-grey chequering sometimes disappears leaving the black chequering more conspicuous 25 ↑7m/u "grosse |

Feldtauben" 26 7-9m/8-9u↔, 11-14m/w crosses 27 4w 1795 7-12w Swallow thin feathered legs scarcely larger than Dovecot 9u "dünn", 11u "kaum merklich" 31 1-4m/w edge of outer tail feathers coloured like body. Like white & black bars. 32 1-2w Satz of Neumeister 35 ↑12u "aber | über" 47 6w as a Plate, I suppose must have seen it 7-14m, 18m 101 4-5m/5-6u "bald | mehr", 11-13m/? 454 ↑7-1m 462 wt For feathers are parted & the parting gets wider & wider.— 5-8m/Q, 9-12m/w Mr Brent believes 11u/wt, 12u/wt 465 9-11m/9u "viermal" 466 4m 468 u/wt 469 6wt, 7u "zeugen | Junge", 7-12m/Q 478 (err. printed 487), 3-4m, 16u/wt, ↑4u "Loxia Chlovis" 487 10z 903 "Eisvogel".w 927 "Pieplerche".w IV

BECHSTEIN, Johann Matthäus *Naturgeschichte der Stubenvögel* Halle; Hennemann; 1840 [CUL, S]

beh, br, cc, cs, ex, f, fg, gd, he, hy, in, mg, no, or, pat, sx, ta, tm, ud, v, wd, y

NB1 I thought of comparing rarity of English & German Birds after p210

There is very little information, except by inference, about fertility of the crossed canary-birds =

NB2 It is surprising how many birds have been introduced as cage birds

p1 to 7

-20 -40 83,4 105 skimmed

107 Memory; 108 var; 112 do; 114 range; 137; 138; 145; 177,185,155; 192 var; 196; 205; 210; 212; 215; to 253 to 256 to end —

SB □β (2 sheets)

2 Birds understand each others cries

4 Singing male attribute to charm females

7 Voice of Birds improves by practice Q

20 (he means 40) Remarks on rarity of Cage Birds breeding, except such as Canary used to confinement

83 Psittacus large eggs but unfertilised 105 exception

XX 106 Pi♦ 142Q Different facilities in learning in Bullfinches p231 Q Different characters in canaries (as in man) — 267 Q in Larks taken wild 139 Bullfinch occasionally breeding

139 Canary male Bullfinch female (Canary female Greenfinch male p.145)

185 Male losing sexual character in confinement — 215 Linnet do. 219. do.

205 Habit Chaffinch has Q different song in different places — 265 Q Larks sing differently individually

210 Can cross House & Tree Sparrow, but

not reciprocal (224 on canaries do) Q
 212 on comparative rarity of House & Tree Sparrow
 221 vars of Goldfinch, 222
 230 Easier to pair Siskin with Canary of same colour
 237 Origin of Canaries & Hybrids of (p347) Hybrids) Q
 238 Thinks want of exercise great cause of variation.-
 (over)
 239 Hybrid of Canary & F Species always takes after latter in colour & shape Q
 242 good Breeders rare amongst Canaries
 247 In Birds reared from nest, either sex will do to match with Canaries Q
 248 Certain that Hybrid Canaries & Q Goldfinches & Siskins will breed inter se [but first young are weak]
 247* Has himself crossed Bull-finch & Canaries N.Q
 252 Canaries sing till they kill themselves.
 262 Several cases of Birds in dark places losing brilliancy of colour (Ch 7) p.300 do
 289 Garrulus lived 12 years
 293 Q for instinct Migratory & Home Thrushes can be distinguished - probably do not cross (V Brehm)
 312 Nightingale once exterminated do not reappear (shows less abroad)
 318 Nightingale sometimes breed in cage surrounded by green boughs
 319 live to 15 years old - even 25 years
 322 Nightingale different Q prowess of singers, some are night singers, inherited
 403N.Q I think mistake *C. oenas* & *livia* (No) But says nothing on fertility of Hybrids
 418 case of Quail Breeding

title page $\uparrow 3m$ 2 10-17w not aboriginal! \approx -urkey & \approx -en understand others \approx of fear 15u \approx "Zaunkönige verständlich" 3 5-6x, $\uparrow 12u$ "Locktöne"/w understood by many species 4 10-17w from happiness or love $\uparrow 12-11u$ "Denn | Weibchen"/ $\uparrow 15-11m/w$ few females sing in widowhood $\uparrow 6-5m/u \pm$ 5 $\uparrow 15-1m/wb$ different species learn with different facilities \rightarrow 7 $\uparrow 13-12u$ "weil | Männchen"/w larynx not so strong in female $\uparrow 5-3u$ "dass | wird", $\uparrow 5a/w$ $\uparrow 5-1m/wb$ improved by practice 20 $\uparrow 8-3m$ 40 wt V Blaines Encyclop of Sport. (Athe) whether Falcons were bread or continually fresh caught - good case of difficulty of breeding, after thousands of attempts on European bird. 1-20w Elephants occasionally breeding may be compared to the mule occas. doing so 58 6V 61 $\uparrow 11V$ 67 15V 83 $\uparrow 10w$ Psittacus macao $\uparrow 5-3m/\uparrow 5-4u$ "Bei

unbefruchtet", $\uparrow 1 \rightarrow$ 84 2-4m/4u "aufgezogene", 5u "nur | zähnen" 89 11x/u "pfeifen" 105 16-17m/u \leftrightarrow , 17-20m/x, wb it is known how very long pigeons live in confinement - \therefore not diseased. 106 $\uparrow 2-1m$ 108 15-20m 112 1-4m, $\uparrow 13-3m$ 114 15-18m 137 $\uparrow 10-3m$ 138 11-20m, $\uparrow 14w$, $\uparrow 13m/u$ "wie | Vögeln", $\uparrow 9-8m/\uparrow 8u \leftrightarrow$ 139 $\uparrow 4-3m/u$ "bringen | lauf" 142 $\uparrow 10-5m$ 144 $\uparrow 4m/u$ "Alter der" 145 2-6m 155 13-18m 177 4-5m 185 $\uparrow 3-1m/x$, wb X I think I have overlooked some analogous facts 192 $\uparrow 2m/u$ "Spielarten" 193 1-2m 196 10-12m 205 10-12m 210 $\uparrow 9-8u$ "ein | gerathen"/w Tree Sparr. 211 $\uparrow 3u$ "Fringilla montana" 212 9-11m/w still rarer in England 215 9-11m 218 18-21m 219 17-18m 221 $\uparrow 6-4m$ 222 $\uparrow 18-14m$, $\uparrow 11-8m$, $\uparrow 3u$ "kohlschwan" 224 $\uparrow 9-5m/\uparrow 6u$ "wenn | mit" 229 14-16m/15u "Deutschland | gemein" 230 14-19m/15u "die | gleichen"/18u "sogenannten" 236 $\uparrow 19-18m/u \leftrightarrow$, $\uparrow 8u$ "ohne | vermehrten", $\uparrow 4-3m/\uparrow 3u$ "erzogen. Anfänglich", $\uparrow 1u/w$ 237 1-4m, 6-10m, $\uparrow 11-8m/\uparrow 11u/w$ $\uparrow 1u/wb$ origin $\uparrow 3-1m$ 238 11-12u \pm /12u/w, 14-15m/15u "oft ausserordentlich", $\uparrow 8-5m/\uparrow 5u$ "sehr einfaches" 239 1-2m/Q/2u "Farbe | Gestalt" 242 6-20m/Q \approx /20u "Oder | spät", zb 243 1-2m 245 6-8m/8u "alle | möchten" 247 wt X F. linaria 6-7m/u "und | Bastarde", 9-18m/15u "Männchen | bei", $\uparrow 23a/w$, $\uparrow 21-17m$, $\uparrow 16u/w$, $\uparrow 15-14u$ "Erfahrung | die", $\uparrow 11a/w$, $\uparrow 5-4m$ 248 3m/wt F. spinus or Siskin 2a/w, 3u "wieder unter", 2-3m/Q 5-7m/Q 251 $\uparrow 21u$ "Das | Stube", $\uparrow 16m/u$ "Verschiedenheit | Temperamente", $\uparrow 5m$ 252 2-3m/w, 8u "Adern | zersprengen", 9u "herabfallen | sind", 15-21w related song 20-21m/u "der | fortpflanzt" 256 11-12m/u "Sie | bei" 262 6m/u "das | gemeissen" 264 12-13m/u \pm 265 $\uparrow 8-4m/u \pm$ 267 $\uparrow 3-2m/u \leftrightarrow$ /wb corporeal virtue & vice 282 3-5m 283 $\uparrow 3-1m$ 289 13m/u "zwölf" 293 19-22m, $\uparrow 12-19m$, $\uparrow 8-6m/Q/u$ "welche | fremde" 294 $\downarrow w$ Nothing said about breeding in domest. 13w The thrush 299 $\uparrow 13-10m$ 301 2-4m 308 20-21m/u "sind | Farbe" 309 zb 310 8m/u "bis | Schweden", $\uparrow 3-1m$ 311 $\uparrow 6-5m/u$ "wenn | leider" 312 wt The numbers of Nightingales in Europe in summer have no relation to amount of food for them. 5w, 7-12m/w This helps to show at what period the Sylviadae are destroyed. 15-18m/w think with respect to Malthus. $\uparrow 16-10m/w$ instincts dormant for one year 313 3-4m/u "Da | reisen" 318 $\uparrow 17-13m/\uparrow 13u$ "zuweilen bewerkstelligte" 319 2u "fünfzehn", 3u "bemerkt | Orte", 6-7m/u "fünf | ist" 322 15-20m/16u "nun | Schweden" 323 17-20m/17u "Es | Nachtigallen", $\uparrow 21-13m/\uparrow 20u$ "weiss aus", $\uparrow 12-11m$ 329 7-14m/12u "Diese | einer" 330 1-7m 332 4-8m 333 $\uparrow 6-4m$ 346 $\uparrow 7m$ 356 $\uparrow 6-5m/$

BECHSTEIN, STUBENVÖGEL

u "einige|um" 362 ↑10m/u "viel matter"
 377 ↑14m/u↔ 383 4-6m 387 16-21m/
 17u "Varietät" 397 ↑9-5m/w appears not
 uncommon 403 11-15m, ↑8-6m 406 8-9m/u
 "tritt|Jungen" 407 ↑11-10m/w Columba
 risoria 408 8-10u±, 11-12m, 16-20m, ↑13u
 "stets"/↑14-12m, ↑12u "grösser werden"/↑13-
 10m 409 3m/u "acht Jahre", 13-15m, ↑7u
 "unsere|schön" 411 1-3m 418 12-15m/15u
 "Jene|aus" 423 17-19m/18u/wc 424 ↑15-14m/
 ↑14u "die|Jahre" 428 ↑11-6m 436 (err. printed
 466) ↑13-12m

BEECHEY, Frederick William *Narrative of a
 voyage to the Pacific Philadelphia; Carey and
 Rea; 1832 [CUL, on B]*
 geo, ti

36 39-45m 49 3-17m, 26-31m 120 27-28"...",
 28-35m 136 wt Put this note to Matilda Isld
 wb ♦ Redo this Some of isld steeper ● 18-
 21w before 49 years 24-25w in 1767 26-30m,
 32m 137 wt who was Wallis 1-3m 143 wb
 Here there is no explanation of ledge 19-
 21m, 27- 39m, 37-42m 160 7-14m, 13-14u
 "general|fathoms", 13-15z 165 16-45m 166 1-
 45m, 20-21u "instance|usual", 27-29u± 167
 wb 67 2u "equally narrow", 14-17m, 15-17w
 like hill not Crater 17-21m 168 13-43m, 22-
 24w Earthquake wave 169 4-40m 170 1-44m
 174 35-42m 200 6-25w Note if same occurs
 to Beagle 15-25m, 15-25m 209 4-15m 211 4-
 11m 212 38-43m 213 1-2m, 40-43m 231 wb et
 314 44w 180lbs 444 31-37m

BELL, Charles *The anatomy and philosophy of
 expression London; John Murray; 1844 [CUL,
 S E. Darwin 1844 to Ch. Darwin Nov. 28
 1866]*
 beh, h, phy, y

NB p. 110 sneering muscles; p. 131 snarling
 muscles; 158 Pain; Wood-cuts of muscles
 99 p.107 109 p.261 general
 title page wb 1844 first Edit in 4to 1806. 2d
 Edn in 1824.- facing iii fig.wæ 13 3m, 14m
 38 24-32m/24-31w add or more strictly bones
 of the jaw in comparison of Negro &
 European 27a "jaw" two 64 10m 82 7-8m,
 12u "a|upon" 84 4-5m 85 20-24m/23-24u↔,
 26-27m/26u "office" 86 25-27m, 27u
 "emotions|developed", 29a "heart" but why? 87
 17-18!, 17-18u "instrument|mental" 88 1-
 14m, 5w fear 21-23w traces of sobbing, 22-
 25m, 32-33m, 32"... 89 1-2m, 2...", 3-6m, 11-
 16m 90 6-8m, 6-7w ie Heart & Lungs 7w
 Why? 20-22m, 29-30w see C. Bernard 91 9-
 11m, 9-12w because screams natural
 consequence 16-19m, 31-33m, 33u "double"

92 3-4u↔, 9-13m 94 28-30m 95 2-3m/2a "of"
 moaning & screaming, 8-12m, 15-18m, 16u
 "serves|economy", 21-23m, 22-24m, 22-23u
 "That|from", 23-26m, 24u "extending|
 surface", 25u "parts|exposed" 96 3-9w albino
 negros blush, so not to exhibit expression.-
 14-15m 98 wt If all muscles are common to
 apes, this can hardly be case 1m, 2-6m, 20-
 22m, 23m 99 6-8m, 19-20m 100 3-12m 101
 27-28m 102 6m, 18-24m, 26-31m, 24u
 "straight", 30u "oblique" 103 9-12m/"... 105
 17-20m, 24-26m/25u "laughter|sneezing", 24-
 33"... 106 1-4...", 4-7m, 4c, 9-13m, 13-15m,
 16-27m, 29-33m/"..."/wæ 107 11-13m, 11-14w
 in passion distended nostrils 108 19-22m 109
 fig.w/wb (explanation of fig.) 110 12-21m 111
 12w M. mentalis 21-25m 114 4-9m 117 18u
 "expression|speaking", 19u "modulation|lip",
 21-22m 118 12m, 18m, 28-29m 120 13-18m
 121 3-5m, 13-15m, 16-18m, 20-22m 122 6-
 9m, 9-14m/w, 18-21w & ears not depressed
 30-32m/w so threaten other males 123 16-
 22m/?, 19u "retroverted|eye", 20-21u "sol
 blow" 126 4-5m, 15-16m 131 2-3m/w
 because retained 14-17m, 21-22u "Their|
 canine" 132 22-25m, 26-30m 133 3-5m 135 2-
 3m 136 25-29m 137 2-9m/?, 5u ↔, 7u "they|
 eyebrows", 11-14m/11-12w monkeys have?
 Owen 12-14w frowning good 13-16m, 15-
 16m, 16w this in man but no but not the
 M 17-22w I have seen well developed in
 monkeys incessantly clenching skin over
 eyes 26-30m, 30-33m, 30-31u "a|animals"
 138 4-6m, 4?, 4u "arching of", 12-17w I
 suspect he never dissected monkey. 19u
 "expressing|fear"/18-20w Dog !!! 139 3-5m, 4-
 5u "muscle|expression", 6u "sign|altered", 14-
 19m, 16a "oris" or triangular oris 22?, 23u
 "weeping", 28-31m 140 9-11m, 12-14m, 24-
 27m, 29-35m 147 1-4m, 6-9m, 16-21m, 28-
 31m, 31u "system|nerves" 148 1-2w Disputed
 by Marshall Hall 149 6-8?, 15u "lacrymal|
 infected"/w not in Babys 31-33m 150 1-3m, 9-
 18m, 9-14w upturned corners give look of
 silly complacency 25m, 29-34m, 29-32m, 30u
 "elevated shoulders" 151 3-6m, 5-6Q 10-14m
 152 zt, 16-21m/w but are very little under the
 will 25-26m 153 wt in Laughter brows are
 brought down & arched 1-6m, 1w [gr
 Zygomatic?] 154 10-13m, 10-11u "tremor|
 excitement", 28m, 35m 155 7-8m 158 4-8m, 9-
 12m, 16-21m, 24-30m 159 4m 160 12m 163
 14-18m 164 1-5m, 22-24m, 29-33m 165 8-
 12m 166 fig.w shoulders raised, 8-12m 167
 28-40[...], 30-40m, 34-37m 168 1-3m 169 4-
 5m, 10-11m, 13-14m, 21-22u↔ 170 3-6m, 8m
 171 24-27m 172 8-13m 174 3-11m, 5-10m, 5-
 7"... , 11"... 176 8-13m 177 8-16m, 9-10w no

muscle keeps still 178 1-4m 180 9-12m 183
14-15m 185 29m 189 5-8m, 9-12m 190 5-7m,
12-15m, 22-26m, 29-33m 193 10-13m 194 9-
10m, 25-26m 197 24-26m♦ 198 16-22m 211
18-22m 214 22m 219 9-15m
*Appendix "On the nervous system" by
Alexander Shaw, pp. 231-258*
243 25-37m/→ 244 32-36m 248 23-30m 249
12-16m 252 1-4m 257 28-37m
Explanation of plates, pp. 259-265
(u, w henceforth names of muscles) 261 7u, 8w,
15u, 15-16w, 19-21w, 23-26m/24-26w, wb♦
262 2m/w, 12m/w, 14m, 14-15w♦, 16m/w,
21m, 21-24w, 24m/w, 32m/?

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George Bell & Sons; 1874 [Down]

37 5m 77 25m 89 14m 111 11m

BELL, John & Charles *The anatomy and
physiology of the human body* 6th edn, 3 vols.;
London; Longman, Rees, Orme, Brown and
Green; 1826 [Down, pre-B, ED]

BELT, Thomas *The naturalist in Nicaragua*
London; John Murray; 1874 [CUL, S]
beh, cc, ds, f, gd, geo, h, mhp, mm, oo, phy,
sp

NB1 (much not CD)

Page 23 26 Ants

28 Ants helping each other

28 Ants

112 Humming Birds S S

118 Monkey & Eagle - (CD:) give case I do
not allude to Mivart - Probably after
Rengger, just allude to Belt on ●

171 Indians

196 Cockatoos protected - Toucan

198 Toucans

209 Ticks

219 Acacia & ants protecting them

220 Nectar protecting plants (CD:) by ants

250 Skunk

260 Glacial

291 Nests of wasps

316 Butterflies protection & ants & spiders
(CD:) resemblance

317 Lampyridae

320 do

(CD:)

321 Frog protected by colour

334 FW area continuous

383 Protection

384 do

NB2 ♦ These references apply only to facts
useful for Descent of Man

♦70 Phaseolus not frequented by Humble-

bees & sterile

p. 333 Wide distribution of FW shells &
Coleoptera

207 Romanes

SB ♀ p.19 Phalangidae escaping ants by
lifting one after the other their long legs.

23 Blindness of Ecton an advantage in
keeping them together

26 sympathetic help of ants

74. Leaf-cutting ants determines existence of
trees & plants in S. America

77 ants rolling loads down steep slope

79 one of leaf-cutting - p. 83

grass brought by mistake

83 learnt danger by experience from
carriages on Railways

p 119 intellect & art of Monkeys

p 219. Bulls Horn mimosa & ants

p 222 Ants & Melastomataceae

260 Glacial deposits.

291 Birds building close to wasp-nests

316 Mimicry. mostly used p. 383 do.

334. Causes why F. Water productions have
not given rise to any new species - not
continuous under same conditions

1 zb 7 2-8m, 3u "polygamous" 19 19-22m 23

23-26m 24 11-20m 26 6-16m, 25-30m 28 24-

31m 70 12-23m/16-19u↔ 74 3-16m, 27-31m

75 9-12m 77 2-6m 78 16-20m 79 21-23m 83

16-18m, 28-31m 112 5-21[...]/6-21m, 10-14c

118 5-12m, 8Q 13u "Cebus" 119 6-9m 128 3-

8m 132 15-19m, 22"..., 22c, 23c, 25c 133 wt

Mr Belt says that he watched many flowers

during a whole season & 3-4"..." /1-4m, 6-

13m 134 14-26w this accounts for the orifice

being closed 171 1-24m 196 16-1m 197 19-

27m 198 5-13m 206 22-30m 207 5m, 5[...],

24w no no 26w races have 208 13[...], 13-

16m 209 9-14m 219 11-28m 222 5-12m 250

1-4m 260 22-32m 291 20-32m 316 20-32m

317 10-14m, 10u "family|as", 12u "Lam-

pyridae", 12m, 13u "genera", 14-18m, 15u

"were invariably", 16u "not touch", wb over

318 7m, 7-14m 320 13-20m, 16m, 16-17u

"out|eatable" 321 3-14m, 15-23m 334 11-14w

no Water Birds 24-30m 335 12-15?, 16-18?

336 1-2m 383 7-14m 384 25-28m 385 3-6m,

7-16[...], 8-15m, 8a "wing" is

BENEDEN, Pierre Joseph van *Mémoire sur
les vers intestinaux* (Suppl. aux Comptes
rendus hébd. des séances de l'Acad. des
Sciences, vol. 2); and

BRONN, Heinrich Georg *Essai "Étudier les
lois de la distribution . . ."*; Paris; Maller-
Bachelier; 1861 [CUL]

em, geo, hl, tm, y

Beneden ♂

Bronn

SA (pp. 594-595)

p513 to 542; 555,556; 560; 580 Hot Springs
513 ↑6-4m 514 8-9m 516 5-10m, 20-25m, ↑3-
1m/w Bronn preceded 517 1-4m, 7-11m, 10-
13m, ↑2w Bronn preceded 519 3-4m, 17-19m
520 11-15m 525 ↑9u "division|travail", ↑6-4m
(Milne-Edwards)/↑4u "diversification" 526 10-
20w Best discussion on Highness &
Lowness.- 20-25m/21u "Pour|animaux"/22u
"minimum|chaque" 527 1-5m 528 8-9m 534
1-10w Ruminants when young have bones
typical & distinct - Hence embryo higher
than mature animal 13-16m, 17-24m 536 wt
Land animals higher than aquatic 1-17m 540
14-18m 542 5-14m 555 1-9m 556 2-8m, ↑8-
5m/↑6u "un|des" 560 18-23m 580 †m/w Hot
Spring 581 1-8m, ↑4-3m

BENTHAM, George *Handbook of the British
flora* London; Lovell Reeve; 1858 [CUL]

NB D

ix 4-9m xiii 10m (Babington), 12-13m
(markings not CD, except possibly:) 32 4-7m 71
"Opium Poppy".w Down 106 "2".w W 119
"3".w Norfolk 130 "1".w Wight 137 "2".w l of
139 "1".w Isl of Wight 153 "1".w Norfolk 154
"2".m 161 "3".m 163 1-3m 165 "2".w l of W
181 "1".w Down Isl of Wight "5".w Isl of
Wight 193 "2".w Norfolk 207 "1".w Norfolk l
of Wight 223 "7".w Somewhere 229 ↑13x/u
"in|hairs", ↑2x/u "covered|down" 230 11-12x/
u "less|plant"/w Norfolk ↑1x/u "and" 231 1u
"down" 232 9-10m/x/u "and|hairy" 234 "1".w
(Hart)field 277 "9".w Norfolk 279 "1".w Isl of
Wight 292 "1".w l of W 315 "8".w l of W 317
"1".w l of W 405 "3".w Norfolk 420 "1".w of
Wight "2".w field 453 "2".w Down 70 475
"1".c, "3".c 476 "4".c, "5".c, "6".c 477 ↑16x/u
"Common|Britain" 478 "10".x, "11".x, "12".x
479 "14".x, "15".x 503 "1".w l of W 525
"1".w Down 70 530 "1".w Camb

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flora* London; Lovell Reeve; 1858 [CUL,
another copy]

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Dalton *Genera plantarum* vol. 1 i-iii, vol. 2 i-
ii, vol. 3 i-ii; London; Reeve & Co.; 1862-83
[Botany School]

vol. 1 ii, 441 30m, 40m, 49m, 53m 442 6m,
30m, 34m♦, 37m, 39m, 42m 443 6m, 16m, 51m
444 3m, 6m, 8m, 18m, 51m 445 10m, 26m 446
9-12m, 13m, 24m, 26m, 53m 447 1m, 6m, 46m

448 11m/9-12w also see Linnaeus 449 7m,
30m, 53m, 55m 450 49m, 55m 451 3m, 35m,
46m, 55m 452 16m, 24m 453 27m 456 26m 458
50m, 53-55m 459 1-2m, 7m/w Gleditschia
Duchata 460 19m 461 13m 463 19m, 29m,
39m, 45m, 48m, 51m 464 6m, 18m
vol. 1 iii, 951 33u "Petalalimbricata", 35u
"Petalavalvata"

vol. 2 i, 10 33m 11 9m, 14m 14 22m, 27m,
37m 16 45m 17 32m 21 28m 24 6m, 7m, 26m
25 12m 26 29m 27 38m, 54m

vol. 2 ii ♂

vol. 3 i ♂

vol. 3 ii (after CD's death)

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London; Dulau & Co.; 1863 [Down]

[BERKENHOUT, John] *Clavis anglica linguae
botanicae, or, a botanical lexicon* London;
Becket, de Houdt, Hawes, Clarke & Collins;
1764 [CULR, pre-B, S]

ac1 10m ac2 11-12m, 16-17m ap 21m/ut ar2
4-6m ca1 17-18m ca5 4-6m ci1 19-23m cl 21-
22m co5 5-6m cr1 17-19m cr2 8-9m cu2 14-
15m, 18-19m, 20-21m di12 18-19m em 20-
21m er 3-4m, 23m fi2 12m, 18-19m, 21-23m,
24-25m ge1 20-21m gl1 1-2m, 18-19m ha2
12-13m, 19-20m hi 3m im 7-8m in4 15-17m
la3 17-19m li2 15-17m me 13- 14m mu1 13-
14m mu3 5-7m ob 5-7m oc 1-2m op 3-4m
ou 7-8m, 13-19m pe1 8-9m pl2 11-12m, 25m
pl3 2-3m pr1 5-7m, 11-13m pr2 3-4m qu1
14-15m re2 3-5m ri 14-15m, 17-18m, zb se1
18-19m se2 13-14m se3 21m, zb se4 16-17m
so 5m st4 5-6m su1 10m, 16-18m su3 19-
20m to 5-6m tr1 7-8m tr4 6m tu1 9-11m va2
8-9m ve1 11-12m ve2 1-2m, 17-18m un1
20m, 22-23m

BERNARD, Claude *Leçons sur les
phénomènes de la vie communs aux animaux et
aux végétaux* Paris; T.B. Baillièrre et fils; 1879
[CUL (2nd vol. only)]

che, phy

77 5-11w glycogen but no sugar in muscles
80 23-28m 327 23-26m 333 17-19m

BERNARD, Claude *Leçons sur les propriétés
des tissus vivants* Paris; Germer Baillièrre;
1866 [CUL]

beh, che, ct, phy

NB ♦

The last Chapter on the Heart perhaps
concerns Expression.-

p 369 Ton Muscul
 Begun p 332
 349 will explain blushing
 p. 337 for Drosera
 SB (2 sheets)

(1)

21 ♦; 22 ♦

164 Contraction of vegetable cell – Drosera;
 drawing of cell; Drosera p.177 ♦ p. 210,
 p.337

177– Wourara affects nerve & not muscle

210 upas digitalis act on muscle

337 Strychnine affects sensitive nerves

Drosera

Bernard Tissus Vivants

[Hence it is wonderfully important that after
strychnine a tonal does not produce
 movement – when most absorbed does do
 so]

(2) ♦

April 20 1871

p. 310 not contiguity

316 spreading of irritation

321 Reversed nerve current

336.–Bears on spreading of effect of
 emotions.

353 profound contrast between voluntary &
 reflex actions.– latter most powerful when
 decapitated – Bears on weeping –

358 bears on individual effects of emotions

371; 384

397.– so Paget wrong

409 Name of vaso-motor system – 410

457 so quite independent of Habit certainly
 so.– But even here it may be habit which
 makes nervous power so readily follow this
 course.–

(over)

p354 Action of Brain checks reflex actions of
 many kinds Blushing & ♣ as the reflex
 action is to keep capillaries closed, if this is
 interfered with, there will be blush

p452, 457 Pneumogastrique irritated checks
 or stops action of Heart. thus a severe pain
 in any part act through the nose

(See H.H. says ♣ thinking about the action
 of the Heart interferes with circulation)

Nearest analogy very good for Blushing

My case of sneezing – about breathing○

p 459 direct action on Heart but why, except
 for habit, does the ♣ sensitive nerve, acting
 on brain influence the pneumogastrique.–

☞ very slight sensation initially affects
 Heart

46 ♦ 461, 463 reciprocal action of Brain on
 circulation & vice versa; syncope direct for
 heart

464 Reverse action & 466 direct action

21 14–21m 22 15–17m, 20–23m 177 3–4m, 21–
 22m 178 9–12m 210 29u "digitaline" 310 20u
 "non!" 311 1–3m, 1u "contiguïté" 316 6–10m,
 13–16m 321 1–7m 336 26–29m 337 15u
 "nerfs | mouvement", 20u "animal | curare", 21–
 24m 353 17–25m, 20u "augmentent | étendue",
 21u "souvent | diminuer", wb V → & p.358 354
 2–5m, 6–9m, 11u↔, 19–23m, 24–29m, 25–26u
 "C'est | réflexes" 355 4–6m 358 1–2m, 11–16w
 between all the reflex actions 11–18m, 16–
 18u↔, 21–28m/24–28w this is better than
 Müller wb Allude to Müller & give newer
 views 370 22–28m 371 2–6m 384 12–17m/12–
 14w reflex actions very special 397 wt ♦
 salivary gland acts by relaxation of arteries
 2–8m, 15–18m, 18u "cette | paralysante", 20m/u
 "mais | sympathique"/w a wb Hence in a blush
 some nerves from sensorium must paralyse
 the vaso-motor ganglia 400 wt The
 experiment of the arrow shows that much
 not affected only ♣ nerves, but these allow
 the vaso♦ capillaries to expand, & this
 expansion I presume causes flow of saliva
 409 24–29m/→ 410 9–28w I suppose when
 we burn from sensitive nerve causing
 impression to the cerebro-spinal ganglia &
 then paralyse the sympathetic & cause it to
 relax the vessels 17–20m, wb When we think
 intently of a part the part of brain which
 receives the sensitive nerves from part in
 question is affected, & this ♣ influences the
 cerebro-spinal ganglia – 411 1–7m, 22–24m
 439 15m↔ 452 26–29m 453 1–6m 457 22–29m/
 →, 24u "douloureuse" 458 28u↔ 459 1–6m,
 12–17m 460 19–22m, 21–22u↔ 461 14–19m
 463 13u "pâleur des", 15–17m 464 24–29m 465
 466 2–7m 485 6–12m/7–8w Ton 486 24–29m/
 25–26w Ton? 488 26–27m 489 14–15m, 25–
 26m 490 14m, 20–26m, 31–32m, 32u "Ton
 musculaire" 491 20–21m

BERNHARDI, Johann Jacob *Über den Begriff
 der Pflanzenart und seine Anwendung* Erfurt;
 Friedrich Wilhelm Otto; 1834 [CUL]

cc, ch, ds, f, fg, gd, he, hy, ig, mn, no, or,
 phy, rd, sp, spo, sy, t, tm, v, wd

SB ☐☞

Bernhardi

4. Definition of various forms of species Q

7. slight differences going with white var.

8 on Anagallis – argues for A. collina Q

12 one-leafed Strawberry, hereditary

14 on lacinated and curled leaves common
 to many genera

30 on Panicum ciliare turns into C.
 sanguinale Q

35 on vars. of some grapes very constant

BERNHARDI

39 a hybrid grass – rare case
 ♦45 *Erysimum strictum* not true
 50 on a *Pimpinella* ♣ being on a var.
 66 seedlings of *Veronica* changed colour –
 on vars of *Veronica* keeping true for 10
 generations –
 68 3 vars with analogous differences study
 these pages & look to Babington & Steudel
 will come in after *Anagallis*

vi 11–14w Denies the universal tendency to
 avitism 15–19w has no tendency to return to
 parent form 15u "*Chelidonium lacinatedum*" 2
 15u/wt, 18u/wt 3 wb There is no necessity
 according to my theory that new species shd
 have not descended from several pairs 4 9–
 18w Unterart is in fact a doubtful species,
 probably a species but very little different
 from other 22–30w "Abarten" a variety which
 does not tend to go back to parent form.
 "Spielarten", those that go back in one or
 more generations wb Does anyone think wild
 Pampas cattle identical with present stock.–
 5 1–2u "*Abänderungen*"/1–6w Varieties which
 do not keep constant, or only in certain
 ground.– 3a/wt, 17–25m/18u "*so | Zweifel*"/17–
 25w These several forms of species hard to
 distinguish wb Unterart subspecies =
 doubtful races or ♣ the close species
 Abarten – hereditary = race (or variety in
 animals) Spielarten which ♣ are hereditary for
 few genens – variety of Decandolle
 Abänderungen, which are not at all
 hereditary – allied to Monstrosities 6 28–30m/
 30u "*Rumex | nemorosus*"/28–30w colour of
 Beet wb compare these with Do they not
 belong to same Family 7 18–22u♣/18–28w
 1st turns into last without sowing. When
 colour more permanent, then accompanied
 by some slight changes just as Henslow
 thought wd be See next Page 23–26m/wb not
 in Spengler This bulbocapnos ♣ *Carus*
 produced white seedlings.– 8 12–19w
 Differences of *anagallis phoenicea* &
arvensis.– not proved to be same 23–25m/
 22–30w *anagallis collina* has 2 coloured
 flowers, believes this though experiment not
 decisive Q 9 5u "*A. carnea*"/1–5w Q This
 case true 7m/m, 8–13w fruit, taste & ♣ seed
 vary in colour & are often inherited 18u
 "*Phaseolus multiflorus*"/18–19m/w ? colour of
 flower & seed go together 22–25m/23–30w
 doubling not change of organ, but simply
 increase of petals 10 1–10w In *Datura* no
 loss of ♣ stamens (but may there not be
 potential stamens?) 14–18w on Hairs or
 covering of Plants 12 9u "*Trigonella coerulea*"/
 9–12w var. with stalks of leaves with leaflets,

23–26m/23–28w relative length of stamens
 good character in this ♣ Fam. but variable in
 Labiatae.– 29u "*Fragonaria monophylla*"/wb
 one-leafed Strawberry is hereditary 13 2u
 "*folia terna*"/w rarely inherited 19u "*Caulis*
fasciatus", 21u "*Sedum cristatum*"/21–23w in
 this case in some degree hereditary.
 24u "*Celosia cristata*"/24–25w Cockscomb
 example in flowers 28u "*Triticum com-*
positum"/wb hereditary division of the flower
 stalk 14 1–6w Thickening of special parts, as
 in Cabbages & heading of Cabbages. 9–27w
 Same variation affecting so many plants
 shows, how goes by laws. Lacination
 hereditary in *Sambucus* (& in Lettuce &
 Cabbage) so curled, blistered, &c. 10u, 12u,
 13u, 16–17u (u♣), 12–17w not hereditary 20u,
 21u, 27u, 28u (u♣) 15 wt curled leaves of
 natural species more regular 3–7w curled
 mint by seed had its first leaves not curled.–
 7u♣/10–11w partly hereditary 13u♣/12–15w
 petals only curled inherited 16z, 18u♣/18–
 19w leaves of in same situation 16 wt variety
 of Paeony with small leaves 12–15w Is there
 any *Linaria* with regular Corolla 30u "*auf |*
Boden"/wb on rich ground leaves of
involucra? end in spikes 18 2u/wt 19 1u♣/2–
 3u "*zwei | setzen*"/1–4m♦, 8–10m, 9u♣, 8–10w
 Probable mistake of Kolreuter's 24–30m/w
 See to this *D. stramonium* & *ferox* might
 be quite fertile. but *D. Tatula* & *ferox* are not
 quite but *D. stramonium* & *tatula* are. wb If I
 understand he only assumes about *D.*
stramonium & *ferox* 20 24–30m/wb When
 intermediate forms found together, always
 necessary to bear in mind the chances of
 their being hybrids.– 21 wb If the
 intermediate forms kept constant then one
 must be considered an "abart" of the other; if
 they went back to both parent forms, then
 they shd be considered as vars. & were
 result of external conditions ♣ on the two
 parents; which wd be subspecies 22 15u♣/
 16z/14–18w Organs of these plants make
 great differences 26 27z 27 19z 28 28u♣/w
 (a) wb (a) Doubtful whether these varieties,
 because other species differ in same, but
 greater degree.– 29 wb Those who are not
 naturalists think species a well defined
 entity; show the distinctions of Bernhardi;
 of Decaisne & Hooker.– H.C. Watsons
 classification of British close species – then
 the difference of numbers – Then cases of
 certain well known genera as Land-shells &
 Rats – then such flagrant cases as the 2
 Oaks – all this difficulty explicable on my
 theory depends only on ignorance of
 creations.– 30 14u♣/18u♣/14–17w Q turns

after repeated sowing into 20–24w V Steudel to see whether admitted 30u "glatte Abart"/wb does not change during 12 years 31 2u▲/w not this 5u "Abart"/6–7w this also true 11z 32 2m, 6u▲/5–13w This is a caryoploea, when it flowers 1st year, & differs in only one floret being awned.– leaves smaller 14u▲ 35 28–29u▲/wb changed in 3d sowing to D. glomerata 36 2m 39 25–28m 40 2u "hat | nicht", 2–3m 44 19–21w wild Cruciferae vary much 23u▲/24–26w probably vars 45 13u▲/14u ▲/14–21w scarcely abortive much less good species being cultivated from seed 46 3m, 4–6m, 7u/wr 50 8u▲/8–13w Kept true for 6 generations, but Steudel makes var. of L. Gallicum 16u▲, 18u▲, 16–18m/16–19w From this seed gave P. magna (Steudel makes var of P. magna– 66 4–8m/w In Veronica colours blue or red & some interchangeable 13w changed its colour 17–18w seedlings changed colour 25–26u±/25–30w Red vars. of these ▲ blue Angallis kept true for 10 generations but may be thought true species; but he seems to think other differences trivial.– 67 21–25m/21–28w when colour of flowers alters; so foliage, & when less colour, plant smaller. 68 17–21m/12–28w Like Rubus case & Hilacium. The abarten with red flowers from these 3 species differ from their stammarten in analogous way

BERZELIUS, Jöns Jacob *The use of the blowpipe in chemical analysis and in the examination of minerals* London; Baldwin, Cradock, Joy and J. Mawe; 1822 [Down, pre-B]

106 3c/wε 108 23c/wε, 24c/wε 141 11c/wε 147 16c/wε 154 15c/wε 214 23c/wε 275 15w A wb(not CD)

BEUDANT, François Sulpice *Traité élémentaire de minéralogie* Paris; Verdière; 1830 [Down, on B] ϕ

BEVAN, Edward *The honeybee* London; Baldwin, Cradock and Joy; 1827 [CUL, pre-B, S E. Catherine Darwin] beh, oo, wd

NB 352 Crippled Spider purling differently; 384♦; 261 taming Spiders & coming to Person for food ϕ 261 25–29m

BEVINGTON, Louisa Sarah *Key-notes* London; C. Kegan Paul & Co.; 1879 [Down]

BIANCONI, Giovanni Giuseppe *La Teoria darwiniana e la creazione detta indipendente* Bologna; Nicola Zanichelli; 1875 [Down] ϕ

BIANCONI, Giovanni Giuseppe *La Théorie darwinienne et la création dite indépendante: lettre à M. Ch. Darwin* Bologna; Nicola Zanichelli; 1875; trans. from Italian by G.A. Bianconi [CUL]

ad, beh, gd, ig, phy, rd, t, tm

NB All first part marked but nothing of importance

117; 158; x164, 9x;

I daresay many supposed rudiments have functions

173; x176; 179x; 206; 218;

Ruminant stomach – 268

Teeth & Skulls of vars of Dogs – 284

SB ⇨

31. number of joints in fingers good adaptation.– while intermediate – shows how well limbs adapted

117. Everything explained by adaptations

164. 169 uses of rudimentary toes to grip in descending mountains

174 no such a thing as a rudiment.

179. on the little hoof of oxen in ▲ soft marshy places.

206. In paddle of Cetaceans, variability of nodules of bone in cartilage

208 plan not uniform. joints in digits

218 explains wings of Bat by Mammiform Nature! & adaptation.–

268. no gradation between Ruminant & non-ruminant stomachs.– see Schiff on Duodenum

title page w 1874 12 8–12m 17 21–24w Wings of Insects & jaws of do 19 6–7u "nécessité | mouvoir", 7–9w Crustacean & Cirripedes 22 23–27m 23 8–12m, 18–21m 24 18–30w insects a far greater number of pieces end to end in limbs 25 8–10m 31 22–31m 46 wb All this adaptation agrees well with me, & explains cause of general form of limbs 117 3–16m 158 at (page no.), 8–12m/w why not a mere prominence of adjoining bone 164 20–23m 169 11–15m 173 18–23w but why shd it be a separate bone 25–26m 174 11–13m, 23–28m 176 22–26m 179 16–21m 186 wb why three bones & not in fin of fish or water Beetle plate facing 186 w why 3 bones? 206 7–12m 208 15–21m 218 18–22m, 19–20u "adaptation | nature" 224 7–10m, 8u "radius | seul" 268 4–12m/w Schiff ▲ shows that the Duodenum, I think, acts for this end; but no structural passage 15–19w Is it not in Kangaroos occasionally ruminant 269 11–15w

BIANCONI

Is it not in fact part of Oesophagus Schiff
275 6-9m 284 22-28m

BIBLE Cambridge; The Pitt Press; 1838
[Down, the family Bible]

title page (Note concerning children's diseases
by Emma)

BIGG, Henry Heather *Spinal curvature*
London; J. and A. Churchill; 1882 [Down, I]

BILLING, Sidney *Scientific materialism and
ultimate conceptions* London; Brickers & Son;
1879 [Down, I]

BINNEY, William Greene *The terrestrial air-
breathing mollusks of the United States* 2 vols.;
Cambridge, Mass.; Welch, Bigelow & Co.;
1878 [Down]

BLACKLEY, Charles Harrison *Experimental
researches on the causes and nature of Catarrhus
aestivus* London, Paris & Madrid; Baillièrè,
Tindall & Cox; 1873 [CUL, I]
cc, fg, gd

NB Shows how effective wind is in
Transportat of pollen

◆75 list of Plants

Effects of moisture discharge of pollen - 127
- 128

131 quantity of pollen of Graminae in air Q₄
- 132 - chaff^o of grasses

pollen at great height - 141◆; 147, 8, 9, do.
do. do. - Even alt wind had blown in any
how from the sea

◆148 on Board Ship

◆152 error?

◆157 Buckwheat entomophilous

500 - 1000 ft; more in upper current than of
lower [19 times as much] p152 over 1200 at
alt 1000 ft

75 33u "*Plantago major*", 34u "*Rumex*",
34u "*Polygonaceae*", 36u "*Amentaceae*", 36u
"*Urticaceae*", 42u "*Graminaceae*", 42u "*Cyp-
eraceae*" 127 26-32m 128 10-19m 131 38m 132
16-20m 141 29-37m 147 6-11m, 11u "600|
hundred", 14u "500" 148 7-10m, 10-11w p149
149 31-32m, 39m 150 8-13m 151 10-15m, 25-
27m 152 6-11m, 15-17m

BLACKLEY, Charles Harrison *Hay fever* 2nd
edn; London; Baillièrè, Tindall & Cox; 1880
[Down]

BLACKWALL, John *A history of the spiders
of Great Britain and Ireland* 2 vols.; London;
The Ray Society; 1861-1864 [Down]

vol. 1 NB O/

∅

vol. 2 NB 189, 207, 355

189 24-27m 207 16-18m 355 30-33m

BLACKWALL, John *Researches in zoology*
London; Simpkin & Marshall; 1834 [CUL, S]
beh, br, fg, gd, mg, mn, sp, t, wd, y

NB 3; 16; 29; 33; 46; 47; 51; 62; 73; 74; 80;
83; 86 Journal also; 89; 94; 122; 118; 136;
137; 141; 142; 151; 154 to 162; 174; 176;
190; 204; 227 Journal; 240; 245; 260; 270;
301

SB □^o

158 capacity of piping tunes in Magpie never
used in Nature Q₄

174. cases of Jackdaw Rook & Woodpecker
with monstrous crossed Beaks Q

3 14-21m

∅

16 14-20m 17 1-7m 29 6-14m 33 22-27m 46
wt Hence it will be important to show that
Malay Fowls make diff noise from Common.
1-4m 47 20-24m 51 8-11m 62 23-27m 73 8-
11m 74 24-27m 80 4-10m 83 13-17m 86 wt
Nor do all lcteri lay in other birds nest.- Is
Molothus pecoris migratory in N. America
(Yes I am almost sure Silliman?) 2-7m, wb
How easy for an ostrich to learn lay its eggs
in other birds nests were there any of same
size !!! 87 wt xx There remains to account
for young birds expelling brothers.- Not
invariably so Molothus in Sillimans Journal
1-7w Blackwall suspects they do xx 5-13w
Cuckoos do not pair - a remnant of Ostrich
state 14-20w From 4 to 6 eggs 18-24w No
see p. 75 wb The causes of Ostrich laying ♣
in different nests, is the number they lay -
Jenner? has said Cuckoos lay great number
does Blackwall say so ?? 89 8-21m 94 6-
13m 118 11-15m, wbee 119 6-7m 122 1-5m
136 23-27m 137 21-27m 141 6-12m, 20-27m
142 9-19m 151 23-27m 154 10-12m, 10-22m,
17-19m, 23-28m 155 1-7m, 16-27m, wb The
action of the old Pointer, they way look
round & have known to go round other side
of hedge. shows that they know what they
are doing: (my theory will explain all this)-
Lord Brougham says not knowing object -
one chief criterion of instinct 156 15-22m 158
16-28m 158/159 wb Hence it would be odd if
they did not sometimes acquire arts in wild
state. The capacity of animals which can be
shown by a thousand instances is in this
view important.- 160 1-6m 174 13-21m, 13-
16Q 23-27m 175 1-19m, 9-14m, 9-11Q 176 5-

15m, 8-10Q 190 8-15m 191 1-27m 204 9-16m, 12w x wb x What a contrast to Martins & Penguins deserting their young.- In Pointer we see contest between two instincts, standing & springing game 227 7-22m 240 1-13m 245 7-19m 260 2-15m 270 1-4m 301 1-5m, wb Important with respect to Argynauter attaining habit.
(\wp throughout)

BLACKWELL, Antoinette Brown *Studies in general science* New York; G.P. Putnam & Son; 1869 [Down, I]

NB 209 \diamond
209 15-21m

BLAINVILLE, Henri Marie Ducrotay de *Manuel d'actinologie ou de zoophytologie* Paris; F.G. Levrault; 1834 [Down, on B, S] \wp

BLUMENBACH, Johann Friedrich *The anthropological treatises of Johann Friedrich Blumenbach, with memoirs of him by Marx and Flourens, and an account of his anthropological museum by Professor R. Wagner, and the inaugural dissertation of John Hunter, M.D., on the varieties of man* London; Longman, Green, Longman, Roberts and Green; 1865 [CUL]

beh, fg, h, he, sl, t, wd

SB \diamond
191

203 Circumcision of Jews hereditary
205 \rightarrow Man the most domesticated of all.-
292 \leftarrow good to show how quite ignorant B. was of selection
 \wp 322 tadpoles hatched on back of adult in cells yet have tails!
191 29-30m \diamond 205 14u "is advanced" 290 11m
292 11-13m/u "because purpose", 15u "consequence of" 322 21-35m

BLYTH, Edward *The natural history of the cranes* London; Horace Cox; 1881 [CUL]

BOITARD, Pierre *Manuel d'entomologie* 2 vols.; Paris; Roret; 1828 [CUL, on B]

vol. 1 title page S

\wp (all w are page-numbers)

55 4w, 10w, 15w, 18w, 20w, 24w, 32w 56 3w, 6w, 11w, 14w, 15w, 17w, 18w, 19w, 24w, 31w, 33w 57 1w, 19w, 20w, 24w, 28w 58 3w, 13w, 16w, 20w, 23w, 27w, 35w, 37w, 40w 59 5w, 6w, 10w, 16w, 18w, 22w, 25w, 28w, 30w, 31w 60 1w, 20w, 30w 61 24w 62 1w, 4w 63 6w, 12w, 17w, 22w, 30w 64 1w, 3w, 8w, 15w, 20w, 25w, 31w, 37w 87 26w, 28w, 30w, 31w

vol. 2 title page Charles Darwin Rio Plata August 7th 1832

BOITARD, Pierre & CORBIÉ *Les Pigeons de volière et de colombier, ou Histoire naturelle des pigeons domestiques* Paris; Audot & Corbié; 1824 [CUL, pre-B]

beh, cc, cs, f, he, hy, ig, oo, phy, sp, sx, tm, v, wd, y

NB \wp p 34 colours in crossing

SB1 Les Pigeons..

p.VII Introduction

It is a mistake to expect a tumbler suddenly to appear-

p.10; 15; 27 - ask Gould; 30; 34, 37; 54; 58; 64; 80; 120; 158; 163; 164,6 to 229; 235; 238

SB2 $\square\beta$

Special facts on Pigeons not here included

12 Females show antipathy to certain males (Ch. 6.)

15 Roman keep Pedigrees of Pigeons Q

32 Account of many crosses

35 useful Pigeons more fertile (45 fear experience) p. 160 do.

36 Absorbed in 7 or 8 generations Q \wp

37 Biset produced from complicated crosses

Q - One cross the Cavalier always true Q \wp

54 Pigeons of different size do not cross readily (Ch. 6.)

120 On Hawks observed to pick out white Pigeons; hence some owners examine all nestlings

158 By high feeding Dovecots rendered as fertile as Fancy Breeds (Ch. 3.)

165 The sailing Pigeons Q

173. Var of Pouter of which female never panachés - or chequered Q \wp

178 Claquart Q - 221 Turner or Smiter

200 Sub-vars of Nun - colours vary, but feathers coloured remain same Q

198 argument of intermediate form not being produced now as proof that both are species

208 Hybrid from Barb & Turbit very fertile Q

211 Turbit fly from Paris to Liege in 14 hours

224 Fan-tails crossed with any others lose character Q \wp

235 Sterility of crossed Turtles Q

238 In crossing white & common collared Turtle, young take after one side exclusively Q \wp

title page u "Corbié"/w kept pigeons for 45 years vii 26-31m 10 30-31m/wb p. 12 12 1-15"...", 16u "six mois"/16-17m 15 1-2m, 7-9m/8-9w See to this 27 5-17m, 19-20m, 24m/24-25w this must be mistake 27-31m/28-29w

BOITARD & CORBIÉ

what genus 28 17-22m 30 23-24m 31 15-18m/16-19w effect of cross long continued 27-31m 32 8w common Pigeon *wb* Nonain - Jacobin 34 6-9m, 9u "à|cavalier", 18-19u "souvent plombé" 35 7-12m, 20-22m, 24-26m, 30-31m 36 *wteε*, 4aε, 6-10m, 11-12w 3d cross 14-17m/16-18w 7 or 8 generations 37 1-4m/3-4u↔/1-2w !how odd Qε, 17-24m/20-25w how odd! Blue bars returning *wb* p152 description of Biset 54 4-6m 58 24-29m 64 1-3m/!!!/a "effet" sterility 80 5-10m 120 14-19m, 30-31m 152 2u "ou|pur"/4-5u "toutes|ailes"/6-7u "du|queue"/3-8w Dovecot & Chequered 153 3-5m/4u "Chardin"/3-5w What date 1686 in Ray Billi 158 5-10m 160 2-7m 162 22u "jadis estimé" 163 25-26m, 31m 164 13-14m, 17-21m 165 3-4m, 7-10m, 11-15m/11-13u↔/14u "moins haut"/15u "que|lillois", 17-18u↔, 23u "à|argenté" 166 3-6m, 13-17m, 16u "larvae", 23-25m 167 16-20m/17-22w hence not wild, yet well characterized 29-31m 168 1-2m/Q 5-9m/w only colours 169 9-10m, 16-19m, 20-23m 170 1-3m, 22-24m, 29-31m/29u "les|panachent" "de|petits"/28-31w not wild 173 7-9m/Qε, 9u 174 4-5m 176 3-6m, 15-18m, 22-23m 177 18-22m, 19w variation 22-23m, 25m/26u "milieu|seul" "allongé|mince" 178 6-8m/6u, 18u "Claquart", 19u "Columba precursor", 20u "Pigeon batteur", 22-24m, 25-29m/25a "plongeur" p. 165, 27u "enfle" 179 1m, 1-2u "ailes|yeux", 2u "chaussés", 3u "blanc", 9-14m/10u "M. Vieillot", 14-15m, 17-18m 181 1-2m, 8-10m, 21-23m 182 19-21m 184 2uε "Bagadais", 3-7m/4u "long|crochu", 7-10m/9u "leur|pates", 25-28w Scanderosa certainly pl. 9 *wt* Scanderosa 185 5m, 9-10m/10u "Tous|peu", 15-16u "pigeon cygne", 19-20u "et|moindre"/21-22u "ordinairement|noir"/18-21w just contrary to Brent 186 11-13m, 15-17m, 24-25u "redoutable" 187 1m, 18m/u "nouvelles" 188 22-23m, 23u "excessivement farouche" 189 2-5m 190 11-13m, 23-28m 193 16-17m 194 4-5w Archangel? 8m, 14-19m 195 21-23m, 23-24m, 24u "tête|vol" 196 5u "leur|court", 15-16m/u♠, 17-19m/18u "parce|conseroent", 19-30m/23-24w No blue 197 8m, 20-21m, 23-25w crossing & keeping part of character 24-30m/25-29w !? Why narrow shakers? 27a/u "cravates"/w p.210 27a/u "coquilles"/23-25w v. p. 199, yet nonains so near can be crossed & keep part of character 26u "paons", 27-28u "glouglou", 27-30m/*wb* are not the characters chiefly trivial? How is it in crossing poultry with crests? 198 *whole* ↓w I do not see this argument. It presupposes that characters of a species cannot be transmitted to a hybrid: I know of no such case; on the contrary it

might be argued those characters were not fixed - requiring both parents to have it *wt/1-6w* ♦ This argument for certain number of races - in fact crossing will not do *midpage.w* Q, Qε 199 ↓w & c pigeons with a Coquille can be produced p197 by crossing a nonain with a common pigeon 9-12m, 13w The Coquille is reversed feather like nonain 16-26m, 17-20m, *wb* Nuns 200 2-5m/w laws of colouring 201 10-12m, 19-20m/19-26w ! Yet has said that Coquilles will not transmit their peculiarities 204 7-11m/9u "brièveté" 206 17u "carmes|soigne", 24-30m (Buffon) 207 10-11m, 21w Barb? 23m, 26-27m 208 *wt/1-2m/w* Ray talks of head of Turbit being square - 6-8m, 15-17m, 18-19m/?/18u "morilles en", 25-27m/25u "Il|polonais", 28u "Il|nourrit" 209 10-16m/w Certainly Barb - nothing said about being wild 210 12-14m, 18-20m 211 *wteε*, 1-2w 15 miles per hour 14-17m, 30u "un|yeux"/w See to this *wb εε* 212 3-6m, 26-27m 213 4-5m 214 16u "bleu", 21-26m 216 9-30w I shd think these were same as Antwerps 218 16-18m 219 4-5m, 15-16m 220 12-13m, 23-28m 221 7a "culbutant" Tumbler 8-9u↔, 12-16m, 23-26m 222 3-10m, 14-16m, 18wε Spot 223 17-19m, 26-27m 224 3-5m/Q/!, 7w p. 226 20m, 23-24m 225 4-8m, 9xε, 12-13m, 14-18m 226 3u "faculté|relever", 4u "moins large", 8-15w There have been several vars of this 24-27m 227 17-19m 235 3-8m 238 18-21m/Q 22-25m 240 4wt, 7w♦ τ, 8-9wt 8a/ut, 9m/u, 14u/wt, 15-16u/wt, 18-19m/u/wt, 20wt, 20wt, 23u/wt, 25u/wt, 28a/u/wt

BOLINGBROKE, Henry, Viscount A collection of political tracts London; 1748 [CUL. 1900]

(ink marks not CD; the following possibly CD)
4 4-12m 6 ↑120-3m 64 ↑12-3m 65 9-15m 77 12-15m 140 12-20m 177 6-12m 185 ↑15-13m 187 ↑4-1m 189 12-18m 213 1-3m 217 ↑10-6m 219 ↑11-7m 220 14-18m 234 ↑11-5m 235 ↑11-8m 236 9-12m 245 ↑8-6m 247 7-9m 260 15-20m 264 ↑12-8m 265 5-8m 266 ↑20-5m 271 1-4m 285 8-16m 291 ↑3-1m 292 1-12m 295 ↑14-8m 311 10-20m 334 3-10m 346 ↑5-2m 347 9-15m 374 ↑14-2m

BOLINGBROKE, Henry, Viscount A dissertation upon parties London, 1739 [CUL. 1900]

133 u/wε 269 u/wε

BOLINGBROKE, Henry, Viscount Letters on the spirit of patriotism London, 1749 [CUL.1900]

(ink markings not CD; the following possibly CD)

18 ↑10-4m 26 ↑10-1m 49 5-10m 60 ↑8-1m 73
↑12-9m 77 ↑3-2m 91 ↑7-3m 92 ↑12-9m 118
8-10m 135 6-8m 138 ↑10-1m 148 4-9m 157
↑8-5m 159 2-10m 161 ↑8-5m 169 6-10m 175
1u "studdy", 4-6m 179 ↑13-8m 190 10-13m
192 ↓m

BONAPARTE, Charles Lucien *Coup d'oeil sur l'ordre des pigeons* Paris; Mallet-Bachelier; 1855 [CUL]

ad, gd, tm

SB □β

3 - On number of tail-feathers - 16 in Goura - ♣ Q

21 Birds of E & W Africa often same, but different at Cape

44 Balancement - long tarsi & short toes in the Phaps group

50 Zenaida American group - Galapagos

2 26-27m, 30-33m, 32u 3 9-10m, 10-11Q₂, 11-12m, 11u "pattes|plus", 12u "douze", 16u "quatorze|seize", 29u "s'élève|seize", 34-37m 4 13u "première|sont" 5 5-10?, 25u "orbites nues", 26u "rémige échancrée" 8 14u "quatorze|pennes"/13-16m/w The Pptilopoda ought to have 14 12 27-30m, 32u "les|développé", 34-36m, 35u "presque|oeuf" 13 2-3m 19 14m, 15-18m, 15u "douze", 16u "sous-famille", 16u "seule cosmopolite" 20 27-29m, 27u "genre|deuxième" 21 30-35m 22 21-24m, 30u "Col. livia", 35-36m 23 4-5u "deux|caractériser"/4-7m/4w orruption blanc., 5-18m, 8-9u "clair, gris-bleu", 15u "plus d'assurance", 19-21m, 20u "C.|retrouve", 26u "d'un|lou", 37-39m 25 12-19m, 28-33m 44 3-8m 50 8-12m, 9m, 10x, 9-10w Zenaida at Galapagos good case 51 12-17m 52 15-21m

BONAPARTE, Charles Lucien *A geographical and comparative list of the birds of Europe and North America* London; John Van Voorst; 1838 [CUL, S]
gd

NF go through this list with D'Orbigny & self & see what birds common to N. of America & Europe

NB 35 Nothing in particular on birds
35 26m 45b 19w Galapagos 47w Rio Plata
46b 26w Rio Plata 47b 9-10w Galapagos 17-18w Rio Plata 48b 25-26m 49b 5-6w Rio Plata 50b 13-14w Tierra del Fuego
ø

BONDI, Augusto *L'Uomo: ipotesi sulla origine (teoria darwiniana), considerazioni* Forlì; Tip. Soc. Democratica; 1873 [CUL, I]

BONER, Charles *Transylvania: its products and its people* London; Longman, Green, Reader and Dyer; 1865 [Down]

BONNAL, Marcel de *Une agonie* Angoulême; F. Lugeol & Cie.; 1877 [Down] ø

BONNET, Charles *Oeuvres d'histoire naturelle et de philosophie: insectologie* 2 vols.; Amsterdam; Marc-Michel Rey; 1780 [Down, pre-B]

vol. 1 NB 160; 167

130 30-34m, 31u "petit accroissement" 160 18-20m/21u "deux|Eté", 22-24m/23u "jusqu'à|fois" 163 2-6m/5u "douze fois" 167 10-12m, 24-28m 267 17m 268 15-16m, 24m 269 19m 271 2m, 5m

BONNET, Charles *Recherches sur l'usage des feuilles dans les plantes* Göttingen; Elie Luzac; 1754 [Botany School, FD]

BONNET, Charles *Recherches sur l'usage des feuilles dans les plantes* Göttingen & Leiden; Elie Luzac; 1754 [Botany School, FD]

9 1-4m 17 5-9m 19 9-11m 27 1-3m 42 23-25m

BOOTT, Francis *Illustrations of the genus Carex* 2 vols.; London; William Pomplin; 1858-1860 [Down]

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BOSQUET, Joseph *Description des crustacés fossiles du terrain crétacé du Duché de Limbourg* Haarlem; A.C. Kruseman; 1854 [Down, I]

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BOUDIN, Jean Christian *Traité de géographie et de statistique médicales et des maladies endémiques* 2 vols.; Paris; J.B. Baillière et Fils; 1857 [CUL]

cc, gd, he, oo, pat, sp

vol. 1 SB □β

☞ xlv

l-iii; p. 201

→p320 ☞ number of animals killed in France, showing how one animal increases; ☞ compare with ravages of wolves

p.347; p.392; p.406

☞ Poor Book

☞ The introduction gives all the most important cases; which show that climate & race affects the constitution; if so why not the progeny?

xliii 35-38m xlv 1-36m lii 12-38m, 16-19m 1
☞ 9-17m, 23-27m 201 15-20m 320 29-33m
347 25-28m 392 31-32m 406 14-23m, 14-18m
Catalogue ☞

vol. 2 SB Vol 2

☞ 295; 317; 321, 322 ☞ Bouton d'Aleppo

401 ☞ Negro diseases

445 ☞ Elephantiasis

529 ☞ Deaths of different Races in Ceylon

648 ☞ - do in Jamaica.

Most of the local diseases probably ♦ have local cause but it shows what little causes act, unperceived by us & act differently on different races - may as well produce diffrens of structure, as such diseases as the Bouton of Aleppo

295 2-5w☞ strictly local diseases 317 12-15m☞, 24-26m☞ 321 3-5m☞ 322 7-19m/w☞ drinking certain water saves from Bouton 401 7u "être noire" 445 11-17m 529 35-41m 648 4-11m

BOUÉ, Ami *Autobiographie* Wien; F. Ulrich und Sohn; 1879 [Down, I] ☞

BOURBON DEL MONTE, Jean-Baptiste François *L'Homme et les animaux* Paris; Germer Baillière; 1877 [Down, S]

SF 63; 65; 71; 72; 73; 79; 81; 87; 89; 90; 91; 93; 97; 98; 99; 101; 108; 111; 129; 137

BOWDLER, Jane *Poems and essays* Bath; 1819 [CUL.1900]

125 3-6m 130 ↑6-1m 131 1-3m, 10-14m 134 ↑3-1m 135 1-10m 177 9x, ↑4x 178 ↑9m 223 5x/w 29 227 ↑4x 229 ↑3x 232 3x 235 11-16m/16x 239 ↑3-1m 240 1-15m 242 5-10m 245 1-10m, 11-18m 249 1-8m, ↑15-9m 258 4-10m

259 ↑6-1m 260 ↓m 264 2x, ↑12x 265 3x 266 5x 268 ↑8x 270 1-12m

BOWERBANK, James Scott *A monograph of the British Spongiadae* 4 vols.; London; The Ray Society; 1864-1872 [Down] ad, hl, tm, v

vol. 1 NB Even in so lowly organ. bodies as Sponges B has shown the special uses of the wonderfully diversified & curiously formed Spicula -

☞

(vols. 2 and 3 ☞; vol. 4 ed. by A.M. Norman)

BOYER, Abel *Le Dictionnaire royal françois-anglois et anglois-françois* New edn, 2 vols.; London; J. Rivington; 1816 [Down, pre-B, ED]

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NB 388 correlation of colour of skin; 392 smells emitted by Human beings

☞

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ch, fg, phy, v

vol. 1 NB 43♦ Ash Tree - 199♦ - White edging leaves common by graft; 132 black and white grapes, & striped on same plant; 298♦

43 6-8m 132 19-26m 199 2-5m, 21-27m 201 25-37m 202 1-6m 298 15-21m, 15-16w 1724 20-24m, 21-26m 299 zb

vol. 2 NB p.16; p.172♦; p.172♦

16 26-31m, 39-48z 171 22-30/22u "soft"

vol. 3 NB 1722; 40♦; 58 on good from change of Seed; 60♦; 90♦

40 30-33m 41 7-15m 58 20-22w in 1724 21-31m 59 1-5m 60 2-17m, 7-15w A.O. 1722 11u 90 14-40m index, p. 3 12m, 16m p. 4 25m p. 6 13m p. 7 24m p. 8 18m

BRADY, George Stewardson *A monograph of the free and semi-parasitic Copepoda of the British Islands* 3 vols.; London; The Ray Society; 1878-1880 [Down]

BREE, Charles Robert *Species not transmutable* London; Groombridge & Sons; 1860 [CUL]

beh, cc, sl, sp, t, ta, v

NB 78 Variation accidental as far as good of animal is concd

- ◆ Origin
- ◆ 102 Sp. Th.
- ◆ 132 Origin
- ◆ 157 Origin
- ◆ 168 good No; 222 Origin; 222 Sp Theory; 252 aphid
- ◆ 168 Look to – may not different castes of ants be produced by different food
- ◆ 222 on variability of Larvae
- ◆ 252 on aphides & Ants.

60 6-8m, 18-22m 78 wt He must think other species 4-5m, 5u "uncomfortable", 7m 102 10-29m, 22-24m/22w good 103 4-6m 108 26a/u€, 25-27w time of – no 132 19-32m 157 4a/u "same"/w similarity 7a "these" several 166 3-7m 168 wt Plant produces 2 forms wb yet wd be due to selection of instincts 15-23m 222 11-13m, 15-22m, 25-28m 223 26-29m 252 11-23m

BREHM, A.E. *Illustriertes Thierleben* 4 vols.; Hildburghausen, Verlag der Bibliographischen Instituts; 1864-1867 [Down]

beh, br, gd, sx, tm

vol. 1 NB 75 Baboon like spirituous drinks & orang like tea & coffe & wine?

- ◆ pxxx about polygam?
- ◆ xxxvi about pairing
- ◆ p261 Baboon & Leopard
- p.119 stopped reading March 2d
- p77 apparently polygamous Q
- 108 Poly & ●

title page S 11 6-9m, 10-14m 23 14m 25 35m 30 29-30m 33 7m 35 8-9m 39 23-45m, 30u "Siamang", 32u "freudiger" 40 17-23m, 21-22u "seinelan", 23m 47 16-18m 50 21-22m, 24-31m 52 16-17m 53 wt Tail 1-3m, 7-8m, 27-31m 54 10-12m 56 1-5m, 9-12m, 11-13m, 20-23m, 31-39m 58 17-23m 59 3-6m, 9-11m, 9-11m, 22-25m, 22m 60 1-4m 61 11-12m, 11m, 17-18m 62 33-36m, 34-36m 65 20m 67 13m 68 16-20m 70 1m, 16-19m 72 46-48m 74 24-32m 75 1-5m, 2-3w get drunk 12-14m/12-14w distinguish male & female 33u▲ 76 27-40m, 47m 77 6-9w lives in Tropics 15-20 to 150

10u "und | Weibchen", 12u "Mantel", 13-14u "die | Mutter", 44m 79 8-35m 80 7-26w Saw them roll down stones, as large as head, so as to close the pass for the caravan – act in concert & use tools.– also defend each other for the males advance 81 18-19u↔ 82 wt old male Hamadrya & Geledons fight & tug each other by the long man or mane of Hair, & roll down stones against each other 28-31m 84 3m, 7-11m, 7-14w hits the ground when in passion with open hands – as in Garden. 22-27m 85 wt X Master shown by pretending to strike him, & the pretender instantly recognised.– Mat on shoulders to protect from heat of sun 25-26x 86 1-5z, 9-11w very fond of riding apes 13-19w very fond of Beer – headache after being drunk 44-48w/wb very much afraid of Lizards & Frogs & Lurchen yet very curious like Orang with Turtle– 45-48m 87 wt X one individual of distinguished intelligence – very fond of all young animals – & when kitten scratched him, bit off claws. 12x, 28-31m, 29w about food 34-39m, 42m, wb very clever in stealing & conquered Dog 88 17m 91 3u/w fright 7-10m, 8u "hellbraun", 10-12u "In | gefärbt", 46m 94 25m 96 8m 101 18m, 35m 103 17m 107 21-22w Polygamy 108 19u▲, 33-34u▲/34wt, 40-41u↔ 111 22-24m, 24u↔ 112 2m 113 13-14z 114 17m 116 21m 119 10m 120 16-20m 124 32m 128 9m, 43-48m, 48u ↔ 129 1-6m, 6u↔, 35m 130 11-13m, 11u "aufgeregten", 12u "sich | möglichst" 261 3m

vol. 2, 729 11u "die | Schild" 731 20-29m, 26-28u↔, 31-33m, 36-38m, 37u↔, 40-41m 732 10-16m, 13u "auf | fallen" 743 13-14w up-curve fig.z, fig.w these ought to curl a little more outwards (see Wallace – correct by him; Reduce Wallace's drawing & face same way with Boar 14u "rückwärts", 17-18u "Die | kurtz", 19u "ragen | sie" 745 15-17m, 15-16u↔, 34u/wt

vol. 3 NB 236 Vidua; 322 Paradisea; 745 Rupicola 236 5-9m, 18-20m, 19u "feuerroth", 23u "roströtlich", 40-44/42-43u "paarweise" 237 3-5m, 4-6w sings when in fine plumage 292 15-18m, 15u "bedeutend kleiner", 16u "ist | auf" 293 4u/wt, 6u/wt, 11-12u↔ 325 1-4m/1-2w long feathers 9-12m, 9u "sonderbar | Geräusch" 326 24u "Bennett's", 26-32w cannot bear any dust on feathers

vol. 4 NB 351 Courting of black cock; 991 on Courtship (?) 352 9m, 14-15m/19m 469 2-6m, 18-20w tailfeathers & secondaries 18u "ungemein |

BREHM

stark" 473 10m 990 29-31m, 29-30w few polygamous 33u "Da gibt"/33-37w more males than female

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BRENT, Bernard P. *The canary, British finches, and some other birds* London; Journal of horticulture and cottage gardener, n.d. [CUL] hy

NB p.21; p.22; p.30; p.109 Hybrid Canaries 21 8-12m 22 19-21m/20u "feather-footed" 30 12-16m 55 7-11m 109 32m

BRENT, Bernard P. *The pigeon book* London; Cottage gardener office; n.d. [CUL] br, hy, oo, v

NB w₂

Q p4♦ 13 - Hybrids with C. Oenas

Q 41 - Kite Tumbler after spling become black

46 Trumpeter 1/16 blood not trumpeting

55 - Lace Fantails always give lace to offspring what a contrast with my Japan silk Fowls!

60 - The story about Hawks killing tired Carrion wrong.

↔ 36 definition of splash pigeon

13 6-12m, 14-16m 36 41-47m 41 12-18m 46 20-31m, 28-31m 50 zt 55 27-31m 60 20-22m

BRIGGS, Thomas Richard Archer *Flora of Plymouth* London; John Van Voorst; 1880 [Down, I] ♂

BRIOSI, Giovanni *Intorno un organo di alcuni embrioni vegetali* (extr.); 1882 [Down]

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SB Brit Assoc Vol 3; p. 50 x; p. 447; O/Oct. 1857

50 17-29m/w Hooker quite agrees 446 15-20m 447 21-26m

♂ throughout

British Association *Report of the eleventh meeting of the British Association for the advancement of science, held at Plymouth in*

July 1841 London; John Murray; 1842 [CUL] em, fo, gd, hl, ig, ir, sp, t, ti, tm, ts, v

SB1 1841; p. 77; p. 96; p. 173; p. 181 Waterhouse - low in scale; 185 185; 186; 192; 193; 196; 198 to end.-

SB2 □β

96 Different form of Vertebrae in ant & post part of column. Ch 7. Kinds of Transition.- ◇ 173 Owen intermediate fossils - 185 - 196 Summary on do

181 do - animals on confines of groups present great differences

197. Argument (Owen) against Transmutation - Resting on assumed rise in development - Grand discussion.-

201 Embryology of recent Reptiles resembles ancient

♂

77 49-54m 96 44-50m/? 173 37-45m, 44-47m 181 23u "like a"/21-27m/1-24w this is like Waterhouses remark that low groups vary much, 29-34m/29-51w according to this, if there were many Monotremes, they wd vary much.- 185 41-48m, 46u "Pleiosaurus"/46w Enaliosaurians 49-53m/50u "other fishes"/w p.186 53-54→ 186 30-32m 192 36-41m/1-44w As species are long lived (must be!!) so are genera - how is this in Mammifers Badger long-lived - Carnivora in Eocene 193 33u "terrestrial"/31-49w These cd have been np terrestrial Mammifers for 70 specimens of Iguanodons have been found 196 9-11m, 13-15m, 20-22m, 24-30m, 36-38m, 48-52m 197 21-25m/33-37m/1-35w assumes the series to be perfect & a tendency to higher development - 198 12-14m/12-42w must confess even on my view imperfection of record surprising - 22-25m, 36-38m, ↑8-2m 199 3-5m, 7-9m, 18-30m, 32-44m, 49-54m 200 1-8m, 29-33m, 45-51m, whole ↓w Do those geologists who tacitly think the record pretty perfect - think that there were only 3 Mammifers during Oolitic & only . - Reptiles during Carboniferous & so many in Permian & ♣ Triassic 201 22-25m, 36-41m, 43-50m 202 6-8m/w Falconer 11-15m, 21-24m ♂

THE BRITISH AVIARY London; Dean and Munday; n.d. [CUL]

18 ↓m/"... 20 8-18m 25 wb 2 32 ↑8-1m 33 6-14m 34 8-16m 40 6-14m 43 4-10m 50 ↑4-2m 51 1-2m/m 57 ↑10-7m 68 1-4m

British Museum (G. Busk and J.E. Gray) *Catalogue of Marine Polyzoa in the collection of*

the British Museum 2 parts; London; by order of the Trustees; 1852/1854 [CUL]

Part 1, 39 1-4m 44 18-22m 54 ↑13-11m, ↑9-5m **Description of plates, iii** "pl XXII".m

Part 2 NB (not CD)

67 3-8m, ↑11-7m 70 2-4m, ↑16-14m 83 16-19m, 24-27m 84 ↑3-1m 94 7-9m 104 3-7m, 16-21m, 19-21m/21...", 29-33m 105 13-26m, ↑11-1m 106 1-7m/2-7".../2a "seta" & the 2a "observed" ● ↑4-1m/↑3u "avicularia|far" 107 8-11m/w Both avi(cularium) & vibr(acula) 108 table.m

British Museum (J.E. Gray) List of the specimens of Mammalia in the collection of the British Museum London; by order of the Trustees; 1843 [CUL]

gd, geo, is, sx

Part 1, 2 1u (u henceforth ♠) 4 1u, 11u 5 19-21m/20u, 33u 6 21-25m/21u 7 6u, 16u, 25u, 33-34m/33u 8 1u, 17u 9 29-31m/29u 10 16u, 20u, 24u 11 17-18m/17u, 21u, 26u 12 18u, 32-24m/32u 13 18u, 27-29m/27u 15 18u

Part 2 front and back blue covers.w Seals
NF What seals Kerguelles Isd Aukland & Campbell Isd Azores S Shetland Georgia Ascension? Falkland Seals - ice-action
NB There is no case of Seal confined to single isld So not case parallel to Bats.- No species common to N. & S. but species of same genus N. & S. - In fact nothing for me.-

p22 & 24 Caspian Seals It is a Northern genus alone

viib 15-16w Fur seal viii 13-14w representative species in North 22-24m/23u "Ursinus", 31-40m 2 34-37m 3 41-43m 13 23w Packed ice 33m/u (u henceforth place-names) 14 6-8m/17-18m/1-18w Ice does not come to New Zealand 16 23-25m/24u/25u, 41-42m, wb Distance from S. Orkney to Tierra del Fuego 17 4u 22 31-39m/32u/33u/36u/37u 24 wt good case as identical species in P. viz P. vitulinus Hardly because may have ranged further formerly 9u, 11-13m, 36-37u 34 41-42m/41u, 43-44m/43u 35 31-33m/31u/32u, 41u, 45u 37 21-24m/21u, 38u, 40-43m 43 20-22m, 24-32m 45 38-39m

Part 3, viib 19m, 23w ? common viiia 17m♦, 36w C Aegoceres 38m/u/w Aegoceres viiib 16-17m, 19-21w C Dar & ♣ 29-32m, 32w C Smith 34m/w Babing 36-37w Colours ixa 4m/w Colours 48 (u henceforth sex-differences) 4u, 6u, 8u, 10u, 18u 100 5-6m/5u, 36-40m/36-37u 104 30u 106 37-40m 124 20m 128 2u 133 1u,

5u 134 22u 136 6u, 25u 137 30u, 35u 139 26u 141 7u, 14u 142 33u 143 5u 144 16u, 16-17u 146 33u, 40-42m 147 28u, 30u 148 19u, 20u 149 6u, 7u, 14u, 17u, 20-21u 150 7-10m, 8u 151 35u, 36-37u 152 24u 153 4-5u 157 9u, 15u, 16u, 17u, 19u 160 18u, 31u, 37-40m 171 36u "in male only" 172 37-40m 177 35u 179 18u, 23-25m, 42-43m 185 20-22m, 28-30m 216 40-43m 220 29-31m 242 24-28m

British Museum (F. Smith) Catalogue of British Hymenoptera in the collection of the British Museum London; by order of the Trustees; 1855 [CUL]

beh, fg, mhp, oo, sp, sx, tm, v

NB ♦ p225 Ask about accidental other species & they lay their eggs

SB1 □♀

16 ♦ How far mixed; 46; 114; 117; 118; 144; 158, 161; 108 to end

SB2 □♂

16 Mixed colourings of 3 genera & 5 species. Wd not blindness of instinct lead them to become parasites

46 The bee whose larva preyed on, does not interfere with Parasite Bee Q

117 The parasite closed nest in some cases NQ

158 Great diversity of instincts of Bees of same genus: variable in species also Q

174 Males in one genus, female in another hard to distinguish

185 diversity of Habits NQ

211 Bombus diversity in nests Q

225 on occasional presence of working Bees of different species, in nests of others Q

1 7u "added|one" 2 wb for Apidae p 113 16 wt Fabre believes certain Sphexidae occur only parasitic 2-5m, 9-10m, 13-15m/13u "a mixed", 18-22m 46 1-11m, 11-13m, 25-30m 56 zt 114 20-21m/w Hibericum 117 19-23m, 26-32m 118 14-22m 144 25-30m 145 16-18m 158 10-14m, 10-28w variable situations of nests 11-28w variable in species & genera 21u♠, 34][u♠ 159 9-12m, 12u♠, 13u "burrows|banks", 20m, 25-26u↔, 44-46m 161 10-14m, 10u♠, 12u "underside|lying" 173 32-37m 174 18-22m, 23-31w In Andrena it was the males which were so difficult to distinguish 27-30m 185 wt Megachile a leaf culture, what diversity of Habit- 11-14m 208 22-26m, 29-31m 209 42-46m 210 12-16m 211 44-46m/wb Build in different situations & use moss → 212 6-12m, 14-18m, 43u/w 2 213 15u/w 3 25u/w 1 36-39m/Q/36-38u "in|numerous"/wb These varieties are males females & workers 214 23w 1 32-40m, 32u,

BRIT. MUS. (SMITH), HYMENOPTERA

37u/w 21/2, 40u/w 1 215 7-11m/8-10u, 21u/w
 2 33u/w 3 36u/w 1 216 22w 2, 29u/w 2 31w 1
 217 23w 0 34w 1 38w 0 218 22w 2 30w 2,
 32w 1 219 25w 11/2 29w 11/2 31w 1 221 1w
 2 10w 1 16w 1 26-30m 223 4w 1 9w 1 11w 1
 33z 224 33w 2, 38w 1 zb 225 4w 1 18-
 30m, 18m, 22u "workers" 226 21w 1 24w 2
 26w 21/2 227 22w 1 34w 2 39w 1 229 18w 0,
 24w 11/2 230 27w 0 32w 11/2 34w 1 231 21w
 0 32w 2 36w 2 233 7w 1 23w 3 26w 2

British Museum (T.V. Wollaston) Catalogue of the coleopterous insects of Madeira in the collection of the British Museum London; by order of the Trustees; 1857 [CUL, I]
 is, sp, v

SB □β

Whole Introduction marked

♦p85 note Canal Elateridae Telephoridae
 vii 11-19m, 11-13w dele these 3 vars. 16-
 18w add 5 vars. viii 6-10m ix 3-4**, 7*, 14-
 15w Italics 16u "far", 25-28w x ↑13-11z xii
 32-36m xiii 12-14m, 19-30m xvi wt The
 species f. on all 3 islands, are all rather
 indigenous 4-9m 1 zb 207 wt The numbers to
 left hand are the vars. to each species
 added from great Book & corrected in few
 cases.- Omit in counting all those marked
 by one or two Asterisks (a.s counted) 5*,
 10.3 (ie, line 10, CD writes '3' to left hand),
 17.4, 30.1, 34.1, 42.4 208 2.1, 5*, 10.1, 12*,
 15.1, 20.1, 23.3, 31.1, 34.1, 39.1, 52*, 53.5 209
 2*, 4*, 17-19c, 26*, 39.1, 43c, 44c 210 5.1, 39.1,
 42.1 211 5.1 212 29*, 30*, 40* 213 12*, 21.1,
 29* 214 11*, 17*, 20*, 27.2, 29* 215 6.5, 14*,
 25*, 33*, 41.1 216 16.4, 19.1, 21.1, 27.2, 28.1,
 50.1 217 15*, 27.2, 34.1, 35.1, 40.1 218 22.1,
 26.2, 32*, 43.1 219 10.1, 17*, 20*, 26*, 28*,
 28.1, 29*, 34*, 35*, 36.2, 42* 220 7.1, 10.1,
 11.1, 13.5, 18.1, 41.1 221 7*, 29*, 31.1, 38.4,
 39.2, 43.1, 44.2, 45.2 222 12*, 14.1, 17.1 223
 7.1, 17*, 27*, 28*, 33.1, 44.1, 53* 224 2.1, 24*,
 26*, 46*

Catalogues of the zoological collection in the British Museum 8 zb

BROCA, Pierre Paul *On the phenomena of hybridity in the genus Homo* London; Longman, Green, Longman and Roberts; 1864 [CUL]

f, h, he, hy

SB 25 Definition of fertility in hybrids; 38; 39; 40; several statements to this effect - quote when I speak of inferiority of Mulatto under Reversion

18 21-26m 25 19-34m 27 29-36m 30 12-18m
 33 23-26m, 28-32m 36 9-15m 37 19-24m 38

5-12m, 22-26m 39 18-21m, 32-33m/w Proc R
 40 28-30m 49 7-11m 60 7-34m 63 10-13m,
 12u "indirect communications" 66 15-19m
 ♂

BRONN, Heinrich Georg *Handbuch einer Geschichte der Natur* Stuttgart; G. Schweizerbart; 1841; 2 vols. and atlas [CUL]
 ad, af, beh, br, cc, cr, cs, ct, em, ex, f, fg, h,
 he, hy, ig, is, mg, mn, oo, sl, sp, sx, tm, ts,
 ud, v, wd, y

vol. 1, xviii 12-13m 378 31-33m

vol. 2 NF When in doubt for reference see Index to first time name is mentioned
 SB (10 sheets, numbered 2-10, 12)

2

Bronn. Geschichte Th. 2

Cross means useful

a p.93 cage-birds deprived of light become black & snow insects from ♣ same cause do-

p.96. birds black from food & being in dark places, generally assume proper colour next year. - (Bechstein)

X p.do (b) nestling goldfinches in cage covered with cloth all became black, resumed colour ♣ next month

do (c) fe♦ male pyrrhulas took on plumage of female in cage (other cases analogous)

(d) Hence light has influence, & whiteness of polar animals perhaps effect of snow-light
 Negros!!

Introduce discussion.- though polar animals may have been created white & beetles under stones black, we yet know that it is possible they may have been so altered.- Against relation between tadpoles & Siren

X Q (e) Beetles become darker & darker (traced by gradations) till black on snow-covered 7000-8000ft summits of Alps.- but thought species by some authors - so in going to pole: hence climate, though opposite effect on Vertebrata, such beetles must in pupa or larva state must be long under ground

3

p. 99 (a) yellow var of Zygaena not found at Erfurt, but common in south Germany.-

(b) accounts for increase of cattle in Australia from greater birth of cows to Bulls 3-to-1 & in Man ???!

(c) Rabbits & Hens breed much oftener, in domestication, with food &c, than free

p.100 (a) quote Roulin on infertile geese, when taken into America & Garcilasso for hens not procreating; though now become fertile, yet game-cocks from England are

less so.—

p.101 (a) late eggs of butterfly produce a different variety from early eggs

p. 102 (a) much food increases fertility:— mountain sheep produce only one lamb; whilst lowland more & if former brought into good pasture, even in first year produce more than one; on other hand, Marsh-sheep taken to mountains retain fertility for 3—4 generations [How opposed to Doubleday!] X X109 Hares larger & smaller in Woods & Fields

p110 Most important: Gloger thinks similar differn in feathers of wing in Ducks, especially Musk-Duck differences between migratory & stationary birds of same species.= X

(4)

p111 change in stomach in owl for vegetable food (a) X wh. caused it to perish X alludes to milking of cows — I may say difference is sudden in La Plata

(b) In pig-races, wh. have many young more tits give milk than in less fertile races.

p113 X Difference in Habit of single & many Beavers.

p. 113 (a) Rabbits much ferreted (?) taken to live in farms (F. Cuvier): anyhow a variation in habits

117. Latent instincts in animals become feral ~~ie~~ tameness

p. 117. It is important to consider whether the male in plants or animals (V. Koelreuter) can propagate the sportive tendency, because if so it will show, that the varying tendency in the generative system, under domestication, is the effect of impregnation & not the womb influence. In fact if fish & silkworms vary much, it cannot be foetal influence X|| (Yes it may in Egg), nor indeed in birds, as the mother only influences the egg by its warmth, after a very early stage:

p.118 (a) origin of most varieties of plants, through sports by unknown causes.

p. 118 (a)(a) attribute sporting of apples & such like to the transplanting, pruning &c, wh. they have undergone. [no. corn sports as much as anything]

5

p.119 when a man has once got an \diamond variation (a) (or through bastardising), then he can easily go on raising more & more. ie variation tends to increase. [this comes very near to my facts]

p119 (b) No character resists variation in cultivated plants; in lesser degree in wild state: cannot compare effects of nature during course of years, with our during a few

years.—

X|| p.120 (a) is said, that Dahlias at first sported on single characters, & then in less degree in all: this very important, from analogy to wild (& whether relations of sub-genera to genera)

X 121 variability of hereditariness in weeping ash & Peach

p123 (a) cases of sports in Dahlia flowers; & of whole plant producing different coloured flowers Geranium do — Dianthus — case of wild Achillea do

(b) apple with no petals or stamens, but 14 styles; fruit peculiar, when impregnated.

p124 (a) curious account of seeds of a Carduus sown — one young plant came up different, & the seedling for 3 years from it same, & then on same soil lost one of its chief ch \diamond

6

p 127 (a) subsequent offspring of a mare, affected by having once produced a mule. & sow so affected from a cross with wild Boar & on two races of dogs

p.130 (a) tailless fowls appear to have an abortive unformed, knotty projection, instead of the Cuckoo-Bone

p.130 (d) left wound snail can pair with only left — but young are right, in Helix pomatia (contrary to Sowerby)

p.131 Tail feathers in waders & webs sometimes X vary in number — Gloger & Hodgson (references)

p132 (a) case of carp (which bred true) with 4 times larger scales in lines, with some places bare X — call Looking-glass Carp.—

X p.132 (b) Indian races of sheep & oxen where female hornless — he compares it with deer-tribe.

X p.132 (D) cow lost left horn by suppuration, afterwards had three calves with left horn a mere stump attached to skin.

X p 133 (a) Bug generally apterous, found in marshes with wings elytre bred in a house produced offspring with abortive wing \diamond M Dictionary \circ [case where we know what an abortion]

7

p 135 (a) — remarks that the nature of the affinity in plants, wh. favours crossing is not known — because

p141(a) Gartner not external similarity. some of the closest species have not offspring when crossed; & because some genera, especially amongst the Monocotyledons will scarcely cross!

(b) No cross of two species produces as many seeds as the \clubsuit true species; yet

BRONN, HANDBUCH

above says it is sometimes easier to get fertile seeds, through cross, than with no cross.-

p136 (a) remarks on uncertainty of Koelreuter experiments, how many trials necessary - first flowers fail - K. saying all that are fertile are vars., is arguing in circle.-
Good summary of Crosses =

141. (b) genera crossed with difficulty

p146-(a) [good summing up of results of Hybridisation

(a) seems to think, the more remote, the crossed species & the more intermediate the offspring, the less fertile they are & more subject to monstrosity which particularly affects generation system(?)

p147 (b) -How odd it is hybrids crossing easier \diamond parents than \diamond

8

It is important to show in Azaleas, in (p.147) Lilacs, in animals, that the sterility is not due to tendency to vegetate or to increase of fruit &c.- but to some direct influence on propagating system.-

p. 147 (b)(b) remarks from Köl, that variation in hybrids, depends on the parents (or parent?) having been domesticated, or tending to vary -

p148 (X) It wd be easy to take 100 double flowers & count, which has male & which female part most affected

p.152 (a) From Koelreuter, hybrids self impregnated. others lose or retain their small fertility, or approach to one parent in form & gain in fertility

p152 (B) Lindley on Hybrids not propagating in the 3d generation. X

p154 (a) - hybrids not intermediate between parents (as by Koelreuter) but seldom!! in some parts like father, in some like mother Gartner

9

155 (a) Gartner. Hybrids the more fertile the nearer they take after the mother-side, less so, the nearer after the father side Hybrids go back to Mother side ! Herbert says just different

155 (B) says Hybrids from same species differ (??) & that the facility of impregnation depends on the selection of the sexual organs, & not as general relations. Reverse crosses similar offspring

p.156 (a) He says some species of a genus \clubsuit impress their characters on hybrids, much more strongly than other species (does not d'Orbigny assert this in some Indian Races?)
p156(b) He says either return to mother, or lose their procreative faculty

X p156 Passiflora more fertile with other pollen than own.

10

p. 164 (a) in making hybrids the female generally resists male; so that male donkey must be painted like zebra to cross with mare zebra

Mares will only take stallion-donkey in dark, & stallion horse must never have \clubsuit seen mare before - alludes X(d) to physical difficulty of crossing some races

X(e) Buffon says that female foxes, dogs, & wolves though in heat drove off with bites the males of other species.

(f) Cuvier says Dingo & common dog wont breed, though often \clubsuit couple (they will in Australia) & Zoolog Garden of London good X ||See to authority

H. case of dog pairing with chained wolf

X p165 crosses of Domestic Cock with other Birds & Finches

p172 (a) Case of some crossed by boar (perhaps previous impregnation) had one tame pig & other wild &c &c

X p168 variation which comes on with age appear at corresponding age ●

X p.169 & 172 BB - Mongrels have the character of (but many exceptions) $\langle rest \diamond \rangle$ hybrids have character $\langle rest \diamond \rangle$

$\langle over \rangle$

It is an old argument, but never to be forgotten, that we must look with our gained experience \clubsuit on the history of the world, as an \clubsuit animal of years duration must on the variation of domestic animals he wd never suspect such a thing.

12

p184 (a) Ammon reckons on colours of of horses being certainly true if only two generations are known true

(b) white hens, peacocks, mice all come true
(D) contrasts fruit-trees - gives Van Mons case of 35 years selection producing all good fruit - (natural mongrelising he does not notice) & trees bore fruit sooner

p185 (a) High-heel boots, have affected form of childrens feet in Germany! Thaer

p186 (b) Shepherd-dog instinctively \clubsuit rounds sheep

X (a) mongrel sheep-dog & pointer for several generations pointed at Birds.

(e) varieties sometimes cross whilst wild; white hares in Cornwall &c

\diamond Have parasitic plant genera wide range as Waterhouse says parasitic insect do have No

p.54.

SB ☞ (4 sheets, numbered 1, 11, 13, 14)
 56 on mixing of Salt & FW Fish in Baltic
 58 do. & of shells & Crust in Caspian
 69 changes of colour & quality of fruit from soil.
 77 Doubling of flowers, discussion on.
 83 changes of flowers on mountains, intense colour, plant less size, but larger flowers
 85 cases of plants changing by culture. Lobelia & Ziziphora (Refer to in note) Q
 89 Summary on changes of Fur of animals under changed climate
 107. most important case of variation of Fish
 96. Hawk in Berlin went back to earlier plumage
 11
 170 X 8 generations absorb another race, in which one blood is 99.62 of whole
 – strong case of sheep taking after Ram in reciprocal cross X
 – on crosses not intermediate: on horns going from father X
 177 Description of Hybrids wolf & dog
 179 Particulars on Hybrid Canaries & Goldfinch
 I have used all this Book for Hybrids
 13
 187. feral dogs soon reclaimed (Schomburgk)
 188 –Bechstein says Zeisig more readily pairs (Ch. 6.) with ♣ green than with yellow Canary Birds
 189 Brehm's subspecies not merely geographical Races
 190. White Hares of Cornwall.– (must allude to Bronns Gesichte in Preface; if soon Gartner, Kolreuter, Decandolle Huzard.– Hooker's works – Lyells Geology. Isodore G. St. Hilaire
 195 References to G.St. Hilaire's doctrine of external cause causing change
 210 Horses swim 7 German miles
 216. on accidental migration of Lemmings, insects &c
 223 References to falls of inorganic bodies
 224. Lost animals – Turtles – & Birds on continents
 225 Reference to Hawk Case Fontainebleau – R. Brown on Gulf seeds germinating
 229 case of Head of Bos m. washed on shore of Greenland shows course of iceberg, with respect to plant common to White Mnt. & Greenland.–
 234 Excellent accounts of falls of seeds, with references
 236 Fish & Crab Rain
 247 Remarkable that N. Holland more plant common to Europe than S. Africa –

explained by me

14

252 on Relation of Red Sea to Mediterranean – Wiegmann Arch.– on distrib. of insects & Lacordaire.–
 253 Alpine climate not very like polar.
 254 Snow region in Alps 12 plants, many more in Melville Isd
 –Table of heights & Latitudes to show correspondence
 272 Duration of Seeds vitality of
 284 number of seeds – kind of animals which have most – number of eggs in Crab-Fishes
 286 number of mice one pair can produce in year
 – increase of cattle in America with dates
 293 Destruction of forests by insects
 297 – on insects destroying crops–
 299 Rein-deer killed by insects
 300 Mice destroying trees
 302 increase of mice, followed by increase of weasels
 505 causes of extinction, yet not real for they do not apply to rarity

v 9–12?, 14–18m, 1–26w Read all on this problem vi 4m, 23–26w Read vii 20–24w Read viii 1–30m, 18–23w Read xi 2–12m/w Read & marked 28 wt Tobacco plants in 5 years wd cover all Germany 29–31m/30w (a) 54 8–10m, 13m/u "die Pflanzen", 19u "lange", 11–21m/w (a) wb Trees not killed by cases of shells of seawater – did annual seeds spring up again? ask Mr Higgins 55 7–17w sea & freshwater shells mixed together 56 14–20w on Fish inhabiting salt & F. Water 16–17u↔, 32u↔/30–35w Cyprinus in F. & salt water 58 21–40m, 23–28w Caspian Fauna genera of salt & fresh fish & Crust & Shells 43–44m 59 28–40m♦, 30–41w changes in vegetation – spread of a grass when forests cut down 65 12–17w (Must skim previous Part May 12 – 45 Begun 69 23–31m/w dark red Rosa became streaked with white by earth colouring 29–31m, 32m, 35–38m, 35u "1837", 44w Is this good authority? wb X other cases of flowers changing colour in diff: soils. xx case of grape strongly manured cow-dung, alum, horse-chips &c changing from small ♣ yellow-green, with flattened grapes into large watery dark blue grapes 70 wt A Different manures affect greatly melons in quality 2–10m/3u "Gewürz | zartheit"/w A 72 wt sugarcane & ♣ Pineapple seedless, from antithesis of sap & pulpy fruit 1–4m, 1u "Ananas", 2u "verwildert | kleine", 29m 74 1–27w instances of different parts, with

parenchyme enlarged by culture, as in Cabbages & Plums 16–27m, 28–29u↔, 29–30m, 35–39m/w These trees did not produce fruit, from luxuriousness of vegetation 75 1–2u↔, 8–13m/w cutting trees makes them fruit. 76 19a/u/wt, 16–28m/w on change of sex in dioecious plants 77 1–21m/4–17w on doubling of flowers 27–30m, 27–35w old & new seeds differ in producing double flowers 78 11–26w did seeds produce female plants – large fruits is opposed by antithesis to seeds 79 35u "dasselbe Individuum"/35–37w loose or gain hairiness 81 20–22m/19–25w European biennials changed into annual in Crete 82 11–17m/11u▲/15u "Weiss"/16u "Hibiscus|weisse"/17u "Roth"/w Lilacs when put in hot-house changed from white to red 21u "Wimmer", 28–38m, 44–45m/w (I have not thought worth quoting) ↑2w/wb all facts on next page I believe taken from this wb R. Brown believes in great alterations in flowers on mountains 83 4–7m/w dwarf from growing on high mountain 9–13w leaves change a little 20–26w Hairiness increases on heights & in wet places 27–29w other time lose them 30–35m/w Colours of flower – stem darker 37–45w flower larger sometimes though petal smaller even twice wb x from above changes many varieties have been considered as other species 84 19u "Nessel|dioica"/16–22m/w Link says southward *Urtica dioica* changes into *U. caudata* 41m 85 wt (a) *Lobelia lutea* from England flowered for 4 years in Pawlowsk, did not seed, was divided into 3 plants, & they lost their lance-formed teathed leaves & has broad, egg-shaped leaves, with different flower; became the *L. bellidifolia* 1–7m/Q 9a/u▲/10a/u▲/7–12m/w Both. C.G.H. flowers diff. colour diff time of flowering 30–33m/w Form, direction & connect less affected; great influence on instincts 39–40m 86 22u "kleiner|unfruchtbarer"/23–24m!/?/24u "die Grad"/17–28w Animals on limits of proper climate less fruitful? and less size. 31–37w Peron's case of shells altering in size in Australia 37–38m/wb On increase & decrease in size in Helix's on Alps 89 wt European goats in high mountains have some fur 7–14m/10–16w on change in fur in European animals in Himalayas midpage Q 40–41m, 45–46m, wb this Page summary of facts on fur 90 4u▲/4–6m/4–9w looses hair when old 6–10m/9–19w Pigs with different hair in different parts of S. America 16–20m, 19u "weit|Winterhaar", 26–30m/w No cause for Angora wool 42m 91 15u "Gloger"/14–21m/w almost all beasts undergo some change in winter in colour 19u "tropischen

Gegenden", 20u "höher|sind", 21u "helle|grauweise", 22u "Polen" 93 8m, 14–16m, 28–33m, 28w (a) 38u/wbt 94 3–16m/2–9w animals at pole become white 23–36m/21–32w birds do all or in patches 95 1–5w Men, horses & Birds white with age. 12u "Eichhörnchen"/9–15m/w some darker by age & by hot climate, 20–27m/w other colours change in birds by climate 28m, 29–32m/w head, neck & eyes change colour 43m/43–44w Gloger – much praised by him 96 wt a Hawk went back in Berlin to an earlier plumage 3–6m/5u "zurückschlagen", 9w (a) 12u▲/15u▲/12–15w Galapagos Finches Black 17a/u/wt (b) 22–23m/w (c) 27–30m/28–29w d 32–33u "Osw. Heer", 36–39w e Quoted 97 1–18w/wt ! Most of these observations are vitiated by doubt of what are species – reason against my going into details 13u "Viele dieses", 14–15u "Systemen|worden", 31–33w Quoted 40u▲ 98 7u▲, ↑7m 99 11–13m/w a 29–31m/w (b) 38–41m/w (c) 42–43?? 100 12–16m/16u "Schafe"/13w (a) 38m/w Gloger wb on different singing in same Birds 101 14u "Freyer"/10–14m/w In Ray has written much on Butterflies no authority 15–19m/16–17w (a) 22–26m/w effects of good food chiefly through young 31–36m/w affects flesh more than bones 102 15–16w (a) 26m 105 14–26m/w on change in Merinos in France & Holland 106 26wt 107 wt This case so important as to be quoted 10–12m/13–14u "grosse|entstanden"/11w (a) wb (a) the intermediate form between ♣ these two supposed species, found in a ditch where one species had been turned in. Yarrell. vol I alludes to these two fishes & gives summary of their differences 109 2–4m/2–6w made from many individuals 13–17m/w birds black from seeds 27u "Bombyx|viel", 28u "B.|Blättern", 35m/u "Waldhafen|Hirsche"/36u "Gebirge", 48m/wb x wood-hares larger than field-hares Mem: Fox of Highland 110 20–23m/20–22u "Schwung|Truthühnern"/23w Musk duck 25–29m/29u "Gloger"/33u "S.109"/30–33w toes & membrane (a) wb p109 Alludes to different figures of Mountain & plain cattle 111 5w (a) 19–20u "bis|Werfen"/18–25m/w tame cows more milk than wild: organs adapt themselves 34–36m/w (b) 40m/w Greyhounds in Mexico 112 5u "Scheue"/4–8w domestic animals loose cunning 113 4–14m/w case of dog walking on hind legs 18–24w Beavers difference when single & in company 26m/w (a) 28–30m/w♦ Ducks 115 23–33w original temper &c of wild dogs different 116 14u "Menetries", 41m/u "Isis 1832"/39w ?read? 117 wt So Rabbit in Falklands, Horse in La Plata Latent

instincts.— 1-12→, 13-16m/w Young wild Cuba dogs reared are tame !! 25-26m, 33-34m/u "Aber|mögen"/w !! No 40-41m/u "Hopkirk|Isis 1819" 118 3-6m/w ♦ understand? 9-10m/9-15w sports on single branches hereditary (a) 21-23m/w (a)(a) 119 2-8m/5w (a) 11-17m/13-14u "dass|vorkomme"/12-17w (b) not understand 20u "1790"/21u▲/20-23w ? Dahlia history of 30-33w flowers of two colours on 1 plant 33-34u "D.|trug", 34-38m/w sported extraordinarily 39m 120 wt First affected single parts, then all parts of plants but in less degree 1-2m, 4-6m/4u "6'-7'"/5u "3'-4'"/3-5w by selection 7-12w period of flowering earlier 42-44m, wb (on Cabbage-varieties) 121 22-32m, 22-25w weeping Ash hereditary 29w not hereditary 31-34w Weeping Peach hereditary Q▲, 38m/u "Versuch|Monographie"/w Potatoes 41-44m▲ 122 11-19m/w cases of leaves soldered up like Nepenthes 123 2-3m/wt, 5-9m/6w (a) 10-11u "eines|Weiss", 13-14m/u "rothgefärbten|Jahre", 14w Geranium Dianth 20w (b) 41m/w (a) 42-43m/w (b) 45m/u "Ann.|XX"/w Oranges 124 21-22u↔/w (a) 23-26m/24w (b) wb (b) very curious, seedling became smooth instead of hairy; but it was found in ensuing summer, that it was hairy in spring & smooth later in summer 127 20-22m/w (a) 23-24m, 45-46m/wb Dog cases 128 34-35m, 39m (Blumenbach), wb skull of tufted Holland-Hen monstrous bladder of bone (yet sexual) 129 15-16m/16u "mehrer|Knochen", 42-44m 130 1-3m/2w (a) 12m/13u "Schlegel"/w (b) 14-23m/w some moveable part in tortoise variable 25-30m/w These genera of Bell only monsters 33-36m/w (D) 37-38m, 41m/w (D) 131 ↑12-10m/w (a) 132 wt Now see whether number varies in different species 3-5m, 6-12m/8w (a) 16u "Lambert"/16-19w skin with spines 21-22m/u↔, 31-33m/w (b) 35-37m/Q▲/w (D) 39m, 42m/w (D) 133 22w (a) 135 15-16w not cross! 17u "Pelargonium"/18u↔/17-18!!, 18-21m/w Herbert 26-30m/27w (a) 36-37m/w (B) 136 9u▲, 11u "deren|fruchtbar", 24-39m, 33-35u±/w (a) 42-43u "den|Petropolitanae"/w (a) ↑2-1m/u/wb Novi Commentarii? 137 44-46m/? 138 1-12w Herschel experiments appear valueless to me 34m/w What result 140 31u "Dr Gärtner", 43-46m 141 1u "oft|leicht", 10-13m, 10-14m, 13-14m, 13-15u "keineswegs|A"/w seldom so many seed as in pure cross (a)(b) 21-25m/w all changes take place more slowly 26-29u↔, 31u "600|30" 144 5w (a) 17-18u "Alle|praecox", 25-26w Monocotyledon 26-34m, 36m, 38m, 39-40m, 43-46m/w Amaryllis

145 1-10m/wt/1-10w all sterile except 2 cases, as are pure Amaryllis on account of tending to bulbs; How does Herbert find this? 40-45m/w Look to Passiflora Rosa 146 16-35m/28w (a) 37-42m/w 1824 to 34 8£. Bailliere 147 1-2m, 4-6m/w (b) 10-11m, 38-42m/w (b)(b) ↑5-1m/w/wb tendency to monstrosity; is not this like large fruit of Pears 148 wt Most often sterile on male side 1u "am häufigsten", 2m, 10-17m/w greater ♣ vegetation power of hybrids 152 7-12m/9w (a) 38m/w B 47m 153 4u "Henschel", 5-7m, 44u "Nie|zeigten", wb Hybrids never intermediate as in Koelreuters !! V p. 138 154 9u "Gärtner", 22-25m, 27Q, 29-30u "einzelne|Vater"/22-31w Fruit never affected by a cross in the plant itself 36-37m/u "kommt|überein", 41-42m, 43m♦, wb effects of crossing varieties exceedingly uncertain 155 1-20w History of variation of mongrel maize, not very important 30-33m/31w (a) 38-41m/39w (B) 43-44m, 45m/w Gärtner 156 1-5m/2w (a) 7-9m/8w (B) 26u "genannten", 27-30m, 27-28u "ganzen|Form", 30u "Saamenstaub|Früchte", 35-37m, 36-40m, 36u, wb Grt fertility of Hybrid Passiflora than with own pollen 157 29-31w wild Hybrids 40m/w Authority for all 158 wt/1-10w How curious the number of natural Hybrids in Gentanella & Verbascum & Conicus I doubt whether some of them are not varieties & Zygaena in insects 11-12u "dass|verband", 13-19m, 18-21m, 18u "hat|Mutter", 18u "Charaktere", 19u "Kelch|ausgenommen", 19-27m/w some character like one parent & some like other 22-23u "in|den", 31-32u "scheint|unfruchtbar", 36u "Fruktifikation|Vaters", 37u "es|Saamen" 159 13-16u "Habitus|spuria", 16u "Fähigkeit|Saamen" 28u "Die|Charakter", 37u/wt, 39-40u/wt 160 wt/1u "auszubilden"/1-4w parents must live together 5-8w♦ L. marshy fields 6u▲, 11-12u "bald|Mittel"/22u "häufig|ähnlicher"/9-25w are not these varieties? they are fertile 29[... 161 1-3m, 1u▲ 162 14wt, 17-42w curious case of change,— but possibly a hybrid — (not like the Asphodelus case. of Linn Soc) for it has a seedling, 14-15u "angebliche Verwandlung", 21u "blühete|zinnoberroth", 22u "purpurrothen", 25-26u "blüheten|Streifen", 30u "aber|als", 39u "Schneevogt|zwar", 44m 163 8-14m 164 3-6m/4w (a), 9-11m, 12-13m/w (d) 16-17m/w (e) 19-20m/w (f) 22-23w She-wolf or dog, 22-23u, 25m/w (h) 31-32Q/33-34w p 132 35-38m/27-37w are these species? 40m♦, 42m 165 14-15m/w Bechstein!!! 17m/w * minute account 18m/w minute account! 25m, 37m, 45m 166 5-6Q/6m, 10w 1 12w 2

16w 6, 19w 9 168 10u↔/wt Peculiarity which comes on with age, are hereditary at same age wt/1-9w self-acquired peculiarities scarcely ever transmitted !!, 8u "allen|zwischen", 13-16m/w sex determined by strength & age of parent 27-30w on sex of offspring 169 14u "Varietäten-Kreuzung"/w intermediate 16w (B) 18-20w varying when parents vary 21-25u± 170 wt/fig.w 8 generations transform one race to another (so Kolreuter says in Species?) Q↔ 8-9u↔, 10-11Q↔, 15-19m/20u▲/13-20w strong case of sheep taking after rams ie sex. 23-33w cases of odd hereditariness not intermediate in claws & horns 28-30u↔, 32u "gehörnte Kuh", 32u "ohne Hörner", 33u "stall|Hörner" 171 2-5u±, 14-15m, 27-29u "Ein|Nachkommen", 31-32m, 32u "Godine", 32u "vorzugsweise|gleichen", 44-45m, 45wτ, wb Probably good, as he trusts to numbers (Read) 172 1-2u↔, 4-10m/6w (a) 11-12w Royston & Carrion Crows 12-13u↔, 15u "aber|Fällen", 16u/wτ, 14-20w Q considers them as varieties Newman must be consulted. 24w B 24-26u↔/27w (e) 34-35u±, 43m, 44m 173 12w Fish 14u "beruhet|von", 20w female 174 8-9u▲, 13-14u "viele|Junge", 28-30u±, 33u/wτ, 39u "auch|legen", 42u "keine Eyer" 175 18u/wτ, 24u/wτ, 32u "gleichen|alle", 33-35m/34u "ein|ähnlicher", 34-35u "ein|ähnlicher", 35u "zuletzt|zwischen"/33-39w is this not effect of which bird is father or mother, 43u "sind fruchtbar" 176 10u "sechs|Mutter"/10-12w Lumbar vertebrae 17u "doch|beiderlei", 29-31u± 177 14-16m, 27-40m/28-45w 3 Hybrid wolf-dogs from one litter differed in form & instincts : female bore young to a hound 28u "war menschenscher", 30u "Kopf", 39u "ändern|Kreuzung" 178 1-5m/w other cases of dissimilar hybrids 5u "Charakter", 5u "sanfter", 9u "nur|zeigen", 19-40w Minute account of hybrid of Cat & Martin not infrequent - seen in copulation!! 179 10-32m/18-20w A, 38-39u "sich|ausgemacht"/34-40w Crosses of Canaries & Finches breed with one parent ↑2m/w See to this ↑1m/w About breeding of Musk & common Duck wb A history of hybrid of canary & goldfinch hybrids wb Says the Hybrids of Musk & Common Duck can breed. 181 5-10m/w Hereditariness of extra fingers 10-34w How wonderful! the cell shd have such power Often good instance of peculiarity appearing in grandchild.- 182 1-28w Much of my sort of argument about return to parent-forms- 30-34m, 35-38w Crow cases 42u▲/40-43m/w Koelreuters case 183 wt (my remark) 2-5m/w

reasons in circle 23-27m♦/23w♦ remark, wb cases, as sixfingered or case where only one parent has peculiarity ought to make one cautious about saying there is so strong a tendency to return to parent form. 184 5-6u "216|Pferden"/8u "nur|Junge"/15u/5-14w only 11 out of 216 pairs produced foals of different colours (b) 23w (D) 24-25u "dass|scheine"/! 185 13-24w account of what selection & crossing have done like my skeleton 30-33m/32w (a), 35-41m/35-45w mutilation hard to inherit yet believes in tailless dogs from this cause!! 47m, 22-23u "gehörnten|zurückschlägt"/wb which did not go back: no wild permanent vars go back 186 12-15m/13w (b) 17-18m/w (a) 21-23m/w (e) 24u "S.190", 26-30m/w race of one horned wild stags 37u "Gmelins", wb (a) some species resisted culture for 2-3 years - but with proper culture returned to parent-form - 187 5m/wt/1-5w perhaps often cross now with dogs if inhabitant & so with horses. 10-11u "aber|Rassen", 15u "Schomburgk"/16u "nach|Ohren"/13-15m/12-17w wild dogs in 1st generation tame 29-33m/w seems to think new species are formed. 188 6u "Brehm's", 30-32m, 33-35m, 33-34u "nach|paart", 35u♦, 37-39m/38-39w Brehm subspecies 189 1-28w/wt These sub-species are not exclusively geographical vars or species 5-18m/16u▲/18u "aus|diese"/7-15w case where Brehm splits old species into 2 19u "tinnunculus|einen", 19-30w 4 sub-species (See Gould) Bronn seems to consider them varieties 30u "Sie|Klima", 34u "meisten|Jäger", 35u/wτ, 38u "nach|und", 39-42m/39u▲/40-41u "Bär|Striche" 190 3u "nach|Couche"/wt Must see to this. 1-2m/w Hares differ 3-6m/w White Hare 33-37m/35w a 39m, 41m, wb Slow geological change important because domestication shows slowness 191 wb I begin to suspect too slow, except in sudden immigrants x- In this case we have fewness of number, sudden change, (in organism & external conditions), but on other hand not many to select from.- especially changing island.- 192 1-33w seems to think that some species may be varieties 193 11-12u "viele|Spezies"/w tortoise-genus, 41m 195 23-26m, 24-25u↔ 202 19-21m, 32-35m/w double creations probable wb remarks that 2 must have been created of bisexual animals - [Multiple Creations must not be treated dogmatically] 203 14m/1u "Candolle Sohn", 15-21m/w believes whole surface covered with new species 204 26-29m 210 wt plants distributed along rivers 1-3m, 32u "7|Meilen"/30-35m/w

Horses swim 211 33wτ, 34–35u↔/w whether same one does not know 216 1–29w in certain periods animals congregate & migrate in no fixed direction or fixed time hard to explain 31–34m/33u "O.I.W.", 35–36m/w (a) wb (a) In these cases Congregating always announces intention to migrate, though when in years, when number not great, there is no tendency to congregate 222 29–39w congregate & migrate, when food & c fails in own country 223 17–18m 224 16–18w Lost Turtles 26–31w Lost birds on continents 225 3–4m, 30–32m, 40m, 41m 226 6–15m/w Eggs of mollusca may be attached ♣ fuci & wood 227 wt x said that maize was floated to Japan 1–2m/w x 229 wt (a) quadrupeds carried on ice may transport seeds– 3–13m, 6–10w (a) White Bears. Wolves. 15–21m/w Bone washed to Greenland on ice so cd seeds 38u/wτ 230 11–13m, 28–40w If Storm Petrel so often blown inland, other birds might be blown to sea wb The real cause of surprise in birds, insects & light seeds, that not more distributed. 231 19–24m/23u "leichter|schliessen"/22w (a) wb distance to wh. pollen is carried bears on seed transportation 232 2–20m/2u "Lupinen" 4–10w cases of pollen-showers 18u "vor|Feldarbeiter"/16–25w This bears on seeds. Meteoric paper of Coniferae.– 233 zb 234 3–5w rain of seeds 9–11m/11u "die|waren", 14–18m/18u "zum|Art"/14–20w corn raised in Africa fell in Spain 15u/wτ, 21m/u "Schleffen", 41m/w Read 42m/u "und|217", 43m 235 32m 236 16–21w Crab & Fish Rain 237 7–10w Fish Rain 14u "zwei|lebend", 27u "Fischen|Fröschen", 28u "und|lebend", 29u "lebend" 238 9–11m, 12–15w Frog Rain 241 15–19w Fish eggs perhaps stick to Birds 20u "50|Genera", 21u "mit|Saamen", 26–31m/w amount of birds with seeds killed by others 245 27–28m, 29m, 37m, 41m, 42m♦ 246 14–15u↔/5–20w ?? shells in America & Pacific 25–28m/26–27u "ziemlich|besitzen", 37m, 39–40m 247 8u ♣, 9–11w wider genera 13u♣, 18–19u↔, 26u "385|von", 31u "nur|Arten", 33–35m, 33u "70|590", 40–41m 248 6–7m, 9–11m, 19–20u "unter|Europa", 27u "Ursus|Fischotter", 28–32m/29u "beiden Wiesel"/29–30w two weasels 37m, 43m 249 23u "reicher|ist"/24u "je|seine"/23–28w Hooker says no no! N. Zealand 251 24m/u "22|Reiche", 41m 252 5–6m, 7–8m, 17u "Fischen"/18u "Korallen gemein"/19u "500"/20u "32"/17–21m/15–27w Red Sea & Mediterranean Phillipines make shells more in common 36m 253 11–16w climate of mountain tops differ much from Polar

Regions 254 17w in 48° wb Snow regions of Alps only 12 phanerogam whereas Melville Islds & Spitzbergen much richer 255 5w♦ exclusively confined not peculiar ↓w Heer on insects of Alps.– ♦ The number of peculiar insects appear very small at the great heights – most peculiar species at bottom 256 24–27m/25w (a) wb (a) Larger the continent, larger the animals – Australia & S America contrasted with Java & Borneo !!! 272 wt Duration of seeds 273 38–42m/w old seeds reviving 278 25u "Spallanzani's Versuchen"/25–31w no fish eggs keep more than 2 months dry ↑2m, ↑1m, wb account of a disconnected pool annually dry & annually reseeded with Fish 284 16u↔/14–18m/w Less propagating powers by ostriches !! wolves !! x 19–21w because not destroyed 29u "ihres hundert"/28–34w number of seeds from a 1000 year old trees wb x number of eggs compensate viability chance♦ of destruction in full grown state & youthful state & egg state 285 18–19m, 18u♣, 19u♣, 29u♣, 30u♣, 31u♣, 32u♣, 33u♣, 42u "Polygamie|Hühner", wb How evident protection of womb does in place of many eggs (yet rats) 286 11u "Feldmaus", 12u "5|10", 15–21m, 19m, 34u "27 Jahre", 35u "4000–8000", 36u "35.444"/wτ, 37u "65.|Besitznahme", wb One is always astonished at geometrical increases 287 2a "Rudel" flocks 1–2m, 40–42m/u "Lyell's Principles of Geology" 288 38–41w impregnation 42–45m, 42u♣, 43u♣ 293 7u♣, 8–9w destruction of forests 11–18m, 22u/wτ 294 5–10w Forests destroyed wb To see what injury horses do & sheep to young plants I have often wondered how anything grows up 296 11m 297 1–3m, 17u "von|Engl.", 18u "land einwärts", 18u "200", 38u♣, 39m, 39u "den|unmöglich", 43–45m 299 29–32m, 29u "Renntiere", 31a "Drittel"/u "so|stirbt" 300 32–36m, 33u "Feld|Maus", 35u "bedeutende junge" 301 15–19m/w Epidermis in Caterpillars 302 6m, 42u 303 wt Weasels increased 1u "Wiesel", 2u "Mäuse" 505 25–28m/25w (a) wb (a) all these great causes given of extinction, yet none of these apply to rarity & therefore (with exceptions) to extinction

BRONN, Heinrich Georg *Morphologische Studien über die Gestaltungs-Gesetze der Naturkörper* Leipzig und Heidelberg; 1858 [CUL, I]

409 10–11wτ, 13–16m, 19w no 19u "bisher gänzlich entgangen"

BRONN, Heinrich Georg *Untersuchungen über die Entwicklungs-Gesetze der organischen Welt* Stuttgart; E. Schweizerbart; 1858 [CUL]

SB ♦ p78 Oken Grant 1835 use my copy d'Alton, Unger 1852; p.80 ?
79 36m 80 34-37m, 34wt

BROOKES, Richard *The natural history of insects* London; J. Newbery; 1763 [CUL, pre-B, S]

BROOKES, Richard *The natural history of waters, earths, stones, fossils and minerals* London; J. Newbery; 1763 [CUL, pre-B, S]

(w&; not CD; give melting-temperatures of various metals; u mainly names of metals]
iv 34-37w, 34u v 26-28w, 26u xxiv 27-30w, 27u xxvi 19-26w, 19u 25 8u, 9u, 13u, 30u 26 4u 98 26-31w, 29u, 29a 102 15w 110 15w 111 5-10w, 8u 114 31w, 31u, 32-38w, 37u 116 2-3u, 2-5w 117 3-9w, 3u 122 38-41w, 38u 128 15-16w, 15u, 23-24w

BROUGHAM, Henry, Lord *Dissertations on subjects of science connected with natural theology* 2 vols.; London; C. Knight & Co.; 1839 [CUL]

ad, beh, br, ch, cs, fo, h, hl, no, oo, phy, sh, sl, t, ti, tm, y

vol. 1 NB1 Is there anything odd in the nidification of Penguin Duck.- M. Miller says so - we want cases of this

N.B. some birds feed their young with different food from what they eat themselves - this paves the way for explaining habits of solitary wasp, ♣ in this book considered - good plan thus to take one example.-

Ask Fox to obtain information about Tumbler Pigeons. cross them.-

NB2 1 all to 54; 70; 77; 79; 84; 91; 102; 107; 108; 116; 119; 123; 121, 122 to 134 to 138 to to 143 to 155 → 161, 167; 179; 188; 196; 203, 204 → 208; 216- Journal =; 267; 244; 332

SB □β

Q 17 Case of solitary wasp feeding young with spiders & caterpillars. good better than Birds feeding different food

Q 28 Brougham definition of instinct [Insects life too short for much experience or gained habit]. Though habit may do something for higher animals not needed for most complex instincts

Q 30 Instinct - (47 do &, 52) 70, 203

Q 77 Mathematical work to show how perfect the Bees cell is 79 contrast with man making a plan - p. 244.

Q 117 good instinct - chicken pecking circle inside shell cannot be an habitual action; 208 young alligator snapping/ Chicken seeing, walking, pecking at early youth reflex continued

Q 124 Intelligence

Q 196 On Abstraction in animals

Q 219 On the form of Bee Cells

All Q

7 11-17m 8 wt therefore growth an instinct!!
5-7m 9 wt or rather apparently voluntary - analogy from ourselves would lead one to consider voluntary 2-3m 11 11-15m 15 ↑11-1m 17 wt In whatever way I create my instincts & habits, or changes in brain's structure, the instincts must have been formed step by step on account of effects of crossing 19-25m, wb excessively hard to account by habit - 24 4-12m, 5u "in | number" 28 1-7m/w/wt this hardly applies to S. American horse cantering wb Yes the gratification of an habitual action.- or even without it, but disagreeableness of prevented - One sees this in dogs - 29 16-21m/17-23w but why does she like half killing them 30 wt Spallanzani & the Bat is good to exemplify what I mean 1-2m, 5u "instant"/5-7w false in Bees 7-12w Here is common confusion of means 32 12u "cylindrical cells"/? 33 15-25m 42 19-25m 43 1-12m 47 13-23m/w no - retriever action does not apply to it 22-25m/? 48 wt Yet S American Horse cantering ♣ would be called instinctive. ? will not my definition, of that which, according to our own consciousness, wont○ be done with deliberation. 1-6m 51 14-18m/Q 52 10-18m, 21-25m, wb is it not that most instincts happen to have some end in view? 70 ↑15-1m, wb applicable to habit 77 wt very wonderful - it is as wonderful in the mind as certain adaptations in the body - the eye for instance, if my theory explains one it may explain other. 2-17m 79 5-25m, wb some wax-working woman worked under a cloth, & so made likeness by touch 84 21-25m, wb take the case of chicken being born with powers of sight, which man only acquires slowly - we can see no reason why man shd not be born so - this might be worked into good case 85 1-19m, wb also lamb walking & baby not - the movements of lamb in womb could never teach it to balance body - an act which must be most difficult 91 12-14m 102 10-25m 107 12-22m 108 18-25m, wb Casarita boring through mud walls - swallows building on wet places - 116 1-13m 117 15-24m/21-22u "and | end"/23-

25m/16–21w hard to account by my theory
 121 12–18m, wb Blackwall has seen same
 thing 122 4–25w the blindest instinct, birds
 building nests, is somewhat adapted to
 circumstances 22–24m, wb I am surprised at
 this being called intelligence 123 8–17m/9–
 10w See Rengger 124 3–6m/4–5w Yes
 Rengger wb ♦ 125 3–7m, 8–12m 134 22–25m
 137 14–25m/23w/wb Blackwall – No 139 13–
 25m 140 1–11m 143 wt x it is a faculty 5u
 "examined | Instinct"/4–7m/w very false x 19–
 21m 145 19–25m 146 1–7m 147 22–25m 155
 12–14m 161 17–25m 167 11–25m 179 6–10m,
 14–23m, wb always compare savages 188
 23–25m 189 2–5m, 13–18m/15u "which |
 kindred", wb Have animals taste? dogs like
 looking out of window 196 8–19m/13–14w
 dont understand 197 3–7m, 3–25"..." , 5u
 "Judgment | Reasoning", 9–25m 199 wt
 Rengger shows that monkeys domineer over
 dogs, like men over other animals 203 15–
 18m 204 6–11m 208 14–17m 216 1–6m 222
 18–21m 225 2–4m 229 20–25m 231 13–15m
 233 14–22m 235 17u "tri-hedral" 241 11–15m
 244 7–19m/11–12u±/11w±/12–13w±, wb
 astonishing on my Th. that infinite attempts
 should have reached that perfection which
 mathematics requires – this instinct has
 same relation to geometry, which the eye
 has to optics 245 8–11m/8–9u "not | rhombus"
 264 18–20m 265 1–2m/1u "but | three" 267 11–
 18m 270 10–16m 278 9–14m 279 10–15m 332
 9–13m/w the instincts of young Cuckoo are
 like those of larva wb The instincts of the
 young of anims are probably remnants of
 instincts of ancient larva-state
 ♂

vol. 2 NF S

NB 52; 56; 65; 66; 84; 108; 183

SB □β

84 Rattle of Rattle-snake; if given to paralyze
 prey by fear useful; not given to warn
 animals – go on to say Tri-
 gonocephalus to show case.– Ch. 9

108 Vis Medicatrix

52 11–18m 56 wt Man's mammae !! abortive
 wings, under ♣ united wing-cases !! 1–8m,
 13–26m 65 13–23m, wb Preservation of life!
 66 1–15m 84 5–10m/w curious instance of
 injurious structure 108 1–25m 109 1–13m 183
 wb/1w How many times have shells been
 changed in Europe since Eocene? Mammals
 probably greater number. & how many at
 present & how many during Eocene – We
 might calculate how many have lived in
 Europe alone yet only 160 have been found
 fossil

BROUN, Thomas *Manual of the New Zealand
 Coleoptera* Wellington; James Hughes; 1880
 [Down]

BROWN, Robert *The miscellaneous botanical
 works* 2 vols and vol. of plates; London; The
 Ray Society; 1866–1868 [Down]

vol. 1 ♂

vol. 2 ♂

273 3–5m 278 16–21m, 33–37m, 37"… 279 wt
 ●, 1–3m/1u "some confidence", 6–8m, 12–14m
 281 2–4m

♂

BROWNE, James Crichton *The West Riding
 lunatic asylum medical reports* London; J. & A.
 Churchill; 1871–1875 [CUL]
 beh, ds, phy, sx

vol. 1 NB 95 Blushing; 8 Death of males
 important for Descent

8 5–12m, 13–15m

♂

95 27–28u "nitrite of amyl", 29–33m, 33u
 "bright | face", 34–36m, 38–39m, 45m 96 5–7m/
 5u "eyes | excited" 97 32–39m, 40–44m

♂

vol. 2 NB for *Cicuta* p5 or *Conium
 Maculatum* (u)

27 ♣ Conia acts on the Motor centres of the
 Brain but I tried Hyosycamus○

81 Poisons in animals & vegetables

297 ♂ Singing preserved when voice lost

♂ Drosera

v 13m, 15m, 22m, 27m vi 3m 27 1–2m/u
 "firstly | periphery" 81 20–23m/22–24w Frank
 has shown 39m 82 14–18m, 17–20m (G.
 Harley) 83 6–13m, 29–34m 84 20m 297 16–
 17m/10–21w Dr J Crichton Browne 31–33m/
 32u "to sing"

vol. 5 NB O/

vii 4m, 8m, 10m, 17m, 19m, 27m, 31m

BRUGUIÈRES, Jean Guillaume *Encyclopédie
 Méthodique – histoire naturelle des vers* 1 vol
 in 2 parts; Paris; Panckoucke; 1789–1792
 [CUL, pre-B]

v

vol. 1 part 1 title page "sixième" corrected to
 premier 163b 13u/w ♣ 164a 15u ♣, 49–55w B.
 not tulipe? 164b 27u ♣ 165a 32u ♣ 166a 29–
 33m, 29u ♣/39–41w var. B. balanoides 166b
 35u/w var. tintary○ 56u ♣ 167a 13–15w var.
 lantenabulus 167b 21u 168a 1–2m, 12u ♣
 168b 1–2?, 31–32m 169b 19u ♣ 170a 6–8m/

BRUGUIÈRES

8u▲/6-9w Probably a Chthanalus○ 23-24m
170b 35-38w Conia? Tetradila serrata? 171a
18u▲ 172a 38u▲ 305 2m

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NF Etna albite lava also produce pumice. p. 328

NB ♦ See Burney – for Shortland world Solomon Isld –

155 25-28m 156 14-17m 159 17-18m, 21-31m 162 9-22m, 11-17m, 31-35m 163 1-4m, 6-13m, 29-35m, 29-31m 168 27-33m 170 3-6m, 23-27m 171 24-31m 173 7-18m, 31-35m 178 4-13m 181 12-18m 182 31-33m 183 32-35m/32u "écaillés striées" 184 1-18m 185 1-5m 190 15-20m, 30-35m 191 12-17m, 18-22m/w (A) 192 13-22m 193 28-35m 196 22-35m 197 9-15m/11u ♦ 200 6-16m 201 3a "l'autre" (of W) 1-9m, 1-13m, 20-22m, 20-23m 202 15-19m, 30-33m 206 20-25m/! 207 15-16z 212 19-23m 215 14-17m 216 28-35m 277 25-28m 283 15-19m, 26-29m 293 24-35m, 30-35m 294 1-10m 295 12-28m, 28-35m 300 5-21m 323 8-17m 324 1-4m 327 1-2m, 21-22m, 31-33m 328 1m 329 1-3m, 14-16m 333 27-30m, 31-32m 334 22-25m, 34-35m 335 1-3m, 7-8m 336 9-11m 339 29-35m (E. de Beaumont) 340 1-2m 342 13-18m 343 33-35m 346 1-3m 349 31-34m 350 1-3m, 5-6z, 11-14m, 15-16m 351 7-10m 354 24-27m 355 3-6m 356 20-23m, 22-25m 358 35"... 359 9..." 373 16m 374 7-11m 386 11a "Island" Same as Amargura Krusenstern 392 31-34m 393 1-10m ♦ 398 6-10m 400 10-15m 403 10c "Ouest"/10w east 404 30-34m, 31-35m 405 2m/3-7m/2w Mathews Rock 406 15-17m, 24-30m 407 10-14m, 17w Lava 32-34m 409 5-8m 411 29-35m 412 1-3m, 13-15m, 21-27m, 29-32m 413 20-25m 415 11-14m, 27-31m 416 5-7m 418 17-20m 419 1-3m, 30-32m,

34-35m 422 1-3m, 1-2m, 17-23m, 33-35m 423 32-35m/Q/33-35m 424 1-2m, 27-29m 425 15-18m, 19-21m, 34-35m 426 1-2m, 33-35m 427 1-3m 428 9-14m, 9-14m 429 18-22m 430 23-27m 435 9-11m 442 6-11m 443 2-8m 446 17-21m 450 26-31m 451 8-13m, 13-17m 452 13-20m, 22-25m 455 1-12m 456 17-24m 457 1-6m 458 1-7m 460 6-13m, 24-29m 466 1-25m 467 1-26m, 29-31w Valparaiso Earthquake 30m, 33-35m 469 26-33m 470 25-34m 471 1-4m, 7-11m, 12-35m, 17-20m, 23-25m, 34-35m, wb XX 472 5m, 10m/8-25m 475 5-10m 477 8-13m 480 1-8m, 22-27m 482 4-9m, 4-8m 483 23-31m 485 24-32m 486 16-20m 487 16-19m, 28-29m 488 13-16m, 19-20m (Humboldt) 490 3-8m 491 29-31m 494 2-12m 501 9-13m, 10-14m 505 33-35m 506 1-2m, 19-20m 508 29-32m, 29-33m 514 18-20m 519 wb Does not some one describe Volcanos in S. Shetland besides great crater; New Isld Discovered 1839 by Enderby's Ship; St Pauls or Amsterdam seems quite omitted.; Proby Isld – Isld North of Bonin Ramilla on coast of Ascension – Matthews Rock

BUCH, Leopold von *Travels through Norway and Lapland during the years 1806, 1807 and 1808* London; Henry Colburn; 1813; trans. J. Black [CUL, on B, S Charles Darwin M. Video Nov. 1832]

xvi 19-20m, 24-25m, 28-29m xvii 16-17m, 30-32m 94 8-20m 236 7-10m 306 8-16m, 16u "fruit\maturity", 16-17m, 27-28m, 27u "not\well" 307 5-9m, 7u "presented\fruit", 8u "barren"

BÜCHNER, Ludwig *Aus Natur und Wissenschaft* Leipzig; Theodor Thomas; 1862 [CUL]

BÜCHNER, Ludwig *Conférences sur la théorie darwinienne de la transmutation des espèces* Paris; C. Reinwald; 1869; trans. A. Jacquot [CUL]

ad, beh, fg, h, ig, phy, t

NB 79 good sketch of Häckel's views on first organisms & spont. Generation

114 Helmholtz Eye not perfect

♦ Man 123 Schaafhausen – Gorilla 1/2 way between erect & quadruped.–

♦ How difficult to young child to stand upright – 124 do – on milk teeth of man

♦ 132 self-reflection or consciousness

♦ 135; 137; 144

♦ all Q

title page z 79 3-29m 114 27-32m 123 30-33m 124 4-11m 129 wt Büchner L. wt 39? 132 6-11m 135 8-18m 137 30-32m, wb higher apes & lower races of man → 138 2-8m 141 6-9m 144 30-32m

BÜCHNER, Ludwig *Die Darwinsche Theorie von der Entstehung und Umwandlung der Lebewelt* Leipzig; Theodor Thomas; 1876 [CUL, I] ∅

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BÜCHNER, Ludwig *Man in the past, present & future* London; Asher & Co.; 1872; trans. W.S. Dallas [CUL] h

NB Nothing need be quoted – Nov 1873; All on Man; 120 very good' resume; 142; 156; 266

119 34-37m/37w quote 120 1-4m 142 13-25m 156 12-17m, 25-30m 266 3u "Dr. Lisch", 13-15m, 17-25m

BÜCHNER, Ludwig *Mind in animals* trans. of 3rd edn by Annie Besant; London; Freethought Publishing Co.; 1880 [Down] beh

NB 159 on instincts of ants 159 ↑2a "are" ie pratensis 36-42m/→, 20-41w & yet pratenses taken as pupa 160 10-13m, 41-42m

BÜCHNER, Ludwig *Sechs Vorlesungen über die Darwin'sche Theorie der Verwandlung der Arten* Leipzig; Theodor Thomas; 1868 [CUL] beh, ds, ex, h, ig, oo, t, y

NB ♦ 179; 180; 190; 195; 198; 202 good when described; 210; Schaafhausen Book & Rutimeyer Paper

SB ⇨ ♦ ⇨

p.179 Man first dentition like Apes.– conclude ♣ feed on Plants 180

⇨ All used Man

p 90 on Self-consciousness of Savages 195 on the exactly intermediate manner in which apes walk on Hands – good It might have been asked how cd there have been transition between ● hand & foot?

198 interval will get greater between man & higher apes, from extinction of latter p202. Rutimeyer apes interval between Catarhine & Platyrrhines.–

210 The milder disposition of young apes, perhaps only like mildness of young Carnivora – Bücker

179 12-15m, 12-14w ask Huxley 14u "auffallende", 15-18u "indem|hat", 17-20m, 23-26m 180 14-21m 190 11u/wt, 15m, 15-25m/w asks whether savages reflect on relations of things 195 wt Gorilla intermediate in upright position – if not existed wd not be kn 1-5m 198 wt/3-12m/1-14w interval between Man & higher apes will get greater, from death of lower races & higher apes. 201 9-10m 202 22-26m 203 5-7m 205 25-26m 210 wb The milder disposition of all young apes only like young tigers or lions – perhaps does not indicate descent from a mild form.– ∅

BÜCHNER, Ludwig *Sechs Vorlesungen über die Darwin'sche Theorie der Verwandlung der Arten* 2nd edn; Leipzig; Theodor Thomas; 1872 [CUL]

title page 18u ∅

BÜCHNER, Ludwig *Die Stellung des Menschen in der Natur; 2. Lief "Wer sind wir?"; 3. Lief "Wohin gehen wir?"* Leipzig; 1870 [CUL]

NB Reichenbach (rest ∅) 170 – (Lamarck before him) O/ 2. Lief ∅

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BUCKLEY, Arabella B. *A short history of natural science* London; John Murray; 1876 [Down]

BUCKTON, George Bowdler *Monograph of the British aphides* 4 vols.; London; The Ray Society; 1876-1883 [Down] oo, sx

vol. 1 NB p.71; p91 Dimorphism. p.71 Some Plants not often attacked by aphides – even very poisonous ones 71 10-13m, 17-23m, 23-26m, 33-39m 91 4-17m, 36-37m (vol. 2, ∅; vol. 4 published after CD's death)

BULLER, Walter Lawry *A history of the birds of New Zealand* London; John Van Voorst; 1873 [CUL]

ad, beh, br, ds, gd, mg, oo, phy, sx, t, y

NB1 p29 Protective Colour of Birds

p56 – affection between paired Birds S S. Q
p66 – Huia Q with Beaks different in 2 sexes & aid each other SS

NB2 p74, 76, 78 migratory Birds to N. Zealand

81, 84 spreading of a species

93 – Rats destroying Birds

Nothing for Descent

NB3 167 Birds with good wings, but incapable of flight

219 male colours on one side fainter & the Bird feeds laterally SS

224 Courting of Pied Oyster Catcher, not important

278 – Gulls catching Moths

SA (pp. 2-3) □β

p. 1; 15; 19; 111; 117; 121; 137; 163; 165

SA (p. 372; ♦) p.29 Stringops large wings but no muscles for flight – colouring assimilative must be protective from Birds of Prey, whilst resting during the day

Part II

p.74, 75, 78 Cuckoo summer immigrant believed to be partly parasitic in incubating but not feeding its young

p.81. Birds, Zosterops which has spread from S. Isld. rapidly

84 Changed Instincts, also, has become permanent resident

94 Believes rats by destroying much chief cause of decrease of ●

95 Anthornis or Bell-bird – decorates nest with Brilliant feathers.

Part III & IV

167 Weka good-sized wings, but incapable of flight.

29 1-4m, 6-7m, 8-10m, 16-19m, 17-25w why as no beasts of prey Rats? There are Birds of Prey 33 9-10m 55 15-23m, 37-42m 56 14-19m, 20-23m, 25-26m 66 19-29m 74 29u "another | visitant", 31-34m 76 11-16m 78 19-22m 81 1-6m, 6u "indigenous", 7-11m 84 6-15m, 20-25m 93 13-17m, 24-26m, 31-34m, 41-43m 94 7-9m 95 22-26m 167 6-10m 219 33-41m 224 11-20m 242 14-17m 278 6-16m

BURBIDGE, Frederick William *Cultivated plants, their propagation and improvement* Edinburgh & London; William Blackwood & Sons; 1877 [CUL]

fg, hy, phy, v, y

NB p.34 size of seeds effects on growth of offspring

58 grafting, rules of

♣ species which will graft

95, 96 – on Variability

132 ∞ – Hybrids dying young

155 ∞ – on Hybrids taking after either parent

33 26-33m, 28u "Dr Gustav Marck" 34 1-48m

35 3-9m, 5u "Professor Lehmann of Munich"

58 9-18m, 14w Recipient 19-30m, 32-38m 95

4-17m, 18-27m, 28-39m, 42-43m 96 14-45m

132 18-34m 155 2-14m, 5-16m, 10u "comes |

most", 26-31m, 38-43m 156 13-18m, 26-33m

157 36-43m 159 29m

♣

BURCHELL, William John *Travels in the interior of Southern Africa* 2 vols.; London; Longman, Hurst, Rees, Orme and Brown; 1822 [Down, pre-B, S]

fg, tm

vol. 1 NB p529, 536 wonderfully hooked seed; with woodcut; 529 grapple plant

27 8-9m 101 27-29m 124 23-24m 158 4m, 12-

14m 259 1-3m 409 16-17m, 27-28m, 34-35m

427 13-14m, 24-27m 428 22-24m 429 10-11m

529 fig.m 536 10-14m

vol. 2, 59 1-6m, 10-12m 69 26-27m 71 32-

33m 72 11m, 16m 73 13-14m 74 28-31m 78

12-13m 172 21-24m 173 zt 207 7-13m 450

22-27m

BURGESS, Thomas Henry *The physiology or mechanism of blushing* London; John Churchill; 1839 [CUL]

beh, cc, cr, h, he, phy, sx, t, ud, y

NB1 p.1 Youth more liable – care more for opinion of others

Sighing – Grief

NB2 ♦ p10 Expression

B says Blushing Hereditary in one family (both parents being never subject) except when one child diseased with cyanosis heart♦ –

SB1 p.1 Youth blushes

10 Description of fear

23 Female blush most

24 Designed by Creator, as check Th♣

♦ – In Ezra & Nehemiah – Bible

♦31 scar in negro blushing

♦33 Mulattos

♦34 Otaheitians

38 Albinos blushing – (Iris)

43 Circassian do – disuse Th♣

48 Morbid sensibility Th→♣

50 Power of accusers

◆ 54 Causes

◆ 56 Infant do not blush, but redden with passion (evident do not blush) (old age no 56)

◆ 61 Hereditary

◆ 62 Blushing no proof of guilt x 62

68 Rage, expression of – Rage

◆ 114, 122 Why face blushes more –

◆ 125 Exposure to air

◆ 128 whole body glows

◆ 133 Sensation on face before blush

◆ 134 Concomitants of Blushing & Sham (*ie* Shame)

Over

(*over*)

◆ 137

◆ p156 – only a moral stimulus excite blush (not a passion) not shrugging shoulders (no shyness) commonest of all causes or self consciousness –

◆ 177 Decline of blush

N.B. Personal remark makes a person blush more than anything self consc

◆ This is differently on my view that vanity does not cause blush – it is on depressing self-consciousness which alone causes it – No a pretty girl who thinks a man admires her will blush – One is more sensitive to the ill-feeling than good opinion of others.–

56 180 says depressing cannot be called either exciting or depressing

56 ◆ 182 Hereditary blushing 10 children

56 ◆ 182 tear-ducts in youngest

56 ◆ 187 upbraiding shy people makes them worse

56 188 Edgeworth quoted (good)

All about Blushing except p68 Rage

Burgess

SB2 56 Burgess on Blushing p 10

Fear

in regard to voice in Aeneid

"Obstupui, steteruntque comae, et vox faucibus haesit"

(*over*)

Will the albinism observed by Dr B

Dr B "the strength alters the ●"

56 Dr B observed with ♣ two albinos that th "caused them to blush deeply.–

1 9–10u "sensitive|conscious" 10 10–20m ◆ 11 8–11m 23 1–3m, 1u "children and females" 24 3–5m/w see to this 8–11m, 9–13"..."|12–13w 25 7u "Ezra", 8–11m/w Ch IX.6, 20u "blush"/w Jer Ch VI v. 15 26u "a|wrought" 31 21–24m, 21"..."◆, 22a/c/w|23a/c|23–25 "..."◆, 28–29m/→ 32 24–27m 33 5–8m, 13–16m 34 19–21m 38 23–26m 39 13–16m, 15m, 20–25m, 29→ 40 4–8m, 4u "ears", 9–12m, 20–22m, 29m

43 6–9m, 13–16m 48 14–17m 49 3–7m, 12–15m 50 16–19m, 17u "presence|accusers" 54 wb nearly all cases, his real & false blush, connected with what people will think of one – Remorse does not cause blush.– 56 8u "hereditary", 13–15m, 15–16u "of old age" 57 9u "idiot", 13–14u "but|blush" 61 1–5m, 15–18m 62 6–11m/1–11w/wt no test of guilt because the thought that the other was thinking of you suffices to cause it 68 11–12u "flushed|fire", 17– 18e "My|rage", 19–21m/u "heart|rage", wb glittering 69 11–13m 114 9–13m, 19–24m, 20–23w effects of use or Habit 122 1–10w but neck & ears colour 5–13m 125 20–29m 128 7–11m, 10u "epigastric" 133 18–20m 134 1–20w mental agitation which affects heart and respiration 6–8w◆ & Gratiolet good 10–11m/w◆ p. 349 & 366 22–28w (awkward gestures) stammer peace of mind lost 156 wt He may shrug his shoulders voluntary – he may pretend to laugh 6–7w affecting "to his mind" 9–12w no shyness 177 13–20m 180 21–25m 182 1–11m 187 19–23m, 22–24m/→ 188 1–4m/2u "countenances", 5–7m 189 21–26m/24u "frequently wept"

BURKE, Edmund *A philosophical inquiry into the origin of our ideas of the sublime and beautiful, with an introductory discourse concerning taste, and several other additions* London; Thomas M'Lean; 1823 [CUL.1900, I by G.V. Jackson] beh, sx, t

NF ◆

The morality & Metaphysics of Ambition } ?

I am going to Italy next Summer

Sublimity

NB1 Simple Ambition instinct of excellence over other men satisfied (1)

Pride. ditto. with comparison to other men so as to undervalue them. (2)

Fame. desire that (1) should be generally known. & acknowledged (3)

Vanity, [do] (3) with undervaluation of others, or overvaluation of yourself (4)

Arrogance a determination to show pride without real pride having been attained

Conceit – pride without foundation and on trifling subjects?

◆ But the ideas raised by these words refer to peculiar kinds of character

NB2 He can see reason why instincts (sexual) of animals stronger than in man – because not having any notions of beauty to keep them in right line

these involve feeling triumph The◆ feeling◆ of◆ Sublimity akin to feeling of pure (1)

BURKE

gratified ambition – connected preeminently with consciousness of being a sentient being arising from many ideas.– each preeminent of its class.– [feeling of triumph at being a sentient being] brought on by the thinking faculty by being very active & exhilarating (hence aided by bodily conditions) with power to look inwards = Euclid too absorbing = yet conclusions from mathematics sublime – Gravitation sublime – thinking on subject if pleasure from a source not well understood, sooner look to yourself & hence sublime –

iv 6m, 8m vi 8m 55 9–17m 56 13–21m (Scipio, Cato) 57 21–25m 58 16–20m 66 zt 103 11–25z 114 14–15z 115 2–25z 162 13?/u "objects small" 163 5–10m 191 13–14m (Tommaso Campanella)

BURMEISTER, Hermann *Beiträge zur Naturgeschichte der Rankenfässer* Berlin; G. Rainer; 1834 [CUL]
em, fg, phy

14 15–17m/w eggs not contemO impregnated
15 3–5m 16 28–29m 17 20u "Organe" 18 3–5m/w eye becomes double 19 4–6m, 20–23m
20 20–24m/w feelers & eyes thrown off 21 10–11m, 23–27m 22 3–6!! 23 17–19m/w no trace of seam in shell 24 23–27m/w calc. plates 25 1–4m/w epidermis on all young shells 26–30m/w Ovaria within young shell 27 5–6m 28 11–17m/w eggs in different state in different parts 29 1–2m 30 13–15m/14u "Gräten"/w fish-bones 16–29m/w Burmeisters description best of mouth.– 31 14–18m/w cissi all alike 35 11–16!! 37 1–3m, 15u/wτ, 16u/w♦τ, 22–26m 38 4–6m, 19–20m 40 11–14m/w case of moth 22–29m/w pretty good 41 1–3m, 14–16m/w so cissus ant. are longest 19–20w rest of cissi similar 45 21–23m 49 13–16m 50 13–16m/w compare with Cyprus 26–28m 51 26m, 26u "Stomatopoden", 27u "lässt|der", 28m 28m 53 5–6m, 12–13m pl. facing 60 wt €

BURMEISTER, Hermann *Histoire de la création* Paris; F. Sary; 1870; trans. E. Maupas [CUL]

∅

656 30–33m 667 31–36m

BURMEISTER, Hermann *The organization of trilobites* London; The Ray Society; 1846; trans. Bell & Forbes [CUL]
co, ig, sp, t, ti, tm

NB p37 & 38 Species Theory

SB □β

p.37. The earlier geological types present peculiarities of various existing groups passing into one another Good Remark to quote

1 zb 33 3–4m, 3–4w 3 37 16–18m, 37–42m 38 1–6m, 12–17m, 12–17w Mollusca! Corals support this

∅

BUSCH, Otto Arthur Schopenhauer München; Fr. Basserman; 1878 [Down, I] ∅

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(markings presumed to be by FD)

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title pages (much illegible scrawl) v 2w 4004 vi 2m, 7m vii 37m, 39m, 41m viii 4m ix 11m, 21m, 25m x 4m, 28m, 33m, 40m xi wt (dates), 5m, 45m xii 7m xiii 13m, 17m xiv 9m, 27m, 42m xv 17m, 22m, 25m, 32m, 38m xvi 5m 10 wbee 11 wt ● 12 11m 13 23m 15 16m 17 12m, 17m 20 8–14m, 17–20m 31 wtee 32 10m 33 7m 34 18m 35 10m, zb 36 3m 37 32m 39 14m 40 1m 41 22m 43 3m 51 7m 63 zt, 2–15m 64 zb 67 24m 84 14m 85 18m 89 12m 93 20m 97 11m 99 16u "Ennius"/w 169BC 100 6w 281 104 wt (note about events of 264BC) 122 zt 146 27m 148 2u "Thucydides", 2–9w son of Plorus an Athenian died 391 before Christ 149 3m 151 6m 153 14m 154 11–20z, 23–25w 449 died BC 155 5m, 17m 158 16m 159 7m 160 5m 161 2m 162 11m 163 17m 164 16m 166 11m 168 2m, 23m 169 21m 185 wt (dates), 11u "Apelles and Hippocrates" 186 7–10w (dates), 9u "Zeno" 191 wt/8w (dates), 7u "Diogenes", 8u "Mithridates", 18m, 23u "Punic war"/w 218bc 192 30u "Mithridates and Strabo", 32u "Pompey", 30w/31w/wb (dates) 193 17u "Lucullus", 18u "Mithridatic", 9–16w/17–19w/wt/wb (dates and events BC) 194 23u "Anaximenes"/w, 26u "Themistocles"/w (dates)

195 21m 196 10u "Strabo"/w (dates) 199 1m
202 17m 209 10m 210 26m 237 wt ● 240 2z
241 zt 243 zt 249 wt/5-8w Mani Manc Mane
Manc 251 wt 251 253 7w Aegyptus 254 wt
Dr Darwin 255 wt DARWIN 258 17m

BÜTSCHLI, Otto *Studien über die ersten
Entwicklungsvorgänge der Eizelle die Zell-
theilung und die Conjugation der Infusorien*
Frankfurt am Main; Christian Winter; 1876
[CUL, I]

fg, phy, sx

title page 11u "Bütschli", 16u "1876" 207 28-
32m 208 5-12m/w for a renewal of youth & a
reformation of parts 209 18-22m/18-19u↔,
27m 210 10-13m/10-11u↔, 19u "Vereinigung |
Actinophrys", 22u "scheinlich | Encystirung",
31m/30-33w Give Butschli first & Enger &
then Carter 211 19m, 22-28m/22-23u "dass |
ist"/27u "Verjüngungsepoche"/26-30w this is
just what he has said about Infusoria wb
According to this view Conjugation is a
renewal of youth & size which gradually
decreases & propagation thus division.—
Process seems analogous 212 2-11m/w
same process without conjugation or with 2
spores formed 214 17-22m/22u "den | de
Bary"/w the first man 17-22m/w He fully
admits that conjugation is the first step to
sexual copulation 215 3u "Dagegen"/5u
"wirkliche Befruchtung"/3-7m/w not so ♣ with
Proteus infusoria &c &c 10-17m/w seems
here all for connection of conjugation &
sexual reproduction 22-24m/u "dass |
erkennen"/w Conclusiv 32u "1838"/m (J.
Müller) 216 3-6m/w seems to say that
conjugation of infusoria is the same with s.
generation 8-9u↔ 219 9-26[...], 25-26u
"erhalten | Fortpflanzung" 252 wb p.207 to 219

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Odonata* 2 parts; Cambridge, Mass., Uni-
versity Press; 1872-1881 [Down]

Part 1 NB O/

CAMERANO, Lorenzo *La Scelta sessuale e i
caratteri sessuali secondari nei coleotteri* Torino;
Ermanno Loescher; 1880 [Down, I] ♂

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1855 [CUL]

ad, af, beh, cc, che, ci, co, cr, cs, ds, dv, ex,
f, fg, fo, gd, geo, gr, h, he, hl, hy, ig, in, is,
mg, mhp, mn, oo, phy, se, sl, sp, t, ts, v, ve,
wd

vol. 1 NB1 p478 His ♣ Geogrph Regions

As there are only 3 - 5 Ascension Plants, &
I think DeC speaks of several inhabitants, it
is one of strongest case of many introduced
plants.

NB2 Philology pxxii; p.xiii; p.xiv to end of
Introduction

p535. Decandolle Memoir vol X on
compositae

SB Mem. Carrier Pigeons caught at Dover -
See McGillvry number of seeds in crop.

That Transport does little for continents, but
much for isld. is what I shd have expected.—
In Compositae & all others.— Proportion of
seeds with plumes & small seeds ought to
be great in islds; even if not same species.

It may be possible to take two great groups
for comparison of range. it cd be useless, I
think to compare orders of Vertebrata

SA (pp. 528-529, 5 sheets)

SA1

5. Sous-regions (cc showing) 34 species to
Fam.

3 Sous regions (cc showing) 28 species to
Fam

(over)

⇒ 4. Sous-regions (cc showing) 40 species
to Fam.

This again is hostile, contrary to largest
Families do not extend furthest

SA2-5 ☐

SA2 ♣

⇒ Vol I p 516 Decandolle

(numbers of species in certain families totalled)

Water Plants seem to make large proportion
of Monocot. - wide ranges

Taking the 23 Fams. of Dicot. & 4 Fams
Monoc together, with more than 500
species; we have 27 Families, with species
inhabiting more than 2. regions

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(calculation that) 4.5 is the standard of all Families whatever

(over) ⇒ ☐☐♦

SA3 p.512 of Decandolle; *(list of numbers of species, and totals; names)* ☐, ☐☐☐

(over)

⇒ I think if Families are used, whole world or Continents shd be used as field of Compositae. But I cannot say why I think so ☐ May 1. 56 I have taken the Families (p.512. Decandolle) on other side *(above)* from Drege (Flora B.2. 1843). There are 21 *(one omitted)* Families, which have their species ranging over a ☐ larger number of the 20 divisions, into which the Cape District is divided. there the average (viz 1.6 regions) ☐ range of all the Dicots. & Ferns together? – These 21 Families have each on average 126.2 species, but if the Compositae from having more than double number of species be subtracted; then the average is only 77.1.– There are other 37 Families which range ☐ less than the general average mean of 1.6 & these have 87.9 species to Family. So that nothing can be inferred safely from these results, ☐ Families being too large.– [If we give a reasonable number to the Compositae, viz 500 species, then the average of the wide-ranging Families is 96.7]

SA4 *(☐ and ☐)*

Vol I p.516

(continues totalling numbers of species)

This gives for the 23 Families of Dicot with some 500 species, that the proportion of species ☐ per cent which inhabit more than 2 regions is 4.3. The standard for all Dicot being 4.1.– If we ☐ consider the ☐ 7 Families marked ✓☐ which I consider Tropical, & which have less means of spreading, for Tropics divided, we find these 7 large families have only 2.0 per cent species widely spreading, so that means of distribution come into play, & the remainder, wd be above 4.9. Those of Tropical Families, have 6044 species & only 124 in more than 2 Regions.–

(over)

Picking out Families with more than ☐ 500 species, no of species, no of wide rangers *(list follows, with species names and totals, some marked ✓☐)*

SA5 Dicoti only. Families with under ☐ 50 species.

(list follows, with species names and totals, and number of wide rangers)

(over)

(continues list from SA4; calculates that)

The standard of all Dicots is 4.1

☐ General Conclusions

☐ Families with more than 500 have a little above average of wide rangers & Fams beneath 50 rather fewer wide rangers, than average – But there is far greater difference ☐ according to nature of Family itself, than its mere size.

N.B. Decandolle does not use the very small Families, here used in his average.

SA6 ⇒ *(pp. 560–561)*

Cruciferae – p.550

(table of totals of species and those in more than 2 regions in various islands)

N.B. If the Labiatae & Polygonum worked out this way, it wd show ☐ in how isolated ☐ spots some species of each Family occur.–

= 33/100 agrees nearly with Decandolle

I conclude islds must either have some easy way of getting inhabitants or double creations are tenable

(over)

(another similar table) Compositae, p. 552

= 22 per cent leaving out Canary lsd only 13 per cent.

xii 24m xiii 12–17m xiv 7–10m xv ↑9–5m/w true xx 30–33m xxii 34–36m xxviii 19m, 34–35w Individuality xxix 16–17w Cultivated Plants 32m xxx 21–22w Definition of species 45 19–33m 47 16–21m(FD), 23–25m 62 6–7w(FD) 72 8–12m/10–11Q 14–22m 84 8–22m/8–9? 85 7w say read 88 ↑3–1z 116 36–39m 117 6–8m, 13–16m, 27–30m, 37–39m 118 6–9m, 16–21m 144 1–4m 147 4–7m, 9–10m, 17–25m 156 11w♦ say read 183 4w♦ say read 200 10–16m 201 1–7m/3–5w examples of causes 28–31m 202 25–29m 203 36–38m 238 24–30m/w Read 39–40m 246 18–26m/w Does☐ this refer to America? if so ● or to Islands? 247 2–7m, 6–8m 250 20–28m/w I do not think even at lower limits except approaching a Desert 264 10–11m, 12–16m/12–13u "enfin | nord"/15u "on | fait", 16–21m 268 9–11m 270 16–31m, 28u/29m/w Spain 279 10w says read 305 20w say read. 316 34m/32–34w theoretical average of minimum height 34m/wb I have no doubt native 326 30–37m/→ 329 14–21m/→ 330 1–7m 334 4w♦ I only read 337 6–7m, 9–10m/9u "lat. | degrés", 15–16m, 15u "se | connaît", 25–28m, 27u "environ | trente", 30m/u "bord | degré"/→ 338 5m, 41–43m 339 wt Island Saxifrages 2u "aux | ouest", 3u "la | Asturias" 340 15–20m 341 23m 343 7–12m 394 20–24m, 32–34m 395 12–15m 397 20–22m, 23–24m, 25–28m, 32–38m, 39m/→ 398 29–33m 399 8–15m 406 12–18z/w *(circle with compass points marked)*, 31–36m/

31u "8495", *wb* *cc*, *zb* (oval with compass points marked)/*wb* 4 times elongated E & W 407 7w arctic 11-13m/12u "Montagnes Japon", 14u "Turquie d'Europe", 37u "Caucase" 408 15-18m/16-17w S. America 410 16-19m 411 25-29m, 31-32m 412 3-6m, 12-15m, 38-42m/40u "Sierra-Nevada" 416 11-13m/15-17m/7-20w so make Alpine Plants of N America, so means more wonderful 24-26m 417 11-16w♦ -But Asa Gray's Alpine plants are more than this alone. 35-38m, *wb* The southern hemisphere of Hooker 418 5-10m, 10-12m, 25-28m, 30-33m 419 *wt* All used in the Chapter on Sociability - Struggle for existence - Stations & *wt* Not used on proportion of genera to range 422 1-2m, 26-29m, 36-39m 424 36-40m 428 31-35m/32-33Q 431 38-39m 444 19m 447 28-34m/→ 448 8-10m, 11-13Q 15-18m, 18-20Q 21-23m, 35-36m 450 24-27m 453 12-17m/12-13Q 21-26m, 27-36m 454 1-5m, 6-7m, 24-26Q/26-31m/26-37w Every one of such species *wd* cover ground if no other species present: if rarity here is step to exclusion, then the greater importance of other organic beings is shown *wb* p463 near confines become rare necessarily, but yet, (at least sometimes) social; see top of p462 (Q) 455 6-16m/8-9Q♦/wt Not Q 22-23m, 26-28Q 31u "caractéristique | blé" 456 1u "dans | cultures", 14u "Plante | champs", 40-44m/Q 457 15u "ne | absolu" /15-16w because impossible 458 1-3m 459 16-18w I shall not Q. this 28u "espèce | sociale", 20-33w a broad distinction in terms between repandu or diffused, & abundant or social. (a) see p. 463 *wb* (a) Does former depend chiefly on physical conditions the latter on other species ??? The latter must chiefly on other species, except where, perhaps conditions very peculiar. 460 26-28m/36m/Q/25-38w/wb I am inclined to think that H.C. Watson facts go only to show that most widely diffused are diffused likewise most in smaller areas: hardly descends to such minute areas as field. A species might abound on one spot & yet be rare over all England, but is this so? 461 4m/u "nuisent", 19u "directement | indirectement", 6-29w It comes to this, whether there are ♣ many social plants in good common soil? 25-26u "toutes | grand" /25-28m/ ←, 11-12m/14-15m/12-20w Alder in Larch-wood, but this must imply adaptation, else *wd* not grow up. 23-24Q/w Mangrove forests 27-29m, 31u "les | alpines", 34-38m/36u "paraissent | abondance" /38u "d'être | moins" /31-39w This is fact of same kind as not being dwarfed 38u±/wb This is opposed quite to view that each form more depends on other

organisms than on external conditions, *wb* ie great numbers to live *wb* But on the extreme limit of a desert, then plants grow separately, I think 462 1-4m, 3-4m/4u "isolés | étroite" /wt meadows very full of social plants 3a "espèce" but not of all life? 5-9m/Q/wt Q when a form can once live, then it may be social from mere number of seeds. & occupation.- 11u "en | isolés", 13-16m/w (a) → *wt* (a) As long as conditions exactly same. in relation to physical nature & other species & its own ♣ excretions, then of course there will be many individuals, & so be social.- 13-14u "causes | locales" /12-15w This must include other species. 19-23m/18-31w Except (z) at the Cape, it seems the more fertile the land, the more diversified the flora; & according to me, it is more fertile of production in life in part because more diversified.- (z) The forest of firs grows slowly, for land poor & cold. ↑2-1Q/wb case (z) explained by diversity of stations, such as occur in all dry regions.- as stated before 17-34m/w I cannot but think the number of species, depends in part on the goodness of conditions; but why I do not see; much life causes much decay makes strata & c & c & many stations. for different times of year will have species all times of year. good. ↑11-9u "surtout | station", ↑5-2w This is cart before horse?? There *wd* not be many species without stations; yes, how many species can be introduced. *wb* a field of grass cannot be called so rich for so many genera. - (a damp rich tropical soil & a damp cold poor soil ought to be compared) 463 *wt* The many cases of introduction of new species into islands, shows the simple free-road to, from elsewhere created, is important element.- Creations not easy work thus also shown.- My theory shows how slow & difficult it must be.- Supply not equal to demand.- 8-9w all this discussion strikes me as unsatisfactory, from struggle with other species, not being here prominent. 10-11w Not Quoted 14-18m/w depends, I think, on beating other species 14a "répandent" no doubt one element 15a "vent" Yet Compositae confined, 14-18m/?, 7-23w He shows towards end of Book, that genera increase with no of species - but not I think with individuals - yes for mean density & decay create other stations) 20-25m, 26-29m/28a "communes" but not yet social; but sociality and commonness bound together, for perhaps hardly one absolutely social plant to exclusion of all others, except such as Mangrove ↑6-5w but yet it seems when does appear is sometimes social.

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↑4u/a "est|rare" Yet social plants occur near limit ↑1u "de|elle", wb A great diversity of forms will follow from adaptation to different stations (supposing free inroad), as well as from supposing a great amount of life, for the latter creates many stations, ↓w Would not under same climate a uniform good soil support more diverse forms than uniform poor soil & climate? 464 1-4m/wt/1-7w No hardly - flatly contradicted by his social Plants. 8-11m/w thus if compositae abound in many countries it must be due to their organisation; but if ♣ the species in certain countries are more or less common due to conditions 10a "les" different 12-18m/w Does this not imply that habits of species have more in common than they really have? - wb ♣ One sees a Railway cutting temporarily covered with plants (in most cases only the natives of seeds) next year there wd be more seed, yet the abundance soon ceases.- here struggle comes in. 465 wt these tables refer to species being very generally dispersed within their own region of habitation.- 2-3Q 2nd table "composées".w largest family 6u "1 sur 4", 10-15m/w It wd be very curious to see what result wd follow from genera. calculated in this manner by averages 11-12u "mais|sensible"/12-14m/14u "soit|100"/15u "18|45", 13-15X, wb Can Families include too great a range of adaptations to answer for such calculations?? The resemblance in Families may be due to parentage? 466 1-10m/w Tropical Families have nearly as many common species as non tropical Families.- This shows how little adaptation to climate goes through a Family. table "Phanérogames".w standard table.w Here again it is clear that largest Families do not have greatest number of common species ↑12-7m, ↑4-3u↔, ↑2-1m 467 1m/1-4w & yet it may be social!!! p.462 7u "17,8"/w ie below the average of all Phanerogams. 9w ie average 11w the very small families have more than average!! 12-13m/w quite opposed to my views.- table "Phanérogames".w standard table.w Here again same general law 468 table.m/w This goes as it shd do 2nd table "phanérogames".w/wb These are 2 largest families & they have nearly 1/2 the common species, but single spears in other Families are excessively common 469 27-31m/w Doubt whether Watson not too large. 34-35m, 40-41m/w doubts. 470 wt Ask Hooker about paragraph 3.- what it means 8-11m/10-11u♣, 13-14m, 16-17m, 18-20m/18-19u "moyens|remarquables", 20-23m, 19-24w |

cannot believe, much is due to this??? Yet it must be part element.- 23a "Quant" to common species of 23-26m/?, 27w ♣ What does he mean 31-32m/??, 34-36m/w but excess of numbers very small 37-39m, 40-43m/Q/wb "species with restricted range are not common" ie confined range & rarity go together. ↑2m/↑4-1w/wb propagating by number may account for this to certain extent 471 wt Only those social plants which inhabit common ground are the difficult ones to understand. if such exist near limits 1a "sociale" certainly if conditions peculiar 1-3m/1-8w It shows that sociability does follow other laws than ♣ commonness; how can they help each other. or injure others? 4a "espèces" Can means of propagation come into play 4u "circonstances locales", 5-8m/w diffusion depends more on climate 7-8w This like Benthams cases on Pyrenees. 16-21m/Q, 34u "c'est l'abondance"/34-37m/w social plants most easily affected 472 wt If this fact of social plants entirely disappearing be true it shows again that there must be some other law.- It is analogous to social plants suddenly appearing on their limits wt If sociability depends on other species & not on external conditions, then very slight change might determine their existence 1-2m/6-9m/8u "par|naturelle"/1-16w It is like change in Oyster Beds.- I cannot believe; flatly contradicted by History of shells.- No this seems to apply exclusively to plants social or not social in same area.- Is not part of this that social plants now conspicuous, especially in forests *midpage.w* But it cannot be that every individual disappears from field 16-22w It looks as if one individual protected another, & so this wd lessen when preyed on by insects &c: Trees, wind.- 24-28m/24-30w Everyone knows how hard to rear few ears of corn in Garden.- my Radish seed from apparently mice ↑11-7w cross impregnation ↑7-1w/wb are social plants very defined in their adaptations: It has been shown I think greatly depends on number of other species adapted generally to same sort of conditions. wb/↓w - But why none in tropics; because oldest climate, & all species mostly perfectly adapted: most of the facts come to adaptation in preponderant degree.- wb These several cases seem to show that all the individuals of social plants disappear together owing I presume to rotation - 473 wt The Paris is well fitted as shown by its mere presence; it is social from numbers of seed sown: this I conclude must be

governing element, but easily overlooked in Tropics where more closely adapted species.— 2-12w Destroy 5/6 of English plants & many wd become social which are ♣ not so now.— 4-32w These two Pages not worth quoting 23-25m, 23-25m/w of rotation 28-29m/29u "sur|considérable", 31u "de l'Europe", ↑4-2m/!, wb/↑15-1w I wonder whether Cardoon is social in Europe? & spotted thistle of Pampas? If so it wd seem to be merely ♣ excellent adaptations, like when Railway cutting first exposed, due to seeds. wb Fennel — Hooker & Bentham say yes. 474 1-2z/w ordinary shape (oval), ↑8u "endémique"/m, ↑16u "sporadique", ↑13m 475 1-2m, 21-26w difficulties in defining areas & terms 476 2-4m, 10-13w Before making any calculations whatever skim over to p 519 26-35m/28u "mais|rares"/33u "espèces|aire", wb Introduction 478 wt/1-5w Now the question is whether this applies to means of transportation or adaptation, probably the latter; for plants seem to have such power of spreading.— The adaptation must be to struggle with other species & not conditions 4-5u "de|famille"/5-9m/7w (a) 479 wt The transportation is a theoretical question & implies single origin, & probably not considered by Decandolle. In Birds, according to Goulds idea, was considered with means of transportation.— The very nature of the areas, some continuous and others disconnected, shows he did not consider means of transportation. 22-23m/22-25w Can it be right to run them together.— 22u "Archipel indien"/23u "Nouvelle-Guinée"/24-25m/?/!, 26u "Nouvelle-Zélande"/26-27m/w are these distinct 32u "Bermudes" 480 1-26w without knowing whether areas connected by continuous land or separated by sea, the results seem to me useless. How different cases of plants common to India, & Africa or tropical S America & ones common to Europe & Siberia, must make some difference. 481 2-13w Thus far it seems that intertropical species do not range so far as temperate (but tropical lands ♣ more divided by seas?) not the American provinces. table.w very regular laws indicated by this table. 484 7-11m, 15-17m/15-32w Q I cannot think why; this fact keeps very constant, see note below, when more species discovered so that a given percentage in each Family are sporadic 486 1-4m 488 table.w R. Brown 489 table.m/w Aetheogames = Mosses, Fern, Hepetiae, ↑15-5m/↑11u "730"/↑8u "dont|Europe"/↑7u "8"/↑14-11wcc 490 table.m/wcc,

wb ?? So Auckland isld more in common with other countries, but less with Europe — If this community is the S American, it accords with glacial, having been subsequently peopled. Kerguelen ought to have been most with S America & less with Europe — See next Page.— So he counted ones about Glacial agency. 491 2nd table.m/w These must have come from North. 493 table.w/wt (What a contrast with the 730 Phanerogams of N.Zealand more water, more coast — more higher mountains.) Dryness alone most important element, but not enough to account for this difference table "Phanérogames".wcc, table.w Far larger proportion common to Europe than in N. Zealand & Auckland Isd; So far more species in Larch wood, than in all Falkland or Tristan I or Norfolk Isld. Only 272 in Society Islds ↑18-1w this shows how much free access determines the number of species: is not this against former continuity of Land. table.→/5u "soit|100", 5u "soit 2,3", table.→/↑15m, ↑4u "1843", ↑13-1w/wb 5009+1686=6595 species of Phanerogams The fewness of European plants very interesting as compared with all land further South. Was not Africa the old Tropics? The glacial climate & ice action explains the greater community in other regions. 494 wt Von Buch only → Canary Isd Dicot 322+Mon 59=381 species. 496 table.m (Dicotyledons)/w so that Kamtschatka & Labrador have nearly same number of species in common with Europe. (Mem Iceland all in common) 497 2-3m/u "Remarks|plants", 15-18m, ↑12-1m, table.m/?/→/wb what a contrast with Alpine Plants of N. America 498 1-16w These contrasts of numbers, show that islands never united to mainland 17-23w♦ contrast with Falkland Isd 18-31w Feroe 192 Dic+80 Mon=272 a contrast with the Oceanic islds 499 ↑9-6m/wb Is this owing to closer adaptation? or longer existence of simple plants, & ∴ part of existing means of dispersal. wb/↓w Means of dispersal & adaptation are all confounded — in Cryptogams at least, means of dispersion wd come into play. ↓w The cases from which he argues are in very many cases islands; & even when same species occurs in 2 continents ♣ means of distribution must come into play.— 500 8-12m, 17-19m, 21-29m, ↑12u "mesure|découvertes"/↑12-1m/wb/↓w I cannot think cause of this. Perhaps it is only that certain species of genera range far, like certain families in order: but why as discovery progresses, does the relative

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proportion keep constant? Does the proportion hold good in different countries ← I shd think it was only chance that more wide rangers ♣ were found & more local species. 502 *wt* can this have anything to do with Glacial Period? carried by ice from Tierra del Fuego? – but none could go from New Holland. At Glacial period New Holland very favourable for introduction of temperate plants. 1–4*m*, 6–8*m*, *table.w* some compositae have wide range.– 503 1–3*m*/2*u* "dont | France"/1–3*w* water-plants (condition more uniform) 4–6*m*, *table-title.w* This is the more important comparison? *table.m/w* These very large & natural Families have only a few: (a) *table.w/wt* These 13 Families have 149 species on average: they have 37 species in common with N. Holland, or average nearly 3 in common with N. Holland 2*nd table.w* These 33 Families (those with less than 15 species being omitted) have 1541 species on average only 47 species each & not one in common *wb* (a) N.B. There is another element, besides facility of transport, the durability of same form. No – but this is the very point that we are considering that large Families are wide rangers & most convertible [but that it is only a few which are wide rangers; the others changed into species]: I see I have not clearly relation between very wide rangers & variability.– as in water plants. Indeed if wide rangers are only generally variable, then some wd be identic at great distances. 504 2–4*m*/→/*wt* Even if these are added to list on other side, the Families, which on average have larger number of species, have most in common with New Holland.– 3*u* "Lemnacées"/4*u* "Hydrocharidées"/5*u* "Lythariées", 5*u* "Alismacées"/*w* water. 505 *table.u* "Composées"/*w* some wide rangers *table.w* It is evident that the Glumaceae most widely spread. & I shd think means of distribution must come into play. *second table.*↑4–2*m*/→/*w* compos. 507 14–16*m*/15*a* "austral" which are common to Southern islands & Europe.– 508 *wt* N.B. Pritchard shows the ♣ mntains go partly E & W in Lat 10° N.Africa. 9–15*m*/*w* 96/7000 What a contrast with T del Fuego. 18–19*u* "et | Cap", 20*u* "ou | antérieures", *table.m* (Salsolacées)/*w* Here again; must be owing to means of transport. *table.c* "Fougères" "Phanérogames" "Composées"/*wb* These 16 Fam. (with species in common with France) having 2222 species have 139 species per Family; ie nearly twice as large as those families which have not one: there wd have been none if Compositae had not

been omitted *table.m* "Composées"/*w* so many omitted 509 *wt* The Cape & Europe valuable, because have means of distribution, cannot be so important as when islands are compared. – No Sahara – but how in glacial period.– *table.w* These 41 Fams. with 2895 species, have on average only 70 species to Fam. (wd it be worth great labour to calculate by genera.) 11*u* "pour | moins"/*w* on account of smaller Families not giving true averages ◊ calculate this 2*nd table.c* "Fougères" "Phanérogames"/*wb* These 21 Fams. having species in common with Cape, having 2438 species have an average of 116 species; if we ♣ leave out Compositae as so numerous (at least at Cape), we have 20 Fam with 1960 species each Fam. has 96 species – (ie double of those Fam. with no species in common) – see over 510 2*u* "15 | moins"/*table.m/wt* These 24 Fam. having 916 species (with none common to Cape) have an average of 38 species each 4[...], 2*nd table.m* "Composées" 511 *table.w* ◊, 2*nd table.w* see over There are numerous very small Families with very many species in common, which wd make case the more hostile 2*nd table.m* "Graminées...26"/*w* can this be accurate? *wb* These 13 Fams (<in left half) have only 36 species to Fam. & have 255 species in common to N. Africa *wb* These 13 Fam (<in right half) have 52 species on average & only 243 in common. Here then the larger Families have fewer species in common with America. First hostile case. 512 16–25*m*/*w* These two groups might be contrasted ↑13*u* "Documente | 1843"/↑10*u* "plus | (a)"/↑13–1*w*/*wb* I might work at this Dividing the Plants into 2 groups of those ranging above the mean 1.6 those ranging beneath the mean – (Being continental wd depend not on means of transport) & not tropic come in, or so much astounding range of water plants ↑1*m*, *wb* Would it be possible to work out this in genera??? Taking for instance the genera found in 2 & upward sous-regions & see what average of species such genera have, ie of general average of genera, or give or take those Genera found in only one sub-region 513 *wt* N.B. Hooker says Dreges Book is great Book with elaborate distrib: (perhaps in Linn Soc) & he will lend me; good to work out genera larger & small for distribution.– Does not give genera, only Families 5*w* 22 6–7*m*/*w* omit this in calculation 9*w* ◊, 18*w* 37 Ledebour ↑12–5*w* ◊ I feel sure that this wd be hostile to view that largest Families range furthest ↑8–4*m*/↑2*w* This is mean ↑2*u* "6366 | près"

514 *wt* F. Water Plants demonstrate that some element quite distinct from numbers of species, come into play in wide distribution. Is not same thing observable in Salsolaceae? love of salt? 515 *wt* This table gives the proportion in each of the named Families of the wide ranging species to the whole number of species in the Family.— 516 1–39*w* This table looks ♣ hostile Can my view be applicable only to single continuous regions; if so, Cape of Good Hope & Russia wd be excellent.— 517 20–22*w* V. note p.519 ♣ anomalous 518 *table.m* "9 à 7,1" "1 à 0"/*w* These 2 might be compared *table.*"1 à 0".*w* But these seem mostly tropical 519 3–9*m*, 9*u* "dans l'infère", 18*u* "Calyciflores | compliquée", 20–23*m*/20–27*w* according to this one ought to compare ♣ size of Families in same great division & not as I have done in great totals. 26–29*m*, 28–29*m*, 29–33*m* 520 13–15*m*, 29–32*m*/30–38*w* Marshes cannot be so uniform in conditions. But Marsh Birds visit 521 11–14*m*/*w* ie Marsh Plants 16–17*m*, 23–24*u* "la | salés", 35–36*u* "les | grande" 522 *table.w* Table of aquatic & Marsh Plants 34–35*u*↔/*w* This looks like conditions 8–10*m* 523 8–11*m*/*w* conditions & means of transportation here explained. 20*u* "plantes annuelles", 38–39*u*± 524 4–5*m*, 8–11*m*, 12–14*m*?/13*u* "plantes | arides"/14*u* "semblent"/13–23*w* why? few other species or inhabitants, this wd apply to water-plants & sea-side plants.— ↑4–1*m* 525 12–15*m*, 17–18*m*, 28–34*m* 526 *table-title.m*/*u* 527 ↓*w* Trees often dioicous chance transport of one seed insufficient Might be tested by other dioicous Plants. ↑6–1*m*/*w* Trees most limited. Herbaceous plants next – annuals most widely – can live in hot countries during their winter *wb* Does not this depend on means of dispersal, as annuals for very conditions of life must have great means of dispersal.— *wb* Trees depend less on means of dispersal 528 *table.w* Have these big seeds? What can reason be? Mostly Tropical 529 2–3*m*, 10–11*m*, 21–22*m*/22–23*u* "quelmer", 32–35*m*/*w*/*wb* What can reason be Higher developed & more changeable 530 2–3*m*, 5–6*m*/*w* small seeds 531 *table.w* In same Families distribution according to annual & herbaceous & trees. All accord in same general Result.— 532 12–15*m*/*w* no general rule means of distribution greater or less 18–20*m*/*w* seeds in proportion small 20*w*/1–20*w* There is, also, relation of size & highness in series.— Because big requires more food & is therefore a flourishing organism.— ↑15–1*w*/→/↑9–5*w* (a) If I am right on size, wd go to show wind.—

But then Compositae!! Yet here the ♣ transportation comes into play; but then the Genera ought to be widely distributed. How is this.— This ought to be worked out in Decandolle → or better look to Flora of islands & see whether genera of Compositae more usually the other genus. ↑5*u* "peut-être beaucoup", ↑4*u* "reproduction | dissémination", *wb* (a) Means of distribution coming in so importantly is quite in accord with Barriers (ie the stopping of distribution) being so effective; so beyond anything the most important 533 11*u* "Ailes"/*w* or pappus 12*u*↔, 17–18*m*, 26–27*m*, 29*m*/*w* This does not concern wind 32–33*m*, 38*m*/*w* I wonder whether in Royal or Linnean Soc.— *wb* If I am able to add anything new to Decandolle to means of transport, it will show how curiously imperfect our knowledge is.— 534 4–6*m*, 7–10*m* 535 *wt* Wind generally accompanied by Rain will the pappus then cause seed to stick?? *table.w* I must study distribution of genera. ↑14–1*m* 536 *wt* (a) Note/ the proportion of genera with single species with & without pappus nearly the same: if transported by pappus & transmuted, then ought the most genera with single species with pappus 1–20*w* As these calculations include many continents, the seeds cannot be more transported than others. 5–7*m*, 19–25*m*/↓*w* ∴ Pappus, therefore, would seem to act like hooks which can transport to only short distance: remember no transport avails except it be to unoccupied land: no false look at introduced plants ↑17–10*m*/↑11–10*m*, ↑9*m*/*w* (see last page) ↑5–3*m*/*w* (a) 537 6–9*m*/6*u* "2,2"/7*u* "2,9", 9*m*, 13–14*m*, 17–18*m*, 20*w* Range rather small 20–21*w* therefore rather peary I shd think 538 1–2*m*, *table.w* In same Family species with fleshy fruit have widest range; is it because animals eat them? 31–32*m*, 38–39*m*, *wb* without Isld are specially considered, I hardly dare trust these discussions, for my purpose, as adaptation must so overrule powers of dispersion 539 2*m*, 3*m* 540 3–7*m*/3–7*u*±/*w* what complication. 541 ↑5–2*m* 544 23–26*m*, 33–37*m*/*w* Russia may be considered as new country peopled from whole South 545 3–5*m*, 28–34*m*/29–37*w* Here isolation clearly comes into play; but this does not account for smaller range of plants within Cape District. 38*u* "Flora, 1843" 546 16–22*m* 550 *table.w* As far as I can see (which is very little) isolation of area seems to have little to do with confinement of species!! In this Family 552 *wt* Here again it seems perfectly insulated regions have the

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wide-ranging species in greater proportion; this cd happen whether formerly connected by land, or chance introductions: No if isld was only a bit of a continent, it would not be so, but if it received species, then it wd have wide rangers ↻, left half of table: 17m, 18m, 21m, 26m, 28m, 29m, 30m, 42m, 45m, 48m, 49m, right half of table, 12u "purement insulaires"/w New Holland Mem 13-16m, 20-26m/! 554 wt Here again the less the connexion between the areas forming one group, the more species they have which are generally wide rangers or Isld generally possess large proportion of wide ranging species. table.m, 2nd table.m/wb Caledonia ♣ 555 table.w 59 regions ↑1u↔, ↑4m/wb !This exactly opposite result to top of last page 558 table.w This agrees with Bentham 559 18-19m, 25-28m/w uniform bad conditions & means of dispersal 37-40m/w can think of no explanation ♣ wb Give this as example of unexplained facts or law 560 8-9m, 12-13u↔/12-25w great regions more separated, but how can this bear on distribution within Cape Region. The very wide rangers which inhabit different great regions will a fortiori inhabit the smallest.- 23m/a "proportion" of wide rangers 28-32m, 33-37m, 33-36m/w/wb North most united before Glacial, or rather by ice action during glacial. and Before Glacial action 561 1-4m/3u "Crucifères"/4m/u "Composées"/3-13w♦ try this with really oceanic isld say only volcanic isld - It is here done: no great difference 10-11u "présentent | autres", 11-17m, 20-26m, 28-30m, 35-40m/38-39Q/35-40w | shd have looked at this just contrariwise wb I never shd look at it under this light; yet perhaps agrees with Herbert's views - When then only few species, we must suppose either others extinct, or then few only as yet introduced. 562 1-4m/1-10w All this opposed to groups with largest number of species having widest rangers 16-17u "indiquent | petit"/17-18m/16-20w This perhaps comes into law that great wanderers are very great wanderers. 32-36m/37-40m/30-38w in fact isolation by deserts or climate or sea equal 563 1-3m, 12u↔, 13*, 20-30m 564 15m/w introduced 36-38m/w 1/2 world 567 46u 569 46-48m (Hooker) 573 44-46m 579 32-37m 581 24-25m, 36-39m/38u "d'un | cultivé" 582 3-4m, 9-13w 47/117 acquatic or semi-acquatic ! 26-33wcc, ↑14-13m/↑15-7w This looks as if due to ♣ unoccupied site ↑2-1m/wbccc 583 3-4m, 18m 584 2-5m, 15-17m, 21-22m/21u "en Abyssinie", 30-33m, 30-35m, 38-40m 585 1-3m, 15u "La | Légumineuses"/15-17m, 19-21m/

w (a) 26-27m, wb (a) yet how extraordinary the law lately developed, that where there are few species of a Family, then average range is greater than when many.- species occur.- The latter are local vars. considered as species 586 1-3m/Q 3-6m/5u "à | baies", 12-14m, 15-16m 587 12-14m, 22-29m/22-24w very local plants 34-39m 588 13-14m/12-32w This bears on ♣ few species inhabiting 2 areas, where there are many species. Does it not come to this, that widely extended species break into varieties & these become species. with confined ranges.- anyhow this shows how complicated a question it is 21-25m, 36-38m/37u "restreintes | vastes" 590 28-30m/27a "la" Mediterranean 591 11-13m, 22-23m, 30-31m/u "12000 | existent", 34-36m, 36-38m 592 7-11m/w Labrador lately colonised, 11-16m 594 14-16m/13-20w This is important for shows creation by adaptation does not explain. see p.599 28-30m 595 1-7m 596 2-5m, 36-37m, 37-39m 597 ↑22-20m/↑22-9w No, because opposed to generally contest within same Families:- One Family may fail over world. animals or insects allied over world. ↑12u "Rutacées", ↑12u "Zygophyllacées"/↑13-5m/w (a) wb (a) Here is case in ease with which var. changes into species; & tending to extinction: Rutaceae & Zygophylleae small orders in alliance of Rutaceae, which has several small orders wb Antiquity of sp. anoth cause. Most complex problem 598 18-21m/18-25w seems to attribute much to simple fact of ancient existence. 30-34m/w contrasts these islands in range 37-39m/wb here comes in creation: they are new in North. 599 2-4m, 24w Marsh Plants 26-28m, 29-30m, 37-40w/wb speculation, which I shall introduce on Fish, bears on this; changes of River courses: most lakes connected with streams.- How many fresh water deposits with recent shells.- ↑1u "aux causes"/wb why, mere hypothesis 600 2u "ou | espèces"/2-4m/wt/1-7w I think many acquatic plants are social, which is proof not fully occupied; see to this I remember it is in salt-marshes, water-lilies Reeds & Flags &c. 9-11m/w whirlwinds 23-28m, 38u "Protacées"/38-40m 601 5-7m, 23-25m, 28-29u "comme | plantes", 29-31m/w no evidence for this 32-34m 602 table "régions arctiques".m/u "Petits | espèces"/?/w recently unoccupied area "régions tempérées".m/?, "régions australes".u "Petit nombre"/?/m/??!, ↑13-2u "les | extrême"/m/wb ∴. closely adapted: parasites opposed to this.- 603 table "marais".u "Uniformité | physique"/m/!!!/w why this was contradicted "plantes nivales".m/!/,

"forêts".m/u "époque glaciers"!!! 604 table-title.m, "Organisation simple".m/wt I see he always thinks simple organisation & ancientness correlated. More probably is related to adaptation to diverse conditions. I presume complexity or highness & close adaptation go together. 605 38m, 44m, 46m

CANDOLLE *Géographie botanique* vol. 2

NF Read & write sketch & look over; Read Hooker Galapagos New Zealand & Flora Antarctica

SF ☐☒

☞ When this read skim over (make index); Reread Hooker N. Zealand & & Fl. Antarctica & Galapagos; Skim my own portfolio; Then read my own old sketch, & write essay

compare D.C. list of introduced Plants in America & see whether they abound in vars. & whether large genera: taking average of species with vars. in whole U. States Flora – but those very sparingly introduced ought to be excluded.–

NB p.1130 ask; 1179 ♣ ask ♣; 1332.– Error (about Potatoes

♣ on absolute numbers in small distant islands.–

If Decandolle cd be trusted we shd have ♣ greatest difficulty to transport seeds from isld to isld in same archipelago & as most volcanic archipelagoes are rising we shd have the wondrous spectacle of a naked isld somewhere in ocean.–

Isolation most important, as preventing migration & so altering conditions, & making gaps in economy of nature, & quite secondarily causing organisms to vary. Also few individuals would aid in checking crossing, especially the bisexual.– A vigorous wider spreading spec. & which consequently varies, when isolated, under most favourable conditions to vary. Possibly isolation not long enough in many cases, as in Alps & F.W. Fish.– Few individuals for isolation, & this gives bad chance of new forms, but time wd make up for that.–

SB1 ☐☒ ☞

Index to Decandolle Chief Points

1☞

p.72 p.117,8, 147, 201, 203 Adaptation to external conditions, chiefly climate, showing how differences of temp. will affect differently diff. plants, on trees exposed to whole year cold hence (I shd think, dwarfed

p.264 more height no influence; hence alpine plants show nature of former Glacial

land better than arctic plants.

–p.268. humidity.–394–418 ♣

x☞ 238 on difference in leafing & c of Beech in Madeira. Read essay 397?

246 on sea not determining limits of plants in Europe

250 Nothing said about sterility of plants at lower limit of range [ask Watson or Decandolle at some future time] shows limit dependent on other forms.

☞ though they are sterile at upper limit

270 Alpine Plants. 316–327, 329 Polar & height limits are corresponding in different species; 407 Japan Mts; 412 Spain –

☞ p416 bears on general forms of area of Plants.; 490 Bears on Glacial Period

x☞ 337 Limit of cultivation of maize

343 on N. American vines, European does not succeed.

☞ x means used for 1st Volume

x☞ 406 only few plants have elongated area & 416

x☞ 422, 428 Q☞ Adaptation to conditions; 447 Q☞ alternation of natural Crops☞ 453

☞ Struggle between Fish & Water Plants

☞ p455 why more species in dry than humid climates

456 Corn Plants, list of

x☞ 457 to 465☞ on abundance of species, or Social Plants.– my discussion on selection of diversity of form to amount of life.– p.470 to 473

☞ p465 Book on the subject to consult)

465 to 470 Q☞ on relation of frequency & largeness of genera; bears on extinction.–

503 – 509 in connection with very wide ♣ ranging genera or Fams. & large genera. see infra

x☞ 476. When species in 2 distinct countries are generally in intermediate – ratio of wide ranging species & families. Families which range furthest, without regard to obstacles.

There is p484 great distinction between Weak species & very widely extended species, ie when a species is once a spreader it spreads widely. 490 Proportion of

N. Zealand & Auckland Is. & c with Europe & & 505.– on expansion of absolute numbers within Larch wood. On relations of polar districts to each other. 496☞ Labrador, Kamtschaka & Europe 499 Low plants 519

(u☞) Q☞ range furthest ☞ with exceptions p500.– 498 Bears on former continuity of Islands & continents.

☞ Decandolle ● plants not being spread N x☞ 502 on introduction of glacial plants into N. Holland p.507/508 contrast of Cape & T. del Fuego in European species.

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x 502 some Compositae wide rangers. 505-508.510.

♦ 508, 509

503. 509. On largeness of groups & wide ranging. 511 hostile.

⇒ 514. & highness & lowness in plants 499/519

other causes determining range.- also greater division of Tropical land.

519 on wide range of aquatic plants 522 good index.- do Marshes yet not so uniform

521 sea-side plants do

527, 532 Trees much limited; herbaceous plants next; lastly annuals - good MS. remarks. Bears on distribution of F. Water productions

533 to 540 on ♣ Range in relation to nature of seeds

544 to 563 ♣ Range in different countries as Russia & Cape &c & Islands

563 Plants which range over 1/3 of world p.582 47/117 semi-aquatic/ p584 108/117 in N. temp & arctic lands, where land continuous, good to show effect of continuity - so good remark on same plants 584 being found on the intermediate islands

587. Azores less endemic sp. than Canaries; Färoe has none - cases of very local species

SB2 □β ⇨ (4 sheets, numbered 2-5)

Alph. De Candolle for 2d & 3d Vols.-

2

590 Species which inhabit other areas besides Mediterranean, inhabit all its Provinces

594 shows extension of aquatic plants cannot be explained by uniform conditions p. 599 do

595 winged Compositae not large range p. 600 small seeds widest rangers 596 not large-fruited seeds.

597 to 600 On sp. of same Families having small range in very different countries, but that they come into competition with nearly same Fam.- Good about dominant species spreading:- Long & Good Discussion on this subject

Vol 2 Naturalisation. by Nature & by Man

608 Each sp. not perfectly adapted to its own home, & [good] good MS remark physical causes cannot engender new species perfectly adapted

613 seeds blown up 5400 feet & effects of wind

617 currents of sea (Madeira to Canaries) note 616 20 years in F. Water alive

618 action of Birds on transportation in

various ways. (p769 admits agency of Hooks 797 good)

624 seeds alive in earth.

629 Cases of naturalised plants confined to few localities in new country. [Cardoon, Guava Peaches & Oranges several cases

631 Few disjointed species, & even species of same genus generally in same country

631 Cases of aboriginals, which are often injured by weather or do not ripen seeds. [this again shows want of perfect adaptation in indigenes.

632 Curious case of irregular distribution chiefly F. W. Plants: [Birds now rarer] good suspicion. one may say that means wd be now less effectual.

637 List of plants which have spread recently moderate distances

645 List of nat. plants in Britain [compare with Hookers list ♣ of nat. Plants f. in Australia ♣

698 Resume on do. 83 certain - 10/83 from America & Discussion on causes.

709 722 Nat. at great distances. in various countries; Europe/U. States 716 in 26 years 600 miles of Lat. Many other good facts of rapidity/- 720 Monte Video cases, when became social/ Juan Fernandez on Australian list.

723 Plants nat. in Europe since ♣ date of Columbus; from all countries (Compare with Australian List)

742 Resume on do. 64 sp. good in contrast to many on islands (None from any island) No p. 754). The introduced sp. are wide rangers in home

746 Plants nat. in N. America (751 Nat. plant in many countries & wider range than its own nat.)

754 Resume of do. p755 (proportion 122: 35) of plants of 2 worlds.- Proportion of Fams. of Nat. Plants nearly same as of indigenous in Europe.-

(p.759) the naturalised plants here again wide rangers in Home

761 Plants probably from merely scientific reasons nats. by nature in Tropics of Africa & S. America

796 Resume on - shows very few cases from continent to continent.

797 Again rule that naturalised, were originally spread widely & have naturalised widely

798 On difficulty of succeeding in naturalising a plant. When tried intentionally good to show importance of struggle

804. The species which ♣ have become naturalised belong it seems to Fam. which

have not wide average nat. range; but that does not concern me * on account of specification; if the individual species have that is all

Overlooks time See MS remark.

3

Alph De Candolle for Vol 2. & 3.

807 Recent Fir trees extinct in Ireland & Shetland Isd – Faroe & Nut-trees.–

995 cases of trees with Disjoined ranges (Alpine, Glacial & 996

Disjoined aquatic Plants

999 After Glacial period more lakes – p 1024 Eriocaulon 1027–1029 – Nymphaea W. Plant range of.

1007 Disjoined Alpine Plants to 1019

1019 Alpine Disjoined Species (but some partly glacial) connected with being aberrant forms. p1035 get Hooker to look over lists.

1025 Inter-Tropical Disjoined species.

1030 Cyperus polystachyus hot soil. Mem. Hooker Himalayan Cyperus in Hot Springs – shows a genus adapted to become fitted for peculiar site.

1034. No sp. common to S America & S. Asia, unless also fd in Africa – why on theory of creation? good

1036 Sp. common to Mauritius, Madagascar & India. do. difference is in Bourbon & Mauritius.

1047 Good discussion on Disjoined species. 1047. Species common to N. and S. not found in Tropics. Glacial: Antarctic ocean 1054.

1055 Conclusion on Disjoined Sp. races

1056 on ancients causes of dispersion. remarks in general

1062 on antiquity of species – old Trees

1067 Brongniart on relation of American & Europe in vegetation fossils

1092 to 1104 On Origin of Sp. Extinction, Isolation

1097 Concentration of close species the rule &c

1110 Multiple origin of species (1116 do)

1127 Genera more real than species.

1129 some analogy intimated between all species of genus (1131 do) see my reference below 1145

1130 Disjoined genera – 1132 Metropolis of genera with wandering species

1133 small genera with few far separated species [Glacial] a difficulty here.

1137 The bigger the genus the wider its area of extension; specially if it has sub-genera

1138 Relation of area of genus to that of its component species

1141 Genera confined to single isld with several species.–

1141 Case of Genera with very wide & very narrow Ranges: Average range.

1144 number of individuals not guide to aboriginal country, but number of species is so.

1145 External characters go with consti: differences, as shown by crossing & grafting.

1146 Cannot explain by any cause Distrib. of Families. 1149

1151 Distribution of Families like species of a genus.–

1152 Outlying genera abnormal or aberrant

1153 Single species ranging far taking place or representing or equivalent in distribution many local species in other cases.

4

Alph De Candolle 2d & 3d Vols.

1158 Fams. with immense ranges & local List of small Fam. with few genera & few species (Aberrant)

1161 Concentration of genera – not range in proportion to number of species.

1165 I suspect lower Fams. more broken?? good if I could show as it could be due to increase in number of species in higher Fams.– No. Higher Reptiles. higher Mollusc. Higher or more Reptilian Fish most broken: if contest within each Family it would be so.–

1170 Definition of Dominant families, which have most species.

1172 on number of species to genera & to Families in various areas.

1176 On proportions of species of Dicot & Monocot in different countries & Islands

1180 Something in common with regard to Temp. even in all Monocot. & Dicot. So on (1185) Mountains 1188 Humidity chief relation in the Mono. & Dicot.

1189 to 1233 On the Dominant Families in various countries & Islands.

1233 Discussion on & good M.S. remarks.

1236 The richer in species any area, the greater the no of Families, ie more diversity in inhabitants

1237 Under unfavourable conditions the great & dominant Families only survive.

– The Dominant Fams. over world are not always in same proportion to most numerous; they seem to be the increasing Families.–

1238 On how far the dominant Fams. are affected by climate. The most dom. seem now very complex. 1241. Even in Tropics Leguminosae, Compos. & Gram. are the dominant Fams.

1247. Local dominant Fams, at Cape &

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Australia (1251 for cases)

1249 good sentence, cannot explain proportion of Fams. in Islds by conditions.

1252 Arctic Regions very peculiar conditions yet very few peculiar forms, no Fam. Good

1254 Excellent Table of "characteristic" Fams. (not found elsewhere) over whole world 1258 Detailed Table.

1267 On families with double & treble centres.

1267 Glacial

⇒ 1268 good Glacial 1269 Cape at base of Page.

1271 Total no. of species in areas of various sizes (1273 small areas)

1275 same sp. range more widely in Sweden than in France 1276 still less widely at Cape & S. Australia

1279 & 1282 On number of species in small islds.-

1278 Africa, tropical poor in species & very poor in characteristic Fams. (for latter see 1254 & 1268)

1287 On proportion of no. of species to genera in various countries & 1288 Islands.

1289 good discussion bearing on the problems of more life supported by more forms (1298) and generally on insular Forms.- 1293 often monotypic - ie preserved from extinction. 1297 Islands again

1308 First great Division of Distribution of World are not related to Climate, like the forms of land.

1309 remarks Old & New Worlds greatest division.-

5

Alph De Candolle (Vol 2. & 3 of mine)

1313 Plants of Europe in relation to Glacial.

1326 Glacial

1326 Lyell on most ancient sp. most repanded.

1329 Vegetation of Madagascar allied to India

1330 Africa & America never united all points to ancient Broken Land.

- Many species in common to Mountains of W. Indies Glacial. California & Chile

1331 & 2 on Plants of Pacific islds

1332 Ligneous Lobelia in Tahiti

1333 Submerged countries when elevated have uniform vegetation

1334 admits some species are derived by modification

1340 Cause physique of present period one of subordinate importance.

Feb. 17th 1860 I have now abstracted whole grand Work.

SA1-10 (pp. 878-879)

SA1 □✕

Introduction

♣ p72 Hence dwarf?; 84; 116,8; 144; 147; p.238

200 - influence of other species overlooked here & in similar cases.-

202 & so here. A cause which prevents more than 1/20,000 seeds vegetating or giving full-grown plant.- ✕ Here in this page: preoccupation overlooked. How little climate explains what species are common & what rare in same district - When ground preoccupied seeds of other plants wd have to arrive at period, when not in full vegetation.- good

♣ 246; 250; 264, 68; 270; 326; 395; 397; 406, 408 to 418; 422; 447 to 474 to)

SA2

p465 DeCandolle Books to see whether frequency goes with genera, as it does in Families, not in latter markedly in larger Families.

Boreau Flore du centre de la France

Miquel Disquisition Geograph Bot de Plantarum Regni Batavi Distrib 1837 Lugd: Batav:

Furnrohr Flore de Ratisbonne in Naturhist. Top. Regensburg 1839

♣ De Plantis Salvadoricis 1830 Ev. Meyer Meyer on Cape Plants p509 & 512

SA3-6 □✕

SA3 ♣

Oct. 15/55/: As every organism struggles for life: the individuals of every species, will try to adapt itself to several stations (of course chiefly wide-spread species will meet with such) for thus more will live. Why a species cannot adapt itself to all stations, depends probably on hereditary laws & actual chemical nature of its body.- But it may be said ♣ more will ⇒ live by being adapted to several stations; I think this is obvious; we might kill probably many species adapted to flourish under trees

⇒ (or food of which species wd disappear & decay if they not present)

without proportionally more trees - (or more chemical change, best measure of amount of live) ♣ living.- The better the conditions the more the life; & the more the life, probably the more the forms

⇒ see p 462 Tome I Decandolle why? I cannot prove this

⇒ (at least the more the small diversity of forms ie species, the more the great diversity ie genera, but not in same ratio.

- though the latter (ie number of forms) chiefly

depends on diversity of conditions, & ♣ for plants, at least, as Decandolle files
(over) has shown are most in warm, dry countries. Under peculiar conditions, small stations, there may be a good deal of life & yet few forms, – as in arctic seas, – do the forms live throughout seas? or are they not short-lived. Why have Lakes few forms? no tides, not much diversity; no estuary of brackish water

⇒ The question which I cannot answer is, why under bad climatal or soil conditions there shd be fewer forms than under good climate & soil. ie when little life, few forms but most diversified in stations. – → (to SA4)

♣ I think Decandolle explains why fewer social plants in good climate & soil. viz where more species there will be more neat adaptation. – → (to SA4)

I can see in case of salt marshes, because like small isolated isld (for salt-marshes are isolated by conditions themselves) there has not been room for creation: all the salt-marshes in world under approximately similar climate wd make but a small world. – All F.W. Lakes of same climate (besides too much separation) are likewise small. – Land fitted for heaths small – Even arctic seas small, especially if killed in winter. –

SA4 → (from SA3) My old question why so much life in North Seas, & so few forms, is probably in fact an illusion, the eye struck by number of same species. One is surprised to see any life compared with arctic Land. –

(Small area only bad from fewness of individuals giving chance of new forms, hence this is opposed to isolation being advantageous)

→ (from SA3) In bad climate & soil, the amount of live, from slow growth probably smaller than it appears & number of forms perhaps really in proportion to quantity of live considerable. – It has acquired a great laboratory to make all forms – Perhaps once there was no arctic Regions. – Hence few Alpine plants on really isolated Mountains. – this caused by slowness of creation

Caspian biggest brackish water & a good many species.

(over) ↗

We may move to discussion on number of species. (N.B. few species, but many individuals in salt marshes) with the distribution of mammifers on premise that I exclude Cetacea, Chriopter & Seals?) The presence of Bats ♣ very strong case. –

⇒ Is not Madagascar a great opposed fact to my views of distribution of Mammifers –

perhaps so large as to rank with Australia – very separate & mammifers very like. –

(The way the Inula & Alders & Gorse, appeared in patches, shows seeds a very important element)

Ought the law of ♣ common plants belonging to large families, as is faintly case with Decandolle facts, to be common to large genera. A Family may & does contain many genera not increasing, but then a genus may & does contain many species not increasing. If on average genera contain forms more closely allied, & either decreasing or increasing more regularly, then the law wd hold more with genera than with Families – How does a Family increase by the genera increasing & splitting up & other genera dying out &c Family turns into an alliance by a few portions only increasing
∴ I think law always better tested by genera than by Families. –

Some agricultural green crops are said to be advantageous because they smother weeds
Here abundance of seed is important

SA5 ↗ Feb 15/57/: In every small area ♣ if not of some extraordinary nature, there are many genera to species. ie much diversity in organisms & no great number of individuals in relation to species – Sqr yard of Lawn – a single wood – ♣ a coral islet – an islet of any kind. – This depends on most ♣ life being supported on small area. –

aaa But if the site be very peculiar, the former part of law fails, & species not very different as on Heaths – saline plains Cyperaceae as in Hots-pools (Hooker Himalayan Journ) there peculiar adaptations will come into play: In these cases ♣ there are also generally many individuals in comparison to species because only few things can live there. ♣

(over)

Diversity of sites great cause of most numerous species (D.C. explains well effect of dryness). Subject to this I shd expect & believe it is, that most species when most life, for as organisms are so intimately related to organisms this will in itself cause more species. And this bears on unfavourable conditions, as Arctic Regions &c

SA6 aa If the site be small, & somewhat peculiar ♣ as compared to rest of world, As in arctic regions (near winter) Alpine summits – Lakes of F. Water – then there will be many genera to species, & very many individuals to species. –

why is this I believe because laboratory small; if in nearly whole world, with myriads

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of individuals selection has effected what we see, we could not expect so much for restricted sites, specially if of no great antiquity: as Arctic Regions – [N.B. this is contradicted by islands; No but into these forms transported from other countries come into play] Possibly unfavourable conditions may come into play, but I doubt from case of Lakes.–

(over)

⇒ p462

SA7-10 (numbered 1-4)

Nouvelles Recherches sur les lois on distribution des formes vegetales Humboldt, Sw Acad Sci 19 Feb 1821.

p.6 Notre imagination est singulierement frappée de la preponderance de certaines q'a cause de leur facile reproduction &c (would aid no doubt) "Fallacy. There is something quite unknown about social plants. The cause of such cases in the Mangrove is nearly obvious = in pine forests in N. America, which when cut down for few years only bear oaks cactus & Bamboos = in our heaths. I think that it is simply, that there are conditions of some peculiar nature to which only few species adapted. Yet how comes it that in Northern parts of Europe & N. Zealand Ferns are so preponderant. Where a species is so obviously well adapted & abundant, there seems no tendency to form new species. A species to form new ones, ought to have been widely spaced under different conditions, & not simply numerous under the same, though peculiar conditions

2

|| I think this explains the absolute want of relation between abundance in individuals & species of the genus?: it shows that new species not formed by mere chance or laws of simple propagation I suspect the line of succession in making a new family may be this & not branch out till a new & useful form is formed.

p.9 Generic forms numerous on Mountain summits (– small area) ⇒ as in Glacial region: there must be a cause

⇒ (as in Dark cases, Blind Fauna. as on Coral islands also)

↳ why such peculiar & ill-fitted situations "recoivent des colons d'un grand nombre de genres". Why do not several species of same genus become adapted, I think it must be because same spot can support more life under very widely different forms – Take glacial region or dark cases ⇒ – can support

1 nocturnal 1. diurnal carnivore – one grain-feeder ♣ &c&c (There is something very remarkable in this & very different habits imply generally different genera.(a))

(back of 1)

⇒ → On this view the small number on Coral Isld is due to not – suitable conditions, & prob to few arrivals.

(2 again)

p.16 Under a given latitude & in either the old

3

or new world (which in several families have different proportions between the families)

(u⇒) if we know the number for instance of the Leguminosae, we can judge of total phanerogames.

⇒ not in Patagonia (Hooker)

(back of 2)

(a) We can understand this in animals & we must suppose something analogous in plants though not intelligible to us.

(3 again)

p.22 The proport. numbers of the great families are the same in Germany & France; hence the species of Leguminosae, Cruciferae & Umbelliferae, which appertain exclusively to Germany, must be replaced by other species of the same families in France. Again France has 1700 or 1800 more species than the German list, & yet their additional number must be proportioned in same manner as whole.

(calculations follow)

⇒ All this ought to be advanced as creationist facts

(over)

New species not having been created in Aegypt since Mummies & Pyramids is less result of physical conditions having remained unaltered, than of other organic beings having remained the same.–

4

p.23. Taking even few square leagues near Berlin having only 900 species. Vide last page.

These facts show in most astonishing manner how if a new species has to be created, or more strictly perhaps to be introduced (ie if a gap be left in economy of nature) how it will depend on the character of every other plant in country – (Think of this with respect to animals, whose place in the economy of nature we understand better) The point is to consider what old species could be introduced ♣, their subsequent modification is a separate question.–

Shows how a gap in Nature is a fixed & difficult point

(table of calculations follows concerning proportions of Monocotyledons, Cyperaceae, Compositae and Rutaceae in the equatorial zone of the old and new worlds)

How does this list bear on above remarks does it not invalidate it? Wonderful adaptation of some kind is shown.—

(over)

⇒ p466

SA11 *(pp. 980–981)* □β

(list of species) Unknown according to Bentham

SA12 *(pp. 1020–1021)* □℞ ↷

p.1020: The case of Geum – Veronica, Myosotis – go to show that Mediterranean was land during Glacial Period.— as does Mouflon on Sardinia.— & some Alpine plants (in former page) on the Mediterranean islds – Perhaps bears on connection with Abyssinia.— sub-alpine plants on opposite side of Gibraltar – read J Smith? on change of level at Gibraltar

SA13 *(pp. 1078–1079)*

Changed habits ↷

Decand ♦ ↷ (9.)

Edin. New Phil. Journ. 61/70 fish salt water; Zoologist p.20 do

Quatrefages Unite p79 Goose laying at new time

6. Colin 1/426 animals accustomed to new food; Gard. Chronicle 1841. 291 Cherries vegetating earlier under Heat

SA14 *(pp. 1232–1233)* □℞ ⇒

All these tables with under nearly same climate, the similar proportion of great Families impress my mind, very strongly how the existence of every species, depends on fixed laws & relation of organisms.— Especially the latter respect, when we see how considerably different the countries are – It shows too by what laws the creation of new species will be governed.—

The proportion of the great Families in the Atlantic islds, impress strongly my mind as an argument in favour of continuity. Only coral isld (most of which probably at one time have been immersed) shows that different groups only are allowed to live. & seeds from adjoining country wd be in proportion to that country.—

SA15 *(pp.1238–1239)* □℞ ♦

(table concerning Compositae and Leguminosae)

As Legum are generally good sized seeds ♣ I have made out this table of all the islands in foregoing list & it certainly seems very

doubtful how far size has anything to do with transport – But then floating; & crops of Birds come into play –

Upon the whole nothing can be inferred from this list

608 *wt/℥w* (a) it might as well be argued that plants do not change under domestication because not perfectly adapted to man's use. De grants complete adaptation is proved not to hold good arguable, & yet argues because there is room left for new species, no change can be effected. On contrary, it might be argued if every country had its species perfectly adapted, then there wd be no cause, or means by selection to change species.— |||— good 1–3m/3u ↷ "Causes | actuelles", 4–7m/6u "L'adaptation complète", 8–10u "et | ébranlées" !/w (a) 609 2u "passagères | adventives", 30m/30–39w [The many plants which can live & the few which can propagate, shows that seedlings or life of seedlings the most crucial part of existence] C.D. 610 34–36m 611 1–3m, 12–17m 613 38–49m (Boussingault) 614 6–10m, 25–30m 615 1–3w Spiders webs Fall of pollen C.D. 15–17m/16u "10 | lieues" 616 31–33m, 35–36m 617 10–12m/?, 27u "courant | Canaries", 31u "l'est | etc" 618 12–15m, 36m 619 *wt* In MacGillivray even Carrion Crow attacked a flying wounded Grouse 3–5m/4w (a) 11–12m, 21–24m, 32–36m 620 28–35m 623 10–12m, 28–30m/30u "transport | légère" 624 20–25m, 34–37m 625 1–3m/2u "magasin | graines" 628 30–36w Peaches Oranges La Plata Guava in Tahiti 629 1–2m/1u ↔, 15–21m, 23–26w shows difference of conditions 27–36m 630 15–18?, 24–31m/27u "Ce | rarement" 631 1–4m, 7–11m, 18–24m/24w ↷ Joy○ 632 17–18m/w of irregular distribution 18–22w ♦ I do not see that owing to non-transported 24–29w very curious details in following pages 633 27–30m 634 14–16m/15u "enclavés dans" /16u "vent | le", 21–25m/←, 31–35m/31u "hypothèse" /33u "autrefois | facile" /35u "accidentelle | disparition" /31–39w Only one fact for this hypothesis 37–39m, 40u "à | certaines" /wb What an hypothesis 635 *wt* If herons eat fish with seed, such means wd have been more energetic formerly, when country wild.— 1–5u ±/19–22m/→/2–7w less time equally good theory 9–10m 636 9–10m 645 *wt* p.703 He excludes plants growing only in cultivated ground, very correct. 3–10m/w Big type certainly not. 687 1–3m 698 9u "satisfaisant | probabilité", 11u "quatre-vingt-trois" /w 83 12u "avant | siècle", 15u "10 venant" /w 10/83 Amer 26–28m, 31–33m 701 *wt* (b) England formerly

connected, hence most plants which could live in England wd have immigrated. If any species had been introduced by Birds within the last century, & was not mentioned by old Books, it wd have been thought to have been overlooked.— 30–37m/w (b) (a) So very recent since 1700 *wb* (a) But is there not some arguing in circle for it is the very probability of being introduced by some one chief argument 702 20–25m, 26–27m, 27–28m/!, 33–34m/! 703 6u "55", 6u "en 1724", 12–13m, 39–40m 704 6m, 7–20m, 26u "trois mille"/w Cent? 27–31m/30–35w How can this be told – look at connections, before any ancient Floras 31u "alpine|aquatique" 705 7u "manque|exactes"/6–8w this shows the means he uses 706 8–9m, 36–38m 707 5–8m, 16–18m/w shows conditions 19–22m/w proves too much 24–26m 708 1–3m, 8–13m, 17–21m, 32–35m, 36–40w even in same country difficult 709 *wt* (a) if all true, either doubt creations, or new isld do not form; but new isld do not form.— 3–6m/w by wind or animals 11u "devaient|rare"/w (a) 17w These are only a few of the best cases 711 2m/u "1629" "1623", 5–8w age of early good Floras 9–10m/10u "p.|1627", 37m/u 716 22–27w in 26 years 600 miles of Latitude Ch. 5 718 28–33m 719 12–13m/13u "quatre|après"/w Ch. 5 18–19m, 23m, 26–27m, 29–30m♦ 720 17–22m/19–20u "ne|Montevideo", 27–28m, 32–38m 721 4–5m/3–9w Falkland Isd Azores? Canary Isld How many (See next Page) 7u "le|ordinaire", 18–22m, 30–35m 722 9–18m, 21–23m/22u "espèces|naturalisées", 24–28m, 29–32m, 38–39m (Hooker) 726 25m, 30–31m 731 7–11m/w on account of Hybrids.— Ch. 9. 18u "la|résolue", 19–20u↔ 732 17–18m/18u "de 1857", 19–20m/u↔, 42m/u "les|comme", 48u↔ 733 1–4m/1u↔/3–4u↔/1–4w what does Bromfield say on this? 40–42m/41u "c'est|blanche" 734 7–15m, 16–17u "appuient|vue", 20–24m, 30–32m/33m, 37u "que|Stramonium" 742 6–9m/8u "64 espèces", 17–19m, 30m/u "grand" 743 38–40m 744 1–5m, 6–8m/7u "18|siècle", 19w (1) 20w (2) 18–24w I think this Law wonderful; but not applicable (?) to island.— 25w (6) 29–30m, 31–36m/w These introduced species are wide rangers in their own countries. 745 9–11u↔, 12–14m/w Q6 746 18–21m 750 14–17m 751 23–31m 754 34–36m/35u "à 184"/37u "172|12" 755 16w 35:172 18–20m, 35–36m 757 8–10m, 22–25m 758 6u "184", 7–12m, 30–33m 759 17–22m, 34–37m, 39–40m/Q 760 1u "56|nouveaux"/2u "Parmi|sont"/1–3Q 30–34m 761 1–4m, 23m 762 3–4u "l'ancien|monde", 6–9m/6–7u "aux|sont", 9u "très|inconnue"/w This may be

natural 15–16u↔/18? 763 26u "les courants", 28–36m/30–33w currents from Africa to America & reverse 764 20–25w Current of Pacific from Hooker 38u "de|l'ouest"/39u "dirige|Sandwich"/wb But as trees come to Carolines 765 7–15m/9w currents 19–21m, 23u↔ 766 5–8m, 15w The Disjointed Species appear in further list, where there is no good evidence of true partition 769 14–16m/13–21w I see he admits often hooks are powerful agents of dispersion. 773 4–9w Rhizophora on 2 sides of America 774 23–25m, 26u "peu|genre"/25–28m 796 8–10m/10u "et|Océan"/8–22w opposed to my idea of storms. But so few & agency of man so difficult to eliminate, that the case is not important. 19–21m/21u "est|égard"/23–38w All this shows that sea is a very effectual Barrier, when wide. How then islands in open ocean. Wind from isld to isld?— 28u "était|tropicale", 30–31m 797 10–11m/11u, 13–15m/12–17w makes the case of such plants, peculiar to Isld, the more striking.— 17–22m/→/wb This often mentioned before & shows truth of rule, that when a plant ranges widely, it can range very widely Ch. 7. Acclimatisation 798 3–4m, 11–15m, 18–21m/w not on islds 31–32m 799 1–7m, 33–38m/→ 800 30–34m/w so could live 801 *wt*/1–15w Could I get list of Naturalised Plants from Lowe for Madeira; for Canaries – Webb & Berthelot; for Azores St. Helena. Sleeman – Watson: it in his publish^o lists Bojer has done it for Mauritius.— This cd be important as showing means of distribution & as showing inhabitants of islands not well adapted. 802 4–5m, 16–18m/w already disseminated 803 28m/28–29u↔/Q 804 *wt* I fancy the Compositae agree with my law that Compositae have as class narrow range, & few the species of range widely. No, my law was that when the species range widely the class ranges widely. But plants will not serve. Except so far how species range narrowly & I fancy genera range narrowly. 3–6m/5w (a) 27–32m/w time, time (a) he argues for 2 or 300 years last 100 only known at all well.— *wb* The Azores has 100?? European plants, if 1 transported in 1000 years then 1000 wd get in a hundred thousand years.— Who will pretend to think ♣ real species has existed, so short a time? 805 23–28m/20–25w Bears most importantly on origin of cultivated species 29–30u↔ 806 9–10u↔, 17–25m, 24–25u "le|encore", 40m/u "Il|espèce" 807 21–27m, 29–33m 809 18–21m, 24–28m 810 ||/wt N.B. Most domestic animals & Plants can withstand most diversified climate, & therefore (like

accidentally transported plants) they have probably wide range & therefore are very unlikely to have become extinct or be unknown. 1-5w Mosses only. Animals accidentally transported by man. 4-7m/1-5w Generally conspicuous ♣ & certainly useful. xxx 6-11w♦ Shows that are becoming extinct belong to small broken genera.— This not 15w (Good to compare all this with Bentham's article) 20-24m, wb xxx Might say probably not local species 811 → (from p. 810)/wt I suspect it will appear for Decandolle that the originals have not wide ranges; but I suspect Decandolle in the following discussion.— To make this argument perfect, they ought to run wild. Nor fowls & Fancy Pigeons do not run wild. 815 19-27m 826 9-13m, 15-17m, 23-25m 827 4-7m, 8m, 20u "combien|par"/20-24m/w not selected except size & colour of root 32-33m/33u "pendant|altérées" 831 38-40m 832 1m, 4-6m, 11-14m 835 5-8m 836 13-15m, 18-19m 838 2-5m 840 1-7m, 15-19m/19u "estimés généralement", 20-21m/21u "origines|Choux", 26-27m 842 12-16m/w yet all cross — must be created in Hybrid Chapter. 22-24m, 26-31m/27-28u "de|oleracea"/26-35w Here comes in argument ♣ as in dogs, that reputed parents are closer than variations 32-36m/36u "Systema"/? 843 27-34m 844 3-11m 848 20-25m, 27-31w See in Gartner about fertility. Nothing — 34-38w Not known wild positively — wb Hence not likely that the numerous varieties shd have each wild prototype 849 9-12m, 16-17w Not known positively wild 850 7-19w The fertility of the N. chinensis being American bears on the vars. in China (not known wild there) 854 wt/1-18w I shd remember that ♣ edible vegetables may be killed out by being eat up.— in times of famine at least annuals. but then seeds in ground, as Decandolle remarks. But annuals do not appear in winter time during famines — 857 13-15m/13u↔ 863 34m/w Citron 35-39m/36u "d'espèce|celle", 40-42m 864 21m/u↔, 29-30m 865 5-6m/u/w (2) 12-14m/13-14u↔, 28-32m/28w (3) 866 33-38m, 41-44m 867 19-21m/19w bitter orange 868 8-13m 869 22-23m/22w Sweet orange 30-36m, 37-38m/w —shows how he believes in hereditariness 39-40m 870 6w 4 10m, 15-21m, 22-24w Sp. ? 6 24-25m, 26-27m 871 4-6m, 11-12m, 28-29m/29u "Bergamotte", 30-34m, 35-37m 872 18w & Crimea 21-22m, 23-24m, 25-27m, 32-34m, 40-42m 873 wt/1-3w I daresay wild ● Secy — Boucher de Perthes in same Library. Hort. Soc. Agricult Soc., Antiq. Soc. 4-6m/5u

"Reynier"/4-6w Worth reading for Cattle &c 875 16-19m/17u "multitude|ces" 876 12-18m, 29-33m, 34-36m/w Flora Jamaicae? 37-38m/36-40w good case for no doubt an eastern Plant 877 2-3m, 3-4w Poor 3-5m, 6-7m, 10-15m, 23-24m, 26-27m/26u "plusieurs espèces" 878 20-21m, 27-30m, 34m 879 37-40m/38-39u "faveur|sûr"/39-40w/wb Hence probably derived from single species 880 10-12m 881 4-9m, 30u "Malum|ils"/29-31m 882 6-7x/ u "hort|121", 11-14m, 15-18m/16u "Théophraste|avant" 883 35-37m/x/ 884 3-8m/x 885 3-7m/x, 13-15m, 22u "en 1857"/22-25m, 27m/x 886 11-12m/12u "S'il|espèces"/1-31w/wt There is strong difference in Laburnum & Orange? & apple cases the tree goes on producing separate fruit & blended fruit. But this case (together with several stones of seed) makes Peach & Nectarine different far more analogy with Sports. In Laburnum○ case it is not pure yellow which produces pure purple; it is a mixed tree.— 19-22m, 30-35m/w Peaches & Nectarines 35-46m/w/wb I shall have to read all Gartner on this subject ↑9-1m, ↑6u "Journ"/↑5u "V"/↑2u "1851|299"/↑3-1m 887 11-14m/x, 17-21m, 35-40m 888 23-25m, 26-32m 889 24-27m, 33-35m, wb Great cause of doubt in fruit trees is escaped seedlings 891 1-2m 897 16-20m 902 27-31m 910 ↑12-9m/↑19-6w (In Loudon good account.) confined range. Probably single origin. good to point out amount of variation. ↑13-11m/↑9-7m 911 1-4m, 14-15m/11-14w This good as well as gooseberry ↑14u "1557", ↑12u "1597" 918 20-21m, 35-37m 919 25-26m 920 4-6m/4-8w Forster must be read again 921 32-34m 922 1-7m 923 7-9m, 15-16m, 37-40w Mem Schomburgk in Guyana 925 24-30m 926 4-9m 928 4-7m (Lindley), 12-13m, 16-18m/17-18u↔, 21-26m, 26-31m, 35-37m/w Read 929 1-3m, 5-6m, 8-12m/9u "150|froment", 15-24m/17x/15w old vars 28-33m/28-29m/26-32w Does not stigma & anthers with pollen protrude what for if not for external fecundation in fine weather. 30-31x, 35-37m, 39-40m 930 1-10m/4-5x/1w ? see the accounts of Australian savages how they try everything — Look at Carrot, Parsnip. Gooseberry — I am sure I have read somewhere of savages getting grass seeds.— Zizania aquatic (?) in N. America How large. 10-16m/10-11x, 17-21m/w yet do not run wild.— 25-26m/x/26-27u "non|changé"/27-29m 931 4u "2822"/x 932 10-18w Only 1 of the 4 species found on any good evidence wild.— So that at least the 200 or 300 sub-vars cannot have wild

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aboriginals 16-21m, 22-25m/20-26w I doubt whether language can be trusted? so far as he does. 25-31m/w It is clear that one arrives at maximum \uparrow 3-1m 933 4-6m, 7-8m, 15-16u \leftrightarrow , 32m, 39-40m/39u "Bull. 166"/x/w I have read this 934 16-24m, 38-40m 935 5-6m, 12u "hexastichon"/13u "distichon"/14u "vulgare", 11-13x/w 3 sp. 23-24x/w/24-26m, 28-30m, 33-34m, wb The more I reflect the more I come to conclusion that antiquity of man one of the most important elements in history of variaton.- 936 wt \diamond , 17-18x/w/18u "l'Hordeum distichon"/18-20m/w 1 or 2/4 f. apparently wild.- 21-24m, 31-34m, wb Lindley or Loudon makes probably only one species of Rye 937 19u "Econ. Eg." 938 \uparrow 10-3m, \uparrow 2-1m 939 6-7m, 15-16m, 34-38m 940 12-17m, 30-31x/w/m, \uparrow 2-1m 941 15-17m, 35-37m 942 18-21m, 22-23u \leftrightarrow , 28u \leftrightarrow , 31-32x/w, \uparrow 3-1m/w see about European vars. 948 \uparrow 9-6m 950 5-7m, \uparrow 7x/w/ \uparrow 6u "avait considérable"/ \uparrow 5u "aujourd'hui nouveau", \uparrow 5-4m, \uparrow 4-2m, \uparrow 15-1w Did I not find it in elevated deposit? 951 10m, 13x/15x/w/11-18m, 19m, \uparrow 15-14m, \uparrow 12m, \uparrow 11-8m, \uparrow 4-1m 952 15-19m 956 10-11m 957 36-37m 960 19-22m/20u "localité auteur" 961 25-27m 962 1-4m, 18-21m 966 10-15m 969 20-21m/21-22u "grande Rouge" 980 4-6m, 18-20m 981 table.m/w (notes Bentham's opinions as to wildness, affinities and principal locations of species listed; so also pp. 982, 983) 982 wt Plants not mentioned by Decandolle Celery - (Medlar known wild) Cynara cardunculus (Pistachio nut origin unknown) Ane \blacktriangleright or Fennel Asparagus Atriplex Isalis lin \blacktriangleright & Ricinus Castor-oil Plants (origin doubtful) 983 1-3m, 4-7m (in text below table) 984 21-23m, 25-28m, 29-34m/30u "157", 34-35u "21|85"/35-40w omit in my calculation, though several authors, I think, wd not put in the 85 985 2u "32|aient", 9-10m, 11-14m/12u \leftrightarrow /11-18w comparatively modern. \therefore this which at first appears a very important original is not so important.- 14-15u "dans|connus"/m/w, 20-27m, \uparrow 3-1x/w/ \uparrow 6-4u \leftrightarrow /??/ \uparrow 12-1m/ \uparrow 11-8w against creation for man? 986a 5m/?, 9m/?, 14m/?, 18m/? 986b 5m/?, 12m, 13m, 19m, 20m 987 1-4m/wt/1-6w Celery not cultivated in Tierra del Fuego Potatoes not south of Chile. because not being civilised for culture No S. America, but Incas far enough & long civilised. 988 1-2w But I think ground cultivated in La Plata when discovered 4-10w How many of these cultivated along Cordillera - Look to this. 9w Tomato \uparrow 4-1m 989 1m/w This all used 3-4m, 6-8m, 10-14m/w exactly the same as in Pigeons 15u "XVIe", 16m/16u "choux|courges", 19-22u \pm

21m/15-21m/w but no evidence that have not reappeared 23-27m, 27-29m, 29-37m 990 5-9m/7x/wt x He seems to have overlooked the indirect effects 1-2m, 3-4??, 15-21m/w But this all implies such perfect communication 28-34m/28-29u "ou|communication"/27-37w Here he admits faulty communication. This argument equally applicable to var. arriving in one country 31u "sil|autre"/32a "spontanément" in same country \uparrow 5-1m 991 6-8m/?, 16-17u "Quand|agriculture"/14-24w ! How can he pretend he knows origins of agriculture.- (Celts are thought to be agricult.lists) \uparrow 7-1m/w How can he tell no change.- No \clubsuit selection 992 1m, 3-7m/4w quote 8-16w So when one attends to any species, instantly one begins to get new varieties.- 14-15m/u "seulement|origines" 993 18-20u "examiné|transport"/!, 24-25m 994 20u "occupé"/19-20m/w forgets wild 23-26w In Keeling Isld some larger fruited trees 995 7u "en Sardaigne"/5-7w So Decandolle thinks these species distinct 21m, 23-24m, 26-27m, 32-33m/32u "Quercus Suber", 33u "il|Madère" 996 1-4m, 10-11m, 19-20m/17-22w Pigeons might transport Beech most or Oaks \uparrow 6-1m 997 14u "Bourbon|Maurice"/13-15w ? How if not Fact? 13-15m/13-25w I think there must have been some great subsidence here.- I might ask Maury about soundings between Mauritius & Bourbon. 26-27w wingless Birds 998 4u "Bourbon, Maurice", 22-25w He does not bring in depths.- 999 wt I think soon after Glacial epoch, country with more lakes, like Finland?? 16u "en Abyssinie"/17m, 21-23m, 28-30m/29u "flottent|germination", 33-36m/36u "aux|Shetland" 1000 8-9m/9u "à l'île", 14-15m, 18-19m, 14-25m 1001 3u "en Lithuanie", 6-7u "nord|Italie", 17u "La|du", 24-28m/24w Extinction 31w Extinction 34u "dans|méridionale", 39u "en Algérie" 1002 1u "au|Espérance", 2u "dans|Amérique", 34-35m 1003 wt Sea breaks with F.W. lagoons often bordering coasts.- 1-2m/w Extinction? 7w Extinction (?) 19-21m, 29-31m, 37-38m 1004 10-13m/w wd surely stick on birds 22-25m, 32u "mûrit|de"/31-34m/w Birds pick up \uparrow 2-1m 1005 15-17m, 20-21m, 23-25m, 29-33w must conclude belong to causes geological or anterior \uparrow 8-1m 1006 1-4m/2-3u "l'autre|montagnes", 10u "d'immenses"/11m, 23-24m, 27u "première hypothèse", 28-29m/28u "chaque|espèce" 1007 5-8m, 8-11w D.C. speaks of 300 leagues = 15° Lat. 12-13w \diamond nearly 20° between Lapland & Switzerland. 17-18m/w Hence 108+18/685 not altered since glacial epoch 23u "purement"/22-24m/w I do not understand whether these 124

exclude the Swiss 26u "arctico-alpines"/26-27m 1008 wt (It being only genera & not species in common on Borneo & Australia, is a difficulty.-) wt Not one of these is Atlantic isld. 10u "au Caucase", 17u "Carinthie"/w where 22u "variété d'Amérique"/w Extinction ↑2u "monts centraux" 1009 13-15m/13-19w this shows I think, former land transport & not by icebergs 32u "Corse" 1010 24u "Sierra-Nevada" 1012 2-4m/3u "arctico-alpines", 15-16m/15u "3 lieues", 22-23u↔/19-26w This seems to me to presume that we know the causes of struggle far better than we do.- 26-29w♦ Elsewhere far less of these 30-36w mountains & therefore probably other species take their place ↑4m 1013 1-2m/wt of course for implies first wide extension. 5-9m, 14-16m, 28-29m/29u "les Abyssinie"/30w There are mountains in Ab of 10,000 ft wb Are there many genera in common between Abyssinia & Europe not fd in intermediate country? 1014 14u "Sinai", ↑3-1m 1015 1-2m, 7-8m, 16-17m, 24-28m, 29-33m, 34-36m/w my facts go only to genera.- 1016 1-7m, 18u "aux pieds"/19u "dans montagnes"/20-25w This must have been imported during glacial period (a) 28u "Abyssinie | pieds", 31-32m, 37m/w extinction 38-40m/w since glacial ↑1m/su "aux hauteurs"/w (There are also alpine insects wb (a) This good argument against connection by land or if land connection a very long one for cold & warm plants, so plenty of time for immigration of everything which O cd immigrate us land quadrupeds.- 1017 1-4w Mem: if seeds transported by icebergs ♣ it wd be irregular.- 5u "Sommités"/5-6m/w extinction since glacial 8-9m/w extinction 11u "montagnes"/10-11m/w extinction since glacial (?) 16-17w Extinction since glacial. 24m, 30-36w one of the species which has transmitted down Andes crossing by Behring Straits ↑6-5w extinction since glacial 1018 4-7m, 9-10u "L'identité | quoique"/?!, 14-16m/w extinction since glacial 24-29m, ↑4-1m/↑2u "déposé | impalpables" 1019 13-17m 1020 wt The fewness of these cases show how usually habitat continuous 3-10w Spain & Greece & Palestine. Extinction 15-19m/w alpine in Spain & Taurus 22-23w Extinction 26-27w extinction 32-33w extinction 36w extinction 39m/w extinction 41m/w extinction 44u/45m/w partly alpine wb Those with x seem most likely to have been separated by extinction, but they do not seem very good cases or worth calculating for extinction.- (x against *Minuartia dichotoma*, *Viscum cruciatum*, *Solanum persicum*) 1021 wt All

these 16 cases are Spain of Western portion of Mediterranean 2w some extinction? 6x, 8-9u "sur | 6500", 12x/w do 15m/x, 21u "habitant | sablonneux", 27m/w true 29-30u↔/28-37w Depth not excessive Now the islds in Mediterranean are not simply volcanic isd I think, but fragments of other rocks. See Map of Europe 39u♣/39-41w species of Atlantic isld. 38a "p." none mentioned./ mentioned at p.1016 1022 2-8m/w After giving Spain & W. Mediterranean Give Spain & Ireland.- 7u "car | montagnes"/3-8w During glacial period by Rennells current.- hence might have travelled by land during glacial period. 10-12m/w Great Genus 10-11w See S. America 13-14m, 20-22m/16-22w has only 3 species Decandolle makes a Family: Lindley a sub-family.- with 5 genera 25m/23w Great Genus 27u "à | famille", 30u "des | Népaül", 28-29w Extinction ↑10-1w/wb Genus of 3 species Saurureae Rich., Alismaceae Rich. (so I suppose very peculiar) genera. Lindley gives only 4 genera to Saururaceae. It really might be worth while to work out the Spanish cases. No not worth.- ↑4u "Etats | ou"/w this refers to these 2 last cases entirely dying groups. 1023 1-4m, 5-7m/w He always leaves out struggle with other species.- 9-12w a great genus: Lindley 9 genera in Eriocaulaceae 22u/21-24w Decandolle puts genus in the Family 28-30m 1024 wt F. Water habitats not being well stocked less likely to become extinct.- 1-2m, 3-4m, 7u "la | Eriocaulon"/7-9m, 10-13m, 19u "mais | quantité"/14-20w Large genus not small subfam in Lindley.- (now thought peculiar species?) ↑12-19m 1025 4-5u↔, 12-13u "dirai | impossible", 28u "sigue | les" 1026 14?, 28? 1027 1?, 40-42m 1028 10-11m/10u "Lieux humides", 19?, 26u "Lieux humides"/?, 32? 1029 wt/↓w If these are transported accidentally what hundreds of thousands of genera requisite.- May one speculate on excessive antiquity of F.W. Plants.- Continents were all once united theoretically.- It seems most improbable that the great laws of Creation shd be different for simple elements of aquatic Plants.- Is there any geological evidence of Water Plants being older? There is something in relation to land & F.W. Mollusca, I think; Morris would know. ?The genera of F. W. Molluscs are most ancient 3u "Il | humides", 5-6u "les | humides", 10u "Lieux humides", 31u "terrains humides", 35u "les | humides" 1030 3u "montagnes | Indes", 4u "montagnes | intertropicales", 12-13u "même | 20°"/14-15u "où | Antilles"/11-14w Ischia Volcano 1032

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13u "humides", 18u "graines", 21u "humides", 34u "humides", 37u↔, 39u "prés humides" 1033 4u "Lieux humides", 10-15w I see one Dicliptera in Keeling Flora 22-25m, ↑3-2m 1034 17-18m/→/19-21m/w why if creation. 1035 6u "endroits marécageux", 8-10m, 12-17m/w small genus Lindley small Sub-Fam. & put it with (?) in another small Fam. 26-30m, 33-41m 1036 1-3m, 4-6m/w Double creation. subsidence in Pacific 10-12m/9-19w either on coming or on going off of glacial period: species might have travelled by Arabia & c Canaries Isld 180 miles from Africa.- 20u "à Mariannes"/21-24m/23-24u↔/xx/w Primulaceae; moderate Family 34m, 36u "sont Mascareinhes", 39-40m, wb good to compare list of Mauritius & Bourbon to see difference like difference in Galapagos & c 1037 9-11m, 15-17m, 22m♦, 27-28w Supplemental list 30-32w These seem all less certain.- 1038 17u ↔ 1039 11-12m, 23-25m 1047 1-2m, 4u "il monocotylédons", 5-6m, 9-10m, 11-14m, 15-18[...], 19-20[...], 20[...], 21-22m, 21u "être hygrophiles", 25m, 27m, 28-35m, 39u "des existes", 40-41m 1048 20-25m, 35-37m, 38-40m 1049 21-22u "Pour Maloïunes"/w Var. of islds 35-48m/48u "sept. parte" 1050 3-8m, 9-12m/12u "Il lithosperm", 22-28m, 30-31m, 33w Arabia 34-35m, 39u "Lieux humides", 48u "sericea peine" 1051 1-2m/2u "Les maritimes", 2u "Lieux humides", 6-7m, 19-20m, 31-35m 1052 2-6m, 33-40m 1054 8-23w There is something very odd in Family resemblance with Cape: quite beyond speculation.- (u henceforth place-names) 8u, 11u, 12u, 14-15m, 16u, 22u, 23u, 24-25m, 27u/28u/26-29m/w cirripede in this predicament 30-31u, 31u, 33u/33-36m/34u, 38-40m, 43u, 45u, wb How little is known: power of floating & duration of vitality in salt-water 1055 1m/u, 14u, 15u, 16u, 29-30m, 42-44m 1056 1-3m, 4-12m/10-16w The separation of areas depends entirely on anterior causes? ie no means of present for transport. 1057 12-16m, 25-27m, 31-34m, 35-37m 1058 7-18m, 23-26m, 28-31m/32-34w Does not mention small number on islands. ↑8-5m, ↑4-1m/w If we cd believe in antiquity greater, this wd be explained.- 1059 3-7m/5w (a), wt (a) If I remember right, Compositae wider range in Europe & Siberia than at Cape - if so formed into distinct species in latter.- 1060 3-7m/w Gerligg wd give opposite presumption 20-35m/w oh! oh! Look to shells analogous formations. East & West N. & S. America.- India.- not exactly contemporaneous 1062 ↑16m, wb He looks at extinction as due all to Deluges & c!!! 1063

29-31m, 32-39m 1064 1-14m, 14-20m, 23-24m, 38m/w (FD), 40-41m 1066 39-41m (Unger) 1067 wt Lyell refers to Murchisons Paper on Alps 4u "pliocènes d'Oeningen"/w Oeningen. 9-14m, 15-19m/!!!, 27m, 31-34m 1069 4-7m/5w♦/u "mais insuffisante", 15u "la manque"/16-17m, 26-27u "prennent l'importance"/28-29m 1070 21-24m, 25-28m, 29-32m 1071 7-17m/10w See next Page 18-21m, 25-29m, 30-35m, 40u "ville, village" 1072 24u "nous époque", 24u "avec données"/24-32w Not one of these characters agrees with primrose & Cowslip 26-40m/w The definition; but practically, & as far as my subject is concerned descent & creation come into play. 33u "positivement commune"/wb Here creation comes into play No 1074 14-17m 1075 12u "zoologistes", 18m/u ↔, 23-25m, 32-33m 1076 9-10m/10u "la commune", 19-22m, 28-31m, 28-31!/29-34m, 34-35m/35u "pollen bouton"/?, 37m/u "quod creatae" 1077 3u "hybrides"/w oh 4-6u "et qu'on"/5-9m/6-9m/8-9u↔, 11-12u↔/w So he wd not argue from quadrupeds 19u "la succession", 34-35u "Ainsi seulement"/35-36m/w even in Hybrids 1078 wt there is no separation between domesticated & wild variation 6-8m, 10u "variations races", 15-18m/15u "On même"/16u "années"/14-31w variations are fleeting changes in Individual: Probably answering to ♣ (shell in brackish water) size in animal and wool - or blackness in Bird fed by Hemp seed 29-30m, 33-34m, 37m 1079 1-2m, 6-9m, 12-13m, 18-20m/w not hereditary 21u "perdent toujours", ↑3m, ↑4-2w Horse-Chesnut origin known. 1080 19u "à multiples", 18-20m, 26-27u "variations variétés"/26-29m/w ie can be propagated by grafts. 30-38m 1081 wt If this cd be trusted, it wd be very important.- 1-6m/1-4w Chance seedling surely must have been raised?? 5u "jamais semis", 14-23m, 31-33m 1082 7-13m, 25-26m, 30u "asperges"/w asparagus 34-37m/w Race = sub-species 1083 1m/x, 2-4Q 8-14m/9-10Q 16-21m/17u "pourpre"/x/20-21Q 21-24m, 24-29m/26w any crossing? 34-36m 1084 20-23m/w very good & new 38-40m 1085 8u "curieuse rarement", 17-20m/20w only requires selection. 21-23m, 25u "est dans", 30-31u↔, 32-33u "imparfaits borné", 34-35m 1086 7-13m/7-20w For my view I do not want races, only more variability: these introduced plants are excellently adapted, for they hold their ground in a well stocked country. 19-24m/19u "conditions tendent", 24u "depuis siècles"/22-25w because adjoining continent stocked 27u "cette chimère"/28-30u↔/25-30m/w Azores plants. Himalaya

Rhododendron Ceylon Plants. \uparrow 7-4m, wb
 The Kidney Bean objection goes for nothing; those who bring it, seem to think that climate acts on all: it is selection & we know not that colder climate has anything to do with production of hardiest varieties, yet I believe climate does gradually harden plants 1087 3-6m, 23-30m, \uparrow 2u "influence du climat"/wb (always this) He has not the Key.- 1088 5-6m, 7-12m, 33-35m 1089 16-20m/15-16w Bears on old glacial period 25-31m/25-35w I suppose he means they wd not have been created not to extend for they cd not have extended, owing to their isolation.- 1090 1m/? , 8-9m, 25-30m, 36-37m, 38-39m 1091 6-8m, 11u "c'est cultivé" 1092 12-17m, 20-23m/w Shows not shadow of evidence in shells !! 1093 10-16w not isolation in case of trees; many species in same island.- 18-22m, 25-32m/26-27u "distinctes l'autre", 38-40m 1094 7-8m, 10-13m, 14-24m, 34-37m, 39-40m 1095 10-13m, 16-19m, 29-32m, 33-35m, 37-40m/w same argument as Cuvier about Dogs \uparrow 5m/wb but many think these are only varieties 1096 wt (a) It must be most rare, when species gets isolated & sports suddenly: I shd think favourable but diverse conditions (referring chiefly to other co-organisms) but numbers in the sport not great.- 5-6m, 8-10m, 11-18m/w In fact he here follows man's method of selection too servilely.- 14-18m/!, 19-22m/w islands 20-25w (a) Isolation chiefly requisite to get new conditions. 23-30m, 32-34m/32-33u \leftrightarrow 1097 1-3m/w This necessary for if contrary was rule, they cd not have descended.- 4-6m, 6-10w (a) (Antelopes same case at Cape) 9-14m/12-13u "cause l naturelle"/10w Selection 17-24m/14-21w This exactly the reverse argument of old Decandolle about Araucaria \uparrow 14w Yet in Compositae we have case of Centaurea in Hieracium & \uparrow 21-1w Get Watson to give some particulars about Hieracium: see in marked list, how many doubtful vars. \uparrow 8-1m/ \uparrow 12-3w What is Henslow composite plant which has a palustr species or \clubsuit Kieracium. (he means Hieracium), wb (a) Elevation slow \clubsuit subsidence. every continent has been many times divided into islands. 1098 7-8m/8u "isolement"/7-11w ie avoiding crosses.- yet he says many are impregnated in bud.- 9-12m/!! 1099 24-26m, 32-38m/35-38w always overlooks selection.- 1100 2-6m, 7-8m, 16-18m, 31-33m, 39-40m 1101 10-14m, 22-31m/27-28w Well stocked countries 34w (time) 36-38m, 39m 1102 6-17m, 20-30w I do not see any good in discussing this hypothesis.- There is so little analogy in a

plant taken suddenly 29-30m/w false \uparrow 10-2m/!? 1103 22-23m, 29-39m 1104 24-31m, 32-37m 1105 6-8m 1110 36-40m 1111 wt (a) Those geologists, chiefly continental, who believe that species all destroyed by catastrophe, upset the whole theory.- 5w (a) 30-33m/w just like shells, with increasing knowledge all upset. 34-37m 1112 2-5w Mem. India & Africa 35-37m 1113 2m/3-5m/1-9w Mem. how little is known about Chalk. Hooker is much opposed.- It is like arguing about Mammifers.- 1114 3-8m, 21-26m 1116 1-5m, 17-22m, 24-27m 1117 18-20m, 29-32m/33-35m/28-40w All this agrees with my theory, but I confess I do not see much weight to argument concerning facts of introduction accidental. 1119 1-4m 1121 21-25m/25u \leftrightarrow 1124 1-5m/?/wt This shows how little he appreciates real antiquity of world.- 27-31m 1125 9-12m, 18-21m 1126 27-28m 1127 14-21m, 27-30m 1128 2-6m, 16-22m 1129 1-2m/2u "complète", 11m, 18m 1130 wt Glacial Th. 3-4m/w Ask 9-13m 1131 3-4m/3u "individus l'faits"/2-8w ie you may have many species & few individuals; or reverse.- 11-13m, 15-20m, 22-23m 1132 8-10m, 13-15m, 16-18m, 21-23m, 22-24m, 26m, 29-30m, 31-32m/31u "Les dispersés", 32u "plus rares", 39-40m 1133 wt Are these aberrant genera? 1-2m, 4-6m/6u "et Brésil"/4-7w small genus with wide range, & species itself wide ranger. 9w cold period 14-16m, 21-23m/22-23m, 24-25m, 30-32m/26-40w/wb opposed to my doctrine but how little we know of agglomeration of individuals - The number of species will always depend on anterior causes, of individuals or actually existing causes.- \uparrow 4-1m/wb Yet as far as H.C. Watson's Cybele goes, it wd appear so.- 1134 3-7m, 8-12m, 18-22m/w on the number of genera in a region.- 27-29m 1135 1-8m 1136 table.w but here comes in old cause of doubts that regions, not divided according to apparent obstacles of transport. 7-8m \diamond 1138 1-5m, 7-11m/12-16m/7-18w a good proof that with wide diffusion differences supervene - all showing slow transport.- \uparrow 15-9m, \uparrow 4-3u "la régulière" 1139 1-3m/w General conclusion 21-23m, 24-27m/24-39w see next Page So that perhaps (he admits) it is only in the less large genera (ie growing genera) that extension of \clubsuit one of species affects course of genus 1140 3-6m, 10-11m, 17-26m, 28u 1141 18-19m, 22-30m 1142 \uparrow 13-12m/→/1-14w area of genus thrice size of species .X \clubsuit X Perhaps really six times as great as species 1143 4-6m/w How little he understands extinction. 16u "isolement", 17-

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19m, 33-35m/34u "un | près" 1144 27-29m
 1145 14-17m 1146 6-10m, 11-15m 1147 31-
 32m 1149 24-30m/25u ↔ /28u "n'est | océan",
 38-40m 1150 23-24m, 25-26m 1151 8-10m/w
 This like species of a genus 19-21m, 27-
 31m, 35u "qui | Fissenia"/36u "doit | rapporté"/
 34-35w seems abnormal genus 1152 wt In
 Steudel Bontia put in many Families 3u "à
 l'extrémité"/w small Fam. 6u "Bontia"/5-8w Is
 Bontia abnormal in the Myoporaceae 7u
 "Sélaginées"/7w small Family 8u "Gym-
 nandra"/8w abnormal 23-24m, 28-30m,
 31-32m 1153 1-5m, 16-19m 1154 12-15m, 17-
 18m, 23-27m, 30-33m, 35-40m 1155 27-28m,
 33u "soit | 100"/35u "2, 5"/36u "7 1/2", 36u
 "12 1/2"/31-40w/wb There are more species
 of Gramineae in Holland, than in France,
 but far more individuals of Gramineae. &
 so fewer Leguminosae even of individuals
 than of species. 1156 22-25m 1157 26-27m
 1158 16-18m, 29-30w Families with confined
 ranges 36-37m 1159 16-19w I doubt whether
 cd have been exterminated elsewhere 20w
 above 300 species 1160 4-6m 1161 7-8m,
 22-25m, 26-29m/27u "d'une | régions" 1162 22-
 27m 1164 14-16m, 24-26w Examples of
 above 1165 25-28m/25-32w Monocots. much
 more broken families Lower Families more
 broken: so Ferns, Equinatae &c. more
 distinct.- 1166 1-3m 1167 24-28m 1168 11-
 14m 1169 ↑3-1m 1170 10-13m, 14u
 "caractéristiques", 22u "l'absence", 25u "Enfin |
 familles", 27u "de | Fougères" 1172 12-17m/12-
 21w Bears on numbers in small isld - but
 yet the diversity of forms bears on
 adaptation 27-29m/29u "diminue" 1174 ↑8-
 5m 1177 8-10m 1178 wt for World 83/17
 table.m "Grande Bretagne"/w Penny Encyclop.
 83,827 sq miles table.m "Nouvelle-Zélande"/w
 8600 sq miles - Crawford 1179 table.w I wish
 I knew real size (of islands) so as to see as
 compared with continents real miles of
 inhabitants. (rest of table has dimensions of
 islands marked), wt ♦ Make out or ask author
 whether mere relation to distances from
 mainland does not influence number of
 species wbc 1180 19-23m/20-27m/19-35w
 These are important as showing something
 common in constitution of the grandest div-
 ision of Veg. Kingm. 1181 1-4m, 19m 1184
 ↑9-6m, ↑9u "de | Monocotylédones", ↑8u
 "beaucoup | régions" 1185 17-19m 1188 16-18m
 1189 29u "prédominantes"/w Definition p1170
 1194 2nd table.m "Amentacées" 1195 3rd
 table.w This very different proportion 1197 3rd
 table.m "Légumineuses" 1199 1st table.m
 "Crucifères", 3rd table.m "Composées"
 "Scrophulariacées" "Renonculacées" 1200 1st

table.m "Graminées" 1202 3rd table.m
 "Légumineuses" 1203 3rd table.m/w about size
 of Canary Isd 1204 1st table.m/w/wt Compare
 Sardinia & Canary Isd too Big 1206 2nd
 table.m "Rosacées" "Composées" "Amentacées"
 "Renonculacées"/w very curious 1207 2nd
 table.m "Sur 157 Phan" "Rubiacees" "Ver-
 benacées"/w very peculiar 1208 first
 table.m/w These families prevail irregular
 1209 3rd table.m "Salsolacées" 1210 3rd table.w
 Cambridge has 866 sp. m/wb How much
 more pure wb Same general proportion as
 elsewhere 1211 1st table.m/w How the orders
 of the Families agree.- 1212 1st table.m
 "Rosacées" "Amentacées", 2nd table.m "Lég-
 umineuses", 3rd table.w Rosaceae seem
 to abound in N. America 1214 2nd table.m
 1215 2nd table.m "Orchidées"/w Compositae
 not here 3rd table.u "57 Fougères et 9
 Lycopodiacees"/w hardly any Compos. 1216
 1-2u "Composées"/!, 3rd table.m "Acanthacées"
 1217 1st table.m "Orchidées" "Rubiacees"/w
 like New Guinea 1218 1st table.m, 2nd table.m
 "Malvacées" 1219 2nd table.w Malvaceae
 prevail in W. Indies 1220 1st table.m "Mél-
 astomacées" "Malvacées", 2nd table.m "Orchi-
 dées", 3rd table.m "Euphorbiacées" 1222 3rd
 table.m 1223 2nd table.m "Scrophulariacées"
 "Rosacées" "Crucifères" 1225 11u "Mél-
 astomacées", table.m "Protéacées" "Eparc-
 ridées", ↑2-1m 1226 table.m, ↑3u "29° lat.
 S." 1227 1st table.m "Graminées" "Malva-
 cées" "Aspholédées", 2nd table.m "Scro-
 phulariacées"/w None .u "Myrtacées", ↑3u
 "Scrophulariacées", ↑2u "Epacridées" 1228 1st
 table.m/w very peculiar 1229 3rd table.m
 "Cypéracées" "Géraniacées" 1230 table.m "Gra-
 minées" 1231 3rd table.m "Myrtacées" "So-
 lanacées" "Berbéridées" 1232 12-14m, 18u
 "316"/18-20m, table.m "Composées" "Caryo-
 phyllées" 1234 1-24w He seems to think
 great object to get picture of country 1235
 23-25m, 21-31w ie the number of Fam.,
 making half the Flora. ie about 7 or 8 this
 number depends on richness of species in
 Flora ↑2-1u "nombre | Vert"/w so he
 considers these islands have few species
 1236 15-18m/12-24w This wd have been
 more useful to me if all Families had been
 counted. I do not see how it bears on
 me.- 1237 11-14m/10-16w Hence under
 unfavourable conditions the great &
 increasing Families chiefly prevail 22u
 "Prédominantes"/w Definit p1170 22-25w
 These must be the growing Families, either
 over world, or in some regions.- but
 sometimes peculiar regions.- 26-32w Hence
 the predominating Families do not depend

solely on the number of their species. 1238 1-2m 1239 *wt* When one sees Legum. Compos. & Graminae. increasing one can hardly doubt that complexity of vegetation is increasing & getting higher.— 13u "à l Maurice", 17-23m/w Falkland 19/100 Juan Fernand 25/100 Tristan 9/100 25w♦, 26-28w Madeira 13/100 Azores 111/2/100 I think these facts overcome the fact that individual species are not widely disseminated, because they are correlated. ↑15u/w & Timor & New Guinea 1240 17-19w Perhaps replace Compositae ↑20-12m, ↑6u "Les | ces" 1241 1w tropical 1-2[...], 3u "nos | tempérés", 7u "Mélastomacées", 13-16m 1242 24-27m 1243 1st table.m, ↑4-1m 1244 1-2m 1245 17-24m 1246 28u "la Nouvelle-Zélande"/? , ↑4-1m 1247 15-24m/17w Cape 1248 2-5m, 13-14m/14u "sont | représentée", 29-32m 1249 19-21m/w ie, I presume in proportion of Families ↑7-6m, ↑5-1m 1251 16-20m, 21-24m, 21-22u "presque | d'espèces", 27-30m 1252 18u "la | boréal", 19u♦, 17-20m♦, 34-35u "Comme | arctique"/34-36m/w new forms do not arise under unfavourable conditions. 1253 4-17m/w It is rather small region, like Lakes, as well as unfavourable.— In middle tertiary still smaller area. Perhaps sea round Pole — If there be circumpolar sea, on some theory Probable.— 1254 23u↔/23-24m/12-19w These imply the most fundamental & longest separation, excepting so far as difference may depend on conditions 26u "énumération", 27m, 28w 3 33m♦, 35-36m/wb Except that Isld no islands seem to have any characteristic Fam. 1255 1-2w 4 3-6m, 7u "intertropicale", 9-13w 16 Fams highly characteristic add one for Chile 18-19m, 24-23w only 4 ♣ highly characteristic ↑10-9w 5 ↑4-3w 5 1256 1-6m/wt Looking at plants on I or at animals, taking most distinct forms. It is clear I think that S. America excluding S. extremity most distinct — then Australia (2), — Asia (3), — Mediterranean (4), Cape (5) (temperate N. America 6) — But Decandolle does not consider very small Families. 1257 27-29m 1258 *wt* These right-hand tables apply to number of species in each Family, compared to world: conditions must influence to considerable extent.— *table.m*, "Renonculacées".w Refers to other division where found & in order "Onagrariées".w equal "Cactacées".w *high land 1259 "Uvulariées".w 13 beginning with 2. ie more preponderant in N. America than in any other region. 1260 *table.w* 20 beginning with 3 1262 *table.w* 30 beginning with 4 — many peculiar 1263 *table.w* seem very distinct from

temperate old world.— 1264 *table.w* (numbers of species) 1265 *wb* 34 — 10 with 10 or ♣ more predominant than in other countries 1266 ↑4-1m 1267 10u "Familles | principaux", 11u "15"/14u "3"/11-14w This looks as if ancient connection by East old world.— 15u "familles | principaux", 27-29m/w Glacial ↑4u "6"/m, *wb* I doubt whether had better be used 1268 *wt* I believe no revelation in science will be more wonderful, than the ancient history of geography of world, when we can feel sure that individual species & genera are descended from one common point, when we know more of means & facts of distribution of all organisms.— 1-15w Behrens St in Eocene Period.— 11u "ensuite | avec"/10-13m/w Glacial 18-27m/14-35w Only the wider spreading Families have reached Africa. This looks as if Africa peopled at late times from Asia; & that at very ancient times there had been much communication between Asia & tropical America.— 20u "intertropicale | 2"/26u "15"/→/17w very old ↑11-8m 1269 3u "1", 38-39m, 42m 1270 9-10m, 13-16m 1271 *table-head.w* or 75 miles *wb* 1272 *table.m* "Nouvelle-Zélande" 1273 *table.m* 1275 2-4m, 6-11m/w ie same species range more widely over Sweden. 1276 3-7m, 9-15m, 19-22m, 24-27m 1277 36-38m 1278 3-5m, 15-18m, 32-34m 1279 9-11m, 32-37m 1280 11-14m, 21-23m 1281 6-8m/6u "les Malouines", 23-25m/21-24w In archipelagoes all islds never in action together ↑16u↔, ↑15u↔, ↑11u↔, ↑10u↔, ↑2u "Hooker's | 241", ↑10-1w I cannot at all admit enough to kill vegetation more than Madeira. Look at Etna, Vesuvius or even Sandwich Islds.— 1282 *wt/* ↓w It might be argued that there has been fully as much or more creation than could have been anticipated, on theory of some unknown ratio of creation to area (but such theory is complicated by relationship of immigration to creation). Those who do not admit possibility of immigration, but believe in multiple creation, wd be most puzzled.— Then antiquity comes into play it may be said that islds near continent not old enough to have creations.— (a) Etna very old But generally if no new species exist in isolated islds looks as if some land — It can't be assumed that each isld very old.— ↓w Even theory of creation is complicated by the relationship to easy immigration.— & by affinity to adjoining lands. 1-2m, 3-6m, 9-13m, 14-16m, 21-30m/24-25u "ont | élevées"/26-37w volcanic soil very rich, except when too dry. How fertile Mauritius & Society Islds 1283 1-9m, 19-20m, 30m 1284 11-19m/2-25w

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♣ During glacial epoch the conditions of low country must have been ♣ more similar, ? from length of days ?? & absence of peculiar united to present alpine climate ? than to present arctic regions.— There must always have been some arctic regions 1285 2-3m/2u "200,000" 1286 19-21m 1287 table-head.w what a pity not real number 3w p1271 table.m/! 1288 table.m/w very curious 1289 wt/ 1-26w What I want to show is that when little life can be supported, most can be supported by very different forms; when more life, more forms; but not so different, as less differs in the conditions to be filled up.— 10-12m/11w of course 14-16m, 19m, 20-23m/w more fertile the country, more species in ♣ each genus. 25-27m, 28-32m, 33-37m/w In short in ♣ species are created easier than genera ↑4u↔/w with poor countries this doubtful ↑10a "pauvres" in species not in fertility ↑10-1w/wb My vars in Keeling good case. showing that species might come in closest approximation? wb It seems whatever causes may be, whether nature of country, or difficulty of immigration, & slowness of creation, when few species, many genera: must be only the different causes, I shd think.— 1290 3-7m, 8-11m, 15-21m, 36-40m/w these causes rather different. 1291 4-7m, 14-17m/w I do not think subject here approfondi 21-27m, 30-31m 1292 1-2m/1a "proportion" in Falkland 14-18m/1-18w/wt This looks as if isolation was not so important as many individuals.— a large archipelago Quite a continent — most favourable of all chiefly rising, but att→. → Small outgrowing island may be most favourable, & yet make but ♣ few species difficulty of immigration of forms to become modified 29-31m, 33-35m/34u± 1293 wt In quadrupeds, no Batrachians: — Apteryx & Curious Parrot — Extraordinary Parrot of Pacific Dodo & other birds of Mauritius, — where for from not flying have become insulated. Can insulation be more related to peculiar conditions than to mere crossing.— 17-23m/14-21w One sees not only created so different ie very abnormal from ocean or islands (a) 25-31m 1296 table.m ↑"Ile de Madère et Porto Santo" 1297 3-5m, 6-9m/w but this does not go to cause 16-17m/16u±, 19-20m, 21m, 22-23m♦, 23-28m/29-40m/23-40w/wb If we reject accidental introductions, I argue impossible. but look at Keeling Islds.— We shd conclude that in enormous period, certain genera & Families wd increase, & extinguish the various ones introduced & so bring proportion to average wb Think of

effect of reuniting America & S. Africa, or New Holland 1298 19-29m, 24-27m 1299 19-20m/19u "de chaque diluvium" 1301 8-9m, 10-11m 1304 34-37m 1305 5-6m, 32-36m, 38-41m (E. Meyer) 1306 36-39m 1307 1-2m 1308 wt Climate was first idea, just as adaptation was first idea to explain structure of bodies — neither position of an organic being depends on adaptation to conditions, nor structure, both show ♣ a ruling however, viz descent. ↑3-1m 1309 ← (to p. 1308)/wt (a) It is very important to show that the first great divisions of world are not according to climate, but geographical.— 4-5m/w (a) 7-8m, 15-17m, 28-29m, 32-34m 1311 1-3m 1312 26-29m/27u "le septentrionales" 1313 8-9m/2w The relation being between North & Alps & England, looks perhaps more like land: ♣ only north colonised subsequently. We must remember before it was warmer.— & apparently with more American vegetation.— The uniform extra outer vegetation, wd have been driven South. Baffin Bay then a great separation. & Iceland & Greenland Faroe, must have been peopled subsequently to Alps & old lowland of Europe 11-14m, ↑6-1m 1314 29-37m/?/29-30w transported by ice 1315 34-38m 1316 28-34m, 35-38m 1317 18u "districts montueux" 1318 3-8m/1-6w Land of Mediterranean rest on much better ground.— 18-30w !! This is poorest speculation in whole Book 1319 15-18w But these Compositae hate damp. 35u "espèces anciennes" 1320 5-9m/!!, 10-11m, ↑7-1m 1321 17-20m, 22-26m, 26-27u↔, 34-37m 1322 25-30m 1326 6-18m (Lyell), 27-34m/w covered with ice different from Kerguelen Land 1327 29-33w ?more likely cold, from neighbouring great continent.— 1328 14-20m/16u "Alph. l 341"/14w Hills of Java? 26-29m, ↑3m/w What evidence 1329 1-5m/w yet quadrupeds so distinct.— 13-16m, ↑2-1m 1330 8-13m, 27u "aux Antilles"/24-28m/w agrees with extinct Mammifers 32-33u ↔ 1331 1-5m, 4-9m, 25-28m, 33-38m 1332 1-5m/1-5m/4-5"...", 7u ↔/w What kind of seeds.— 13u "Lobéliacée ligneuse", 15-16m/12-21w Do not more complicated plants change more rapidly, like Mammifers.— ↑9-8m 1333 6-10m, 23-27m/25u "Avec l'imagination", 29-32m, 37-38m 1334 6-10m 1335 4-6m/1-21w ie that the species were once common to all the islands: I cannot believe this: it wd make species too numerous; & not applicable to variation:— This is good argument, the existence of vars.— 1336 1-4m, 5-7m/5-11w why shd the species supposed to have been identical have become extinct & not the others? 9u

"à l'espèce", 11-12u ↔, 15-18m/16u "inexplicable la" 1337 4-8m, 28-30m/29u "Sainte Afrique", 31-32u "laquelle précédé", 32-40m 1340 9-11m 1346 3-7m, 17-19m/18-19u "que utiles", ↑2-1m 1361 ↑3m/w Longifolia on Ischia p.1030 1362a 6u "982|986", 11m, 12m, 13m, 14m, 15m, 16m, 18-19m/18m/19m

CANDOLLE, Alphonse de *Histoire des sciences et des savants, suivie d'autres études sur des sujets scientifiques et particuliers sur la sélection dans l'espèce humaine* H. Georg; Genève, Bâle, Lyon; 1873 [CUL, I] beh, gd, h, pat, sp, v

SB p7 species generally in groups in the same country

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Selection of Barbarians & uncivilized man

♣ Somewhere in Vol.

7 24-31m/w no separation a disparity 10 19-23m 11 30-31m/31u "vol|ailleurs" 316 28-33m 321 8-9m 322 1-5?/3u "robes|dames", 21-24m/w Cuckoo answers this question 357 11-16m 358 19-23m 359 2-4m/3u "manière régulière"/ 3-4w certainly not 6u "barbares", 7-8u ↔ 361 6-12m 482 wb Return by atavism of tendency to disease & about vaccination quite new

CANDOLLE, Alphonse de *La Phytographie* Paris; G. Masson; 1880 [CUL, I] mhp, tm, v

NB 38 Notes; 81 Variation; 185 Cotyledon of Conifer in appearance multiple 197 198 Bloom

38 1-7m 81 13-16m, 32m 197 16-27m 198 5-10m

CANDOLLE, Augustine Pyramus de *Mémoires et souvenirs* Genève; Joël Cherbulier; 1862 [Down, I to FD] ♂

CANDOLLE, Augustine Pyramus de *Prodromus systematis naturalis regni vegetabilis* 2 vols.; Paris; Treuttel & Würtz; 1824-1825 [Down]

CANDOLLE, Augustine Pyramus de *Théorie élémentaire de la botanique* Paris; Déterville; 1819 [Down, pre-B, ED]

NF Preserve (CD?)
v 17m vi 28m

CANDOLLE, Alphonse de, & CANDOLLE, Casimir de *Monographia phanerogamarum* 3 vols.; Paris; G. Masson; 1878-1881 [Down, I in vol. 3] ♂

CANESTRINI, Giovanni *Origine dell'uomo* 2nd edn; Milano; Gaetano Brigola; 1870 [Down]

CANESTRINI, Giovanni *La Teoria dell'evoluzione* Torino; Unione Tipografico-Editrice; 1877 [Down] ♂

CANESTRINI, Giovanni *La Teoria di Darwin criticamente esposta* Milano; Fratelli Dumolard; 1880 [Down] ♂

CARLIER, Antoine G. *Darwinism refuted by researches in psychology* London; Jarrold & Sons; 1872 [Down, I]

CARNERI, Bartholomaeus *Gefühl, Bewußtsein, Wille* Wien; Wilhelm Braumüller; 1876 [Down] ♂

CARNERI, Bartholomaeus *Sittlichkeit und Darwinismus* Wien; Wilhelm Braumüller; 1871 [Down]

NB O/

CARPENTER, William Benjamin *Introduction to the study of the Foraminifera* London; The Ray Society; 1862 [Down] ♂

CARPENTER, William Benjamin *The microscope and its revelations* London; John Churchill & Sons; 1868 [Down]

CARPENTER, William Benjamin *Principles of comparative physiology* 4th edn; London; John Churchill; 1854 [CUL]

ad, af, beh, br, cc, ci, dg, dic, em, fg, fo, gd, h, he, hl, ig, mhp, mn, no, oo, pat, phy, rd, sp, sx, sy, t, tm, ts, ud, v, wd, y

NB p. 480 Regrowth of thumb - Doubling of Germ

SB1 ☐☞

The difference between high & low in Fish, I think, is whether other classes are considered besides Fish.

♣ So many insects, It is very odd how many inhabitants of Fresh Water - Gasteropods - Insects - Spiders - Plants are land-productions metamorphosed & not marine productions. How few have passed on to the Sea. Hence so few Radiata in F Water The Sea has Whales, Seals & Penguins & formerly Lizards, Sea-Snakes, Turtles p.3; p.15; p. 16 to 42 to r; p. 257; p.271; p.273,7; p.291; p.309; p.313; p.317; p.319;

CARPENTER, PHYSIOLOGY

p.322 to p. 332; p. 359; p 377; p 405; p 413; p 425; p 433; p 448; p.458; p.467; -470; p.476 to 480; 493; 546; 553; 561; 569; 571; 573; 575 to 585 to 610 to end

SB2 □β(2 sheets)

<1> 16 on highness & lowness

79 – High Fish. N.B. I think on this subject there is much difference whether we look to Fish alone or to other classes ??

92 same number of cervical vertebrae in Giraffe & Whale – As in Reptiles only 2 sacral vertebrae in Kangaroo

96. top – special from the general in development

101 Rudimentary & not developed used as synonyms. [as well to talk of ♣ the final s in generitive, which is rudiment of his, as prophetic of new change, as in Rudimentary organ]

102 Compensation,– Balancement (only terms)

107 Fossils approach nearer to Archetypal form & to embryos of recent forms p110 Examples p.112 old forms intermediate or rather with various characters combined, which are now separate [an admirable summary chiefly from Owen on this subject] p 117 Summary of do

122 Even Carpenter believes plethoric population breeds less. Q So did Hugh Miller; must fight against

131 Even the most specialised organs retain other & more general powers Q

257 On 3 Kinds of Lungs in Fishes NQ

271. same organ, viz. heart, in 2 Classes developed at very different rate.

272, 277 Branchial vessels in loops in young chick like those in Fish or tadpole

279 Branching from aorta very variable in man

320 Gradation in Respiratory organs NQ Wings of insects Branchiae: Reuse○ of swimming bladder & original○ fraena into wings

322 respiratory organs in Arachnidae & Vertebrates NQ

332 Branchial slits

359 Pagets explanation of Rudiments (false) [over] Carpenter Comp Anatomy lent to L.K. Bruce○

<2>

405. Atrophy of muscle & bone when nerve cut of hind leg of Rabbit

413, 425, 433 Glands are f. of utmost simplicity in lower animals – Mammary, Biliary & Urinary

448 thinks light of larvae of glowworm for Birds to feed on them ! Q

458. Q Birds quits eggs when temperature 71° or 72° – not instinct or feeling? 465 Q The "proper electric current" of frog has curious analogy with electric discharge of Fish

467 Q Electrical Fishes 470 471 Explanation of

477 to 79, 80 I had better allude to Spallanzanis experiments of regrowth to show nisus formativus

480 On Double Monsters being a division of one.– Good discussion on Nisus

493. Abstract of M. Thuret on sexes of Fuci (Chapt. 3)

553 Medusae generally have sexes separate

561 Synapta hermaphrodite differently from ♣ all other Echinodermata

569 Hermaphrodite Byrozoa F.W. false

573 Salpidae Dichogamous 574 Lamelibranch generally hermaphrodite 575

Davaine Carpenter seems to doubt their Dichogamy p.577 Pteropoda require

Congress of two 589 Planaria do

577 Eggs of Linnaeus can be dried up & revived

590 On Ascaris 64 Million Eggs Q

592 Dorsibranchiate Annelids dioicous, Tubicolae do. being fixed by Water – 595 Myriopoda do.

602 In White Ants, soldiers are Pupae NQ

608 Some Acaridae hermaphrodite water or land?

610 Fallopian & Placenta foreshadowed in Fish

627 Explanation of 2d young taking after 1st Father

Chapter on Development might read to see on law of most developed soonest ♣ developed

633 Orchis case, another instance

635 Decandolle says the more common & robust plants vary most

690 Secondly automatic – mastication without will

693, 4 Definition of instinct – 696 Relation to habitual (N.B. origin seems chief difference between ♣ instinct & Habit

726 Different position of eyes, show I think all org never cd become sensorial NQ

730 Eye of Cephalopods Q

734 Eye avoids spectral aberration & chromatic aberration

title page *wb* 1854 xvii *zb* 3 5–10*m*/6*u* "totally"/7*u* "evolution" 9 2*u* "the|of" 10 4–7*m*

15 19*u* "functional"/a "and" internal 16–19*m*/

18*w* (a) *wb* But why shd analogy or functional correspondence be so much more

than homological or structural correspondence?? 16 14u "Lemna"/15u "Zostera", 17u "degraded"/16-21w I wonder whether really: is there much abortion? 28u "Tree-Fern"/29u "Lemna|Zostera"/27-31m 17 51u "grade|in" 18 1-3m, 6u "homogeneous", 15-16m/13-19w I have misunderstood Von Baer 48-50m (Budd) 19 45-48m 20 25-28m 23 4-6m 25 30-35m 29 8-15m 42 14-19m/16u 50 23-27m 58 22-31m 60 29-35m 62 29-37m 63 2-5m 79 26-32m 85 8-12m 87 9-13m 88 49-50m 89 41-44m 90 48-50m 91 37-40m 92 10u "7", 13u "11|20"/12-16m, 35-40m, 44-46m 93 6-11m, 13-16m, 47-50m 95 7-10m, 45-49m 96 5-9m, 32-38m/34u "regarded|general", 38-40m 97 8-12m, 29-42m 99 11-15m 101 6-12m/w Electric organs Poison glands 33u "rudimentary", "underdeveloped"/33w not synonymous 41-48m 102 34-36??/36u "principle|compensation", 38u "occasions"/40u "accompanied"/42-51w These do seem to me good examples 104 32-39m/34u "teeth" 107 13-17m, 28-31m/30-31u "archetypal generality", 40-47m♦ 109 21-25m, 23-26m 110 1-6m, 15-19m 111 1-8m, fig.m, 22-39m, 40-43m 112 3-8m/6u "not|lowest", 15-18w ask Huxley 40-44m (Forbes) 113 12-21m 114 5-11m, 23-28m/! 115 1-4m, 27-31m, 34-37m 116 1-4m, 5u "but|type" 117 19-41m, 29-32m/31u "osculant|forms" 122 22-27m/?/Q 128 27-30m 130 4-8m 131 32-36m, 38-47m 137 10-19m 142 41-42m 143 1-3m, 13-20m/w Falkland Islds - Elephants 32-37m 159 9-13m 257 31-42m 258 1-11m/w The foundation for another kind of Lung 261 16w Fish?, 18-20m/18-19u "Lepidosiren" 264 13-17m 271 25-30m 272 1-9m 277 26-39m, 44-50m 279 4-9m 290 33-38m/"..."/u "rate of life" 309 10-15m/w Double organ 313 21-24m 316 15w see p 325, 23-27m♦ 317 38-50m 319 42-51m/→ 320 1-3m, 29-34m 322 17-32m 323 21-26m, 30-34m, 45-48m/→ 324 5-12m, 27-31m 325 wt variable organ & a transitional group 3u "all|developed"/5u "Lepidosiren"/4-9w So ranks as Reptile & not Fish 14-22m 326 fig.w snake-like Saurian 332 21-34m 333 30-37m 359 23-31m, 33-43m/w But why present cases of undeveloped glands. 43-35w/wb Rudiments of wings of insects. Rudiment of bone, when so much matter of same kind excreted. wb Rudiment of teeth in young growing whale, when so much phosphate of lime wasted. wb Rudiments in plants! more cellular as a rudiment of a style. Rudimentary instincts. 377 39-45m 405 33-40m, 41-52m 413 27-32m, 29-31m/30u "simple structure" 425 1-8m 433 44-51m/→, wb organs 434 1-4m 448 49-53m/Q 458 30-36m/w not instinct 465 18-25m/19-

20Q 467 33-38m/33-34Q 470 5-10m/6-8Q 471 7-43m/13-14Q/9-10w see p 455 476 36-41m, 51-55m, 54u "subjected|influence", 54-55u "has|species", wb But the domestic varieties keep constant under their proper condition. 477 22-31m, 33-39m/36u "not|larva", 45-46m/→ 478 7-15m 479 wt for 6 fingers 1-2m, 21-24m, 42-48m 480 2-19m, 11-12m, 33-43m/34u "thumb double"/35u "each|perfect"/37u "along|nail", 43u "formed" 481 20-23m, 22u "possessing|rudiments" 493 26-33m 546 7-10m 553 40-42m 561 39-44m 569 33-37m, 38-40m/39u "visceral cavity", 40-44m, 48-50m (Van Beneden, Allman) 571 10-16m/13u "within|cloaca" 573 18-23m/20u "ovarial testes"/21u "not self-fertilizing", 25-28m 574 37-41m 575 1-3m/3u "ostensible co-existence", 8m, 10-16m, 19-23?/m/21u "ova|recognised"/23u "which|place", 27-32m/31u "which|find"/32u "general|shell" 576 37-39m/38m/u♦, 42-43m 577 23-25m, 29-31m/30-31u "being|fertility", 32-34m 585 43-47m, fig.m 587 wt Phillip Phillip 35-39m 588 8-16m 589 24-29m, 30-41m 590 11-15m/Q 592 26-27m, 32-34m, 41-45m 593 1-3m/3u "in|Planariae" 595 33-36m/33u "Myriapoda"/36u "dioecious" 599 wt Larvae not being simply embryonic but likewise adaptative is never noticed.- 602 8-11m 608 43u "Acaridae"/42-45m/w land or water? 610 24-27m 611 5-8m 613 20-27m, 27-33m 615 3-5w not♦ applicable only in Vertebrata? 5-7m, 27-30m 616 42-46m 627 40-47m/42w (a) wb (a) Grafting nearest analogue. does not support this view Do you think if you injected blood from one into other it wd make hair grow different? 628 17-38m 632 9-14m 633 11-22m, 48-50m 634 8-12m, 24-27m, 36-40m, 43-48m 635 1-4m, 31-33m, 32u "61|species", 38-43m/45u "are common" 637 3-8m, 26-36m/w not if nothing better possessed 638 29-32m, 49-51m (Owen), 68-70m 639 40-45m 690 8-13m/"Medulla Oblongata"/10-11Q♦, 17-19m/19u "684" 692 31-38m 693 25-31m/27u "immediate|sensations", 28u "intentional adaptation", 43-47m/45u "no|required", 48-52m 694 4-8m, 14-17m, 17-29m/18-23w sensori-motor connected with Instinct. 25u 696 31-37m/32a "these" habitual 698 7-14m, 17-20m, 22-45m 699 35-38m 702 20-24m/20-30w dogs turning face on one side not see another petted.- 708 10-13m, 23-27m/19-26w Fear of punishment 726 15-19w Mysis Cirripede 18-30m/20-34w difficult to explain, except on general diffusion of perception. 730 18-21m, 26-28Q/26u "iris", 29-30m, 49-51m (Siebold) 734 11-18m, 28-33w wonderful! 30-36m

CARPENTER, William Benjamin *Principles of mental physiology* London; Henry S. King & Co.; 1874 [Down, I]

CARPENTER, William Benjamin *Researches on the Foraminifera* (extr.); 1855 [Down] ♂

CARRIÈRE, Élie Abel *Production et fixation des variétés dans les végétaux* Paris; Librairie agricole de la Maison Rustiane; 1865 [CUL, I]

cc, cs, dic, ex, fg, he, hy, sx, tm, v

NB 21; 30; 28; 34 to 58 very good, wonderful on Bud-Variations; 65; 66; 69; 70 Bud variations; 72; 57 Cytisus Adami ♂ p 21 & 30 on Dichogamy (rest ♂) SB ♀ p.28. on influence of Father – on colour &c. goodish evidence in certain cases p67 On Hybrids presenting quite new characters Relation to Doublecross Many valuable facts referred to proper places –

6a 16–23m 21b 36–57m/40–44w colouring self-fertilised 48–50m 28b 4–12m 30a 27–32m, 32–34m/30–38w in cold weather pollen matured later, 35–44m, 37–41m/40u "gelées" 30b 36–49m 31a 28–32m/"..."/29c/32c/ 28–32w ie not crossed 34a wt Bud-variations 1–18m/2–7w Chrysanthemum 35b 12–14w Roses get list 36a 1u "Baronne Prévost", 3u "cinq variétés" 37a 27–28w Cherry, 51–55m/w does not revert perfectly 37b 10–11w 3 fruits 38a 10w Plums 38b 10–11w Grapes 49–57m, wb Apples show 39a 6–10w Haricot Maize & Potatos 23–38m/w But this is by seed 38–41m/30–34w variable when sown by seed 39b 15–18m 40b 28u "sur|sur"/25–29m/w Maize 29–36m 41b 2–13m/5–6w Potatoes 42b 10–16m 54b 1–3m 57a 26–33w Hycanths 57b 1–2w Cytisus 4–6m, 12–14m/12–13x, 19–24m, 33w ♦ New character 36 36–37m 58a 21–34m, 21–22m, 23–28w X Bud variation Effects of conditions 64a 46–58m ♦ 65a 76–82m/wb Varies or breaks like tulips or Vidua 65b 63–73m 66b 67–76m/71w ie wb strongly hereditary 67a 4–34m 69b 33m, 46–55m, 61–71m, 75–78m 70a 6–13m/w Double flowers 28–32m, 33–40m/w form of bud variation like tulips, 44–50m/41–42w conditions 70b 15–19m/13–25w moss Rare for seed 24–25w by seed 43u "Moussense partout"/40–45m/w Bud var 54–61m/w Bud var 65–73m/66–67x/75–79m/75–76x/78–79m/wb good like his case of Radish – Causes of Variation 71a 25–30m/30x/25–26w Bud var. 44–66m/57–61m/! 72a 32–39m/32–39m/33–34x/32w/wb Barbary; this is in principal buds, not all

affected conditions wb Causes of Variation Use these new facts under Var. under Nature 72b wt change slowly 1–3m, 6–13m, 12–23m/15–20m/20–23m/ wb These facts of beech & Barberry bear more on relation of conditions to inheritance 27–30m, 31–40m

CARUS, Julius Victor *Geschichte der Biologie* München; R. Oldenbourg; 1872 [Down, I]

CARUS, Julius Victor, and ENGELMANN, Wilhelm *Bibliotheca zoologica* 2 vols; Leipzig; Wilhelm Engelmann; 1861 [CUL]

vol. 2 ♂

979 58–64m 1070 43m 1792a 26m 2000b 61m, 78m 2001a 1m, 2m 2026a 52–55m 2030b 64m (Morren) 2039a 3m (Newport), 4m, 38m 2129a 35m (Wallace), 39m, 40m, 41m

CARUS, Julius Victor, and GERSTAECKER, C.E. *Handbuch der Zoologie* Leipzig; Wilhelm Engelmann; 1875 [Down, first vol. only] ♂

CASPARI, Otto *Die Urgeschichte der Menschheit* 2 vols.; Leipzig; Brodhaus; 1873 [Down] ♂

CATALOGUE of the books and maps in the library of the Geological Society of London London; R. & J.E. Taylor; 1846 [CUL]

NB1 Read p109 Darluc Hist Nat Provence

112 Risso on Ranges

p.111 Cirripedia Lamarck

In the Presentation Copies in list given in Journal Feb 1851 – Many useful to M Periodicals

p8. Linn Trans of Normandy

Good Journals

Agassiz Recherches sur les Poissons

Fossiles – of Old Red Sandstone p.60

Calcutta Journal of Nat Hist vol 3 & 4

NB2 107 (he means 109) Dict des sc nat

109 Forbes Star-fish

111 Loudon, Arboretum

112 Royle

Buckland's ♣ Bridgewater Treatise

p67 Pictet Pal.

Bowerbank – Plants of London Clay

R. Agricult Journal – Edinburgh – other Journals

Wernerian Transactions & Other Journals recd

Boston Journal

xii 8–9m/w marked 36–37m/w marked 3 15m/16w read 4 38m/w read 5 19m 6 41–42m 7 1–2m, 30m/w read 8 13m 9 2–7m/4w Hooker

for 8w read 12-16m, 19m/w read 21m/w read, 27-29m 12 24-25w I do not think worth reading 25m, 35m/w read 13 6m, 8m, 17m/w read 46m 14 5m/w read 6m 25 38m 33 26m 58 5-8m, 10-11m 60 2-8m 61 4m, 28m 65 10w vol. 2 11-12m 66 35-36m 67 28-29m, 40-41m, 42u "in vol. 4", 45m, 48m 68 33-35m 106 18m 107 9m 108 7m, 14m, 23m, 27m, 32m, 41m 109 6m, 18-19m, 34m 110 40m 111 3m, 27m, 33m, 39-40m 112 49m 113 12m

§

209b 53-55m (Brocchi) 210a 4m (Bronn) 217a 18m (Lea, J.)

CATALOGUE of the Chiroptera in the collection of the British Museum (G.E. Todd); London; by order of the Trustees; 1878 [Down, I] ig, tm

NB xvii Gradations in complex Nasal appendages of Bats xvii 21-35m, 36m xviii 17-26m xix 10-19m

CATALOGUE of the scientific books in the library of the Royal Society London; Richard & John E. Taylor; 1839 [CUL, S] fg

NF E.W. Strickland 31 Robert St Chelsea Mondays & Thursdays
 NB1 Hills Essay on Natural Hist 1752; Montagu Testacea; Libr in Royal
 NB2 Brickells Nat Hist of N. Carolina Whewells Bridgewater Treatise read Lawrence Lectures on Man 1819 Read Harlan medical & phis Researches Edwards. sur la caractere physiologique - des hommes des races diverses p.497 - 1829 - read - 2d Edit 1841 is to be published
 James on man physiologically & spycologically considered Edinburgh Hort Soc & Highland Soc p 387 List of Hort & Agricult transacts Lindley's Horticulture ?? p.721 Forster on Migration of Birds 505 by Isode G. St Hilaire p740 = Amoenitates Acad.- p767 Stillingfleet Transact do -? read Broderip? p.639. Asiatic Journal Hooker says good.
 NB3 p 396 Decandolle papers p 552 Quetelet sur la loi de la croissance de l'homme p.758 Quetelet sur l'homme et le developpement de ses facultes Dubois voyage Lichtenstein's Travels read

Loefflings travels Louisiana Mackenzie north Pole○ Ramond's voyage on M. Perdu Natural Hist.: p581 Barton's fragment in Nat. Hist. 583 Catesby's Nat Hist of Florida 585 Linnaeus on study of nature Virey's Philosophie & Histoire Naturelle 1835 a miserable book according to Brougham - read Lawrence Lect on Man 538 Meckel 474, 582 Blumenbach: must be read.- 582 Buffon. 449 Pallas Spicilegia Zoolog 510 Haller

contents page 9m/w, 11m/w, 12m/w, 13m/w, 14aæ, 15m/w, 17m, 18m/w marked 387 3-32m, 7m, 9m 388 20m, 23m/? 393 33-36m 396 48-53m 398 13m 400 6m 401 37-38m, 42m 403 43m 404 44-45m 405 8m, 29m 406 37m/w read 408 38m 409 53m 410 41m 411 50-51m 412 8m 414 3m, 5m, 7-10m, 8m 415 37m 416 6m, 11m 418 23m/w read 29m 420 14m, 32m 421 7m, 50m 422 4m/w read 425 38m, 40m, 42m 428 1m/w read 10m, 16m/w read 18m 429 40-41m 430 33-34w read 431 17m, 18w (one Edit 1619) 19-21w Recommended by Blyth 432 12m, 14m, 16m, 18m 433 18m, 41m 434 42m 435 30m/w read 38m/w read 439 32-33m, 44m 440 20-21m, 22-24m, 32m/w read 441 1m/w read 20m 442 16-19m, 26-29m 443 26-29m, 43-45m 444 14-20m/w Read Pigeons & Fowls 445 11m 447 22m, 31m 448 10m/w "1788-1806", 14m/w read 46m/w read 51m 449 3-10m, 9m, 43m, 46-47m, wb Shriften Berlin p.589 450 35m 453 48m/w read 454 17m/w read 18w vol 2 has the ●, 20-21m, 22-26w Has this cirripedes? 28m 455 20m, 22-23m, 29m/w read 456 25-26m 457 15-16m/w read 19c/w 8to x 44m 461 17m, 18-19w read 19-21m 474 54m/wb Quoted○ by Prichard 497 10-12m/11w read 505 47m, 49m 506 38-39m/38w read 512 21-23m 513 11m 522 44m 524 32m 538 14-27m/16-30w Dr Holland says some good views on generation See which vols 23m, 27m 556 20m 566 10m 581 37m 582 8m, 19m/w read 41-42m 583 6m, 19m 585 29-30m, 41-42m/w read 587 38m, 43m, 47m 589 26m/w/22w vol 1 & vol 5 590 32m, 36m 591 46m 593 2-3m, 8m, 18m, 34m/w read 598 9m, 48m 599 53-55m, 53m 600 17-22m/16w read 23a "Agriculture"/m/29-34w this followed by Archives 54m 601 21m, 51m, 53m 602 24m/w read 614 47-49m, 48m 636 45m 637 18m 638 6-9m, 53-54m 639 12m, 23u "1816-1832", 49-53m, 48-49m/wb

CATALOGUE: ROYAL SOCIETY

Hooker says good 640 26m 651 13m 652 36m, zb 653 7m, 16m 655 49m 656 4m 657 42m, 47w read 54m 658 9m 659 7m, 32m 660 6-13m, 15m 661 43m, 47m 662 16m 664 26w read 665 6m, 15m, 19m, 44m/w read 50m/w read 666 22m/w read 41w read 43m 667 14m 668 35-38m, 50m 669 42m, 53m 670 1m/w read 671 39m 672 47m 674 25m, 29m, 36m/34-35w read, 38m 676 3m/4-7w I suspect appalling on separation 677 12m, 32m 682 44-47m 688 25m 689 26-28m 721 26m 740 25m/21-28w Lyell believes Broderip has Engl. translation 744 5m 767 38m

CATON, John Dean *A summer in Norway* 1875 [CUL, S, I]

NB O/

CATON, John Dean *The antelope and deer of America* New York; Hurd & Houghton; 1877 [Down] beh, br, cc, v

NB p.46 Antelope weeping; 90; 156; Deer not breeding in Parks 294; do.- 304 46 33-42m 47 3-10m 90 26-31m/w analogous var. 156 32-42m 157 30-37m 158 27-32m 294 17-22m, 21-31m 295 9-14m, 22-28m 304 22-24m 305 1-4m, 6-9m, 12-15m

CATTANEO, Giacomo *Darwinismo: saggio sulla evoluzione degli organismi* Milano; Fratelli Treves; 1880 [Down] ♂

CHAMBERS, Robert *Ancient sea margins* Edinburgh; W. and R. Chambers; 1848 [Down, I] geo

21 25m 100 3-9wcc/3u "847", 26-27w 1202, say; 1210 110 17-19m 113 11-13m 115 1-2m/w p61 of mine 5-8w also entirely overlooks my arguments for the terraces 124 23-27m 157 9-10w 968; 821-6 15-17w 628; 706 187 1m, 28m 189 3m 328 3-5wcc, 11-22w average interval 20ft. 330 wt/£w 27ft interval on average & each observ. ♣ has for 5 or 6 ft of variation. so that real interval not more than 10ft table.m/wcc, wbee

[CHAMBERS, Robert] *Vestiges of the natural history of creation* 6th edn; London; John Churchill; 1847 [CUL] ad, ci, ds, em, fo, geo, hl, is, t, ti, tm, ts, v, y

SB1 ☐

p.67; 90; 123; 186; 195; 209; 225; 235; 249 Key of Book; 268; 274; 276; 280; 281; 283; 286; 290; 301; 307; 312; 319 p494; 501

The idea of a Fish passing into a Reptile (his idea) monstrous.-

How easily a soft cirripede might give rise to Balanus Segments of shell - if loose wd be lost

I will not specify any genealogies - much too little known at present.

Never use the word higher & lower - use more complicated, as the fish type (& not a mere repetition of parts) where cartilaginous forms are higher for being nearer reptiles & consequently mammalia.-

SB2 ☐β

90 Embryonic Reptiles now have biconcave vertebrae, extinct form had do

209 Inherent impulse to advance from oldest & simplest up to highest - & inherent impulse to become adapted. Quote in Preface. ♣ 249do 225 compare with tadpoles metamorphosis.

235 Yarrells Birds Gull getting thickened stomach Vol. 3 p571 Quotes Pennant on Trout in Galway getting thickened stomach. Was it Trout? Yarrell Fishes vol. 2 p.57 thinks Gillasso only a var. inner cuticle only undirected.

274 Monomyarian Molluscs before Dizaria - latter higher?

276 Young Gasteropods all alike when very young (Forbes) in Jameson's Journ

277 Nucleus of Cephalopods shells is also spiral like Gasteropod (Forbes) Carpenter Gen. Physiology This about Cephalopods, important for it shows what precursors were: see if accurate

280 Dibranchiate Cephalopods commence in Oolitic 281 Cephalopods change quicker because higher

301 Talks of nature being equally ready to go back as well as forward

307 Cecilia is a snake-like Batrachian

494,2 Curculios - Corydalis & Libellula & Scorpion in Coal

367 Remarks on isld not having mammals & less perfect life but really I need not allude to such Rubbish

67 12-19m (Agassiz) 90 5-8m, 17-20m 123 21-26m/22-25w See to this in true chalk 179 17-26z 186 8-14m/w new creations !! 16-22m 195 4-5m/w is not Pecten very old 209 1-16"... 4u "inherent"/1-8m/w quote to show difference V. Whewells remarks against this 11u "inherent" 219 22-26[...] 220 13[...] 221 3[...] 225 5-12m/w whole key to theory 229 16[...] 230 24[...] 231 10m/10-14[...], 17-21[...] 232 9[...], 20-25[...] 235 11[...], 20-22m/w Yarrell! 249 23-26m 267 17-18??/18u

"exclusively marine" 268 2-7m, 7-18m
 (Agassiz) 274 11-21m 276 9-17m/12-13w
 Forbes 277 14-26m/24w Carpenter 278 6-20m
 280 20-24m 281 2-16w I must allude to all
 this 283 12-15m 286 1-17w It is strange error
 that generally he looks at every form, as
 having started from some known form. 19-
 23m 290 1-3m 301 7-11m, 15-17m 307 10-
 15m/w I forget this Amph? 312 1-3w Hence
 many Turtles transformed!! 4-9m 319 1-3m/
 !!!, 17-20m/!!!/20w oh 340 5!!/u "walrus" 409
 11?/z/u "monkeys|houses" 494 10-22m 501 7-
 8m 505 8m, 22m

CHAPMAN, Henry C. *Evolution of life*
 Philadelphia; J.B. Lippincott; 1873 [Down, I]

NB O/

21 8w 22 30w 25 13-15"..."/15w Haeckel 86
 2-5"..."/4w 100 13w/c 102 32w/c 130 28c 170
 34w
 (untranscribed words not CD)

CHAPMAN, John *Neuralgia and kindred*
diseases of the nervous system London; J. & A.
 Churchill; 1873 [Down, I]

NB O/

xiv 21m xv 8m, 17m xviii 3m xx 5m, 6m xxiv
 21m, 23m
 ☉

CHAPUIS, F. *Le Pigeon voyageur belge*
 Verviers; 1865 [CUL, I, S]
 beh

SA (pp. 170-171)

(conversions of km to miles)

↻ nearly say 35 miles

George calculated these and average rates
 per minute for 20 selected flights the rate is
 1066 metres per minute which gives per
 hour as above

59 18-24m 86 24-27m 87 1-2m, 3-7m/5w
 Instincts 10u "certains mâles"/9-24w *cc*, 23-
 25m, 24-27m 133 wt Verviers to Lyons 156
 11-15m 159 1-3m 161 9-16m 165 19-20m, 24u
 "kilomètre|minute", 28m 166 18u "soit|
 mètres", 23m/u "925" 167 7-10m/w but due?
 168 22m/u "947" 169 1-4m/1u "Espagne"/2u
 "Liège", 5u "1 kilomètre" 171 wt ♦ which is
 kilometers?; average of 20 flights *cc*, 5-6m/
 w ♦ = 366 metres?

CHARPENTIER, Jean de *Essai sur les*
glaciers et sur le terrain erratique du Rhône
 Lausanne; Marc Ducloux; 1841 [Down]

☉

CHAUMONT, Francis Stephen Bennet
Lectures on state medicine London; Smith,
 Elder & Co.; 1875 [Down, I]

NB 135 Beer; 165 cistern

CHILD, Gilbert W. *Essays on physiological*
subjects Oxford; Combe, Gardner, Hall &
 Latham; 1868 [Down, I]
 beh, he

NB Consang. Marriages

CHILD, Gilbert William *Essays on*
physiological subjects 2nd edn; London;
 Longmans, Green & Co.; 1869 [Down, two
 copies]

NB O/

☉

CHILDREN, John George *Memoir of J.G.*
Children Westminster; Josiah Bowyer,
 Nicholas & Sons, for private circulation;
 1853 [Down]

CHUN, Carl *Fauna und Flora des Golfes von*
Neapel, 1. Ctenophorae Leipzig; Wilhelm
 Engelmann; 1880 [Botany School] ☉

CLARCKE, Benjamin *On systematic botany*
and zoology London; J. Bale & Sons; 1870
 [Down]

CLARK, Henry James *Lucernariae and their*
allies Washington; Smithsonian Institute;
 1878 [Down] ☉

CLARK, Henry James *Mind in nature* New
 York; D. Appleton & Co.; 1865 [Down]
 af, ct, fg, he, ig, sl, sp, tm

NB O/

SA (pp.94-95)

p.61,66 Pangenesis; 81 do; 85 shows how
 numerous gemmules must be for carrying on
 to next generation Not all used up in
 formation of the animal.— This view of
 division of single egg, & not union of 2, is
 now very generally admitted.

Planaria cut in two says it is true budding

♦ 203 Snails asymmetrical.—

263 Lepidosiren, affinities

279 projecting instead of selecting

Lereboullet consult

272-276 Doubtful on intermediate forms in
 lower classes

279 projecting instead of selecting

61 16-18m, 25-29m, 30-31u↔, 32-36m 62 1-
 4m 66 16-20m 81 22-23m/23u "fissi-

CLARK, MIND

gemination", 33-35m/→ 82 16-18m/11-19w but with budding, I suppose for formation of eyes 32-35m 85 15-17m, 25-28m, 30m 86 1-5m 93 24-26m/25u "budded out", 29→ 94 15-17m 203 13-16m 267 9-15m 272 1-4m 273 1-13m 276 10-21m 279 23-30m

CLARKE, J.W. *Cattle problems explained* Battle Creek, Michigan; published by the author; 1880 [Down]

CLAUS, Carl *Grundzüge der Zoologie* 2nd edn, 4 vols.; Mauburg und Leipzig; N.G. Eltwert'sche Universitäts Buchhandlung; 1871 [Down, S] ∅

CLAUS, Carl *Untersuchungen zur Erforschung der genealogischen Grundlage des Crustaceen-Systems* Wien; Carl Gerhold's Sohn; 1876 [Down]

CLELAND, John *Evolution, expression and sensation* Glasgow; James Maclehose; 1881 [Down, I]

COAN, Titus *Adventures in Patagonia* New York; Dodd, Mead & Co.; 1880 [Down]

NF not yet entered in Catalogue of Books

COGNETTI DE MARTIS, Salvatore *Le Forme primitive della evoluzione economica* Torino; Ermanno Loescher; 1881 [Down, I] ∅

COHN, Ferdinand *Die Pflanze: Vorträge aus dem Gebiete der Botanik* Breslau; Kern; 1882 [Down, I]

COLIN, Gabriel Constant *Traité de physiologie comparée des animaux domestiques* 2 vols.; Paris; J.B. Baillière; 1854-1856 [CUL] beh, cs, fg, he, hy, ig, mn, no, oo, phy, sx, tm, v, y

vol. 1 SB p.131, 5; p.142 to p.160; p.192; p.374; 426; p.617; 426; p.614
Londeners Walk Watch while Snail fixed in crevice pulled in 3 directions to free itself
V. 2d Vol for Abstract

127 9-10m ♦ 131 10-12m/1-12w none to aid another animal without that aided itself 13u "ait | inutiles" /w V. p. 134 15u "susceptible | essentielles", 26-31w wildness in aboriginal Galapagos Birds.- 32-33m 134 35u "animal sanguinaire" 135 27m, 29-31m/29u "mulet | dans" /30u "espèce | cactus" 142 10-14m/11-12w no gradation 143 30-31m 144 27-31m 145 wt I have seen young Ourang at looking

glass 4-7m/5w (a) 147 31-34m 151 29-32m 160 13-16m 192 16-20m 374 35-39m 426 2-5m, 13-18m 614 wtcc, 12-18m/14u "bout | douze" /16u "dix | vingt" /17u "une | fois" 617 wt my notions not half so odd as life of Parasite; bred in fish & matured in cormorant wtcc, 1u "les | membraneux", 4u "le héron", 3-5m/w V. next Page 11-15m, 33-40m, 34u "pylore | étroitesse", 35u "duvet | poils" 618 6-9m

vol. 2 NB Book p 405; p.492; 496; 529; 530 to 548; 614

SB □X

374 On Hinny neighing on account of shape of Larynx

426 How soon animal gets accustomed to any particular food.-

614 - excellent on length of time grain kept in crop of Turkey - 18-20 hours -

617 Hawks throw pellets because pylorus so narrow

Vol 2.

492. M. Desfossé on hermaphrodite Fish Serranus

529 case of hybrid of Horse & Cow NQ author admit clearly only monster

530 Q↔ on ovules in mule

532 Vauban calculated produce of Sow in 12 years at 6 millions - on rate of increase Guinea-Fowl - on sterility of fat animal Ch.

3 Tegument of eggs of wild Peacocks

536 on characters of Mongrels so like Gartner Q

537, 539 Hinny more after ass than Horse Q↔

(over)

540 Horns transmitted from either parent

542 The older races transmit most surely

614 10 Mammae in Rabbit, Dogs &c

405 44m (Geoffroy St Hilaire and Cuvier), wb Has Waterhouse got it 492 12-15m 496 17-22m 497 28-37m 529 1-2m, 11-24m 530 5-12m/8-9Q↔, 15m (Aristotle), 29-31m 531 18-23m, 29u "tigre | lion", 34-36m/35u "font | sanglier", 45m/u "fait | oeufs" /→ 532 2-6m, 26-30m, 27m/w Sow?? 36-37u "engraissement | oiseaux", 14-1m 534 10-15m/11-12u "Suisse | Poitou" 535 28-31m, 34-43m/41u "d'une | portée" 536 1-4m, 5-7m/5u "intermédiaire" /7u "mélange | fusion" /5-12w how like to Gaertner, 14-17m, 15u "taureau | Jura", 25-30m, 31u "mulet | âne", 39u "deux | côtés" 537 10u "le | mamelons", 18-19u↔, 35-36m, 40-41m/40w variable 43-45m/44u "incontestablement | prédomine" 538 7u "l'hémione mâle", 11-12m 539 2u "bardeau | mulet", 3u "la | exceptées", 31-34m, 40u "cheval | Hartmann", wb Hartman

is a German Book which I have seen referred to elsewhere 540 13-15m, 19-21m, 37-39m, 38u ± 541 36-38m 542 18-19m, 30-32m 543 1-3m, 14-18m, 38-40m 544 14-19m/17-18u "boeuf breton"/24-26m/1-27w It certainly is not true that one can get as perfect offspring as parents 548 1-6m 614 17-19m, 21-23m, 40-45m 627 31m/?

COLLETT, Robert *Zoologi: Fiske* Christiania; Grøndall & Søn; 1880 [Down] ∅

COLLINGWOOD, Cuthbert *Rambles of a naturalist on the shores and waters of the China Sea* London; John Murray; 1868 [CUL] beh, gd, ss

NB 173 Electric snake

♣ Butterflies attracted by dead specimens S. Selection

♣ 182 Referred

♣ I have read as far as p 260 (very little) 367 all inhabitants of the Sargasso basin

374 Flying fish Habits

1 11-12z 173 27-34m 182 6-9m/"..." 183 4-6m/5-6u "frequent battles" 367 12-21m 374 17-21m 375 32m 376 9-12m, 24-29m 377 14-19m end of booklist wb 64

COLUMBUS, Christopher *Selected letters* ed. R.H. Major; London; Hakluyt Society; 1847 [Down]

COMSTOCK, John Henry *Report upon cotton insects* Washington; Government Printing Office; 1879 [CUL] beh, gd, mg, oo, phy, tm

NF extra-floral glands; moths boring into melons→ 84-85; 86-87; 90-91; 97; 89 great powers of flight of moths; sweet juice eliminated - 319-320

NB 84 Extra-floral nectar-glands

89 Migration of moths grt distances

117 do & distribution

120 do

213 ants destroy enemies of cotton Nectaries

320 to end with Bibliography.

84 10-22m, 41-46m 85 2-12m, 19-26m, 28-32m, 38-47m 86 4-21m 89 1-16m 117 7-13m/13u "Argotis annexa" 120 27-32m 183 26-29m 213 28-30m 317 wb W. Trelease 320 22-26m 325 14-22m, 31-38m 326 1-7m 327 5-7m 331 3-7m, 21-25m, 38-43m, 44-46m 332 24-30m, 40-47m/? 333 1-5m, 9-15m, 45m 336 11m

COMSTOCK, John Henry *Report of the entomologist of the United States Department of*

Agriculture for the year 1879 Washington; Government Printing Office; 1880 [CUL] ab

NB 203 Change of Habits in insect; 246 do 203 25-28m 246 17-23m, 18-19u "At| acquired"

CONGRÈS INTERNATIONAL d'anthropologie et d'archéologie préhistorique (Bologna, 1871) Bologna; Fava & Gavagnani; 1873 [Down, I by Cappellini (secretary of conference)]

∅

540 1m 542 13m

CONTA, Vasile *Théorie du fatalisme* Bruxelles; G. Mayolez; 1877 [Down]

CONVERSATIONS on vegetable physiology vols. 1 and 2; London; Longman, Rees, Orme, Brown & Green; 1829 [Botany School, pre'B, FD, E. Catherine Darwin in vol. 1]

CONYBEARE, William Daniel, and PHILLIPS, William *Outlines of the geology of England and Wales* Part 1; London; William Phillips; 1822 [Down, pre-B]

(a few editorial marks, not CD)

COOK, James and KING, James *A voyage to the Pacific Ocean* 3 vols.; London; W. & A. Strachan; 1784 [CUL]

vol. 1 NF This Work was given on its first publication by Josiah Wedgwood Esq of Etruria to Erasmus Darwin M.D. of Derby and is given to their Grandson Charles Robt. Darwin by his Father in 1840

COOKE, Mordecai Cubitt *Mycographia, seu Icones fungorum* vol. 1; London; Williams & Norgate; 1879 [Down]

COTTA, Bernhard von *Die Geologie der Gegenwart* Leipzig; J.J. Weber; 1866 [CUL] af, ch, gd, geo, sp

SB p.198; 200; 208 good; Geology, change of species; closely allied species; Die Urwelt der Schweiz Notes pinned

198 10-12m, 14-15m 199 24-30m 200 21-23m, 31-33m 201 17m/14-16w all found together 207 4-12m 208 1-3m/2u "dort| Kreide", 13-15m/13u "sechsmalige", 21-25m, 25-27m 209 1-2m, 21-23m/22a "ausgedehnten" Sea 210 34m 221 28m

COTTA, Bernhard von *Geology and history* London; Trübner & Co.; 1865 [Down]

COTTA, Bernhard von *Die Lagerungsverhältnisse an der Grenze zwischen Granit und Quader-Sandstein* Dresden und Leipzig; Almoldische Buchhandlung; 1838 [Down, fragment]

COX, Edward William *What am I? A popular introduction to the study of psychology* London; Longman & Co.; 1873 [Down, I]
ct, fg, hy, phy

64 ↑12-8m/w One pollen gr not enough 66 1-13w I hardly understand what you mean by germs 68 18-19x/16-18w hybrids 70 19-21m/14-21w fused together 71 2-5m 72 3-16w influence of nerves - Plants 73 26-28m/27u "must be"

CRAWFURD, John *A descriptive dictionary of the Indian islands and adjacent countries* London; Bradbury & Evans; 1856 [Down]
br, gd, geo, is, se, v, ve, wd

SA (pp. 216-217)

10; 14; 15; 16; 28; 32; 38; 46; 56; 59; 73; 74; 86; 88; 92; 101; 107; 113; 119; 121; 122; 123; 125; 92♦; 135; 138; 143; 144; 145; 152; 153; 171; 172; 217; 220; 225; 255; 256; 268; 269; 278; 288; 291; 298; 306; 316; 318; 320; 407; 417; 420; 433; A volcanic mountain wd undergo enormous degradation when subsided; Penth note sheet missing

SA2 □β

See map at beginning Very many facts show that very large quadrupeds will not exist in the smaller islds

14 Mountains heights & nature of

15 Zoology of archipelago

38 Bantam Poultry came from Japan

112 History of Cock Q

119 Genus Cervus

121 Dog NQ

125 Duck no wild ones, Penguin common var.

136 Elephant of Borneo described by Pigafetta

145 Goose not breeding in Manilla

152 Hog, wild species of

153 Horses many breeds of, not aboriginal Q

255 Cat of Malay Q

268 Marian Isld nothing about aboriginal quadrupeds

288 Monkey wild species of

316 Ox tribe

10; 11; 16; 88; 28; 31; 46; 56; 59; 74; 217; 225; 92; 279; 337; 143; 171; 220; 291; 298; 306; 318; 321; 407; 417; 420; 433; (names of mammals of different islands)

10 57-62m/59u± 11 40-43m, 46-50m/46u± 14 40-43m, 45-47m 15 20-28m, 30u±, 35u±, 40-41m, 45-51m/51u "Babirusa", 53u±, 56-62m 16 1-6m, 4-9m/5u±, 13-17m 28 52-61m 32 3-10m 38 16u "It\|java", 23-27m 46 58-61m/61u "the\|cat" 47 1u "The\|hog" 56 42-48m, 44-51m/46u "hog" 58 37-43m 59 20-43m 73 52-59m 74 4-19m 86 54-59m 87 7-15m 88 11-20m 92 40-45m 101 14-18m 107 12-20m 112 51-56m, 61-63m/Q 113 1-3m/1u "among\|rudest"/2u "domestic state", 2u "bears\|species"/3u "Sumatra", 4u "Java", 4u "Malay\|Philippines", 5-18m, 18-20m/19u "Malays\|Javanese", 21-28m, 29-31m, 31-37m/35u "do\|such", 42-48m/44u "in\|Hindostan", 51-56m 119 1-16m, 4u "Cervus\|Cervus", 11u "The\|belongs" 121 46-62m 122 5-11m, 58-63m 123 4-9m/8u "crown-pigeon" 125 9-11m, 12-20m 135 52-59m 136 1-18m 138 1-3m 143 10-16m 145 49-57m 152 19-29m 153 26-62m, 32m/u "There\|breeds", 33u "one\|to", 36u (u henceforth place-names), 37u, 40-41Q 43u, 44u, 48u, 49u 49u, 52u, 54u 154 20-24m, 42-51m 155 13-18m 171 47-61m, 61-64m 172 14-21m 217 12-17m 220 26-29m, 33-40m 225 40-52m 255 44-51m, 50-52m 256 13-19m, 31-38m 268 14-21m, 51-58m 269 14-18m, 37-39m 278 60-64m 279 4-6m 288 4-19m 291 26-27m 298 7-14m, 36-45m 300 22-25m, 31-40m 306 58-60m 316 9-16m, 22-29m 318 19-24m/20u "about\|miles", 29-34m/29-31w Depth 320 51-58m 321 6-9m 337 54-59m 407 3-5m 417 32-42m 420 54-61m 433 26-31m

CRAWFURD, John *A grammar and dictionary of the Malay language* vol. 1; London; Smith, Elder & Co.; 1852 [CUL]

beh, gd, geo, is, sy, ti, wd

NB ii; viii; xcv; civ; clxxxiii; ccvii; ccxl - on animals of Isd; ccxlviii; ? cclii area of New Zealand; ccliv; cclx; cclxii, & iv

SB □β

civ at Lucon no horse or Oxen - - only Hog, Dog, Goat, Fowl & perhaps Buffalo

xcv Timor said to be primitive

ccvii Horse wild probably feral in Celebes

ccxl Domestic animals of Pacific

cclv & c on men colonising islds in Pacific

cclix Dogs of N. Zealand same race of in Society Isd

cclx Traditions of introduction of esculent plants into N.Zealand

cclxii In Marianne group natives use Fish Bones for arrows ∴ not deer x

cclxiii Fowls wild or feral, probably from wreck, as Cat then found?

ii 1-6m iv 3-8m v 20-23m, 24-26z vi 22-26m,

27-29z viii 19-22w~~cc~~, 34-38m xcv 28-31m civ 25u "absence", 26u "buffalo", 27-30m clxxxiii 25-27m ccvii 3-5m ccxl 23-27m ccxli 27-30m ccxlviii 7m, 19-22m cclii 18-22m, 19-21m/20a/w~~cc~~ ccliv 27-30m cclv 25w Sandwich cclvi wt Yet Sandwich had dogs, Hogs & Fowls wt Probably the frequency of being cast adrift wd make it obvious that, the Polynesians had better try to preserve animals.- 2-6m cclix 15-17m, 20-23m cclx 1-11m cclxii 8-13m, 15-24m/w see to Magellans voyage about Deer cclxiii 8-9m, 11-15m cclxiv 6-8m, 23-30m, 34u "hog|wild", 35-36?

CROLL *Climate and time in their geological relations* London; Daldry, Isbister & Co.; 1875 [Down, I]

NB Glasgow Geolog. Soc. iv.313 p7; Athenaeum Sep 22. '60; 32
xii 30-32m 25 10-11w~~cc~~, 17-19w (not CD)
331 9-14m 332 6-9m (Geikie and Jukes)

CROOKES, William *Psychic force and modern spiritualism* London; Longmans, Green & Co.; 1872 [Down]

CUNNINGHAM, Robert O. *Notes on the natural history of the Strait of Magellan* Edinburgh; Edmonton and Douglas; 1871 [Down, I]
beh, gd, is, y

NB ~~↔~~ (page numbers ⇔)
p56 Live terrestrial insects in sea when I found them
94 Young Logger-Headed Ducks can fly but lost when old
131 says Upland Geese do frequent lakes by the sea
195 lizard in T. del Fuego.-
56 9-12m/9u "live beetles", 15-17m 94 29-32m
131 1-5m 195 6-10m

CURTIS, William *The botanical magazine, or, flower-garden displayed* 2 vols. in one; London; Stephen Couchman; 1793 [Down, pre-B]

CUVIER, Georges *Essay on the theory of the earth, with geological illustrations by Professor Jameson* 5th edn, trans. by Jameson; London; William Blackwood, Edinburgh & T. Cadell; 1827 [CUL, pre-B, S]

281 1-4m/2w C11 9-11m♦/24w C21 282 9-10m 283 7w 3 10w 4 19-21w 5, 6, 7 284 15w

8 21-22w 9 285 7w 10 12-23m/17w 11 18-21m 345 21-23m 346 20-25m 347 2-9m 354 29-31m

CUVIER, Georges *Leçons d'anatomie comparée* vols. 1-5; Paris; Baudouin; 1799-1805 [CUL, pre-B]

(most w apparently not CD)

vol. 1, 14 10m 16 18m 18 26m 21 29m 22 2-3m 23 1m, 2m 24 5m, 9m, 10m, 14m 25 5m, 9m, 10m 26 12m 29 22m 36 19-20u↔ 37 26c/a~~cc~~ 46 17c~~cc~~ 50 13m, 24-27u ± 51 13m, 19m, 20u "irritabilité", 24m, 28u "poissons", 29m 52 3m/5m/1-5w Quant ils font sauter tout hors de l'eau 6u "n'ont aucune" 62 11a/c~~cc~~ 92 16-17m, 30m 93 3u "sont", 4m/u "parallèles", 5-6u "leurs extrémités" 94 4m, 5m 95 21u "moindres", 23u "véritablement", 24m 96 3m, 6u "auxquelles", 7u "après|mort", 8m, 12m 97 2m, 3m, 5u "le fibre", 6u "de|corps" 98 19-20m, 14m 99 11u "temps", 13w (not CD), 15m, 18u "dont", 18u "nerfs", 26u "insensibles", 27m 100 16m/u "nerfs", 18m/u "fonctions", 19u "dépendent", 20m/u "médullaires" 101 9-10m/9u "charnue", 14m, 23m, 24m, 27u "fluide", 28m 102 2m, 15m, 19m 110 9m/w oiseaux 111 20m/w oiseau 25-27m, 28m/w remarque 29m, 30m 116 12a/c~~cc~~ 120 10m 122 13m~~cc~~ 124 24a~~cc~~ (not CD) 125 14m~~cc~~ 133 18u "sensibilité|irritabilité", 19m, 25m 134 11m, 12w (not CD), 15m 135 3m, 19u "le milieu", 20m, 27-28m 137 2m, 17m, 19m/u "tous sens", 29m 138 1-2m, 5m, 7m 139 19u "cordes", 25-26m/26u "mêmes" 140 25-26m 141 28-29m 144 14a/c~~cc~~ 209 4-6m~~cc~~ 248 16-17m 256 10u "preuves", 11m 276 22m 288 15w remarque 343 20m~~cc~~ 365 22-25w~~cc~~ (not CD) 449 3-4m 463 12u "poches", 13u "qui" 464 14m 465 21u "muscles", 23m, 23u "muscle" 466 2m/u "et s'alonge", 3m, 10m 472 23-25m 476 5-6m, 19-20m/w (not CD) 480 28m 484 8u~~cc~~ "déploiement|certain", 11-12u~~cc~~ "et|opposé" 486 11u "talon|étendre", 12m, 14u "fournit|immobile", 15-16m/w marquez 23m/w~~cc~~ 488 8u "soulever", 9u "extenseurs", 10m, 22m/u "homme" 489 6-7m/7u "et du", 8u "talon|arrière" 490 ~~↔~~ 9u/c "gauche"/9w d. derriere 11m 494 16-17m 497 23-29m/25-26w♦~~cc~~ 501 11u~~cc~~ "certain point", 12u~~cc~~ "seroit|élastique" 508 10m, 14m, 17u "leurs|que"/[...], 18u "pieds sont" 509 7-8m 510 14u "La|mouvement", 15-16u↔, 25-26m 511 5u "avant d'arriver", 6u "le premier", 7-8m, 27-28m 512 5-6m, 9-11m, 25m 513 16-17m 514 3-4m, 8m, 11m, 15u "les|dans" "martinets|fous", 16m, 23-24m, 30m 515 1m/u "inflexible", 4u "centre|gravité", 5u, 6m, 8m, 11m, 15-16m, 17u "inférieure|corps", 22m/u "os", 23u "cylindre|creux"/23-

CUVIER, ANAT. COMP.

24w (not CD), 26u "aériennes" 516 1-2m, 2-3u "traitant des", 5-6m, 10-11m, 12u "entre", 13u "expansion|peau", 15-16m, 24-25m 517 2m, 3u "grêle|centre", 10m, 24-25m 522 14u "156", table.wτ]

vol. 2, 38 14c/w à noter 93 21-22m 94 5m, 30m 95 3m, 10m, 12m, 21u "sensations" 96 12m/w● 97 18m/u "rendre", 20u "nerf simple"/w gen 23w à noter, 24m, 26m/u "plupart des", 28u "renflemens", 29w à not 30m 98 2w●, 4m, 8m 103 23u "médullaire", 24m, 25-26m 104 15u "médullaire", 16m 105 29m 106 5-6m, 20m 107 13-14m, 14m, 24m, 25-26m/25u "consommer" 108 7m, 8u "substance essentiellement", 9-10m, 13-14m, 15w noter 24m/w● 109 1w électrique 3m/u "isolés", 4u "conducteur", 5m, 6u "cohibans", 10m 110 15u "branlement", 16m, 20m 111 5m, 10m, 19u "autres ordres", 20m, 24m/u "contracte"/w facture 29u "des sensations", 30m/u "portion|nerf" 112 3m, 12m, 13-14m 113 8m 115 9m 117 14m, 17a/cϵ, 21-23w (not CD)

vol. 3, xxi 29-30m 38 9m 46 4m 154 10-14m 156 24-29m 402 10m 407 3m

vol. 4, 308 4m 309 13m 319 15m 331 12m/w (not CD), 13m/w (not CD) 364 15-17z/20-22z 374 14m 486 22m, 23u "que|fils", 24u "membranes|unissent", 25u "trachée"

CUVIER, Georges *Le Règne animal* 5 vols.; Paris; Déterville; 1829 [CUL, on B] beh, sx, tm

vol. 1, 151 26-28m 214 20-24m 219 30-32m 220 9-11m, 27m 227 25-28m 228 5-7m, 13-16m 306 23-28m 458 2-4m 459 10-12m 460 24-25m 462 11-12m 496 9-13m 560 8-14m

vol. 2 NB p.78

Q & G Cap Freycinet; L'Uranie (wrecked in Falklands); S. Astrolable Peron, Lesueur artist; Baudin - Australia Lesson & Garnot voyage de Coquille Capt. - Duperrey

viia 34w 1 viiia 33w 2 viiib 31w 3 ixa 29w 4 ixb 7w 5 12w 6 29w 7 xb 15w 8 28w 9 36w 10 xia 11w 11 15m/w 12 xib 1m, 6w 13 15w 14 xia 1w 15 12w 1, 32w 2 xib 10w 3 37w 4 xiiia 23w 5 12 24-27m 28 23m 30 13-17m 54 20-23m 60 3-4m/u ↔, 6u "comme|femelle" 65 20-22m 66 19-20m 73 8-10m 81 15-19m 83 11-15m 88 28-30m 101 5m/w● 103 3-5m 104 29-31m 106 9-11m 107 14-17m 110 32-36m/Q 111 20-22m 112 14-16? 113 10-17m 114 5-7m 119 4-6m 189 zt 237 21-24m/23u "s'enfle|saison" 247 22-27m 255 11-13m 333 15-18m, 23m/w Cape Fairweather

vol. 3, 11 23-25m 14 25m 15 16-17m 17 10-14m 29 12-15m 33 1-4m, 10-15m, 16-18m, 23-25m 35 3w 50 7w 57, 10w 58 18w 66 36 1w 70 12w 110 19w 113 20-21m 39 7-9m 40 15-17m, 31-33m 42 21-23m 44 3-5m, 7-9m, 14-16m 46 14-16m 47 19-20m 48 8-9m, 25-27m 51 6-8m 55 15-17m 59 8-11m 60 4-7m 62 18-21m 68 17-19m 78 4-9m 81 13-16m, 22-25m 84 16-20m 87 21-24m 91 1-6m 166 ↑10-9m, ↑8-7m, ↑3-2m 168 17-22m 170 1-4m 175 20u "douze paires" 177 15-18m, 17m 179 16-20m 207 16-17m 225 20-24m 228 1-4m 229 1-5m 235 4-7m, 10-12m 238 6-10m 266 23-25m, 30-31m (von Baer) 276 22-23m 300 10-13m 301 1-4m (Lamarck), 15-16m 302 20-22m 306 6-7m, 9-10m 308 13-16m 318 5-13z, 22-24m 339 ↑4-1m 348 11-12m, ↑4-1m 350 9m, 14m 373 ↑4-1m 375 16m, 19-22m 379 2m 380 19-22m, 32-33m, 35-36m 385 10-13m 386 7-10m 392 20-23m 400 24-27m 402 27-29m, zb 403 3-5m 404 12-13m 409 23m 413 17-20m 415 2-4m 416 4-6m 422 7-10m 426 3-10m
♂

vol. 4, xvii 11-12m/w Schiropoda, 99 33 23-27m 44 10m 51 11-12m, 16-19m 67 12m 76 ↑9-6m 79 4m, 5m 82 2u± 84 14-18m 91 9m, 10m 92 13-16m 95 31m 97 10m, 15-17m 100 7-10m 108 14-18m 110 4-6m 117 21m 118 8-9m 119 9m, 11m, 26m 120 7m, 24m 121 24z 122 19-20m 123 31w 2 124 17-18w 3 128 6-10m 132 17-18Q 133 6m, 9-10m 135 9-10m, 22m 136 6w 3 138 24m 140 3m 141 14m 142 4-8m 151 14w 158 154 28-32m 158 12m 171 26-30m 229 3-6m 234 22-25m 235 21-22m 236 2-5m, 17-18? 240 14-19m 241 9-11m 242 20-22m 244 7-9m, 32-34m 247 2-4m, 10-12m 250 25-27m 251 23-25m 254 4-5m 255 29-30m 257 27-28m 258 5-8m, 12-15m, 24-26m 259 22-23m 261 21-24m, 32-33m 270 21-23m, 33-37m 273 27-28m 275 9-12m 278 19-21m 281 6-8m, 25-27m 286 2-5m, 16m 287 27-30m 289 10m 290 1-3m 334 4-8m, 28-29m 335 5-6m 337 24-27m 338 16-20m, 28-30m 341 27-29m 346 27-28m 542 30-39m 543 1u "mort|fuite"

vol. 5 NB p. 305 Leon Dufour has written on stinging instruments of ants p.291 - on antennae differing in male & female Cynips in no. of Joints.- 206 23-25m 305 31-33m 399 13-14w 2 403 29w 3 408 5-7w 5 415 10w 8 25-27w 9 423 22-23w 10

THE CYCLOPAEDIA of anatomy and physiology ed. R.B. Todd, 6 vols.; London;

Longman, Green, Longman & Roberts; 1835-1859 [Down]
beh, phy, tm

vol. 2, 221a 6-12m, 8-9u, 62-66m 221b 1-7m, 34u, 44u, 47u, 49u, 51-54m/54u, 56-59m, 61-69m, *wb* the lower eyelid acts during laughter 222a 17-26w very little about it, seems to depress eyebrows & causes frown 21-26m, 65-68m 222b 10-14m, 15c, 38-42m 223a 26-31m, 54-55u 224a 9-13m, 24-28m 224b 6-9m, 12c/w ϵ , 50-55m 225a 31-33m 225b 17m, 33-35m 226a 48-56m 226b 3-9m 227a 6-10m, 53-56m, 62-69m

vol. 3, 90a 21-30m 93a 38-43m 94b 24-25u 98a 13-17m 566a 55-58m 566b 41-51m 722, 723 w(FD) vol. 4, 1415a 43-44u, 44m 1415b 29-31m, 30u, 35-37m/35u 1424a 38-41m 1424b 14-17m 1425a 42-50m, 54-59m 1427b 16-24m, 31-40m, 44-51m 1427a 8-12m 1428a 53-58m 1496b 4-11m, 29-36m 1497a 38-42m/39u 1499a *w ϵ* , 1-6m, 57-61m/60u 1500a 30-34m 1500b 1-4m, 40-46m 1503a 15-19m

vol. 6, 301b 50-57m 302b 35-40m 303b 9-13m 304a 10-13m, 12u "*vermiform*" 304b 24-28m/25u 317b 37-42m 318b 24-36m/28u 334a 38-47m 642a 35-37m/"..." 642b 1-5m, 1-8"..."/7c 643b 16-19m

DALLAS, William Sweetland *A natural history of the animal kingdom* London; Charles Griffin & Co.; n.d. [Down] \wp

DANA, James Dwight *On the classification and geographical distribution of Crustacea* Philadelphia; C. Sherman; 1853 [CUL, I]
gd, hl, sp, t, ti

SB $\square\beta$

1557 No species in common to W. America & central Pacific, except few cosmopolites

1498 On number of species in Torrid zone (Q)

1501 less numerous but higher

1504 Tropics most prolific in Crustacean life
1528 general discussion on above heads

SA (pp. 1588-1589; part of a letter from J.D. Dana)

1498 35-39m 1501 28-29m 1503 36-38m 1528 1-24m 1529 1-9m 1531 4-5m 1533 *w $\epsilon\epsilon$* , table.m "*Hyas*", *wb* Right (also totals in each column totalled) 1536 table.m "*Cyclograpsus*" 1538 table.m "*Lithodes*" "*Paguristes*" 1542 table.m "*Jaera*" 1543 table.m "*Amphoroidea*" 1544 table.m "*Anonyx*" "*Gammarus*" 1551 30x \ominus /30-39m/34u, 39u (place-names), 35-37w Before Glacial B.G. 1552 7m, 7m, 9m, 12m, 31m/w Med & Japan 33m, 40m/w Med & Japan 1553 1m/w, 3m/w, 5m/w, 7m/w Med & Japan 8w 36 species with enormous ranges *zb* 1554 4x \ominus /3-9w 42 sp with curious ranges.- belong to many genera 1557 1-5m/4-5x \ominus , 11u \leftrightarrow , 23x \ominus , 28-33w Evidently far more relation between E. & W. America than in shells & more species in common: but I can hardly judge 35-37m \blacklozenge 1558 19-24m/21x \ominus 1561 3w a temperate genus 3x \ominus /w New Zealand & America 25x \ominus 1564 30x \ominus 1567 18-19x \ominus 1569 10-11w New Zealand & S. America 12x \ominus , 16w do 19x \ominus , 26u "*eighty-one*", 29u "*thirteen*|Japan"/x \ominus /w - New Zealand & Cape 30u "*three*"/x \ominus 1570 3x \ominus , 13x \ominus 1574 7a "*above*" 33 7x \ominus /w 33 species in common 15-17m, 19x \ominus /19-22w It is a difficulty so few being common to Europe & Cape 29w 12 Natal & Japan 1576 19u \ominus "*eastern*|Australia", 25-28w New Zealand & America 29x/? \ominus 1578 21u "*Hymenicus*|near"/21-32w No representative case can be made out, as for common Antarctic land; New Zealand & America \uparrow 13-8m/ \uparrow 11u "*over twelve*"/ \uparrow 9x \ominus / \uparrow 9-7w are any of these southern genera I wonder \uparrow 10-8w p.1561 & temperate genus of Amphoroidea \uparrow 8u "*Cyclograpsus*"/*wb* is a wide ranger, Mid Pacific Florida \uparrow 8u "*Paguristes*"/*wb* wide ranger \uparrow 7u "*Betaeus*"/*wb* Indian Ocean

DANA, CRUSTACEA

torried ↑5u "Palaemon"/w torrid wb Cancer none torrid N & S. America Ozius torrid 1579 3x/u "Ozius|Xantho", 13x/u "Lithodes|Galathea"/w range equator wards? ↑8-1m/u/w (ranges and climatic zones of species named) 1580 28-29x 1581 4u "Glyptonotus"/ 3-4x, 6x/13x/6w New Zealand & Cape & S. America 1582 7x/10-11x/8-9w & Turtles &c 1583 8x, 12x, 18-19x/19u "not|zone", 21x, 27x/w New Zealand & America 27-28u "Amphoridae|Ozius"/x, 35x 1584 9x, 13c "Horn"/w G Hope 22-23x/26-27x/36x/38u "Japan" 1585 4x, 11c "Horn" Good Hope 16x, 27x 1586 13-14x, 21-22x, 29-30x, 32-33x 1587 13-25m/13-14x, 24-25x 1588 33-34x 1589 3-4x

DANA, James Dwight *Corals and coral islands* New York; Dodd & Mead; 1872 [CUL, I] geo

NB p.365; p.308 Loyalty Isld Quart Jour. 1847 p.61
7 26-30m 108 8-10m 116 9-13m, 13-16m 158 1-2m, 10-11m, 31-32m 171 12m, 15-17m 184 22-26m 193 17u "Metia or" 199 9-10m 219 12-14m 259 13-16m 267 ↑8m 273 15m 301 9-18m, 11-12m, 15-17m, 30-33m/33u "westernmost islands" 302 11-16m 303 3-7m, 10-13m, 14w why not 23u "occur|lare", 30-31m 304 10-13m, 18-25m/23w why 305 9-12m, 13-14m, 16m, 20u "Tatoa|volcano", 28-32m/30u "evidence|very" 306 6-8m, 12-14m, 14-17m, 20-22m 307 7-9m, 12-13m, 18-23m 308 25-29m 309 16-19m, 23-24m 310 6-12m 311 29-32m 317 8-10m 320 14-19m 321 16-20m 322 1-4m 323 17-23m 324 1-6m, 9-11m, 27-32m 325 11-13m/11-15"..."/12u "deep bays" 326 16-20m, 24-25u "Tutuila|coral", 28-32m 327 6-11m, 15-16w | do not trust this evidence?? 17-22m/18u "wide reefs", 26-31m 330 28-31m 331 wt Mr D also shows on authority of Mr Hale that ♣ these islanders seem to be here held ♣ where certain ● on Ponape were sacred 1-8m/4-8"...", 9m 333 22-28m/22u "the lagoon", 29u "two feet", 31-21→ 334 2-4m, 16-18m/18u "six feet"/ 14-21w This wd protect the leeward side 25-26m/w From Keeling Isld 25a "Metia" or Aurora solid coral rock 27-32m/29u "northeastern" 336 11u "three hundred", 26u "Rurutu", 28u "high", 29u "lower eminences", 30u "hundred", 30u "three hundred", 32u "part basaltic" 337 5-8m/6u "All|Tonga", 10-14m/12u "layer|thick", 31u "one|height" 338 4-7m, 14-17w Samoan elevtn 2 or 3 18u "two|three" 339

16u "proof|elevation" 341 12-14m 342 24-26m/24u "four|six" 343 19u "one|has", 32u "full|feet" 345 17-37m 346 wt The nature of the slope - (Galapagos ●) Tasman - birds of atolls 351 19-23m 365 1-7m/1-2u↔/4u "of|Hawaii" 394a 1m 394b 1m, 3m 395b 13m, 22m

DANA, James Dwight *Manual of geology* Philadelphia; Theodore Bliss & Co.; 1863 [Down, I]

DANDOLO, Vincenzo *The art of rearing silkworms* London; John Murray; 1825 [CUL, pre-B]

NB 23; 244; 270

φ
23 20-27m/22-23Q 244 1-3m 270 7-11m 349 25-28z

DANIELSEN, Daniel Cornelius and KOREN, Johan *Zoologi: Gephyrea* Christiania; Grødahl & Søn; 1881 [Down] φ

DARESTE, Camille *Recherches sur la production artificielle des monstruosités* Paris; C. Reinwald & Cie.; 1877 [Down, I]

DARWIN, Charles *De Afstamming van den Mensch (The descent of man)* trans. H. Hartog Heys van Zouteveen; Delft; Van Ijkema & Van Gijn; 1871 [CUL] φ

DARWIN, Charles *En Naturforskares resa omkring jorden (Voyage of a naturalist)* trans. G. Lindström; Stockholm; J.L. Törnquist; 1872 [CUL] φ

DARWIN, Charles *Het Ontstaam der Soorten (The origin of species)* trans. T.C. Winckler; Haarlem; A.C. Kruseman; 1860 [CUL, I] φ

DARWIN, Charles *Origine delle specie (The origin of species)* trans. G. Canestrini; Torino; Unione Tipografico Torinese; 1875 [Down] φ

DARWIN, Charles *L'Origine dell'uomo e la scelta in rapporto col sesso (The descent of man)* trans. M. Lessona; Torino; Unione Tipografico-Editrice Torinese; 1871 [CUL] φ

DARWIN, Charles *Über die Entstehung der Arten in Thier- und Pflanzen-Reich durch natürliche Züchtung, oder Erhaltung der vervollkommneten Rassen im Kampfe um's Daseyn (The origin of species)* trans. H.G. Bronn; Stuttgart; E. Schweizerbart; 1860 [CUL]

af, cc, cr, ct, ds, em, ex, fg, gd, ig, oo, phy, rd, sl, sy, t, ti, tm, ts, v

SF □X ⇔ (4 sheets)

Bronn's criticisms for New Edit of Origin

Objects that I cannot precisely say why two species of Rats Hare & Rabbit assumed by selection their present characters – very true I can in no case say this – we know so little of use of parts & laws of correlation.– But I confess, I thus evade every special difficulty. Why one gets round and another pointed leaves.

Objects that in case of two varieties still living in abundance side by side how can intermediate races ♣ have been exterminated – But are there such cases, excluding such vars as albinos.– Do not they inhabit distinct countries or stations – surely this is general rule.–

Do you believe in Brehms sub-species. Have you seen them?

Thinks that variation arising from external conditions are linked together by intermediate – not those produced by n. selection.–

Why of two cells, primordial, one got volition & sensation & other did not.–

Says I ought to answer ♣ whether my primordial forms were created as eggs or full-grown &c.– Admits that vegetable-cell wd come first.

(over)

I think Schmidt says the eyes not so completely grown, at least form more related to those of external world ♣ near extreme of case – ♣

I shd never suppose with respect to his supposed changes in 2 Rats, that first longer or shorter tail & larger ears were acquired, but that all were modified together.–

⇒ Might I not ask Creationist why tail longer or ear shorter? I could not ask this of him who believes that God makes his creation different for mere variety – like man fashions a pattern for mere variety.

(over)

Objects there might @ 100,000 creations as well as one: I agree @ then these would not have borne signs of common descent in homologies & embryology & rudimentary organs.

Some mistakes about my supposing several glacial periods.– Permian & Chalk

"Why shd the process of development have always caused one race rats in all different parts of world" I do not believe so – N. Zealand & Australia.

◆⇒ I cannot see force of your objection because one cannot explain origination of life – the far grandest problem of any – why it wd not be gain to explain or account for forms; if this could be done – so we ♣ do not know what selecting is, but ● this its action.–

I fully agree to your final sentence – & I fully admit the many awful difficulties in my view. (over)

Certainly, as he grants @ that both rats descended from one common parent.

As I cannot justify my opinions in any one single case, so I need not in any.– is as true ♣ as it is severe–

Though I can in no single instance, (except by conjecture, as longer legs of Hare for fleetness & not ● – longer ears to hear with) explain changes ♣ yet the structures &c led me to conclusion.– Laws of Variation will hereafter be understood far clearer

1 wt With

⊗ (missing from p. 463)

DARWIN, Charles *The zoology of the voyage of H.M.S. Beagle, under the command of Captain Fitzroy, R.N., during the years 1832 to 1836* London; Smith, Elder & Co.; 1840–1842 [CUL]

ex, gd, ig, mg, sp, ti

Part 1, 9 wt 4 apparently the *Olivallaria auricular* of d'Orbigny 19–20u "Oysters"/w●, 22–23c/wæ, 22–37m 17 23–28m◆ 28 10c/w already alluded to 11–13m/a "Toxodon" in several cases it deviates from 29 1a "Rodent" 55 13–21m, 20–25m/20w a *Pachyderm* 24a "Macrauchenia"/w animal 72 33–37m 74 19–21m 107 1–2m, 37–39m

Part 2, 17 31–36m 35 13–15m 48 21w△ 12 73 2w 28 81 3–6m

Part 3, NB S Representative species p31; 85◆

85 capital Glacial Representative, not quoted 113 Beaks of woodpeckers muddy at base 67△ intermediate var in intermediate regions 16 (u=colourings) 4u, 5–6u, 9–10u, 10–16m/10–12"...", 29–34m/33u 31 11–13m 34 7–8Q 66 19–20Q 67 29–30Q 83 22–24z 85 9m 108 16–17w Matutina 17c "ruficollis" 113 32m/Q 143 10–12Q

Part 4, SB1 ⇔

Important to find out those genera which have no marine species or migratory species. In these distribution must offer great difficulty.– Are there many? Feb./56/

DARWIN, C., BEAGLE VOYAGE

SB2 Galapagos Fish (list of species)

SB3 □β ⊕

◆ p340 odd about Alpine forms becoming less numerous (rest ◊)

F.W. Fish

p3 True Perch in S. America

p18 Dules R Tahiti – other species Java

p79 Atherina Valparaiso – some in brackish, some salt species

p98

p114 Poecilia Cyprinidae Lebias S. America

p120 Mesites Nov. Gen.

Salmonidae

p123 Tetragonopterus

p131 Aplochiton F.W. Genus Falklands & T. del Fuego

p142 Anguilla N. Zealand

Part 5, 2 12w 111 4 1w 2 5 1w 3 6 16w 4 7
 16w 5 8 1u/5-6u (colourings), 9-14m, 27w 6
 10 1w 7 11 1w 8 12 20w 9 13 23w 10 14 31w
 11 15 33w 12 17 1w 13 18 7w 121 41 3-4m
 51 10-12m

DARWIN, Charles (end of German translation of Beagle Journal?) [CUL]

pat, phy

298 1-17w thinks palm sap owing to life being continued 299 14-23m/w in Challen Id a well person new arriving made all sick – believe in New Zealand

DARWIN, Erasmus *The botanic garden* part 1 and part 2 vol. 1, bound together; London; J. Johnson; 1791; and part 2, vol. 2, 2nd edn [CULR, pre-B, S]

fg, gd, mhp, sp, sx

NB p.8; p197; p200; p202

Species of Plants p.4 to 7; 10 to 26 to 40; p.60; 75; 125; 147; 169; 185; 186; Abstract Dec 1857

p3 & 4 female bending down; p.5 In Genista the pistil Bending round to stamens which last shed their pollen; p.6 Labiatae similar observation; p.16 On Arum preventing Flies escaping (Ch. 3); 60 seeds of Tillandria found sticking to trees; 169 Amoen Acad on Rams giving fleeces

vol. 1 title page *wb* Second * part 1790 which was published first 8 23-31m 9 1"... 197 15-17m 17u "the bush", 20-21m 198 15-1m/w(FD) 200 14-16m, 21-22m 202 17-20m, 22-25m (White)

vol. 2, part 1, 4 18-20m 5 8-11m, 15-18m, 20-24m 6 9-12m/8-15w These facts do not appear to me impossible, though Sprengel

denies them 7 12-17m (Linnaeus), 19u "with only" 10 11-15m 12 15-18m 14 12-15m, 19m/u "two different", 23?/u "approach pistil" 16 11-20m 17 30-32m/31u "letter with" 26 14-2m 38 20-22m 20u "Caterpillars which", 26-27m 26u "The lark" 39 11u "those green" 60 22-24m 23u "with on" 75 14m 76 8-9m 107 15-19m 121 11-15m 125 20-22m 146 23-25m 147 15-23m 148 18-20m 149 7-9m 169 19-20m 185 2-6m 186 4-21m

DARWIN, Erasmus *The botanic garden, part 2* vol. 2; Lichfield; J. Jackson; 1789 [CUL, pre-B]

DARWIN, Erasmus *Phytologia* London; J. Johnson; 1800 [CULR, pre-B, S]

beh, br, ch, che, cs, fg, mhp, pat, sh, sp, spo, sx, tm, y

NB 45 leaves closing in rain 95 96 99 102 106 108 114

116,8 – direct action of pollen of beans V. faba○

137 148 181 324 320 350 379 451 452 501 532 535 541 543 545 568 570 579 583

p207 215 Phosphorus not enough attended to but he thinks shells contain an abundance 217 use of Straw○

SB □β

106 Q Case of broom other plants bending pistil to late anthers, I doubt

116 Most curious case of rows of Beans, crossed Bath Soc. vol. 5, p.38

451. 1746 a Mr Cooper selecting his vegetables with care, & evidently independently (shows how it may have gone on) & with this care, does not find any change of seed. necessary. Quoted from Communications to Board of Agriculture

532 On Gout produced by intemperance. children can bear less.

568 Phytolacca 1 species with 20 stamens, another with 10, & another with 8 & 8 Pistils & another dioicous – Properly Decandria & Decagynia○

2 3-4m 45 9-13m 55 10-12m 76 31".../32m 77 1-3m, 9...", 27-29m 79 29-32m 95 1-12m 96 10-16m/w will not account for sporting 97 16-19m/w How do Horticulturers propagate these 99 1-3m 102 1-5m 106 11-32m/w shows that stigma long remains susceptible of impregnation 107 1-9m 108 10-19m, 28-32m (Bonnet) 109 6-9m 114 13-18m, 21-32m 115 24-32m 116 1-3m/3-1m/11c "See work"/ 22-28m/2-28w important shows extent of crossing 117 21u "Vol. Academic"/18-21m (Schreber) 118 5-7m, 20-29m/22u "plants his"

119 4-8m 137 7-15m/11u "Fordyce" 148 19-21m 181 1-5m 207 19-20m/19u "universally|vegetables"/20u "sufficiently|to" 209 15-16m 211 6-8m 215 6-9m, 7m 217 6-10m 316 13m 320 1-4m 324 24-32w so that Sir G. Sebright explanation of ill effects of breeding in & in - same as my grandfathers for diseases in old trees 350 3-9m, 29-31m 379 27-32m/? 433 1-2m, 6-7m 451 1-5m/w good 7-14m, 19-23m, 28-32m 452 2-5m, 25-30m, 28-29m 467 9-12m 501 16-18m/18u "after flowering" 531 1-9m 532 10-15m, 19-25m 533 14-18m (Linnaeus) 535 2-4m (Linnaeus)/4u "Tracts|Hist." 541 18-22m 543 18-25m 545 16-19m/16u "Philos.|Nature" 557 7-10m, 18-21m, 22-25m/24u "old organizations", 30-32m 559 5-8m 568 4w Fish? 6-10m/6u "the|organs"/w is this so? 9w Lamarck 11-30m 569 2-16m 570 1-3m 577 27-29m 579 17-20m (Murray) 583 20-23m

DARWIN, Erasmus *The temple of nature* London; J. Johnson; 1803 [CULR, pre-B, S; 2 copies, one unmarked] beh, cr, phy, tm

NB O/
p54 In Man fundus not over opening of urethra; 63; 134
notes p.1; p.18; p.25
124 Love your mother as yourself
54 consonant to the dignity of the Creator of all things
Notes
120 Machine to speak
87 Reference to my Father on Spectra vol.76
p11 - advantage of * Power Microscope

54 12-13m, 26-28m/24-28[...] 63 26-27m 68 11-18m 73 13-17m 124 13-21m (Socrates)/17-21[...]/18c/19c 134 5-8m, 5-6m
Notes, contents "270"m, "295"m 1 20-21m 11 5-9m 18 3-7w external or internal yolk sac - means of passage= 6-8m 23 2w ♦ Read 25 15-19m 33 3w ♦ Read to p.36 45 20-23m 120 7-14m/8-12"...", 21-27m

DARWIN, Erasmus *Zoonomia* 2 vols; London; J. Johnson; 1794-96 [CULR, pre-B] beh, cc, ch, ds, gd, he, ig, pat, phy, sx, t, tm, v

vol. 1 NB1 23; 24; 46; 50; 52; 55; 57; 103; 104; 108 Malebranche gustation; 114; 130; 142; 140; 147; 148 Expression; 150; 152 Expression; 154; 160; 162; 190 I must show habits descended and then ◊; 192; 201; 203 whole chapter on sleep very good & all

marked; 214; 242; 253; 265; 267; 268; 269; 423 expressions; 425; 427 - good yawning; 483; 487; 502; 504; 505; 509; 510; 517
NB2 p.183 centipedes cutting worm into 2 pieces

SA (pp. 504-5) □β

140 Q An infant soon forgets to suck - if calf once sucks cannot be ● up by hand

160 Q Kitten covering spoonful of water. Etty○ shaking foot, when it heard water

191 Compares Music with Instinct & when putting nose into glass

504 Lamarck concisely forestalled by my Grandfather

508 Teats on sheath of Horse (& in Mule) - Plato thought that all animals Hermaphrodite

12 14-19m 23 7-20m/8w (a) wb (a) This is strange as hungry men never dream of hunger 24 6-32m 46 6-21m 50 17-19w instinctively so 52 2-4m 55 12-15m/w the mouth alone repeats the sensation 57 8-10m, 13-29m/29u "whole skin" 58 1-9m/w hope is mental desire 99 27m, 31m 103 22-25m, 29-32m 104 7-16m 105 19-31m/23-27w does habit imply having ideas? 106 30-32m 108 22-25m/w as soon as we became locomotive 114 8-15m 139 8-17m (Haller) 140 5-7m, 20-26m (Harvey, Hippocrates) 148 14-18m 150 5-13m 151 11-14m 152 18-20m/w Sir C. Bell says because he looks back 154 12-14m/w Ding to dogs in S. America 30-32m 160 15-21m 162 17-21m, 28-32m 182 9-12m, 19u "flesh|instincts" 183 9-17m 190 28-31m 191 wt There appears to be perfect gradation from concatenated movements of which is only partly unconscious.- to those which by no effort can be recollected yet, but yet one does by instinct & habit.- 1-5m, 7-11m, 13-15m/w & indeed the more she does the better wb all this is the reverse of intellectual power 192 19-24m 194 8-17m 195 24-28m 197 4-6m 199 21-24m/w no consciousness ↑4-1m 201 19-22m 202 25m 203 1-14m 207 22-27m 208 4-10m 213 4m/x 214 11-13m 215 13-16m 216 19-22m 219 1-5m/2u "tremulous convulsions" 242 22-25m 253 1-2m, 4-7m/w tastes hereditary do 16-20m 255 15-18m/w ♦ tooth on edge sound, when earth is crushed between teeth - hear similar sound 265 4-8m 267 13-20m/18-19u "sensation"/w ♦ I think this is 22-23m/w only by drying the mouth 268 20-23m, 24-27m, 28-31m 269 21-25m/22-27w is there or not a muscular contrivance to expel this 270 16-23m 273 16m 339 ↑7m 356 14-17m/w Vide 359 3m 387 19m 409 7m/x 421 12m ♦ 422 7-10m, 14-16m/14u "exertion

DARWIN, E., ZOONOMIA

of", 24-25m 423 15-19m, 29-31m, 32m/w over 424 25-32m 425 7-9m, 11-24m, 27-31m 427 wt yawning. stretching fidgets (see Dr Holland) convulsions affecting the voluntary muscles - muscles of jaw, perhaps soonest brought into action & likewise perhaps connected by associations with ♣ digestive powers & therefore soonest gives relief. 7-9m/w hence yawning attacks these muscles 431 24m/x 433 5m/x (Helvetius) 435 9m/x 455 9m/x 456 15m/x 483 26-28m/27u "polygonum viviparum" 487 10-19m 500 22-24m/[...]/23u "lactescent women" 501 1-5[...], 3w (not CD) 502 13-26m, 26-31m/w Bell Bridgewater Treatise argues against this 503 8-16m, 25-28m 504 6-16m/12-16"..."/11-13w Lamarck!! 505 1-3m, 5-7m, 7-11m, 12-18m 506 wt Sir Charles Bell perfectly confutes all this 7-13m/7-23w May be quoted, to show no more wonderful.- if merely proved a law of nature we are accustomed to the former. I attempt to show means - which is impossible in the one animal 507 7-10m, 10-11m/x/w variation 19u "learned"/19-20w what an assumption!!! 508 11-32m 509 4a "generation"/wt aided by endless attempts, of which only few are preserved.- Vide Hume's works 1-4m (Hume), 17-24m 510 27-32m/w This pro the Dr 511 1-8m 512 15-16w sex of Bees changed by food 514 3-11m 517 8-14m vol. 2, 40 4-8m/5w(CD?) 43 1-6m 46 12-15m 145 1-19w (not CD) 352 17-31m 573 2u/w (not CD)

DARWIN, Robert Waring *New experiments on the ocular spectra of light and colours* London; J. Nichols; 1786 [CUL]

DARWIN, Robert Waring *Principia botanica; or, a concise and easy introduction to the sexual botany of Linnaeus* London; Longman, Hurst, Rees & Orme; 1810 [CUL, pre-B]

DAUBENY, Charles *A description of active and extinct volcanos* London; W. Phillips; 1826 [Down, pre-B] geo, mi, ti

94 21-25m/22-23w A 95 6-12m/8-9w A 104 30w Miocene 105 15-17m, 23-31m 170 15-16w (not CD) 171 13-14w (not CD) 180 18-27w Covington copy 28-39m, 28-34m, 30-39m/ "..."/36-37u "frequent matrix" 188 11-15m/w A 265 13-22m 266 7"...", 11-24w This is correct is taken from chart of the Azores by Reade 13-24m (von Buch), 20c/w€, fig.w♦ fathoms 24"... 267 zb 270 27-33m, 33m 272 11-12m/11u "Madagascar" 273 1-2m 312 9-

16m 313 20-26m 323 16-17m/w Carteret in new Britain V. Krusen 324 wt New Britain Carteret saw spouting 1-4m, 5u "Ahryn", 7u "Tanna" 325 12-19m 326 1-6m 334 18-27m 343 27-30m 350 1-35m 351 1-11m 361 21-25*/25m, 27-35m/34w€, wb * Do either of these periods include 3 Caracas & Quito case of connect 386 9-11m/10u "pearly lustre", 26-28m, 35-37m/35u "nepheline leucite" 387 18-27m, 26-33m 388 1-6m 401 1-12m/2-5w♦ Not in shifting sands 402 10-35m

DAUBRÉE, M. *Études et expériences synthétiques sur la métamorphisme et sur la formation des roches cristallines* Paris; Imprimerie Impériale; 1860 [Down, I] ø

DAWKINS, William Boyd *Cave hunting* London; Macmillan & Co.; 1874 [Down] wd

NB Used; 77 Domestic Anims; 78; 137; 382 77 25-31m 78 2-8m 137 2-13m, 15-21m 382 25-29m

DAWSON, James *Australian aborigines* Melbourne; George Robertson; 1881 [Down, I] beh, oo

NB White louse beaten out by black louse - p.13 p.90 Change in Habits in Opossum 13 1-5m 90 25-33m ø

DAWSON, John William *The fossil plants of the Devonian and Upper Silurian formations of Canada* Montreal; Dawson Bros.; London; Sampson, Low, Son & Marston; 1871 [CUL, I]

74 21-32m 77 8-13m 80 7-10m, 22-26m

DEFRANCE, M. *Tableau des corps organisés fossiles* Paris; F.G. Levrault; 1824 [Down, I by F.W.H.] ø

DE LA BECHE, Henry Thomas *Researches in theoretical geology* London; Charles Knight; 1834 [CUL, on B] che, geo, mi, t, ve

NB1 Every mountain chain may be considered as the ruin of an earthquake aided or obliterated by time! It is vain to bring first & other causes to bear they are comparatively insignificant.-

♦ 192; 198; 219; 242; 252; 293; 297;

greenstones traversing granites serious drawback –

NB2 ♦ 12 Spec Grav of Limestone–; 13 on Sulphur; 34; 43; 44; 53; 58; 95; 97 to 100 to 109 &c. Cleavage; 128; 131 When considering M. chain; 141 Hence value of unitary System enters; 147; 151; 177 futility of lake theory well shown

12 30–34m 13 24–30m 14 1–13m 31 11–12w of silver 34 5–9m 43 1–12m, ↑15m/wb If so absence of ice in Arctic region proof of heat of bottom 44 1–4m 33 30–34m 58 7–17m/12–16w I cannot understand this 15–22m/17–18w No 19–33m/x/wb Study Mr Palmer's papers in Royal Transactions 60 19–20m, wb Something wrong because breakes from sea and swell nearly similar 61 1–31m 62 1–33m 63 2–12m, 15–27m 74a 15m 74b 4m, 9m, 10m 75 11–12m, 12–14m 93 wt lquique 1–13m 95 wt with respect to obsidian 3–30m 96 5–27m 97 19–28m/25u "subsequently"??, wb whilst soft because lime blends with clay wb lquique wb anhydrite 99 14–22m, wb Fissure seen other○ to determine convulsing action.– Hence veins of quartz in many rocks. 100 13–33m/32–33m, wb Hollow concretion 101 12–17m 103 3–8m 104 2–15m 105 14–33m 109 4–25m 111 22–30m 128 wt Falkland lsd 1–8m 129 6–22m, 12–15z 130 24–26m 131 4–11m 132 10–31m 136 11–16m 141 17–26m 147 13–25m 149 28–34m 150 wt Hence carbon removed from primary rocks – hence hydrogen & nitrogen 151 wt X Thence all the bituminous rocks, layers of shales, because carbonic acid decomposed water 10–26m 160 15–28m 177 6–24m, wb applicable to Terraces 192 26–33m 193 1–33m 194 1–15m, wb formed by beaches 198 wt as long as stream rapid form gorge straight (why?) then zigzag, widen it, but could not produce sloping tub 12w V. p200 200 11–18m, 19–21m, wb ♦ hence gorge straight 212 12–31m 213 1–15m 219 10–31m 220 11–19m 221 13–32m 242 24–28m 243 1–9m 252 wt where underdraught not too strong.– 5–23m/!!!, wb how can the part above the sea determine the action, submarine part may do so.– 267 16–28m 292 wb Mem. carbonic Acid in Springs– 293 12–19m, 33u/! "...", wb Insist upon thickness in Cordillera however difficult to understand 297 2–17m 407 23–27m/24a "Voluta" O/

DE LA BECHE, Henry Thomas *A selection of the geological memoirs contained in the Annals of Mines* London; William Phillips; 1824 [Down, pre-B] ∅

DELAGE, Yves *Contribution à l'étude de l'appareil circulatoire des Crustacés édriophthalmes marins* Paris; A. Hennuyer; 1881 [Down, I] ∅

DELAMER, Eugene Sebastian (Edmund Saul DIXON) *Pigeons and rabbits in their wild, domestic and captive states* London; G. Routledge & Co.; 1854 [CUL] br, che, geo, oo, v

NB1 Carbons; Salt & Old Mortar & gravel to floor Runt; Turbit?; Almond-Tumbler; Carrier; Fantail; Powter

NB2 p.1; p.2; p.22; p.38; p.51; p.53; p.66; p.68; p.69; p.70; p.72; p.75; p.77; p.82; p.95; p.114 good one Rabbit outbred other; p.133; 139

SB □β

95 Rabbits probably in Caesars time in Britain

114 If Warren stocked with Grey & Silver the latter will soon be bred out (on var. beating another Ch. 5)


141 Rabbit with longest ears known 22 inches and this length of ear great point.–

136 do not breed true.

1 19–23m 2 20–35m/22u "Columella" 3 29–33m 14 zb 17 23–25m 18 27m, 28m, 31–32m, 35m, 37m 19 3–4m 22 10–14m 30 14–16m 32 34–35m 33 7m, 35m/u "twenty inches" 34 2–15m, 34–39m, wb Brick next Pan 35 22–23m, 30–32m 36 12–14m 38 12–17m, 25–27m, 27–28m 41 23m, 37–38m/38u "bay salt" 42 26–28m/27u "cumin" 43 12–14m, 15–16m/16u "old mortar" 44 12–14m, 30–31m 46 9–11m 51 28–33m 53 24–31m, wb marked to end 54 38–39m 56 2–7m, 8–12m, 21–23m/21u "pair"/22u "two | more", 34–39m 57 8m, 26–29m, 32–34m 58 9–11m 59 27–29m 61 22–24m 63 16–19m, 21–39m 65 1–4m 66 8–16m, 27–29m 67 29–36m 68 2–12m, 25–35m 69 3–11m, 33–37m 70 15–20m, 34–38m 71 25–31m 72 30–35m 75 17–25m facing 76 fig.w fig.5 Copied from Mr Delamer 77 28–39m 81 14–15m 82 7–10m 95 12–22m 114 9–15m/10–11Q 133 20–39m/→ 134 15–22m/18u "Angora rabbits" 135 14–18m 136 6–23m, 9–18m, 12–15m 137 2–6m, 13–17m, 33–36m 139 33–35m/33?/u "seveteen | ear", wb See next Page 141 5m, 32–33Q, 36–39m, 36–39m

DELGADO, Joaquim Filipe Nery da *Encarnação Sobre a existencia do terreno siluriano no baixo alemtejo* Lisboa; Academia Real das Sciencias; 1876 [Down, I] ∅

DELPINO, Federico *Ulteriori osservazioni sulla dicogamia nel regno vegetale* Milano; Giuseppe Bernardoni; 1868–1874 [CUL, S] cc, ct, fg, mhp, oo, phy, sx, t, tm

NB1 

 p.16 *Utricularia* (rest )


91 *Goodenia*

170 *Passiflora princeps*

p177 In Liguria 1/3000 of *Ophrys araneifera* only get seed; a good many more near Florence

188 *Marcgraviacea*



224 *Ceropegia*


62 George  Has seen Bees, not *Bombus* visit flower of *Trifolium*.–

NB2 On Anemophilous Flowers (very full & good)

NB3 337; 342 *Pontederia* trimorphic

Cephalanthera Grandiflora  – p149, 150 Orchids

154 –  male more conspicuous & visited first 

123 + 124 *Ophrys* 

(here also Pt 2)

orchids p61–62; p60 *Laburnum*

L. Mortigon 

NB4  *Arumi* p18

SB ; 

p61 Great *Laburnum* flower

62 *Serapias* perhaps gnawed

63 Calyx commestible long discussion on

121 says Sprengel right & M. & I wrong about nectary & lower flower only visited False drops of nectar.

149 *Cephalanthera ensifolia*

150 Waechter – news of explosion of *Neottia*


See Part I on *Ophrys*




(over)

; 

Much on Orchids in Delpino Part II 211f *Osservazioni*

Part 1, 6 4–9m 14 23–26m 15 20–22m 16 2c/ae, 30–35m 22 11–14m 29 29–32m 33 14u/wt 35 11–14m 51 19–21m 52 2–7m 59 23–29m 62 1–9m 75 24–26m 118 22–23m 119 5–8m, 35m 121 27–31m 122 1–2m 144 23–27m, 29–35m 148 7–10m 149 17–19m 158 15–17m 173 3–5m 176 11–13m 177 16–24m 188 6–8m, 15–16m 198 7–8u/wt, 10u/wt 202 4–6m 229 26–29m 258 31–33m

Part 2, fasc. 1, 22 7–9m 24 13–15m 25 15–18m, 23–25m 37 1–6m fasc. 2, title page w 21 *Ruppia* 24 59 31–35w cells 60 32–35m 61 29–32m (*Fritz Müller*)/29–35w Kind of powder attraction to visit loose  cells 62 7–10m, 23–27m 63 4–17m (CD), 20m, 22–31w Calyx &

Petals attractive to be gnawed 121 6–34m/w thinks H. Muller & self wrong & Spengel right about false nectary – says only first flowers visited & then bees find out mistake – and that only few pods get 122 2–16w says cold accounts for bursting of *Epidermia* cells within the nectary 30–31m, wb Other plants with false  & true nectar-pollen both on same plant. Mem How long it is before nectar secretes 123 1–29w Despises idea that nectar an excretion & supposes false drops are rare excretion.– (Mem. common Laurel && *Vicia*.– wb Shining swelling like nectar & drops of true nectar on same plant. – thus explains case of *Ophrys* – *Liperzia* a case – I shall believe when insects seem to try & suck.  124 22–27m 149 9–42m/9–39[...]/w *C. ensifolia* 4 pollen-masses.– Viscid matter from stigma probably besmears backs of insects & thus pollen is carried 150 1u "*Periplocea*"/1–4m/w like Orchids 13–40w W apparently did not know of CK Spengel, but was well aware of necessity of insects for fert. of Orchids & describes well the fert. of *Neottia*, viz. explosion of  154 10–11m/w Read 25–32m, wb It explains male fl more conspicuous than female fl so as male to be visited first 155 28–34m (*Buchan White, Spengel*) 158 34] 210 13c~~e~~ 337 wt Dimorphic one protogynous & proterandrous 2–3m/[338 30–35m 342 2–4m 343 15m/w Read 27–28m/28w Read 344 1–7m, 21–24m, 24–29m/25–26w Read 346 11m, 12–14m/15w Read 347 19m/w Read 348 8m, 10m/w Read 14–15m 349 25m/w Read 351 31m


DENTON, William *Is Darwin right?* Wellesley, Mass.; Denton; 1881 [Down]

DESCRIPTIVE AND ILLUSTRATED CATALOGUE of the fossil organic remains of *Mammalia* and *Aves* contained in the Museum of the Royal College of England London; Richard & John E. Taylor; 1845 [Down, I by President and Council]

DESMAREST, Anselm Gaëtan *Mammalogie ou description des espèces des Mammifères* Paris; Veuve Agasse; 1820 [CUL, pre-B] beh, hy, phy, rd, sp, ss, sx, sy, tm, v, y

NB (<  up to "")

p481; p840 to; p.499; 434; 437

Dog p190; Cats p233x  Tortoiseshell; 391

414 Hybrid Zebra & Horse

499 Ox

p347 Rabbit white star on forehead Important So silver grey has this when

young on head – I think Fancy rabbits have star on forehead No Brent says not particularly often

439 Cervus of Marianne Isld

☞ p193 (he means 198) Canis jubatus with curl of Hair along back female not differ from male Sexual selection

p392 Babyroussa female with lower canines smaller than male.– Wd Bartlett kn any waits (ie weights) & body proportions of animal SB □β

190 Classification of Dogs – nothing particular, but I daresay good

233 Tortoise-shell cats all female

347 Young Hares always white star on Forehead (Silver Grey Rabbit has this)

391 Mongolia Pigs when young are striped

414 Hybrid Zebra & Ass band on legs

421 Corsican Pony small

430 Cervus elaphus smaller than common form

437 Cervus Marianus bad specimen – Sumatra species very close to

480 Goats, Horns absent in female of some Races – Horns differ in sexes & abort in some vars, either in one or both sexes

488 Wild Mouflon. Female either with small Horns or destitute of do

500 Little Zebra, Horns rudimentary periodically cast (like Deer Horns)

Do not mow but grunt

504 S. American cattle several varieties! Perhaps from different stock introduced

47 wt Primates to p. 107 61a 17–19m, 18–20m 61b 20u±, 48–50m 65a 42u↔, 53–54u "somet|crête" 65b 1–2u "parties|chair", 4–16m/4u "Sensiblement|petite"/8–9u "crêtes|saillantes"/12–13u "canines petites"/12m/w Canines 16–17u "là|occiput", 29–30m/u "indice|vertex"/w yet male 66b 6–15m, 16–18w see p65 20–24m/21u "par|touffus"/22u↔ 67a 21–23m 67b 14–15u "dout|cornet"/w ear 45–49!, 50–51u "poils|haut" 68a 1–4m, 1–3m/2u 68b 1–2m 69a 38–41m 69b 35–36m, 36–37m 70b 34–35m, 44–51m/44–50m 71b 19–30m/20–21u "par|pelage" 75a zt, 3m, 24–27m 75b 4–8m, 17–18m 79b 28–35m 80b 35–37m 98a 21–29m 100b 10–12m 101a 1–6m 107b 34–36m 189b 16–18m 191a wt xxx 195; xx 292 191b 37–38w Greyhound 192a 16–17m 193b 17–20m/18u "Chien courant", 38–42m/39ud 194a 24–27m 195a 30–31m/30u 195b 8–9m/8u, 8–9u, 34–41m/36u, 46–50m 217b 28–30m 219a 50–52m, zb 223a 37–42m 233a 3–5m, 22–23m, 43–49m, 50–51m 233b 23–24m, 30–31m, 37–38m, 50–53m, 55–57m 241b 3–7m 241a 25u "mâle adulte",

27–28u "Cariné|moyenne" 243a 17u "improprement|blanc", 20–28m, 20–23u±, 27u "marron|noir"/29u "reste|est", 33u "bifurcation|les", 51–52m 246b 15–19m 249b 46–51m 250b 42–44m/43–44m 253a 9–11m 256b 46–47m 267b 24–27m 304b 35–38m 347b 2–4m/w is this not common character of Rabbits? 349a 49–52m 349b 55u "Mais|terriers" 350b 4u "ne|terre", 46u "queue|dessus" 351a 43–44u "une|joues" 351b 8u "ne|terriers", 37u "un|sous" 352a 17u "ne|terriers" 387b 48–50m 390a 15–18m, 23–24u "canines|défences" 391a 31–33m/w RoD Q, 44–46m/44u "oreilles", 44u "très|pointues" 391b 1u "Siam", 2u "Guinée" 410b 17–19m 412a 23–24m 414a 12–22m/15u "la|membres" 421b 14–19m 425a 32–36m/33–34Q 427b 5u 429b 15–17m 433a 46–48m 434b 38–40m, 44–50m 435a 40–47m 437a 3–6m, 12–13m, 19–25m/20u "envoyé|Sumatra"/21u "à|voisine" 438b 53–55m 445a 22–27m/23w Horns 36–38m 450a 22–25m 452a 37–38m/w female hornless 453a 10–13m/w hornless 453b 53m 454a 42–43m/43u "Corine" 455a 27–28u "brosses|pouce", 38u "brosses|larmiers", 37–39m/w Horns smaller 455b 31u "celles|minces"/w Horns smaller 32u "les|corine"/w p454 457b 28–30m/29u "dans|seulement"/w 17 species 466b 28–33m/30u "dans|sexes"/w 2 species 468a 30–34m, 44–45u "existant|seulement" 470a 3–7m/4u "couleur|généralement"/w Hornless 470b 30–34m/32–33u↔/w Hornless 471a 3–4u/m/w 1 species 471b 12–13m, 41–42u "quelquefois|femelles" 473b 18–19u "Cornes|sexes" 476a 54–55m/w Hornless smaller 477b 42–44m 480a 45–47m 481a 32–34m 482b 34–37m/34–35u "les|uniformes" 483a 31–35m, 47–50m/48u "qu'en|étant", wb x differ in sexes & abortive in some vars. 483b 17u "Point|temps" 485a 12–15m, 23–24m 485b wb 10 varieties in world 487a 43–46m 487b 33–37m/34–35u "des|mâles" 488b 25–27m 491a 8–21m, 45–48m, wb 8 vars with subvars. no particular account of French vars. 492a 3–7m 493a 13–17m 498b 30–32m 499b 19–21m, 27–29m 500a 10–12m, 12–14m, 24–26m, 30–31m, 33–40m 503a 2w Holland wb 16 French vars of which one said to be introduced from Holland – some of these vars. have sub-vars. and there is appearance of truth about whole account. 503b 42–47m 504b 3–12m, 17–20m, 29–31m, 41–45m 505a 20–26m

DEVAY, Francis Du danger des mariages consanguins 2nd edn; Paris; Victor Masson; 1862 [CUL]

beh, br, he, mn, pat, t, v

DEVAY

NB p97 Close interbreeding cause of mutants?

p103 Albinism very unsightly inheritance

p116 correlation of Deafs & Blinds - Cats

see Boudin p125 Deaf-mutes

p141 Ohio laws against marriage of cousins
Q₂

97 24-28m/25-26Q₂, *wb* Fish & Dogs are
103 7-8m/8u, 11-18m 117 26-28m 119 17-20m
125 21-24m/7-24w if true cause of variability
141 21-26m/23Q 142 3-11m

A *DICTIONARY of chemistry* compiled by A. Ure; London; Thomas Tegg; 1823 [CUL, pre-B, S]
che

NB1 *cc*

Mem 1880 Assuming our well water to contain 15gr of Hard \clubsuit Matter per gallon (some water contains 20) it would require 20gr (say 21gr) or \uparrow sample to gallon to precipitate the Lime - It is said that oxalic acid is poisonous when 2 or 3 drachms (ie 60 x 2 or 3) are taken.

NB2 *cc*

ix 28-29u "Evaporation | dew" xi 5-9m 74a 10c "by"/10-59w carb of amm of shops carb A 55 Amm 30 Water 15 75a *wt* Nitric acid 731/3 262/3 nitrogen 8-46w Org carb of am 56 carbon & 43 ammonia *wb* Amm 82 nitrogen 17.6 hydrogen 75b 49u \leftrightarrow 80a 59u "= 4.5" 157a 39u "17.64" 385b 9m/u "16° colder" 386a 44-46m 386b 43-46m 387a 25-39w swandown best substance 387b 36-39m, 40u "Charcoal | rust", 42-43m 578 *wtcc* 582a *wt* Ammon. a.-Chrom. a 10m \diamond , 11m, 12m, 14m, 15m, 16m, 17m, 18m, 19m, 20m, 21m, 22m, 23m, 24m, 25m, 27m \diamond , 28m \diamond 584a 2-26m, 45-50m 587a 26-29w/35-36w/52w/57-58w/64w (weights of meteors) 587b 3w/4w/7w/19-20m/w/24-25w/34-35w/37-38w/41w/45w/51w/55w/60w (weights of meteors) 588a 4-5w/12w/16-17w \diamond /22w/31w/36w/54w (weights of meteors) 806a 17-18w cc , 19m, 30m, 37m 806b 18m 807 zb 810 *wb* 100 = 180 811 table divided by red and blue vertical lines, *wb* x/x/x/x \clubsuit 814 4-10w cc

A *DICTIONARY of chemistry* compiled by H. Watts, 5 vols. & suppl.; 2nd edn; London; Longmans, Green & Co.; 1871-1872 [Down]
che, phy, tm

vol. 1, 118 33w cc 125 *wt* Morphine 591 5-7m 727 28-30m/29u "1/1000" 781 15-26m 866 41-46m, 54-62m 922 36m

vol. 2, 21 56-64m 639 11-13w Albumin &

Oxygen 60-64m/62u "homogeneous substance" 640 30-37m/32-33u "albumin | composition" 643 47-49m 829 15-17m (Liebig)

vol. 3, 721 28-33m, 55-60m

vol. 4, 199 57-60m/60u "and | acids"/w | used best of common 730 3-7m

vol. 5, 349 37-40m 950 16-33w the products of organic \bullet which have played their part in the animal organisation 20-21u "the | oxidation" 1016 1-6m, 18-21m 1019 5-8m 1020 65-66m 1021 1-7m
supplement, 974 4-13m

A *DICTIONARY of the English language* compiled by S. Johnson, 2 vols.; 4th edn; London; W. Strahan; 1770 [Down, S of Josiah Wedgwood]

DICTIONARY of the Spanish and English languages compiled by Newman & Barrett; 5th edn, vol. 1, Spanish-English; London; Longman, Rees & Co.; 1831 [CUL, pre-B]

NB rebotar to rivet; chiquechaque, a Sawyer 75 12-17m, 60-62w rummage 84 *wt* nasty, narky 446 30-32m

DICTIONNAIRE classique d'histoire naturelle vols. 1-17; Paris; Rey & Gravier; 1822-1831 [Down, pre-B, on B, S in vol. 1]
beh, gd, sx, tm, v

vol. 1, 17b 17-22m/19-20u "Celle | analogue" 323a 52u "Aurifera", *wb* no Gymnoflora. 323b *wt* 1815. 3u "Lepas", 4-9m 324a 16m, 20m, 28m, 32m

vol. 2, 145a 11-15m/15u "Balanus" 146a 45-48m 451a 5-22m, 13-15m, 23-25m

vol. 3 SB Article Chameau; 450 Nothing; Balancement; Bones & Hair correlation; But see the references to "Anatomie" & "Armes" 97a 10-14m 98a 9-13m/10u "bifurcus" 376b 39u "au | mai", 41-43m, *wb* males an interval of eight mnths 447b 18-21m 448b 28-33m 450a 19-21m, 21-26m/w In Brompton \circ Dog reverse 49-52m, 50-54m 451a 52-54m 451b 6-9m, 24u "deux | garrot" 452b 20-23m, *wb* 3 varieties 454a 53u "Don | Theran" 454b 27-29m, 43-45m/43-44u "une | Alpaca", 50-54m 455a 1-6m

vol. 4, 8a 18-24m (Cuvier)

vol. 5 SB 274 on Cyprinus; 277 on varieties of Gold Fish -
118a 14-16m, 17-18m, 24-25m, 28-32m, 34-41m, 43-47m 261b 1-5m/3u \leftrightarrow 262 1-5m 274a

9u "guère que" 274b 21-27m 275a 49-52m 276b 27-40m, 47-54m 277a 2-10m, 8-10m, 14m/u "une grosse", 20-43m/31-33m 277b 18-20m, 46-47m 278a 3-5m, 8-9m

vol. 7 SB 499. frog introduced from Madagascar into Mauritius

120a 17-21m, 47-49m 120b 5-9m 121b 28u "quinzel queue", 35-39m/36w Pte 122a 32-34m/32-33u↔ 122b 15u "une retardé"/13-16m/Q 137a 24-25m 487a 26 "Grefte".w read 488a 24-29m 499b 46-54m

vol. 8, 274a 29-32m, 31-34m, 33-34m, 36-37m 324a 17-18m 329b 23-24m 336a 30-54m 405a 29-31m, 34m/u "M.S.Ch.E."/wb Kolreuter↔ refers to these 405b 2-7m, 26-28w Potato, Dahlia 28-38m/29-39m/29u "les espèces" 406a 7-17m, 39-40m 406b 4-8m, 8-21m, 43-47m/46u "ovules avortés", 52-54m 407b 5-10m/??/7u "de structure" 467b 8-12m/w teeth like points

vol. 9, 150a 48-53m 151a 9-16m/9-16m 324a 36-41m 324b 11-25m 428a 25-26u "seconde mâchoires"

vol. 10, 121a 3-6m (Buffon), 15-23m, 30-34m/31?/32u "entièrement" 121b 3-5w only colour 34-36m, 37-38m 492a wt What direction did it arrive How many degrees of Longitude 30-32m 569b 33-43m

vol. 12, 305a 43u "clitandre", wb Preface 305b 23-24x, wb Preface 39-44m/w explanation of diffren. 48x/u "rétinacte", 50-54m/53?/u "Belardia" 306a 18-21m, 22-23u "illogé" 307a 14-21m 307b 16-19m, 42-50m

vol. 13 NB Lesson; 419 Sea Elephant Penny Encycl & Vries; 402 Stematope F. Cuvier & Gratton 361a 22-26m 361b 14-20m, 21u "plages", 22u "entièrement découverte" 402b 40-43m 418a 45-54m/46-47u "à lamours" 418b 1-5m, 32-37w Polygamy 39-41m 419a 13-14m/u↔, 25-28m 610a 38-40m/38u "Rana Pipa"

vol. 14, 10a 25-27m (Lamarck) 10b 48-51m 131b 29-30Q

vol. 15, 18b 30-31u↔, 33-34u "entièrement verdâtre", 35u "roux", 36u "élevées"

vol. 16, 195b 24-25u↔ 194a 45u↔ 196a 48u "Tetrao lagopus" vol. 17 ♂

DICTIONNAIRE raisonnée, étymologique, synonymique et polyglotte des termes usités dans les sciences naturelles ed. A.J.L. Jourdan, 2 vols.; Paris; J.B. Baillièrre; 1834 [CUL, on B]

vol. 1, 286a 45-49m/47-48u "nom Candolle", wb Coelosperms 286b 1-2m 342a zb

DICTIONNAIRE DES SCIENCES NATURELLES, Planches Paris; F.G. Levrault; 1816-1830 [CUL] che, v

NB Vol with Conia 1818

Lépadiens w PL. 115, fig. 3.w x (2) back of plate 2 same size as B tulips in Brown - 2a good size for valve; all same size Balanides (first plate) wt PL 116↔, fig. 2.w | largish fig. 5.w versicolor or Mitra colour. back of plate 1.- size of B. suleatum in Brown 4.- size of B. perforatum in Brown Balanides (second plate) wt PL 117↔, fig. 1.w 3d size fig. 4.w 2d size

DILLWYN, Lewis Weston A descriptive catalogue of recent shells arranged according to the Linnean method with particular attention to the synonyms 2 vols.; London; John & Arthur Arch, Cornhill; 1817 [CUL, pre-B] gd, v

vol. 1 SB ↔ (CD copies out detailed summary of distinguishing features of the following 35 shells: Chiton, Lepas, Pholas, Mya, Solen, Tellina, Cardium, Mactra, Donax, Venus, Spondylus, Chama, Arca, Ostrea, Anomia, Mytilus, Pinna, Argonauta, Nautilus, Conus, Cypraea, Bulla, Voluta, Buccinum, Strombus, Murex, Trochus, Turbo, Helix, Nerita, Haliotis, Patella, Dentalium, Serpula, Teredo) (untranscribed w: CD writes "B", meaning "British")

6 25w 8 7w 11 6w, 20w 12 1w 13 11w 14 9w not British 11w not B 20w, 21-22u "interstices", 23w 15 3m, 4m/u "communis"/w no 6m, 17w, 19w (2) 37w copied! 40u "and f."/w 16 7w, 10-15w (3) var of crenatus or balanoides 11w, 17-19m, 25w, 30-36w (4) B. punctatus? -Yes 37-38u "substances abundance" 17 6u "Lepas borealis"/->/wt L. borealis 1w, 4-8w is this Ch. Chthamalus 4-5w (5) 19w, 20w (6) 28u, 41-42m/41w, 42w 7 18 1m, 1-9w ♦ can this be Cranchii 16-18w Cranchii 29u "narrow glove-like", 32w (8) 35-36w, 37-39w = sulcatus 19 9m/u↔ "p. 101", 15u "striatus Brit"/?↔, 21-22m/21u "Cape Bruguiere", 29w not recognisable 20 20-24w amphitrite? var cupidus 20 wb not to be recognised 21 7-15c/6-10w not to be recognized 19-22w B. amphitrite? or idoneus? 32m/31-34m/w this is curious 22 11-14w var of tint 27w ♦, 28-32w var of tint 38w, wb 9 24 zt, 1-8m, 21w 25 18-20!! 26 24-25?/u "Kurile Islands" 27 12w 28 25-27w | 27m, 27-36m, 28m/w 1806? 30-31w 1815? 29

DILLWYN

24w 30 5w, 27w, 34m 31 11w, 13u "Montagu test"/w 1803 22w, 22-23w ● of Lamarck 25-26u "Ellis 1557" 32 3-5w var 11w 33 10w Lithotrya, 12-14m/13u "p. 197", 25w, 30u "Seba"/28-30w 1734-65 29m/w 1815 30a "Poli." 1791 33u "membranacea"/w 1808 35 7w 36 40w 38 1w, 6u "striatus", 26w 40 3w 41 10w not B 14w not B 17w 42 16w, 38w 45 24w, 26u "distorta"/w Ligula 36w 46 8w, 21w, 30w 47 3w, 16w, 20u "Ligula prismatica", 29w, 32u "Ligula substriata" 49 19w, 22u "Mya pictorum" 50 25w, 29w Mya ovalis 52 16w 55 1w, 17w 57 11w 58 29w, 41w 59 32w 60 7w, 22w 64 24w 65 6w 69 30w 70 26w 77 24w 79 1-2w, 5u "Solen vespertinus" 81 25w, 28w Tenuis 86 10w, 22-23w Pandora inequalvis 89 33w 90 10w, 14u "Tellina Laskeyi", 41w 91 11u "Tellina inaequistriata", 23w, 29u "Tellina squalida", 41w 92 30w 94 25w 95 12w 96 8w, 13u "Tellina polygona", 37w 99 1w, 18w, 39w 100 15w, 38w 101 2u "Tellina solidula", 21w 102 17w, 23u "Cardium discors" 103 27w, 33u "Cardium arcuatum" 104 10w, 25u "Cyclas cornea", 41w 105 5-6w Cyclas lacustris 15w, 18w Cyclas amnica 113 27w 114 24w, 40w 116 5w 123 12w 127 19w 130 30w 131 4w, 16w, 30w 138 3w, 8u "Cardium"/w Edentula 304 5w, 12u "Mya Pholedia"

DIPPEL, Leopold *Das Mikroskop und seine Anwendung* 2nd part; Braunschweig; F. Vieweg und Sohn; 1872 [Down]

DIXIE, Florence *Across Patagonia* London; Richard Batty; 1880 [CUL, I]

DIXON, Edmund Saul *The dovecote and the aviary* London; John Murray; 1851 [CUL] af, beh, cr, cs, phy, sl, sp, t, tm, v, wd

NB1 Read Willughby & Aldovrandi Latham NB2 Columella 8/8 Ch.; & Pliny L10.53; & Varro 1X/2; & Aelian B3/15 Greek Read Read Aldovrandi in Royal Soc Willughby in Royal Soc translated by Ray Read Latham Royal Soc.- Sloane Birds of Jamaica not in Royal.- Brisson Aves p437 Royal 1760

Read - Ray; Frisch some German Book mentioned by Riedel

Read - Albin Royal p428 1731-38 p57 -18 days - Cocks on nest at 2 oclock

SB1 Mr Dixon

How Carrier taught to cross the sea.-

p.165, p166 ♦ rather hard to accuse of Atheism because created - worthy of quoting - are you not open to same on account of feathered pigeon legs. - or even

more or less feet - Can you show that you p.275 do not in this exalt "the idol nature in an

Turbit p77 wd be good to get.

Linn Syst. Nat (my copy) vol.2.769. vars of Pigeon. Read

(over) p.6; p.11 to 184; p.237; p.247; p.428

SB2 □β

14 Pigeons feral in Norfolk Isld Q

88 Case of Phas. colchicus & versicolor in Q. Review 1850 - cross between the two Pavos Q

97 Some crosses Runt, Fan-tail & Nuns p110 Q

155 Blue Rocks do not like other Pigeons (Ch. 6/. p.156 Q

247 Guans very tame, but breed slowly

428 Every Goose domesticable

6 10-12m, 26-32m 7 1-3m, 7-11m 11 22-27m 12 31-33m 13 6-8m 14 7-11m, 20-22m/Q 15 26-32m 16 11-14m 17 1-3m, 8-11m, 17-20m, 28-30m 18 22-25m 20 20-22m 27 25-27m 33 21-24m 54 26-28m/27u "five|old" 55 1-2m 57 5-10m, 12-13m 58 3-5m/3u "eighteen days" 64 4-8m/6-7u "These|eye", 10-12m 70 13-14m/13u "It|a"/14u "ever become" 71 1-3m 72 21-23m 74 3-6m/1-15w no argument of what wd take place by caging 9-12m, 14-16m, 21-26m/17-27w there is now little object in selecting new slight vars. 76 1-13w even if we admit several species; these must have altered. 29-32m/31w no 77 1-4m, 13-16m, 18-20m 79 20-22m, 26-27u "Short-faced"!? 80 27u "more"/24-27m/w Geology!! 81 23-26m, 28-30m 82 15u "the|be" "1637", 17u▲/18u▲/19u "Persian|Turkish", 19u "not"/17-24w yet never feral 83 13-15u/14-15m 85 10w 7 11w 8 12w 9 13w 10 14w 11 15w 12 - p120 87 10-14m, 28-33m 88 2-6m, 9-12m, 17-20m/Q (Blyth), 28-32m 89 5-6m, 10-17m, 19u "Willughby"/w Date 22-23m/23-24u "than|six" 90 19-22m 91 2-4m, 11-17m, 20-24m, wb It wd be worth to ascertain numbers in all the species in Brit. Mus. 92 16-20m 93 6w 1.31/2 10w 11 18m/w 1.111/2 94 1-6m 96 11-13m/12u "second degree", 14-16m, 17-19m, 23-25m 97 18-21m, 22-25m, 27-29m, 30m 98 18-19m, 24-27m/26u "Runts|may"/w var. 99 26-27m, 29-32m 100 3-6m, 24u "are|black", 28-31w 2 vars. & subvars. 102 29-31m 103 4-6m, 22-24m, 29-32m/31-32u↔ 106 4-11m/4u "mottled", 27-28z, 33-34m 107 1-4m, 8-11m, 23m, 24-27m, 31u "Dutch|bill" 108 22-24m 109 1-3m 110 25-26m 111 14-16m, 29-32m 115 2-5m, 19-21m, 20-22m/w No 117 8-24m 118 4-10m, 9-13m, 13-16m, 17-23m 119 6-8m 120 25-28m 122 21-25m

123 2-5m/3u "very|them", 9-15m/w Nothing about powting 126 4-10m 132 22-31w How the Seas? 27-32m 133 24-27m 136 16-23m 137 2-4m/1-15w because direction not known or acquired but they probably cd guide themselves if this known 17-23m/? 139 14u "fleshy excrescences", 20-22m/21u "still|slim" 140 9-11m 141 7-9m, 11-12m, 26-29m 142 5-7m 148 17-19m, 21-24m, 26-28m 152 27-33m 153 1-4m, 13-14m 155 5-8m, 25-30m 156 10-15m, 16-19m, 24-27m/26u "attributed|Moore" 157 18-22m 158 1-3m 159 26-28m 161 wt Bull-dogs wd not go wild 2-6m, 12-14m, 29-33m 162 29-32m 163 2-4m 164 25-29m, 31-33m 165 1-10m/3-6w does Blyth say so 27-28m, wb this ought to be considered a 4th species, if affines be a species.- 166 2-6m/w How close! 7-13m, 15-19m, 31-33m/w I wish certain 167 1-3m, 11-14m/13u "remarkable|struck", 25a "intermedia" no. ● 168 7-16m 176 1-5m 184 5-7m, 12-13m, 25-27m 237 6-11m 247 5-10m 252 17-18m 428 17-21m/Q

DIXON, Edmund Saul *Ornamental and domestic poultry: their history and management* London; The Gardeners' Chronicle; 1848 [CUL, I]

beh, br, cs, ds, ex, gd, he, hy, mn, rd, sl, sp, sx, t, tm, v, wd, y

NB1 ♦

Though, perhaps or probably several of our domestic breeds may have descended from several wild stocks, yet I think others cannot probably have come from their crossing - on account of one absorbing the other & without systematic selection, the difficulty of making thus any true Breed.

NB2 x; xiv to end; p34; 48; 69-79; 83; 87; 90; 97; 101

p.188 good case of Hereditary accident with growth

Fox thinks Cochin, Spanish, German, Bantam originally distinct breeds

Geese p142.

SB1 p.103; 110; 112; 118-122; 125; 128; 137; 139; 146; 174; 183; 188; 196; 200; 202; 205; 251; 264; 273; 277; 281; 285, 6; 291, 2; 300; 305, 9

SB2 □β

p.314, p.200 Cross-bred Fowls sitting

p8 Peafowls fighting & preening their feathers

34 - The chicks of Norfolk & Cambridge Turkey different

48 Old Canada Geese wd not breed with Audubons, unless the young of same species whereas the young of same species wd

79 Guinea Fowl rolling strong eggs into Nest
87 Slight variation in China Goose

101 & 103 Contrast in Teal & Wigeon breeding in confinement

111 White Peafowl of inferior size

115 3 vars of China Goose (so the goose can vary)

118 Duck could fly in Columella's time Q

Mem Read all about Ducks

122 - Become feral in Marshes Q

137 Goose origin of - Apt to pair quite as widely with other species as own Q

139 Gander always white - - Prolificacy increased by high feeding

146 Barnacle Goose is increasing in power of breeding in confinement

183 Cocks not created in Aristotles time

202 Hybrids between Guinea-Fowls & Fowls NQ

♦ 253 Chickens of Spanish Fowls 264 of Dorkings 273 Cochin 277 Malays; 285; 287; 306; 309; 325 of Polands; 324 chicks of 273 Cockrels of Cochin do not show rudiment of tail feathers till oldish Q

325 Golden Polands partly webbed O Q

326 Distinction of sex comes on late in Polands (true) Q

81 Peahen makes first advances to Cock

x 2-7m, 13-15m, 26-30m xi 5-7m, 10-13m, 16-17m xii 24-30m xiii wt Look at the oxen of every different country of Europe - look at dogs of do - look at men - if their variations are denied - my work might be closed 1-12w Mr Dixons opinion & Van Mons show permanence of varieties, it has same effect on them, which wild species has on naturalised, I know the feeling myself.- 12-16m xiv 13-18m/9-20w tell him about Bull-dogs xix 3m, 5m 8 11-13m, 14-17m/15u "frequently|other", 17-19m 12 3-9m, 8-12m 34 22-23m, 35-38m 48 20-22m 49 4-7m 59 35-38m 60 33-35m 63 3-8m, 18-20m 66 25-27m, 29-31m 69 18-20m, 27-28m 72 10m, 30-35m 76 33-35m 79 7-9m 83 9-10m/10-11u "tubercle|neck", 24m/u "harsh|ceremonious", 34-37m 84 6-10m, 24-26m 85 16-17m, 35-36m 87 7-13m, 16-17m, 25u "clanging|trumpetings" 88 9-10m, 34-38m 90 21-24m 97 4-11m 101 2-3m, 18-21m 103 8-10m/w contrast with Widgeon 110 3-16w Thinks original species now dead 22-24m 111 1-2m, 4-8m (Lamarck), 20-24m 112 11-16m 113 12-18m, 29-33m 115 1-6m, 9-11m, 12-13m 118 15-24m, 27-32m/Q 119 5-7m 120 25-35m 122 18-36m/24-26w NQ 125 17-19m, 29-31m/30-31Q 126 6-18m 127 35-38m 128 24-39m (Audubon) 136 31-35m, 36"... 137 1-4m/

DIXON, POULTRY

Q[♂]/3...", 18-22m, 23-27m 139 5-7m, 13-15m 142 19-23m 146 3-9m 150 5-8m 152 19-23m, 19-24m/20-21Q[♂] 173 35-38m 174 11-12m, 16-24m, 35-37m 176 22-23m/23w No 32-40m 179 17-18m, 29-31m, 30-32m 183 28-35m 185 29-36m, 37-38m 186 23-27m 187 37-38m 188 15-21m, 20-23m, 22-26m/22u "grew" 189 21-25m 190 26-38m 196 29-34m 197 11-23m, 35m 199 32-33m 200 1-5m, 30-33m/Q[♂], 35-38m, wb He does not appear to have any facts.- 201 14-17m 202 17-21m/w NQ 36-38m 203 1-3m/2u[♂] "five ears", 4w[♂] 1 7w[♂] 2 9-10w[♂] 6 205 23-27m 247 3-8m 249 5-7m, 29-30m/w pencilled & spangled 251 wt seem very upright - apt to jerk their heads 33-34m 252 1-3m 253 1-2m, 8-16m 254 33-34m, wb I saw Aug 55 an Andalusian Fowl all slate colour 255 8-18m/w Spanish Fowl 34u "blue colour" 264 18-22m 265 17-20m 273 7-9m, 14-18m, 24-26m, 33-35m 275 8-12m 277 36-38m 281 34-38m/→ 285 31-32m 286 29-31m 287 21-25m, 31-33m, 34-35m 288 14-18m 289 9-10m, 18-20m 291 3-9m, 33-34m 292 7-9m 305 26-28m 306 10-12m 308 16-20m/18u "Aldovrandi", 26u "Coral Greys" 309 9-12m, 36-38m 310 33-35m 311 21m 312 18-19m/?, 26-29m, 31-34m 314 20-23m, 24-27m 315 9-13m 316 12-15m 318 9-12m, 13-17m 320 5-8m/Q 321 16m, 25-28m, 30-34m 323 38m 324 18-20m/18u "white breasts" 325 20-23m/Q[♂], 26-28m, 29-38m 326 8-12m, 19-22m, 33-36m 327 1-5m[♂] 332 10-13m 333 28-33m 342 1-13m

DIXON, Frederic *The geology and fossils of the Tertiary and Cretaceous formations of Sussex* London; R. & J.E. Taylor; 1850 [Down, I by R. Owen]

DOBELL, Horace *Lectures on the vestiges of disease* London; John Churchill; 1861 [Down, I] ⌀

DODEL, Arnold *Die Kraushaar-Alge, Ulotrix zonata* Leipzig; Wilhelm Engelmann; 1876 [CUL] fg, sx

NB 125; 126 I must allude to this 124 12m, 35-38m 125 24-32m/w if the sexual zoospores do not copulate, yet they germinate 126 2-4m, 3-8m/3u "Pringsheim", 11-14m 127 28-31m

DODEL, Arnold *Die neuere Schöpfungsgeschichte nach dem gegenwärtigen Stande der Naturwissenschaften* Leipzig; F.U. Brodhaus;

1875 [CUL, I] sl, tm

ix 27m 112 wt In Grey seedling a few hairs on the leaves, as a protection, may determine which out of a 1000 seedlings will survive 1-5m 115 21-22m

⌀

DOHERTY, Hugh *Philosophie organique: l'homme et la nature* Paris; Didier & Cie.; 1881 [Down] ⌀

DOHRN, Anton *Fauna und Flora des Golfes von Neapel* 3. Pantopoda Leipzig; Wilhelm Engelmann; 1881 [Botany School] ⌀

DOHRN, Anton *Untersuchungen über Bau und Entwicklung der Arthropoden* vol. 1; Leipzig; Wilhelm Engelmann; 1870 [Down, I]

DOLFUSS, Gustave *Principes de géologie transformiste* Paris; F. Sary; 1874 [Down, I]

DOMESTIC MEDICINE, *a handbook* London; Bell & Daldy; 1872 [Down] ⌀

DONDERS, F.C. *On the anomalies of accommodation and refraction of the eye* trans. W.D. Moore; The New Sydenham Society; 1864 [CUL]

NB 573 ♦ ⌀ 574 1 9-10m, wb 10

⌀

573 18-21m 574 6-17m, 26-28m/27u "tension accommodation", 32-35m, 37-40m/38u "with-out"

DONN, James *Hortus Cantabrigiensis* 10th edn, ed. J. Lindley; London; C. & J. Rivington; 1823 [CUL, pre-B, ED] mhp, tm

facing 66 w (CD?) NB Lobelia in Linnaeus is Syngenesia monogamia ⚔ & Lindley says stigma with rings of hair wipes pollen out of anther in same manner as in that order (many other markings, presumed to be by ED)

DONNEGAN, James *A new Greek and English lexicon* 3rd edn; London; Sipkin, Marshall & Co.; 1837 [Botany School, ED]

DOUGLAS, John William, & SCOTT, John *The British Hemiptera* London; The Ray Society; 1865 [Down] ⌀

DOWNING, Andrew Jackson *The fruits and fruit trees of America* London; Wiley & Putnam; 1845 [CUL]

ad, cc, cs, ds, fg, gd, he, hy, no, oo, pat, phy, sl, sp, spo, sx, sy, t, tm, v, wd

NB1 262 Walnuts

NB2 Catalogue of Books at Beginning p. viii
SB1 Catalogue of Books p.viii; p.10 to 12; p55; 60, 9; 75; 106; 115; 116, 9; 124; 130, 4; 139; 150, 3, 6, 8; 161; 171; 176; 184; 192; 195, 6, 8

Does Thompson give origin of Fruit Varieties
D It is important as showing what in small things makes variation. is the sporting from true kind, when grafted.

202; 210; 215, 6; 220; 248; 250; 252, 4, 6, 9; 260, 3, 5; 278; 280, 4; 304, 7; 310, 12, 17; 317, 29; 330; 340; 356, 8; 366; 379; 396, 99; 419, 21, 22; 447, 8; 460 to→ 5

(over)

p.469; 470, 3♦ to 502; 517; 524, 25, 31; 542, 7; 553, 7

SB2 □β

p.5 On fruit-trees not being true, when grafted – Good

8. Facts against. Van M. viz old var. producing good plants

9. Crossed apple with fruit different at 2 ends

60. Every district has its fruit best adapted to it. (Mem: Chinese)

75. A marked American Apple

116 Italian tender apple – Several hardy ones mentioned in County of Wick & p.124 – Several sub-vars mentioned as (p.130) several Reinettes &c

150 Difference in hardiness in Almonds p473 in Peaches (u) p488 do Raspberries p.517 – Strawberries p.533

157 Hardy apricot

176 American Cherry p.184

↳ 192 Sporting Cherry

195. Cluster Cherry; a flower has several pistils & each produces a fruit – Flemish peculiar cherry

↳ 198 a var. of cherry liable to attack of insects more than other vars.

220 Mildew stops culture of Grapes in U.S

248 The wild native vines differ in quality p.253, p254, 259/p.261. do. vars of wild Hicory

256 A cross between old world & new world Grape

270 Purple Plums much most attacked by certain diseases, never yellow vars. Many vars. of Plums raised in America p289, 292 & Peaches (u) p.469

284 – Siamese Plum – attached together on one stalk

304 Groups of Orleans Plums, when known to have descended – many plum hereditary

317 Pears not native, many vars – Pliny says ♣ heavy most only good when cooked

422 Washington, a very distinct pear discovered in Hedge

Γ 462 The yellow disease originating with American Peaches 466 Yellow Peaches much most affected

470 Classification of Peaches by glands on leaves & serration & size of Flower–

476 Most Peaches either free or clingstones, but one is on same tree always either♦↳ both↳ cling or free xx scores of instances cd be given of this

492 Some Peaches very variable by seed, others constant & so it was with Plums

501 Smooth-skinned fruit destroyed by Curculios

↳ over

(over)

502. Nectarine from Peach & now true by seed

525 on selection turning Hautbois hermaphrodite

553 Northern Apples will not do in Southern States

viii 33–37m xi 5m xii 28–29m xiv 27m 1 zb 2 5m/u "chance when" 3 22–24m, 37–42m 4 10–14m, 35–37m, 45–48m 5 16–22m, 19–29m/22u "to|of", 23–28m 6 15–19m, 24–25m, 33–35m, 46–48m 7 4–8m, 10–12m/11–12u "subdue|luxuriance", 16–17u "hel|shortens"/w this does not look like excess of food 18–20m/19u "vigour|trees", 29–31m, 36–42m/w why more in America than in Europe 8 6–8m, 9–10m, 40–45m 9 34–37m/w are these species V. table 40–42m, 43–47m/w any case of crossed species like this 10 1–2m 55 1–2m/1u "single|moths" 60 5–9m/w Is this selection or adaptation. latter I think 69 16–17m, 27–28m 75 11–13m 106 4–5m 115 28–29m, 32–33m, 36–37m 116 36–37m 119 14–15m/w sub-var 124 23–24m 130 21–22m, 37–44w/wb 4 Reinette; several Pearmain; several Russett; several Sweeting; p.139; Spitzburghs 134 wt 4 11–13m 139 32–35m 150 4–9m 151 5–9m 152 20–23w Study all. I have only skimmed 153 43–45m 154 2–4m, 3u "have little", 6u "Stone|bitter", 35–39m, 39–41m, 44u "adhering somewhat", 45u "Kernel sweet" 155 7u "Kernel bitter", 12–14m, 15u "compressed", 32u "Flesh separating" 156 12–16m, 13–15m 157 24m, 31–35m, 38u 158 19–21m 161 13–16m 167 1–3w p9. Heart & Bigarrieu have been

DOWNING

crossed by Knight 171 25-29m 176 2-5m, 3-6m/6u "called" 184 10-15m/13-15w Mem Graft 189 18-21m 192 6-11m 193 5-8m, 9-11m 195 1-5m, 39-40m, 41-42m, 48m/→ 196 4-6m, 34-36m, 35-37m 198 16-17m, 24-26m 200 35-37m 202 4-10m/w I suppose only one original species & no possibility of Hybridising 204 15-22w vars in size of berries & bunch colour sweetness & time & fruiting 25-26m 205 7-9m 210 12-13m/13u "perhaps | hardest" 213 10-11x/10u "one fourth" 215 25-28m/27u "149 | considered" / 28m, 38m, 40-45u± 216 4m/u "Early", 20u "obovate" / 22u "oblong" / 24u "oval" 217 14u "hangs", 33u "flavour | rate" 220 31-34m, 36-41m 248 25-36m 250 46-48m 252 34-38m / 34u "Prince | describe" 253 2-7m, 23-24m / 23-24u↔ 254 15-18m / 24-28m / 30-34m / 1-37w all this sporting must be in state of nature & seized by Selection as owing to little general cultivation of country 255 1-3m, 35-37m 256 17-18m / 17-18u "habit | here", 24-41w Ascertain whether this comes under the Fox (V. Labrusca) p. 253 group or under some other (V. adlum or Prince), if so case of two species blended by crossing, though unintentionally crossed. 25-26w p240 Old World Grape; a native Grape 257 43-44m / 44u↔ 259 1-12m 260 7-10m 261 18-21m / Q 263 3-6m, 20-41w the number of American plums really surprising *wb* x it cannot be extra food which makes so many new vars. of apples Peaches & plums in N. America - V. further on - climate or soil very favourable 265 33-35m/→, 39-46m 266 22-27m 267 48m 270 9-13m / 7-21w colour & constitution - is there not something about peaches & nectarines? 42-46m 271 29-30w 1 272 22-23w 2 30-31w 3 41w 4 273 11-12w 5 275 7w 6 17w 7 27-28w 8 37-38w 9 276 9-10m, 40-41m 277 21w 10 24-26m, 38w 11 278 31w 12 32-33m, 34-35m, 43-45m 279 3m/3-4u "has | shoots", 11-12m / 12u / [...], 33w 13 280 31-32w 14 34-40m, 34-39m 282 4-5w 15 33-34w 16 284 15-19m / 17w 17 31w 18 35-36m 285 10m/u "handsome round", 22m 287 39-40w 19 289 13-19m / 13w 20 38w 21 291 28-32m / 28w 22 292 19-20w 23 22-33m 293 5w 24 18w 25 24w 26 35w 27 296 8-9w 28 299 29-30w 29 300 7m, 10w 30 301 8-9w 31 302 5-6w 32 303 12w 33 37w 34 304 6-38m/w There have been several cases of fruits thus classed, where reproduction is known or inferred 305 1-3m/w 35 307 *wt* I have noticed that most of the varieties differ in all respects as well as in fruits 1-2m 309 3-4w 36 13w 37 33w 38 310 12-13m, 41-45m 312 37-39m 313 36-38m/w 39 314 7-

8m 315 16-17w 40 317 24-26m, 39-46m, 46m 329 7-12m 330 1-6m 340 1-5m 356 19-25m 358 4-8m, 12-14m 366 33-38m 379 34-35m 391 37-46m 396 37-39m 399 8-9m 415 33-36m 419 3-6m/w numerous cases such as this 421 40-44m 422 13-15m, 13-16m, 19u↔ 442 19-25m 447 3-5m 448 39-41m 460 17-19m, 21-22m / 22u "twenty years", 25u 461 44-48m/→ 462 17-22m, 23-24m, 36u "established | question", 39-40m / 43-44m / 39-45w new disease originated in America 463 7-9m, 18-19m, 31-33m / 32u "many | peach" 465 37-38m, 41-42m 466 15-17m, 20-22m, 23-25m 469 10-15m, 11-13m, 17-22m, 26-28m / 21-30w almost certainly though probably derived from Eng. seeds 41-48m 470 1-4m, 13-16m, *wb* I rather doubt how far genealogical wd be best it wd be the most scientific classification of varieties even putting crosses on one side *wb* 4ss for p.475 not hereditary 473 20-22m 475 20m, 36-41m, 36-41m, 37w H. 40u "absence | glands" 476 14-18m, 30-31w many American kinds 478 11-12m 485 32m 488 29-32m / 30u "garden | New" 489 10-11m / 10m, 23u "is | variety", 34-38m / 34-38m / 34m 492 13-14m / 11-19m/w others contrast p489 p494+ 493 1-5m 494 1-5m, 2-5m / 4-5m, 7-9m / 7u "reniform", 15u "without glands", 25-27m, 44-45m / 45m / u "frequently | with" 496 21-22m 501 12-14m, 15u "smaller", 26-31m, 27-29m, 33-35m / 34u "all | soils", 39u "Vol. 14, p.53" 502 23-26m, 24-25m / 24u "was | a", 36-38m, 37m 505 19m, 35m, 37m 510 13-18m 514 21-23m 517 17-18m/w V. p514 523 34-38m 524 1-6m, 1-4m, 11-13m, 26-30m 525 (u) 15-17m, 17-18m / 18u, 19u, 21u, 22u, 23u, 33-47 / 37-40w selection producing 526 1w N American 527 22-23m, 22-23m / 23u↔, 28u "seeds | imbedded", 35-37m / 36u "Fruit | size", 38u↔ 528 25w Surinam 531 7-8m, 7-8m, 20-21m 532 2-3m / 3m / 2w Pine 13-15m 533 3-5m 534 12-14w English origin 37-40m 535 15-17m 542 26-29m 547 41-42m 553 35-41m 557 17-21m

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NF 6 Dec 1871

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DROUËT, Henri *Mollusques marins des îles Açores* Paris; Baillière; 1858 [CUL]
gd, sh, sp

NB 8 No Fresh-Water Shells

9 Many land-shells Endemic – very few Marine – peculiar

Species common to Mediterranean Canaries & Antilles

Much Sargasso weed

p26 2 sp of *Littorina*

8 31–32m/1u "il Açores" 9 9–13m/12u "Antilles", 23u "139", 25u "75"/w 5/75 new 29u "70|30", 30u "inérites"/31w perhaps more endemic 11 5–17m, 22–24m 12 5–6m 13 8u "nombre|doublé" 24 19–22m 26 3–6m/3m, 11–14m 34 17–20m

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NB O/

∅

DU BOIS-REYMOND, Émil *Gedächtnissrede auf Johannes Müller* Berlin; Königliche Akademie der Wissenschaft; 1860 [Down]

DUCHENNE, Guillaume Benjamin *Mécanisme de la physionomie humaine, ou analyse électro-physiologique de l'expression des passions* Paris; Jules Renouard; 1862 [CUL (Plates at Down), S]

beh, h, phy, t, y

NB 2 woodcut of facial (rest ◊)

SB □✕ ↻

Duchenne 8vo Edit

Part I

p.31. showing absurdly how all examples created.

38 ♣ describes facial muscles continuous.

seem quite aware of many sources of error – Huxley says discovered muscles.

Part II

p8. eyebrows – move least under will

–29 separation of pyramidal & frontal

36, 43, 53 antagonism of sourcilier & frontal

75 triangular of lip

(not CD) 180 On the pyramidal bringing down the brows

184 In a false laugh the zygomatic is alone contracted

Part 1, 5 4u "1805"/4–5m, 6–7u "a composé" 20 15–18m 22 22–26m/w only one muscle used!! 26 17u 18–19m 18u 29 15–22m 31 ↑12–1"..." /↑10–6u±/ ↑11–2m ↑12–9w♦ (as in the many Limb movements of our limbs.) ↑11–6m/! w♦ good to show how theory fails ↑5–1w♦/wb♦ Praise his book. Well-known for other excellent Treatises, & add much undervalued, in my opinion, by other writers – a vast step in advance wb♦ After speaking of the movement of the limbs, he turns to the ph. of the face, & remarks 33 20–22m 34 17–20m 36 10–12m 38 1–5m/w All muscles continuous – says it is an illusion 25–26m 39 1–3m, 7–8m, 21–23m 40 11–14m 42 11–25m 43 1–34m, 17–18m/17–21w in Laughter upper palpebrae, also; but these diurnal in young because associated with intense & painful attention. 47 3m/w eyes 51 13–16m 52 10–12m/w No. endurance 53 7–10m 59 3–5m

Part 2, 2 fig.w (identifying little and great zygomatic) 8 15–17m 16 12–15m 26 2u "ces|gonfle"/w by mere corrugator 27 7–8m/8u↔ 28 5–8m 29 7–11m, 23–25m 30 5–8m 31 8–10m 32 3–6m/w The contraction of orbiculars by themselves do not give look of Hardness 36 7–9m 43 8–11m/3–16m/w Judging by his experiments, the movement does seem entirely due to something which I suppose opposes sourcilier 18–21m, 23–26m 44 1–2m, 3–5m, 6–7m 53 1–3m 56 10–11m 61 21–24m 62 15–16m/15u "paupière inférieure", 17–22m/w See Large Plates 63 13–14m, 21–26m 73 16–18m 75 15u "lèvre", 16u "peu|avant", 20–21m 76 1–4m 78 10–13m 85 7–10m 87 22–25m 89 10–12m, 15–17m 90 6–13m 91 6–9m, 10–13m 92 23–27m 104 22–24m 105 1–3m 106 3–6m, 26–27m 107 21–23m 176 23–26m/w the eyes being open to see 180 14–21m 184 13–17m

DUFRENOY, Pierre Armand, and ÉLIE DE BEAUMONT, Jean Baptiste Armand *Léonce Mémoires pour servir à une description géologique de la France* 4 vols.; Paris; F.G. Levrault; 1836 [CUL (vols. 3 and 4 only)]
geo, mi, se, t, ti, ve

vol. 3 SF1 ♦

There appears to me great force in De Beaumont opposition to lava basalts (which certainly have been most fluid) stretching into wide sheets at inclination as great or narrow streams of lava on planches of cones –

p.255. says superficial basalts of Auvergne resemble those of submarine at Teneriffe ?? forgets flatness of bottom of sea–

DUFRENOY & BEAUMONT

p.254. Proofs of recent elevation at Canary Islds –

(over)

p256 M. Babbage says part of crust, when volcanic forces have acted most likely to be elevated –

With respect (p257 &c) to thinning out of lava, round craters of elevation, not at all satisfactorily explained

It is very foolish giving one theory to any craters of elevation –

States that beds thicken towards source – are strata upset at Cantal? Yes–

The foundation of Theory original explosion

Says Vesuvius &c all active volcanos put out of the question by both parties. C. Prevost

p.315 Bull. Soc

SF2 Are the lower trachytes of M. Dore subaqueous?

p.241. Cantal different streams, unequal contradiction to first statement

Good god leaves out the Sea

Says Basalt must have had greater fluidity –

Which agrees with supposition of being under water –

p.243. Basalt Terrestrial

p.246 Cause of no cones subaqueous Good.

(over)

Is it certain Basaltic platforms lavas of Ccantal flowed in air?

Is Cantal perfect crater

is basalt so uniform

He himself slightly contradicts himself on latter point.

His rigid comparison with Etna alone most unsophisticated

p.217 important on inclination of lava without becoming basaltic

243 15–22m/19u "plaines|plateaux" 246 12–19m 287 18–23m 288 21–26m 291 1–8m 295 15–19m 302 22–24m, 25–28m 303 1–2m 309 zt

vol. 4, SB1 (6 numbered pages)

1

Élie de Beaumont Recherches sur les Terrains volcaniques des deux-Siciles

↳ Vol. IV. Memoires pour servir a une description geologique de la France

p57 M.G. Rose first published fact that (Annales des Mines 3° Tome viii p3) ♣ lavas of Etna↳ Labrador Pyroxenes & some peridot, fer Titane↳

also Stromboli & some streams in Auvergne ↳ have lava of same constitution

p95 as far as argument has yet gone, no proofs of the ancient lava being ancient –

↳ N.B. though no proofs every one seems to consider they are ancient

– & therefore all this argument about small quantity of recent ejections trifling

p98 says the successive ejections only tend to make cone of Etna L° of 8.– or rather ♣

uniformly less than Central gibbosity – p.97 compare it with ♣ volcanos – ??

↳ seems to leave out of question case of all eruption being from centre

♣

2 (top line ◇)

can scarcely doubt Ascension○ a ♣ cone if eruptive, but no proofs

(part ↳) The whole argument appears to me founded on assumption that eruptions must always have ♣ proceeded from the same points as they now proceed.–

p.102 Theory of Etna given in few words

p103. dike theory, p115, p116 clearly given

p.106 matter thrown applicable to separate volcanos in Cordillera

p.118 – Theory well given of Etna: ask will it not explain domes of Trachyte

p331 (he means 131 – text erroneously has 331)

dike ought to incline ♣ outwards in Val del Bove ↳ if the strata had been originally nearly horizontal

p331. parallel Bands of cellular rocks in dikes from stretching ↳ – theory of Keihan's dike.–

p133 Etna dikes are often accompanied by faults – how are Cordillera dikes? ↳ in this respect? ⇔ great difference in formation ↳ of the kinds of dikes

3

p.132, some dikes join like roots to streams.–

*] Dikes generally run to ENE & therefore the elevation (cause of them) does not tend to form "noyau centraux"

p137 Valle del Bove like the Taoro in Teneriffe↳

p141 argue badly against cavity under Etna 142 – then argues fluid near surface, & hence eboulement of Val del Bove; & hence elevation of noyau centraux (non sequitur)

p144 are not centres of elevation, now all given up (see Bull. Soc) No↳ are they not all Eboulement.–

p.145 Wishes now to consider dikes as mere feeders of ancient lavas

↳ & forgets by his own argument they show elevation.–

4

p.149 argues that dike T the union not minutely ●; viz thickness at point of junction; coarseness of lapilli at spot

↳ the loss of parallelisms ♣ which he says would surely happen if streams hot flowed

over great slope, rests on supposition of lower cones being points of eruption instead of solely upper ones.— ♣, is their ♣ breadth ♣ is a quality so explained

p151 Volcanic cones are generally from 18° to 40° in inclination

p158 the argument of gibbosity from his own showing here, may be invalidated because this is tending to form two kinds of slopes, where ♣ everything takes place from one point.

◇

p161 —Talus depends on form of fragments ♣ & is the same in air & under still water ! good.—

5

p161 — curious error repeated at 182 in reasoning could not have been formed beneath the sea because they are recent —? Perhaps they overlie Tertiary strata??

♣ Gradual elevation of the slope would exactly counterbalance the decrease of slope from the thickening of the end lava stream at bottom of cone.—

♣ There is a fallacy (165 166) in arguing as if Val del Bove was entirely formed from loose matter & not partly from lava

p182 says streams have great horizontal extension — how ascertained — ♣ by section at head of valley

p.188 seems to consider ♣ elevation of Etna quite sudden

p.do♣ line of elevation in Etna — not true "crater of elevation"

6

p191 considers Val del Bove engulfed like Papandugong.—

192 considers subsidence of Val del Bove like the pits formed on the crevasses in Etna — ♣

193. thinks elevation sudden because of discordance between ancient & more modern lava.— N.B. part must have been gradual whether dikes point to centre or not

194. Think it was so because subsidence probably sudden why was it not for collection of gaz

♣ De Beaumont talks of the play of the fragments on Etna excellently expressed p.116

♣ Etna must consist of two volcanic hills from the point of eruption having changed & the older part dislocated & inclination of beds — added to from distension.—

SB2 Dufrenoy

p.286. Somma extensive 26° strata 23°–30°
349. Tuft of pumice Siliceous infiltration Pompeii

354 soda in Vesuvian formations potash in Volcano of Camp-Phlegreens Read Naples geology in Lyell

356 Trachyte first, Somma beds 2 Trachy 3. Veins lava of Ischia Vesuvius & Mt Nuovo
(over)

p.361.— I conclude when the great eruption of Vesuvius took place, there was accumulation of Pumice & Trachyte Matter in Upper part of Volcano — Somma being base of ancient great cone, the summit of which was trachyte. If Teneriffe fell & was then then blown out, first great eruption would be trachy & the central one might be basaltic like flank— Study Lyell — The tuft on Somma shows central trachyte mass.—

p374. Lava streams diffuse composition or surface — in body —

(over)

p.382. Feldspar & Albite not ♣ in Lava! ∴ little Silex

Compare the Analyses of the substances from upper & middle part of stream p372

112 12–15m 131 26–28m 173, 174 (pages cut and restuck) 175 wt (CD transcribes part of p. 174) 178 12–15m 183 21–27m 191 19–20m 272 15–18m 371 1–8m

DUHAMEL DU MONCEAU, Henri Louis
Traité des arbres 2 vols.; Paris; H.L. Guérin & L.F. Delatour; 1755 [CUL, pre-B]

vol. 2, 233 21–22m/21u "racines | endroits"

DUMONT, Léon A. *Haeckel et la théorie de l'évolution en Allemagne* Paris; Germer Baillière; 1873 [CUL]

NB 15

7 2–5z 15 12–16m, 26–27m

DUMONT, Léon A. *Haeckel et la théorie de l'évolution en Allemagne* Paris; Germer Baillière; 1873 [Down] ⌀

DUNCAN, Andrew *The Edinburgh new dispensatory* Edinburgh; Bell & Bradfute; 1826 [CUL, pre-B, S Charles Darwin 1826] che

106 25m, 27–33m/29u "pounds | grains", 39–41m, wb Correct by Almanac wb♦♦ 107 10–12wcc, 11–14m/w Correct by Almanac 110 wtcc 111 wt 8750 = 1 Pint of distilled water ie 1/8 of 10lb or 70,000 \$w♣ Penny Encyclop says 280 grains \$w♣ Mr Baxter says 1 fluid oz of distilled water at 60F certainly contains 437.5 gr. apothecaries or

DUNCAN, A.

Fl oz; *cc*, *wb* correct I do not doubt x 437.5 x
 ● Almanac *wb* 1 fluid oz contains 455.77
 grains 480 grains

DUNCAN, James Matthews *Fecundity, fertility, sterility and allied topics* Edinburgh; Adam & Charles Black; 1871 [CUL, I] beh, br, ds, no, sx, t, v, y

SB ∞

53 Variation of weight of infant according to age of mother

59 of length of do according to do.

100 on Twins produced chiefly by women between 25–29 years old.

252 on ages at which women may marry & produce only Malthusian numbers of children NB 53; 59; 64; 100 Summary on Twins; 262; 334 Important Descent; 382 do. Death of males

53 7–15m 59 8–12m 64 14–24m 100 18–23m 262 25–30m (Malthus) 297 23m 302 6–11m 334 13–21m 382 24–25m

DUNCAN, John Shute *Analogies of organized beings* Oxford; S. Collingwood; 1831 [Down, on B, I to Lord Widmouth]

NB 54

54 25–28m

DUPONT, Edouard *L'Homme pendant les ages de la pierre* Bruxelles; Macquardt & Cie.; 1871 [Down]

45 5–11m, 16–24m

DU PREL, Karl Freiherr *Der Kampf ums Dasein am Himmell* Berlin; Denike; 1874 [Down] 2nd edn; 1876 [Down]

DU PREL, Karl Freiherr *Die Planetenbewohner und die Nebularhypothese* Leipzig; Ernst Günther; 1880 [Down] ∅

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DURAND, Jean Pierre de Gros *Essais de physiologie philosophique* Paris; Germer Baillièrè; 1866 [Down, I]

NB O/

DURAND, Jean Pierre de Gros *Les origines animales de l'homme éclairées par la physiologie et l'anatomie comparatives* Paris; Baillièrè; 1871 [CUL] ig, phy, tm

NB 32; 88; 138 Eyes imperfect Helmholtz; 90; 93; 138 Lamentin, 141 Hallotherium allied to; ♦ 137 Steenstrup on Sole & Turbit SB 88; 158 on Eyes imperfect; 93 The hinder legs of Lamantin subserve as tail 141 on gradation in structure of Talpa, with figure of Humerus

43 31c *pas* 64 16w *qui* 88 7–12m/w Does this apply to normal organ p.332 90 18–25m 91 9–10m 92 26u/x 93 5u "queue anatomique", 6u "résidu|destitué" 129 6m/w (refs. to figs.) 130 10a/w, 12a/w (refs. to figs.) 131 1a/w, 2a/w, 7a/w (refs. to figs.) 132 4a/w, 5a/w (refs. to figs.) 137 10–14m ♦ 138 11–14m 141 19–25m 144 28–32m 158 1–6m

DUTROCHET, René-Joachim Henri *Mémoires pour servir à l'histoire anatomique et physiologique des végétaux et des animaux* Paris; J.B. Baillièrè; 1837 [Botany School]

DUVAL, Joseph *Histoire du pêcher et sa culture* Paris; De Roret; 1850 [CUL]

NB Nothing

DUVAL, Joseph *Histoire du poirier (Pmys sylvestris)* Paris; De Roret; 1849 [CUL] phy, wd

NB ∅

p.2 Certain Pears known to have been wild seedlings

∅ 32 p41 p47 ♦ ∅

Two Pears which do not take well on Quince stock

2a 61–64m 2b 16–20m, 44–57m, 59–64m 5a 49–52m 32a 31–39m 41b 4–12m 47a 32–41m 48a 22–30z

DUVAL, Joseph *Histoire du pommier et sa culture* Paris; De Roret; 1852 [CUL] beh, wd

NB O/

2a 2–8m, 57–59m, 57–64m/w origin probably of orchards

EATON, John Matthews *A treatise on the art of breeding and managing tame, domesticated and fancy pigeons* London; the Author; 1852 [CUL]

beh, br, cs, em, f, he, phy, sl, t, ti, tm, v, y

NF1 Annals & Mag. vol. 19 1847 p.105 variability of Pigeons

NF2 Of noblemen & c p.vi coming after p88

NB1 p.62. Powter grand Passage; p.vi

NB2 Facility of ♣ crossing & Keeping Breeds pure – Value as Carriers –

It will be all important to find whether the vars. vary in the points, which characterise them as vars.

Questions

About fertility of crosses; Young Birds; Feathers in tail of Fan Tail.

NB3 First Part

p iv; p xiv; xvii Buy; p26; p34; p.40–50, 52–to; p.62

Second Part

p.iii to vi; p21 – Important about not telling qualities of Birds in nest.–; p.22; p32; p.37; 41

p.vi 2d part funny Passage

noblemen & gentlemen vi of Almond Tumbler (not CD)

SB □β

Special facts on Pigeons not given always

x XV advice to young Fancier to keep to one kind (Ch I) 1/2 quoted S

40 Total length of Carrier Q

46 On tendency to degenerate in highest-bred breeds, ie selection not perfect S

49 Mayor on flight from Bury St Edmunds to London in 2 1/2 hours

51 Length of Pouter Q 65 Fashion varies

56 On ill effects of not intercrossing Pouters p.v about changes effected during last 100 years Q

vi "the field is as still open for competition as it was 100 years ago" Q (on limit of variation)

9 Advice to keep on Goldfinches head S

x 11 Advice to young Fanciers not to try for too much Q S

11 on great variability in feather in Almond Tumbler – Selected first & now variable

21 on difficulty of judging young Tumblers

33 believe many of the shortest beaked birds perish in egg Q (Ch 6)

p.32 Beak may still be shortened S

Part 1, iv 4–6m xv wt Hence many vars. 1–3m/2u "this|knowledge"/3u "Turke|Morocco" vi 21–23m, 37–42m xvii 4–9m, 23–24w This Yarrell has 27u "1765"/...][..., 30...][...,

36m/w I have Delamers work published by Routledge 40u "Bees|Rabbits"/→/36w Buy it wb A Treatise on Domestic Pigeons, London Printed for the Proprietors (no date) 2.6.old. lent me by Mr Evans – before 1809 for owner name has this 26 26–29m 34 48–49w 1765 40 wt Did old Aegyptians keep Pigeons? 8–9m/8u "Tavernier", 11u "but|the", 22–26m/23u "fifteen", 33–35m 41 wtcc, 3–4m, 34–38m, 48m 43 28–30m/30u "of|half" 44 15–17m, 19–21m, 29–32m, 33–36m 45 18–23m 46 1–3m, 31–37m/32–33u "there|back"/34u "cast offs", 39–41m, 42–45m 47 1–5m 49 2–3m, 10–13wcc, 17–18m 50 8–14w very different from now 27–28m/28u "Horseman|Cropper" 51 1–3m, 9–11m, 15w in 1765 21–22m/22u "wanting|quarter", 41wcc, 41–42u "mere|inches", 42u "seven|it", 43u "in|length", wb Ask Mr Bult 52 1–3m/1–4x/w Marred O 17–19m 58 1–4m, 9–19m/9–43w The Horseman being thought by some to be a cross between Carrier & Powter 21w Dutch Powter 59 1u "English|miniature" 61 33–41m 62 20–24m, 35–38m 63 18x, 21–25m/22x 64 2u "jowler|eye"/1–8m/w Rollers? 33–34x, 39–42m 65 1–3m, 5–12m/8–9Q, 15–17x, 29–33m/31u "bald|beard", 40–44m 66 4–9m 67 1–2m 68 35–38m 70 5u "turned|duck", 7u "bending|swan", 8–11m/9u "his|bird", 29–30m 71 3–6m/4–5u "three|long", 5–7m, 22–27m/23u "Runts|Runt"/27u "have|half", 41–43m, 45–46m 72 11u "and|more", 12–14m, 23–26m 73 3u "blues"/wt probably bars 1–2m, 5–7m, 40u "sometimes blue" 74 9u "six|feathers", 20u "there|blue", 21–23m 75 8–24m, 29–30m, 33–34m 76 2–4m 77 19–21m, 22–24m, 30–31m, 36–37m, 45–47m 78 wtcc, 11–12m/u "six|tail"/w var. 81 3–8m, 26–27m/2–28w This shows variability in the tumbling fraternity 5u "though|this", 12–14m, 20w Probably the same as Finnikin & Tumbler 23u "Dutch|Drager", 24–27m, 48–49m/49u "Archangel" 82 5–12m, 6–8"..." 83 4–11m, 51–56m, 51u "Antwerp|sharp", 52u "sharp|cunning" 84 1–4m/1u "Roman nose" 86 44–49m

Part 2, iii 41–43m v 46–56m/46–50m /47u "seven-eighths", wb V. p.9xx vi 6–9mQ/6–7"...", 30–36m/x/"...", 49–51m 8 19–21m/14–21w ie variable 9 5–6m, 8–12m/xx/u "five-eighths", 13u "three quarters", 16–18m, 19–26m/"..."/20u "the|beak" 10 6–13m, 51m 11 3–6m/3–4"..." /Q, 7–10m, 12–16m, 25–29m, 34–38m, 40–45m 20 50–51m 21 1–9m/6–8m 22 37–41m 32 50–57m 33 13–17m/w Q Ch 6 37 47–55m 41 34–40m

Part 3, ii 14–16m

EATON, John Matthews *A treatise on the art of breeding and managing tame, domesticated, foreign and fancy pigeons* London; the Author; 1858; [CUL, bound with:]

MOORE, J. *Columbarinus, or the pigeon-house, being an introduction to a natural history of tame pigeons* London; J. Wilford; 1735 [pre-B] beh, br, cs

NB p60 Pouter; carr p44 Carrier
Frontespiece Tumbler 100 Barb; Jacobin; Fantail; Turbit

SB 78 Q^h

86^h Fashion goes in extremes with Fanciers.— Q^h

120♦ in Beards

Q^h 145 Blue Tumbler bred from Splash Cock & Kite Hen see p.

78 53–61m/55u "original Columbarian" 79 24–30m 86 43–55m, 57–60m 120 48–53m 127 42–45m 145 3–6m

ECKER, Alexander *Die Anatomie des Frosches* 3 vols.; Braunschweig; F. Vieweg & Sohn; 1864–1882 [Down] ⌀ (some marks by FD)

EDGEWORTH, Michael Pakenham *Pollen* London; Hardwicke & Bogue; 1877 [Down]

EHRENBERG, Christian Gottfried *Mikrogeologische Studien* Berlin; K. Akademie der Wissenschaften; 1873 [Down, I]

EHRENBERG, Christian Gottfried *Vorläufige Nachricht über das kleinste Leben im Weltmeer, an Südpol und in den Meeres-Tiefen* Berlin; L. Voss; 1844 [CUL, I in each part, S] gd, geo, ve

Part 1, 3 9m 4 13m, 31m 5 9m, 17m, 26m, 34m 6 1m, 21m 7 8m, 14m, 23m, 25–28m, 29m 8 9m 10 27m 14 17m 15 3m 16 13m, 15–16m, 31–36m (Darwin) 18 8m, 13m, 25m, 36m 19 8m, 32m

Part 2, 12 21a/ct

Part 3 title page w Nothing

Part 4 title page w Matter Dust

Part 5, 11 32–34m

Part 6 title page w Patagonia –Infusoria– B. Blanca – Pampas 10 19w^h 25 11 15–19w with some fragments of Infusoria 12 14–16m/4–16w volcanic character more clear & number of Infusoria increase each time 13 13u/w^h 14 5u "verglüheter", 25c "A", 26–32m/27c "B", 27m/w^h, 29m/w^h, 30m/w^h, 31m/w, 32u "8" w (locations of species), 33u τ , wb land

forms 15 3w though near 8u "Süßwasser", 9u "verschiedenen", 10–16m, 14m/w, 15m/w, 16w (locations of species), 25c^h "A", 26–31m/29c^h "B"/ 30m/27w p90 wb p.175 16 wt no. Infusoria 1–4m, 1m, 2m, 4m, 5–6w 13 7–9m/7u/w^h/9u/w^h 19 11–16m, 19–24m, 34–38m♦

Part 10, 51 8a/c^h ^h

part 11 title page z 333 26m/26c/w^h 339 12a/c^h ^h 359 9–25m

Part 12 title page w Nothing

EICHWALD, Eduard von *Geognostisch-palaeontologische Bemerkungen über die Halbinsel Mangischlak und die Aleutischen Inseln* St. Petersburg; Buchdruckerei der Kaiserlichen Akademie der Wissenschaft; 1871 [CUL] ⌀

EIMER, Theodor *Untersuchungen über das Variiren der Maureidechse* Berlin; R. Stricker; 1881 [CUL, I]

204 10m 212 10m 219 2m

ÉLIE DE BEAUMONT, Jean Baptiste Armand Louis Léonce *Leçons de géologie pratique* Paris; P. Bertrand; 1845 [CUL] beh, ch, geo

137 11–17m 140 22–27m, 22–24u "terre | diminution", 26–29m, 27–30"..." 141 16w Buildings 17–19m, 19–20u⁺, 23–27m, 29–32m 142 1–7m, 2–3"..." 143 23–32m 145 23–32m 148 24–29m, 25–26u "permanence | végétale" 149 8–13m, 22–25m 150 1–5w has changed very little 2–6m, 3u "l'an 451" 152 wt He did make sections, & I shd thought may have been steeper 1–6m, 30–32m 153 1–4m 160 wt Tumuli in many parts 164 4–9m 165 1–11m, 17–22m 168 6–10m, 6–29w I think earth-castings when they come to bottom of slope must be carried away 169 21–25w He forgets new Humus formed 182 26–32m 187 29–33m 189 20m 226 29–32m

⌀

ÉLIE DE BEAUMONT, Jean Baptiste Armand Louis Léonce *Note sur les systèmes de montagnes les plus anciens de l'Europe* Paris; 1848 [CUL]

124 17–29m

EMERY, Carlo *Fauna und Flora des Golfes von Neapel 2. Fierasfer* Leipzig; Wilhelm Engelmann; 1880 [Botany School] ⌀

ENCYCLOPAEDIE der Naturwissenschaften Breslau; Trewendt; 1879–1882 [Down] ⌀

ENGELMANN, Wilhelm *Bibliotheca historico-naturalis* vol. 1; Leipzig; Wilhelm Engelmann; 1846 [Down]
gd, wd

NF ~~ccc~~

NB1 Any of Nillson in French?; 305 Is Nillson's Handbook in German or Swedish?— I think not; 367 Wagner on Geog Distrib of Mammals; Pritzel Thesaurus Literaturae Bot. 2.2 (in Athenaeum Club); Steudel Nomenclator Bot. 33 in Linn Soc.

NB2 Tidsskrift p133

Danish Tra. p57

p289 Vermischte Zoolog. includes domestic animals

Ancheria p749

Sardinia p157

p531; p.636; 73; 142

ix 11m/w~~cc~~, 12m 38 46m, wb England & Amer p38 France p61 48 9m 57 51m 61 35m 103 17m 133 22m 157 49–53m 240 wt● 303 6m 304 3m/w Meyer – got 45m 311 48m 320 31–34w 1st edit about 1816 36m (Cuvier), 38–39w this is mine 338 39w~~cc~~ 339 43m/w out of print 341 39–47w/wb~~cc~~, 44–45u "1789–1813" 429 42m 486 31m 527 31–32m, 41–43m (F.L. Delaparte) 531 30u "R. | XXXIX" 554 3–7m 749a 19m 754b 5m 785b 44–48m

ENTEN, Schwanen und Gänsezucht Ulm; Ebnerschen Buchhandlung; 1828 [CUL]

f, v, wd

NB p.25; 28,36; 78; 83; 87; 143; 144

SB □β

p25 Goose sometimes top-knot

p36 Wild Goose 10–12 Eggs p28 tame lays 13–18

p87 Tame Duck will lay 80–100 Eggs in year
p143 Details of Rearing wild Ducks in Sweden – Tiburtius reared them for 3 generations & they did not vary in least in taste or feather.

25 12–14m 13u "selten isabellgelb" 14u "Straus" 28 ↑7–5m 36 ↑10–9m 74 1u "un"/? 78 ↑10u "wilde | Art"/!! 79 14u "Busch | Kopfe"/ w what ↑10u "hängende", ↑3–1m/↑3u "China | Vaterland" 83 ↑4–1m/w/wb one considers the handsomest tufted Ducks those, whose tufts are made of many little tufts. 87 6–10m 143 13–15m/15–25w Has reared & formed useful Ducks from wild Birds Q~~cc~~ 144 5–10w Have kept for 3 generations feathers & taste like wild Ducks

ERCOLANI, Giovanni Battista *Nuove ricerche sulla placenta nei pesci cartilaginosi e nei mammiferi e delle sue applicazioni alla*

tassonomia zoologica e all'antropogenia Bologna; Gamberini & Parmeggiani; 1880 [CUL, I] ∅

ERCOLANI, Giovanni Battista *Sull'unità del tipo anatomico della placenta nei mammiferi e nell'umana specie e sull'unità fisiologica della nutrizione dei feti in tutti i vertebrati* Bologna; Gamberini e Parmeggiani; 1877 [CUL, I] ∅

ERICHSEN, John Eric *The science and art of surgery* 5th edn, 2 vols.; London; James Walton; 1869 [Down]

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ERRERA, Léo *Sur la structure et les modes de fécondation des fleurs* Part 1; Gand; C. Annot-Braeckman; 1878 [CUL, I]

v

NB 212; 62, 65, 66 Cleistogamic Flowers; 70; 117; 144; 123; Plantago 170 variation passing from Entomoph into Anemophilism; 129 Table of terms; 133; 146 Index of terms; There is also much on variation of Pentstemon

62 3–19m 65 5–25m 66 26–28m 70 12–24m 84 22u "à | guêpes", 24u "Linaria sriata" 85 4u 111 1–23m (Sprengel) 122 17m 123 5–17m, 18–21m 124 6–10m 133 5–21m 135 28–30m 136 16–27m 154 11–19m 196 22c "portaient" 212 24–31m 213 20–24m

ESCHRICHT, Daniel Frederick, REINHARDT, Johannes Theodor and LILLJEBORG, Wilhelm *Recent memoirs on the Cetacea* ed. W.H. Flower; London; The Ray Society; 1866 [Down]

NB not read

57 32u 66 13–17m, 22–24m/22u, 30–39z 74 6–9m 78 26–31m

ESCHWEGE, Wilhelm Ludwig von *Beiträge zur Gebirgskunde Brasiliens* Berlin; G. Reimer; 1832 [CUL, on B]
gd, sh

NB 36 66 486 Shells at Bahia & St Pauls
The last chapter I have marked, but must be read again carefully

36 6–12m/7u "aufgeschichtet"

∅

469 24–25m 471 5–7m 472 1–2m/u "Bergbau | getrieben" 478 7–9m 479 12m 483 1–11m 484 9u "Granitmassen"/9–16m/u "nichts"/15–16m 486 6–16m 488 9–13m, 34–38m

ESPINAS, Alfred *Des sociétés animales; étude de psychologie comparée* Paris; Baillière; 1877 [CUL]

beh, co, in, oo, or, sl, t, ts, wd

SB □β

p14

47 Instinct of Aphides

54 Actions performed without distinct reasoning – good

☞ 196; Much on instinct

& the mental qualities of animals & individually on sexual selection, but I have not read all carefully.

p.300

☞ 305; 308; 317

(over) ♦ ☞

Except in the coral instance I do not believe that either corporeal structure or mental ability are ♣ due ♣ to the preservation of single individuals

☞ I have never alluded to the very useful work of definition, but it seems to me that the term social ought to be confined to ♣ animals which are induced☞ to ♣ live together through mental attributes, independently of any physical bond, & if so corals &c cannot be said to be social even in the lowest degree, any more than the buds on the same tree.– but it is rather beyond my line of work, being too philosophic or ●

I have now read your work, but I have nothing particular to say

It seems an interesting & very valuable Work & you have been great adaptable in acquiring great knowledge from all sources. Every one alluding to the mental power & nature of animals wd be bound to study it./p54 As you hardly admit to principle of evolution we view all subjects from such widely differt points of view, that it is not surprising that we should often differ. Allow me to point out that you have unintentionally misrepresented me at p.47 I have not discussed the origin of the instinct of domesticity, & have only alluded to them with respect to the question whether the aphides have any advantage from giving to the ants the social○ instincts○ I shd have added differs from conscious

14 2–5m 47 16–24m 54 14–31m 55 1–12m 57 7–17m 196 1–9m☞ 300 7–13m/w fear makes cluster more together? 305 1–8m☞ 308 1–3m☞ 309 wt a Cat & a Dog brought up together will love one another 9–12m☞, 21–23?☞ 317 8–12m☞ 351 12–18m

EURIPIDES *Hecuba* Oxford; J. Vincent, H. Slater, J. Mawman, Deighton & Sons; 1836 [CULR, S Charles Darwin, Christ. Coll.]

(here and there, translations and paraphrases of text)

EYTON, Thomas Campbell *Osteologia Avium* 2 vols.; R. Hobson; Wellington, Salop; 1867 [Down]

FABRE, Jean-Henri Casimir *Souvenirs entomologiques, études sur l'instinct et les mœurs des insectes* Paris; Ch. Delagrave; 1879 [CUL, I, S] beh, v

NB p122; p.129; p174; p.211; p241; 271, 2
SB → 121 p.122 124 variation p.122 124
Instinct good; 129; 176–177 some variation of; 211 on finding way; 241; 318.
⇒ 168 cutting off Antennae; 172 shutting up cell; 177 parallel case
title page u (author, title) 73 26–27m 121 31–35m 122 wt Gauchos killing by pitting○ 6–17m, 36m 123 19u "criquets|habituels", 36m 124 1–3m 125 32u "dernier siècle" 126 28u "guêpe" 129 33–36m 168 31–35m, wb antennae or palpaes when former cut off 169 17–20m/19u "tous|palpes", 30–36m/→ 170 2–5m/3–4u "six|oviscapte", 19–22m 171 34–36m 172 9–15m, 17–22m 174 2–13m 176 31–36m 177 1–4m, 14–22m, 25–31m 211 15–24m, 27–29m 241 25–32m, 33–35m 262 14–29m 271 21–28m, 32–35m 272 27–32m 274 wee 296 18–26m 297 18–24m 299 26m 311 8–21m 315 30–36m 318 28–32m

FAIVRE, Ernest *La Variabilité des espèces et ses limites* Paris; Germer Baillière; 1868 [CUL, I] ct, em, f, he, phy, spo, sx, t, v

SA (pp. 12–13) □R →

Dom. Animals

Faivre Var. des Espèces

◆ p. 44. various sports enumerated some good.-; p.100 on certain cult. plants which lose their character in certain sites
p71. for Pangenesis. on special action of poisons Cl. Bernard ◆⇒

◆ p 111. Pangenesis on embryonic limb grafted & developing itself. p.132 do; p114 on permanence of new race of *Datura Tatula* obtained by Godron.

◆⇒ 119 Cases of Reversion by seed.

155 vitality of pollen

⇒ 112 good (on *Canna*)

7 13–20m, 36–37m 10 36–37m/30–37w
Termites 8 forms!! 22 2–9m 23 1–14w or rather a state of Direct action Polymorphism 16–31m 25 36m 44 24–28m/26–27w Sport 36–38m/w Sport 45 4–7m, 12–17m/w Sport 37u "Carrière"/37–38m 71 35–38m 90 9–16m 95 27–35m 100 10–37m 101 2–18m 102 21–36w yet has said before few ♣ natural races!! 103 11–21m 110 33–35m, 36–37m 111 wt Pangenesis 1–4m, 38m 112 1–6m/2u "membre anormal"/4u "cette|plan"/1–2w Pan 114 11–

15m 119 9–16m 132 34–37m 133 10–17m 141 33–35m 155 12–14m, 25–28m, 36–37m 156 15–19m 158 15–18m, 16u "Balisiers", 16–19w Canna Dict. class. 159 9–11m, 19–24m, 26–30m 177 8–15m, 18–22m

FALCONER, Hugh *Palaeontological memoirs* 2 vols.; London; Robert Hardwicke; 1868 [Down, I in vol. 1] tm

vol. 1 NB 577 Canines; 581

xv 18m xvii 16m, 18m, 20m, 28m

∅

577 24–25m/25u "canines|jaw" 581 33–40m

vol. 2 ∅

FALCONER, Hugh *Report on the teak forests of the Tenasserim Provinces* Calcutta; F. Carbery; 1852 [Down, I]

NB 30 30 11–22m, 25–31m 31 34–39m 32 20–24m 33 6–10m

FARRAR, Frederic William *Chapters on language* London; Longmans, Green & Co.; 1865 [Down, I] beh

NB Gesture language 104

104 1–19m 113 w (not CD)

THE FARRIER and Naturalist edited by a member of the Zoological Society of London 3 vols.; London; Simpkin & Marshall; 1828–1830 [CUL, pre-B] ch, sl, tm, wd

vol. 1 NB Those struck out read in Vol I; 338◆; 380◆; Q 452◆; 466 change in Wool in sheep; 469◆; 547◆ – Guinea-fowl on St Helena in 1588

338 1–3m/Q 380 6–13m 452 wt All Q 17u "the sorrel", 20–21m, 26–28m/26u "often"/27u "black|dark", 28u "often"/Q 32m, 45m 453 1u "sorrel", 3–5m, 25u "tinctured|claret" "brown", 25–31→/31u "dappled", 39–41→ 455 5u, 7–8m/7u "fallow", 10u "because|goes", 12u "thence|backed", 19–21m/19u "fallow|duns"/20u "faintly dappled", 40m 456 26–30m/w Q colour 466 32–41m 467 1–7m 469 33–35m 547 21–22m, 26–27u "pintados"

vol. 2 NB Dog

◆ 151; 349; 365; 368; 379

Allude to Wilson Essay

151 25–33m 349 26–31m 365 24–26m 368 10–14m 379 20–24m, 39m 380 7–12m

vol. 3 NB ◆ 17; 115

Rabbit & Hare not crossing Q→

FARRIER

17 9-20m, wb no selection by men 115 16-25m

FAUNA UND FLORA des Golfes von Neapel, Monografien 1-4 Leipzig; Wilhelm Engelmann; 1880-81 [Botany School] ♂

FAYRER, Joseph *The royal tiger of Bengal* London; J. & A. Churchill; 1875 [Down, I]

FENWICK, Samuel *The student's guide to medical diagnosis* 2nd edn; London; J. & A. Churchill; 1871 [Down, FD]

FERGUSON, George *Illustrated series of rare and prize poultry including comprehensive essays upon all classes of domestic fowl* G. Ferguson; Beaufort Library; 1854 [CUL] af, beh, br, cc, cr, cs, dg, f, fg, he, hy, in, sl, sx, wd, y

NB I must be careful about trusting this man.- Mr Tegetmeier says not known as a Farrier. Mr Brent does not know, but says he offered to sell Coops & Aviaries - so must at least have kept Birds.-

Tegetmeier has commented The whole Book a pack of lies & compilations

SB1 □X ♦♂

iv♦; iv; v♦; v; vi♦; p.v♦; vi

23; 27; 31; 32; 35; 49; 67*; 69*; 75, 75*; 82; 85♦; 91; 93; 108; 151; 162; 163

♦♂ see p. 27 to explain

♂ a good deal of remarks on Polish Spangled Cock & Hen; Cocks & Hens almost always different Spangling v. wild Hen which is I think barred

⟨♂; ♦♂⟩ Cuckoo Poland; Cocks & Hens almost always different from part Spangling & barring planned○ in Hens

SB2 317; 320; 333; 342

⟨♂; ♦♂⟩ Always put after Page names of Breeds (Shangae) (Game) &c; connect perhaps ♣ by dots (See p. 27); Clean well the pencil marks.-; Keep Book Clean.; Write smallish on one side, number your pages.

⟨over⟩

♦♂ → ♂ Mr Norman put in name at top

171; 172 ♣; 176; 177; 186 ♦♂ Good example of Malays; 187; 192; 201; 206; 230; 254; 260; 262; 277; 281; 284 ♦ Kissing○ each other; 296 see Weight of Malays 297; 299; 302; 304♦; 305; 311; 313

⟨♂; ♦♂⟩ Look at weights of Malays over

SB3 □β ♂

p vi. no ancient selection Q♂

p. 23 Black-red Cock Shanghai resembles game Q♂

- 27 on power of male Cochins in courting shy females

35 Shanghai eggs granulated Q♂

49.- slowly feathered

75 Prefer breeding from bad bird of good pedigree to good bird with bad pedigree

83- experiments on interbreeding Spanish ♣ causing Degeneracy.

93 Grey Dorking like male X♂

108 about ascertaining & selecting flavour of flesh when killed ♣ preserve brother: with respect to neuter insects.- X♂

162 Fanciers select each point to excess. a little peculiarity ♣ valueless - a great more valuable or. - quote.- X♂

172 All birds more readily acquire than lose a peculiarity.- Polish Fowls heads very hereditary ♂ see Poultry Chronicle ♀ Easily grafted by a cross

186 O♂ Malay Hen 10 caudals - crow peculiar.- individual differences

⟨over⟩

192. Deist - believes of multiple origin Q♂

201 Hybrids with Pheasant - Lies ⟨u.♂⟩

285 on proportion of Male & Females - Males in excess.-

297 Eggs of Black Bantam different shape Q♂

302 Cuckoo Bantams Q♂

311 Highly-bred Birds - many eggs unproductive

313 - change of locality lessens injurious effects of interbreeding

317 Freemans Game stock degenerating from interbreeding

iv 14-20m v 23-30m, 34-35m/34[... vi 1-10m/3-4Q 23 13-17m 27 1-6m, 20-24m, 26-33m 28 1-10m 31 16-21m 32 8-17m, 18-23m 34 12-13m 35 11-21m 49 22-26m 67* 28-33m 69* 30-33m 75 30-33m 75* 1-4m 82 24-31m 83 1-5m 91 5-8m 93 31w Grey Dorking 32-33m 108 5-11m/Q 151 11-17m 162 24-32m 163 1-3m, 4-15m 171 19-28m 172 5-12m 176 28-33m/30w Dixon 177 3-17m 186 7-10m, 29u "13"/28-32m/w see Bantams 187 17-22m 192 2-5m 201 4-29m 206 20-29m 230 25-28m 235 10-16m 252 33u "The|varies" 253 1u "from|cream", 7u "hens|unusually" 254 26-31m 260 4-8m, 13-16m, 17-18m, 18-24m 261 15-25m 262 24-33m 277 32-33m/wb Pencilled H. 282 1-4m, 7-11m 284 31-33m 285 1-2m, 9-15m 287 6-11m 296 2-6m, 15-17w Cock & Hen same plumage 19-22m, 29-33m 297 15-22m/19z 299 8-12m 302 wt Cuckoo Poland mentioned 1-3m 305 11-15m, 23-26m 311 30-

33m 312 1-5m 313 5-10m, 20-29m 317 11-32m 320 3-9m 333 1-8m 342 7-11m
(67* means second p. 67 etc.)

FERRIÈRE, Émile *Le Darwinisme* Paris; Germer Baillière; 1872 [Down]

NB O/

FERRIÈRE, Émile *Le Darwinisme* Paris; Germer Baillière; n.d. [Down, another copy]

NB O/

FERRIS, Benjamin G. *Origin of species, a new theory* Ithaca, N.Y.; Ithaca Democrat Print; 1871 [Down]

FICHTE, Immanuel Hermann *Die Seelenfortdauer und die Weltstellung des Menschen* Leipzig; 1867 [Down]

xlvi 9-46m/10w●

FISKE, John *Darwinism and other essays* London & New York; Macmillan & Co.; 1879 [Down]

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vol. 1, 129 7m, 8m

FITTON, William Henry *Notes on the progress of geology in England* London; Richard Taylor; 1833 [Down, on B?, I]

FITZGERALD, Robert David *Australian orchids* vol. 1 i-vii, vol. 2 i, iii, iv, v; Sydney; Thomas Richards; 1877- [Botany School, I] f, fg, gd, sp, tm

vol. 1 i, 1 26-27x^o, 27m, 28u[▲], 34u[▲]/34-39m, 35-38m/36-41w How in other parts of range? 40u "in|seed"/x^o/w seed with every 44-47m/44u "or|time", 49-50m/x^o 2 wt Is this native rate - Try with own pollen F. Muller & Scott (in Fs letter one is perfectly fertile if own pollen placed on stigma) 1-3m, 34-40m/?, 50-52m 3 1-5m/x^o, 5x^o, 12x^o, 16x^o/w^o rare 4 1-6w As the seeds did not germinate, it cannot be told that nat fertilisation occurred 13-15x^o, 16-17m, 26-30m, 47-49m♦^o *Pterostylis longifolia* 8-9m, 14-19m/15u "from|half"/16u "one|five", 22-27m/22u "instantly carried"/24u "two|pollen", 33-35m, 36-39m, 40-42m, 43-44m *Caladenia dimorpha* 7u "lip|column", 7-9m/"..." /w Genus like 10u "without|such", 24-26w are

not the calli nutritious

vol. 1 ii, *Spiranthes* 15-17m/x/16-17u "touch|stage", 20x/u[↔], 23-27m/x/26u "under|fertility" *Adenochilus* 14-16m/x *Saccolabium* 2x

vol. 1 iv *Thelymitra* 13-17m/16u "have|the", 18-25m, 28-42m

FITZROY, Robert and KING, Philip Parker *Narrative of the surveying voyage of H.M.S. Adventure and Beagle* 3 vols and appdx.; London; H. Coburn; 1839 [CULR, 2 copies of vol. 3, one marked by FD]

gd, geo, gr

vol. 1 NB ♦ 2; 8; 56; 136; 140; 204; 210; 258; 306; 328; 337; 363; 375; 385; copied out

SB (not CD)

2 15-17m 3 21-27m 6 3-6m 8 1-4m 56 31-34m/w Feb 57 22-24m 58 1-3m 59 5-7m 87 14-16m 133 29-33m 136 6-10m, 29-34m 140 9-12m, 19-20m, 22-28m 204 20-28m 210 18-25m 258 22-26m 306 3-9m 307 22-26m 328 9-12m 329 9-10m 337 1u "some|which", 14-21m/16-21w 168 ft!! 42ft 126 28-31w^{ee} 343 7-8m 363 10-13m 375 20-28m 385 1-6m 398 24-30m

∅

vol. 2 NB1 ♦ 251; 277; 415; 418; 420 copied out

NB2, SB (not CD)

39 30-31m 43 13-15m 65 5-7m/w no 131 (markings not by CD until) 251 33-34m 277 30-33m 412 20-25m 413 10-13m, 18-20m, 22-28m, 33-36m 414 1-13m, 15-23m 415 1-7m, 18-20m 420 5-15m 421 1-7m, 33x/u "twenty toises" 485 31m 486 17-18m 488 22-23m 490 23m/m/u "1832" 496 27-30m 498 11u "James Island", 12u "side|Charles", 8-14m/w the leeward side compared with 502 9-11m, 35-37m 504 19-22m 505 15-18m/16u "north-west", 30-34m, 36-37m

vol. 3 NB 209 & 210 Law of succession of life in S. America

153 Distribution not always

(many markings not by CD, except) 153 1-4m 154 17-21m 184 w^{bee} 185 w^{tee} 201 w^{tee} 209 4-6m 210 6-9m 215 31a "The"/31-33c/31-37w/wb puma, with the condor on its train follows & preys on the guanaco (Habits of.) 216 1-7c 272 16-17m, 25-26m 273 9-20m 307 w^{bee} 460 4-7m (Henslow) 556 3-4m 585 3-15m

Appendix NB p.145 p.143 p.146

131 1-10m 132 11-20m(CD?) 143 3-12m 145 15-18m 146 12-16m

FLEMING, John *A history of British animals* Edinburgh; Bell & Bradfute; 1828 [CUL, pre-B]

br, tm, v

NB p.264 – Analogous to Pigeons – on vars of *Helix nemoralis* coupling together.–

(untranscribed w are page-number references)

59 9w, 37w, 42w 60 4w 94 1w 116 20w, 33w 117 1w 148 15w 162 13w, 35w, 49w 177 wt acanthopterygious 22w, 37w 178 1w, 19w, 29w 202 2w, 8w, 29w, 36w, 39w 203 1w, 11w, 22w, 38w 224 9w not in this volume 12w 225 4w, 8w, 9w, 10w, 14w, 15w, 17–19m/w, 21w, 25w, 26w, 28w, 29w, 31w, 33w 226 12w, 25w 264 13–20m/16u "Reverend! Sheppard"/14–16w Linn Trans? 27–29w 281 33w, 34w, 36w 296 3w Scutibranchia 12w, 13w, 15w, 20w, 27w, wb Cryptobranchia Heart entire detached from rectum Scutibranchia Heart with two auricle traversed by the rectum. 297 12w, 16w 328 5w, 12w, 17w, 23w, 29w, 32w, 36w, 39w 329 1w, 2w, 5w, 8w, 10w 381 11w, 22w, 29w, wb Siphonida. Cloak more or less closed forming syphons 408 382 1w, 9w 408 2w, 10w, 26w 409 1w, 17w, 32w, 43w 410 1w, 7w, 14w 467 23w 472 3w, 7w, 9w, 13w not in this volume 473 8w, 10w, 12w, 13w, 18w, 20w 474 9w, 17w, 20w 505 2w, 3w, 5w, 7w, 10w not in this volume 506 9w, 24w, 27w, 35w, 43w 528 3w, 5w, 12w, 19w 538 10w, 16w, 23w, 27w, 31w

FLEMING, John *The philosophy of zoology* 2 vols; Edinburgh; Archibald Constable & Co.; 1822 [CUL, pre-B, S in both vols.]

beh, br, cc, fg, gd, is, mg, oo, phy, sx, t, ti, ud

vol. 1 NB1 See Class Index in next volume.

NB2 almost all first relating to Instinct

20; 50; 52; 221; 224; 229; 231, 2; 236; 241 – good; 246; 254, 6 to 268 to 274; 277; 298; 302; 308; 409; 425; 427xx; 429; 430; 432 20 10–15m, 27–34m/30u "instinctive | injuries" / 28–32w how loosely worded 50 19–21m 52 15–18m (Linnaeus) 220 8u "Association | Ideas" 221 2–6m/6u "recollection", 9w dreams 224 19–23m/?, 23–26w ♦ 225 2–8m/w how known? 229 7–9m, 32–33m 230 26–30m 231 23–27m 232 4–9m/w like Audubons Water-Dog 10–17w Old Greyhounds will not run if Hare starts at a distance 233 25–31m 235 23–32m 236 5–11m/w shamming death ♦ My Rio de Janeiro spider shows insects know their 241 ↓w/wt The individual who by long intellectual study acquires a habit, & can perform action

almost instinctively, does, that in his life time, which successive generations do in acquiring true instinct:– instinct is a habit of generations,– each step in each generation, being intellectual for in lowest animals some intellect? No! 23–25m/27–28m/u "rather | impulse" / ↓w the distinction between these habits perhaps important wb It is strange according to my theory that habit which results often of intellectual processes, – Habit may result from any train ie only incidentally effect of reason or (of intellectual processes) – is so related to instinct, which analogy of plants leads one to believe to exist, independently of intellect.– 243 5–9m, 10–16w How wonderful young of Kangaroo sucking 247 wt/1–6w & turning round before sleeping – covering dung &c show that principle may possibly be laid down that every instinct preserved is not changed & some of these may once have been important. 7–10m/x 254 4–6m, 7–8m, 31–34m 255 12–13m 256 19–23m 257 1–4w station & home confounded 258 29–32m/w monkeys pulling things to pieces – looking behind looking-glass 259 28–32m/30u "immediate | individual", 33–34m 261 8–14m, 26–30m 263 1–2m/w monkey with dogs 265 wt the sudden way insects recover from feigning death shows it is not effect of fainting – do insects such as *Byrrhus* contract their legs in dying??? 3–7m, 11–12m, 12–13u "Affections | pain", 14–17w !!! Baby's affect. to Mother!! 268 1–3m/w difficult to be accounted for 9–12m, 19–22m 272 27–31m/w difficult 273 17–20m 274 4–7m/w dogs – wolves porpoises 277 9–13m/w By nerves in ♦ some compound animals 298 2–6m 302 9–16m/w !!! dogs running Hare p304 304 18–21m, 29–35m 305 10–17m, 23–30m 308 24–26m/21–28w What are active powers? 309 1–6m 409 19u/a "neuter" / 17–19m/w of both sexes my theory like plants 425 1–4m/w Has true Eggs 15–17m/15u "to | confined", 19–29m/w I think infusoria properly breed 426 1–2m 427 5–18m/13u "Soc. | 268", 23–30m/w argument not conclusive also x by flowers not being permitted. wb Hypothesis – such plants were originally long lived and have become annual, having been transported (by nature) to cold climate. 428 11–14m/w ♦ in course of time, every 25–28m/w this is merely same as successive buds on trees 31–34m/33u "acotyledonous", 36–38m, wb Hence one can only say – strongly tempted to believe, only true reproduction is seminal– 429 wt/1–6w makes vast distinction between plants & animals 7–9m/8–9u "preventive |

aversion"/w ?assumed V. p. 430 note.- 27-29m, 29-34m/? 430 7-8m, 29-30m, 30-32m/32u "which exhibited" 432 9u "procreating", 10u "of species"/10-12w only applies to plants

vol. 2 NB1 The sexes of Nightingales arriving at different times, is illustrated by sexes separating as in chaffinches, where there is no migration.-

NB2 good Chapt on migration of Birds 5; 6; 8; 10; 12; 30; 33; 35; 40, 3, 4.; 108; 140; 149; 355; 356; 362; 379; 407; 530; 535; 578; 618

SB □✕

231 C. cornix breaking shells & 233 All here excellent illustrations of reason in animals.-

241 some good remarks on instinct vol. 2

10 Horse in Zetland pregnant only biennially Q

42 Flight of Birds Rate of - Hawk-case.-

44 On birds knowing time & direction

149 on masculine instincts in old Females

356 Fecundity of Fish

5 24-30m 6 9-10m/10u "excite|vomiting" 8 12u "produced|stature"/w sometimes 14-16m, 19u 10 20-21Q 24u "his|year"/25u "twelfth"/26u "above|years"/24-29m/w How other horse - goodish - How in cattle 12 9-33m 13 16-20m 30 8-16m 32 34u "leafing|elm"/28-34m (Linnaeus, Stillingfleet) 33 1-5m/2u "leafing|sycamore", 19-24m, 31-33m 34 wt/1-5w

These facts show how much influence small differences of temp - have upon - distribution of Birds 5-9m 35 2-22m, 21-24m, 30-32m/w Zoology of those Islds 36 1-7m, 9-13m 41 1-8m, 25-34m 42 wt In Montagu Dict it is said from Dr Show that a Falcon of Duke of Cleve flew out of Westphalia into Prussia in one day - but this too vague. 4-37w In Montagu Col. Thornton estimated that a Falcon after a Snipe went at rate of 9 miles in 11 minutes = 49 miles per hour but independently of numerous turnings 43 3-7m/w all correctly quoted 8-13m, wb "certainly 100 miles is not beyond a fair computation for migratory continuance". Montagu. 44 7-26m/15-19w =very good= 20-23w Pacific also wb proves a faculty - useless in indulge in mere conjecture as has been done, showing ♣ that electrical currents 108 9-11m, 30m, 31u "fallow-deer", 32m 109 25-27m 140 5-30m 149 3-16m, 19-21m

⊗

355 1-4m 356 1-4m, 20-35m 357 21-24m, 27-29m 362 1-5m 366 28-32m 379 10-12m/w Secondary male characters 21-22m 407 21-

24m 530 6-8m, 35-38m 535 6-10m, 33m

⊗

578 14-23w is presence of neuters universal in these genera

⊗

619 4-8m/w possibly serve for reference 10-16w See about Royston Crow

FLOURENS, Marie Jean-Pierre *Examen du livre de M. Darwin sur l'origine des espèces* Paris; Garnier Frères; 1864 [CUL]

NB 48 64 nothing

48 1-5m 64 8-9m 65 1-9m

Catalogue ⊗

FLOURENS, Marie Jean-Pierre *De la longévité humaine et de la quantité de vie sur le globe* Paris; Garnier; 1855 [CUL]

br, ch, cs, f, geo, he, hy, pat, t, ta, tm

NB p.50; p.84; p.105-9

p120; p130; p146; p.148; p156; p.173; p185

SB □β

109♦ 143 Hybrid Dogs & Wolves sterile from 4th generation - p.156 - Q

p144 On Prevalence Q of types in crossing Ass~~♂~~ & ~~♀~~ Horse~~♂~~ Dog & Jackall &c &c

145 reduced in 4 generations to pure form Q

148 It is succession, not resemblance which makes "a species". (Ch. 4)

185 vis medicatrix

title page u (author, title) 50 ↑15-1m 84 ↓w/wt How utterly the law fails in insects, How in Birds? Pigeons mature very quick; yet they live pretty long 104 ↑4-1m/!! 105 5-8m 106 ↑11u "le thur"/↑11-8m 108 ↑6-1m 109 6-12m, ↑8-4m, ↑2-1m 120 4-15m 130 ↑7-1m/wb Has a Man seen an escarpment worn by the sea? 134 wt argues against an inherent tendency to change. 135 6!/u "aucune|espèce", 9-10m 140 ↑15-1m/wb Yet Cuvier believed in Dogs. 141 ↑15-1m/w (a) wb (a) shows only the difficulty of deciding 143 ↑1u "dès la"/w at wb context shows this meaning 144 wt This shows, means in & in. The interbreeding may have aided, only aided, the natural sterility of the Hybrids. 1-2m/w (a) 4u "bientôt", 6u "Mes expériences"/6-8m, 12-13m, ↑10-9m, ↑8-6u±, ↑6-1m 145 3-6m, 7-16m, 18-19m/w crossed with pierpoints Q~~♂~~ 146 2u "bientôt", 4u "bientôt" 148 ↑6-4m 149 12-13m/? 154 ↑12-10m 156 4-8m, 9-12m/w 161 male 133 fem ↑7-5m 157 wtee 173 1-4m 185 10-15m/w always forming the bones & therefore capable of forming a lost part V. ante

FLOURENS, Marie Jean-Pierre *De l'instinct et de l'intelligence des animaux* 2nd edn; Paris; Paulin; 1845 [CUL]

beh, br, cs, ex, f, h, hy, mg, sp, t, ta

NB p.26; p.32; 50; 57; 85; 88; 97; 101; 106; 110; 130; 141; 175 (he probably means 173); 191; 200

SB □β

27 Condillac on instinct Q

32 Instinct a Primitive Force, Q like intelligence

50 man alone reflects

57 Q F. Cuvier has compared instinct to Habit – Well discussed

85 On Breeding of Monkeys & Hybrids in confinement, 88 do

97 On Breeding of Chacals & Hybrids of

101 Camel & Dromedary produce sterile mules

106 Breeds of sheep all fertile & with Mouflon

108 Zebra – crossed with Cattle Hybrid fertile

111 Q Beavers always amassing material in Cage

121 Thinks Fox & Dog will never couple p 131

131 Dog & Wolf sterile from 2d generation (Think of savages)

191 Cat exercise Kitten with Mice NQ

200 He saw bear wash poison off cakes NQ

26 12–15w He thought it actual habit 27 7–9m/w in that generation 32 15–18m 47 wt bird modifying nest not migrating 18–19m 50 17–20m/1–21w except by consciousness of oneself, how can this be told? if not there are no proofs that animals do not reflect 57 8–11m 58 3–6m, 13–20m 60 11c "habitude"/11w intelligence 19–21m 85 (at top of page a portion of *The Times* is stuck, concerning Duke of Northumberland giving *Cercopithecus griseo*, *Grivet*, and *C. viridis* to Royal Surrey Zoological Gardens; dated 10 August 1847), 10–12m/w p.88 14–17m 88 4–9m/6u "maki blanc" 97 11–14m/15u↔, 18–19m 101 3–4m 106 4–6m, 19–21m 107 16–19m 108 6–7m, 12–14m 110 9–13m/Q 111 9–11m 114 2–5!/m, 11–14m 116 2–6m, 9–15m 121 9–15m 130 wt/1–10m/w no doubt Pallas theory presupposes the extinction of many aboriginal species 14–23w only tenable by getting a little blood of some other species in.– 131 7–10m, 20–24m 132 14–17m/1–18w the Pig good to state Pallas hypothesis from. 133 19–21m 141 11–13m 173 18–20m 191 11–12m 200 1–2m/1u↔

FLOWER, William Henry *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals contained in the Museum of the Royal College of Surgeons of England* part 1; London; David Bogue; 1879 [Down]

FLOWER, William Henry *An introduction to the osteology of Mammalia* London; Macmillan; 1870 [CUL, S]

af, ds, phy, rd, sx, tm, v

NB 64 Caudal Vertebrae ♣

p.265–268 – good for ♣ plates of Homologies of Limb-Bones

270; 279 Analogy; 291 Rudiments; 294 Descent

Descent 325 spur of male Echidna

296 Ligamentum teres

303 Rudiment

321 foot of Marsupials origin

SB ♣ Flower Osteology of Mammals

p.265–268 excellent figures of Homology of Bones of Limbs

♦ p.270 va

p.279 – good case of analogical resemblance in bone of foot

p.291. Rudiment of Limb in Cetacea, used for attachment of Bone of Penis

p.296 List of animals which do not possess Ligamentum teres to thigh-bone – Orang is one. Have I not read case in Man doubtful? Mivart says cavity in Orang & Chimps variable

303 Rudiments of Limbs present in an ancient Sirenia, but absent in all existing species

64 13–15m/14u, 18–21m 270 24–30m 279 1–8m

291 25–33m 292 5–10m 294 12–17m, 22–24m

296 1–7m 303 1–6m, 15–17m, 18–21m 321 28–

33m 322 1–6m, 7–12m 323 1–33m 325 3–5m

FLÜGEL, Johann Gottfried *English–German & German–English Dictionary* part 1; Leipzig; G. Liebeskind; 1838 [Down] ∅

FOCKE, Wilhelm Olbers *Die Pflanzen-Mischlinge* Berlin; Gebrüder Borntraeger; 1881 [CUL, S, I]

∅

464 5m 483 10m

FOL, Hermann *Recherches sur la fécondation et le commencement de l'hénogenie* Genève; Henri Georg; 1879 [Down, I]

FOLLEN, Eliza Lee *The life of Charles Follen* Boston; T.H. Webb & Co.; 1844 [Down]

FORBES, Edward *On the Asteriadae found fossil in British strata* (offprint) [CUL, I]
af, ds, em, fo, sp, t, ti, tm

SB1

p.458 &c

↪ p526 This paper must be read after looking over Von Buch

to end – I am not at all convinced by it –

SB2 □β

458 Crinoidea & Echinidae essentially "chronomorphic"

– Knowledge of Fossils confined to N America & Europe, evidently one region.–

460 Silurian star-fish a recent genus

526 Table of affinities of Echinoderms, showing that does not go with age p531

457 1u "Asteriadae", 2u "Forbes", 12–16m 458 1–6m, 10u "chronomorphic", 14–20m, 42–43m

459 21–25m, 35–38m, 43c "corresponding"/w↪

Silurian 460 11–13m 461 3–12m 463 33c↪

"Lower" 464 5c "Lower", 21c "Lower" 526 wt/

table.w↪ How absolutely without Law is the

development of groups ie nothing like ♣

embryonic metamorphosis 1u "Echinidae"/

wt↪ doubtfully palaeozoic p458 1u

"Asteriadae"/wt↪ existing genus Bala. ∴

oldest p.459 3m/w carboniferous ?Older?

table.w↪ Silurian table.w I do not see why

Cystidae may not have been the parent

form & given out 3 lines; as well as be

inserted between Crinoidea & Echinidae.

table.m "Crinoidea"/w Lowest order ♣ order

wb I do not see why Cystidae placed above

Crinoidea; the only sd. argument ought to

be derived from simple organization.– 527

25–27m↪ 531 16–23m↪, 33u "first"/w I fancy

not in time 532 11–12!, 13u "negative | polar",

24–36w absolutely unintelligible 533 8–9!/9u

"exactly | value", 15–17!, 38m, 39–40!

FORBES, Edward *A monograph of the British naked-eyed Medusae* London; The Ray Society; 1848 [Down]

sy

NB ♦ 40 Remark on nomenclature

FOREL, A. *Les fourmis de la Suisse* Zurich; Zurcher & Furner; 1874 [CUL, I]

beh, cs, em, fg, he, ig, no, or, pat, phy, r,

sp, sx, tm, ud, v

SF □β ↔

Kreisirrenanstalt Munich

NB Page III

13–19 121–134 144–147 116–121 258–269

272–274 ↪ 276–283 285–293 299–300 308–

310 341–351 314–315 371–374 386–388

391–396 440–449 443

SB1 □β ↔

All marks from beginning to end

SB2 ↔

p.14 on differences of worker Ants

p.123 Brains of male female & neuter very curious

135 Ants clean each other, 152 take old nests & modify them to their own use

p.203 Make or work on roads.– 206 invent new methods & vary their work.

208 adjoining colonies friends 248 in cutting off heads of other ants – knows position of ganglion

249 courage varies according to number of community. 250 ♣ attend to slightly injured ants – leave badly wounded.– 251. Friendly

ants rather perish than attack each other for food. 258 263 allied ants of distant species–

274. In fighting tactics of different species different. 280 association of 2 species

286 On ants recognising each other for a time & at last forgetting – Huber error

296 A few ants determine course of others – 301 signal communicated

304. Ants get mad with rage when fighting & are calmed by the others

307. Stupidity of Rufescens in not taking cocoons on ground, because will try to find

entrance to supposed nest. p.321 number of slaves 20,000–25,000 under 1 year by P.

rufescens They examine previously the nests to be attacked.

343 In one genus concludes that all crossing except between Brothers & sisters male

cannot leave Nests (dimorphic!) (but I think courting ●)

(over)

p341 a slave-maker.– 347 gradation towards perfect slave-maker.

p.359 F. sanguina number of slaves very variable p.363 Errors of F. Smith

363 Different tactics of 2 species in fighting

365 364 var of rufa F. rufa normally makes slaves 366 ♣ number in nest –

367 sick one attended to by comrades 367 play

373 Mixed colonies, not explained.

394. Nymphs of Ants cannot open cocoon for themselves, without aid from others,

often aid them in removing the skin

397 same female fecundated by several males – 398 fecundated female does not enter old nest

399 females fecundated are often caught & brought back by force to natal nest, & these

must have been fecundated by males of same nest.

FOREL

417 not known how new colonies established.

419 very curious evidence how rarely ants of distinct nests intercross.

421,422 Ants protect their Aphides from all enemies – so mutual service.

440 excellent summary of Whole; approves of what I have said of origin of slave-making

441. thinks atrophy of ovaria in Neuter may be due to development of their brains.– 441

trace of castes in neuters very general – about intercrossing 446 Indecision of Mind & Struggles between opposed instincts.

14 9–16m, 18–24m 15 1–4m, 6–8m 7u "règle | distincts", 11–12m, 16–4m 18 16–20m 19 1–5m 123 18–16m, 113–10m 135 14–12m 152 11–16m 203 6–8m/8u "travaillent | les" 206 10–12m 208 5–11m, 12–17m 209 16–1m 248 15–19m 249 12–9m 250 1–4m 1u "exceptionnellement", 113–1m 251 10–12m 258 18–15m, 19–5m 262 1–3m, 10–14m 10u "fraîchement écloses"/11u "travaux | des", 18–20m/19u "trois | jours" 263 3–7m 274 14–12m/14u "tactique | est"/w of different species 280 18–2m/w association of 2 distinct species 286 15–20m 15–16u "Voilà | origine" 287 1–4m 1u "compagnes | mois", 18–22m, 23–24m 296 18–14m/18u "la | donnée", 113–1m/13–2u "elles | arrière" 301 12–7m/10u "un | toutes"/19u "dans | direction"/w clearly signal 302 15–12m 304 10–3m 307 8–15m, 16–18m, 20–24m, 17, /u "esclaves | reconnuent" 308 11–8m/10u "Revue | scientifiques" 321 11–16m, 17–4m 325 5–6m/w ponte larva 16–18m 17–18u "tandis" 343 4–1m 344 1–5m, 17–5m/17u "P. rufescens" 347 13–1m 359 18–4m 360 4–9m 362 6–8m 363 2m, 4–8m 6u "faisaient | du", 15–1m 364 14–15m, 17–20m/18u "savoir | plus" 365 18–16m 366 19–3m/18u "5000 | 500,000" 367 17–19m, 16–1m 369 14–11m/14–13u↔, 18m 373 10–1m 394 7–11m, 13–20m 395 13–9m/12–11u "se | seules" 397 20–22m 398 4–5m 5u "de | diverses" 399 15–11m, 10–9m, 7–5m 400 12–1m 402 14–10m 417 12–15m 418 14–12m 419 11–28m/m 421 5–8m, 9–11m, 12–9m 422 7–9m 436 12–1m 440 14–6m 441 1–7m 5u "le | du" 6u "atrophie | secondaire", 10–12m, 18–20m, 21–23m 442 1m, 15w Sexual differences 17u↔/15u "travail | tout"/19–6m/w not transmitted, but given to neuters & thus indirectly acquired by by males & females. very curious. 15–4m, 13u "au | autre" 443 8–9m/w | ought to read again about Strong. testaceous 10–13m, 19–22m/21u "dans | manière"/22u "d'une | d'autres", 24–26m/w & most dominant on earth 13–1m 444 2–10m 3u "tandis | besoin", 9–12m 445 12u "les | sont", 120–18m,

113–11m, 17–4m, 13–1m 446 3–15m, 10–7m, 17–4m 447 1–3m

FORSTER, Johann Reinhold *Observations made during a voyage round the world* London; G. Robinson; 1778 [CUL, pre-B, S]

beh, co, gd, geo, gr, is, se, sp, ve, wd

NF Classes Islands p14

2 p.27 Tanna volcanic and has I certainly think elevated coral on coast

NB ♦ 21; 22; 179; 183, 5; 187, 9; 193

(Abstract)

187 Besides two domestic Mammals only Bat in Western isld; & Black Rat in Society, Friendly & New Hebrides p188 in Tanna 2 species of Bats.

p188 Hogs of same breed in the several isld 193 Natives of Society & Friendly Isld catch & tame Pigeons & Parrots –

14 2–23m, 7u (place-names)/5–8w Maatea a little to SE of Tahiti V. p 93 8u (place-names)/w close together 17 4–5m 20 1–2m 23 18–23m/20u "formed of corals" 24 1–5m 26 20–23m 27 16m 69 8–10m 70 18–22m 147 7–16m/7u "one | only"/w V. 173! 10–14w NB In Cooks voyage nothing is said about Forster landing here 17u "Turtle Island"/15–20w ?ought this not to be written Savage Isld In journal (his own) says passed by it, no anchorage 155 18–23m 173 8–16m/10–11u "raised | water"/13u "grew | without" 179 17–19m/→ 180 1–5m 183 18–21m/w stuck to rocks 185 22–24m 187 4–6m, 18–19m 188 7–9m, 16m/14–16w implies same var. 17–20m 189 8–16m/9–10w implies same var. 193 9u "at | size", 12–15m 229 15–18m 235 5–9m 237 14–17m 238 1–7m, 26–27m 251 23–24m 326 1–3m 327 18–19m 364 11–13m 384 17–5m 403 4–5m 432 22–23m 450 13–15m 459 6–8m 554 19–8m, 12–1m 560 1–4m 561 12–16m 562 20–26m 567 18–19m 569 9–11m 588 15–21m 589 1–4m

FORSTER, Thomas A *synoptical catalogue of British birds* London; Nichols, Son & Bentley; 1817 [CUL, pre-B, S Charles Darwin 1826]

sp, y

facing 2 w The Ringtail in Turton's British Fauna is made a distinct species, under the name of Falco Pygorgos – as does Lewin & Wolcot facing 11 w 77.78 These are considered by Turton, on the authority of Dr Latham, as only the young & very old ones of E. Nivalis

FOSTER, Michael, and BALFOUR, Francis M. *The elements of embryology* part 1; London; Macmillan & Co.; 1874 [Down]

FOSTER, Michael, and LANGLEY, J.N. *A course of elementary practical physiology* London; Macmillan & Co.; 1876 [Down, I]

FOURNIER, Eugène *De la fécondation dans les Phanérogames* Paris; F. Savy; 1863 [CUL] dic, fg, gd, mhp, oo, sx

NB 56 Read; Fert of Liliun p.52.- Lopezia curious contrivance for fertilisation

◆ 61 Drosera

68◆

73 Flowers under water make ball of air -

◆ 117 to 130

61 Parietaria like Nettle (wind)

117 on fertilisation of grasses

118 Dichogamy

120 Moicous like Dioicous in fertilisation

Cucurbita Pepo monoicus & dichogamous

52 15-20m 56 2-10m 57 25-30m 61 2-13m/5u "acide cyanhydrique"/5-6u "les |acides", 23u "Pariétaires" 62 12-21m 66 6-11m 68 13-25m (Hofmeister) 70 3-9m/1-5w no doubt wd visit occasionally 73 10-14m 117 18-25m 118 14-16m, 26-31m 119 22-26m 120 9-12m

FRANCISQUE-MICHEL *Du passé et de l'avenir des Haras* Paris; Michel Lévy Frères; London & Edinburgh; Williams & Norgate; 1860 [CUL, S]

beh, v, y

SA (pp. 81-82; a fragment)

NB 7 Horse imported into France 705-7

47 different colour valued by end of 15th cent

X² 50 Arab do

◆ 84 only end of 8th century - Charlemagne gives precise valuation about Stallions; 90 Prince of Wales bring a Stallion in 1305

SB ◆ p7; p.47; 50; 84; 90; all classed

title page u (title, author) 7 2-4m/3u "arabis", 15-19m 47 6-8m, 11-13m/12u "liart pommé" 50 wt/5w◆/7w (not CD), 5-10m/w arab superstition about calves Hoof 51 19-21m² 84 1-2m, 6-7m/6u "des |reproducteurs", 11-12m 90 9-10u "Edward | Canterbury", 11-23m/13u "et | étalons", 15u "beau | servir", 16u "prêter"/20u "bien | ramèneront"

FRANK, Albert Bernhard *Beiträge zur Pflanzenphysiologie* Leipzig; Wilhelm Engelmann; 1868 [CUL, S] mhp, t

5 26m 8 26-28m 9 30-31m 10 20-26m/w 1 28-31m/w 2 11 14-20m 15 27-28m 16 30-31m 17

26-28m 19 11-21m/14-15u "muss | auswärts", 25-27m 25 23-33m 26 26m 32 11-12m 38 22-25m 39 25-26m 42 15-18m 43 8-14m, 22-23m², 24-25m 46 13m 47 22-24m 54 33-34m 55 30-32m² 56 11-17m 57 3-5m 59 7w 15/9 17-27m, 28-30m² 61 15-17m, 21-22m/21u "Die | völlig", 25-26m 70 table-columns.w V' X' V X 72 17-23m/17-19m/18-19m 76 6-8m 77 wt Good Boy 78 23-25m/24u "inneren Schichten" 80 4-19w inverted radicles, quite perpendicularly yet moved downwards 81 1-4m/wt Explains by growth not being equal all round 83 32m 85 18-27m/21u "Heliotropismus"/24u "Geotropismus" 86 4-5u "hängenden | trauernder"/w geotropic 13u "Sie | während"/12-14m/w capable during whole growth 88 7m 90 17-20m 91 2-6m, 17m, 19-26m/20u "Decandolle", 23w BR 97 1m, 3-5?, 24-27m, 26u "concentrirte Zuckerlösung", 27u "Krümmung unverändert" 98 wt◆, 1-3m, 12-14m◆

FRANK, Albert Bernhard *Die natürliche wagerechte Richtung von Pflanzentheilen* Leipzig; Hermann Weissbach; 1870 [CUL] ad, beh, cc, mhp, phy, t, v

SB1 ☐☒

From final chapter

p.90 Organs will grow in all directions some favourable & some hurtful - will change into favourable position - I suppose individ. movements.-

Movements become so firmly associated with certain external influences such as light & gravity that the latter suffice to cause the same process of growth or movement.

good/ like instinct - compare with chicken seeing food & eating it an associated habit in this case

over
(over)

We must say that we ◆ take nearly the same general view as Frank does about the manner & means by which all the parts of plants adapt themselves to the position in which they stand & to external agencies; but with this considerable important difference that we now know that each growing part is continually in circulation, ie bending to all sides, & if it be advantage to a part & to the plant, for it to bend in any direction with respect to the remainder of the plant, or to any external agency, if this agency produces any effect which can be perceived by the plant, then the circulating movement can be modified to or for such agency, or the time of such movement can be modified in

FRANK

atten.○ to such agency as in the shape of ♣
Leaves.— no darkness may be cause, but
not of direction.

SB2 □β ↻

A.B. Frank Die Natürliche Wagerichtet
Richtung von Pflanzentheilen 1870.

p.2 speaks of sense for attraction

17 says position of all horizontal stems due
to gravitation & light; but at

18 Light always preponderant over gravity

20 *Fragaria* stolons see to this movements
very slow.

45 leaves stand at right angle to light —
inclined when light strike one side

46 leaves rise up in darkness — ie are
apogeotropic & light causes them to be
horizontal.

In short an organ will put itself in any
position with reference to light which may be
advantageous; but then the rising in the
evening is odd.

52 twisting confined to petioles.— & not to
joints○ how different from Pfeffer.

62, 64 leaves of tree which do not rise in
darkness.

75 Hofmeister nearly discovered trans-
verse○ — geotropism & Heliotropism

2 *wt* a sense for attraction of gravity 2u
"ein für" 17 12–18w↻ at least often get
into horizontal position by epinasty 18–23m, *wb*
Nothing ♣ else 18 10u↔/10–12m 20 22m, 33–
34w *Fragaria* 35–39m, 40u "erfolgende |
gediehen", *wb* takes place very slowly 21 9–
13m, 13–16m 22 10–12m, 24u "vertical
aufrecht" 23 7u "Achsen", 14–19m, 24m 24 8–
9m, 26–27m 25 33–38m 26 14u "aber | die", 15u
"der | gleich", 24–27m 27 25u "horizontaler
Richtung" 28 31–35m, 36m, 38–39m, *wb* He
overlooks epinasty 29 17–20m 30 27u↻ "eine
Incurvation", 29–32m 31 ↻ 7–8m, 12m, 14–
16m, 36–38m 32 ↻ 1–4m, 34–37m 33 ↻ 1–2m
34 ↻ 17–22m 35 8m 36 ↻ 12–16m 45 18–21m,
21–22u "Beziehung | steht", 24–27m/w inclined
when one side shaded 29–36m/31–33w
evidence of 46 11–16m/w leaves rise up in
darkness 15–24w & is an apogeotropic but
says that light causes them into horizontal 52
9–15m/10–11u "eigentliche | übernimmt"/1–12w
♣ twisting confined to petiole; ♣, 19–21m/19u
"der Stiel"/17–25w How different from Pfeffer
53 1–10m/w Use of compound Leaves 14–
17m/w especially when fixed by tendril
19–21m, 33u "Clematis"/→/22–25w *Mutisia*
Bignonia Fumaria ○ 55 11m 59 23–28z/zb,
34–39w This might be tested by Klinostat 60
3m, 28–38w/wb This is the same thing as
epinasty Origly caused by light afterwards

guided by geotr. 62 26–30m/23–34w I thought
he said rise in darkness 32–33m/32u
"Letztere | und"/33u "ihre | horizontal" 63 32–
35m/33u "wenig | aufrechter" 64 1w in dark-
ness 3–7m, 8–13m/8–9u "durch | können"/12u
"ausgeprägte | Lichte", 13–17m/14u "Schwer-
kraft | Licht", 35–39m 73 5–8m/6u "Achsen"/7u
"anderer | durch", 10–15m, 23–27m 74 21–27m
75 1–3m/1–2u↔/2u "Hofmeister" 76 15–19m,
25–32w goes on growing 34–37m/w *fulvinus* I
believe error Pfeffer 77 11u "der | in"/14–17m/
11–17w seems to consider it a direct result
and not mere excitement 26–30m/27–28u
"Transversal | Heliotropismus" 78 34m, 35u↔
81 *wt* I seem always to consider the
movement direct effect of light 5m, 9–32w
this assumption appears to be merely lazy
so it is 85 28m 89 ↻w He believes that the
individuals which originally chanced to have,
for instance, plumule erect & radicle ver-
tically downwards, would survive; but this as
yet does not apply to movements, & still less
to cases like sleep-movements.— 90 2m, 3m

FREKE, Henry *On the origin of species by
means of organic affinity* London; Longman &
Co.; 1861 [Down, I]

FRÉMONT, J.C. *Report of the exploring
expedition to the Rocky Mountains in the year
1842, and to Oregon and North California in
the years 1843–'44* Washington; Gales &
Seaton; 1845 [CUL] ♂
beh, br, gd, is, sl, y

NB1 It might well happen, as in Horses of
Falkland, that the old animals might live
at ease & not be driven to search new
countries, open to them (as is evidently the
case with the Buffalo) and the pressures are
chiefly falling on the young.— It is important
to observe that no selection cd aid Horse in
Falkland.— or Horses in Paraguay except
strength of constitution & breeding at diff
time of year; but that cd be effected only if a
little earlier or later was more favourable
NB2 Windhorn Mountain Lat 43°N; 84; 124;
174; 144
166 ♦

Abstract Feb 57

p144 The Buffalo only crossed R. Mountains
lately owing to persecution

84 44–51m 124 45–49m 144 43–46u±, 49–53m
166 *wt* ♦/↻w ♦ Previously there was good
evidence of the Buffalo having been driven
into new districts by Hunters one race of
Indians much obliged for this

FREY, Heinrich *The histology and histochemistry of man* trans. A.E.J. Barker; London; J. & A. Churchill; 1874 [Down] Ⓟ

FROHSCHAMMER, Jakob *Das Christenthum und die moderne Naturwissenschaft* Wien; Tendler & Co.; 1868 [Down] Ⓟ

GALLESIO, Georges *Traité du citrus* Paris; Louis Fantin; 1811 [CUL, pre-B but read later: S C Darwin Feb 1842]
cc, cs, f, fg, gd, hy, ig, mn, oo, or, pat, spo, t, tm, v

NB1 p146 Orange; 143

32; 40; 46; 62 to 85 to 167

line across page (hereafter page-numbers by CD but some words possibly not)

193 to 222 Hist of Citron, marked but unimportant

to 286 – ditto ditto

p.292 &c &c Sweet Orange different from bitter & later introduced

p.297 ♣ Origin of Sweet orange

p.321

p.327 to end

p.359 the only passage on acclimatisation of orange

NB2 Nothing important in all these extracts below the cross line → (to NB1 line across page)

Nov. 47 I think that experiments cd be worth looking over again.–

Look at the Synoptical Tables first.–

SB ☐✕

34. Sweet & bitter oranges & almonds & Peach & nectarine always true

40 orange fruit affected by pollen of Lemon!

46 crosses with pinks analogous, striped & some pure white & red.

67 The Lemons which depart most from type, (or are monstrous are sterile) p331

147 Mixed orange, lemon & citron

⇒ 359 curious case showing how slowly & rarely real attempts have been made at naturalisation (u⇒)

a poor Book

30 23–25m 31 11–13m 32 18–20w It is not different in W Indies 20–22m, 22–24m 34 1–2m 40 18–23m 45 24–26m 46 1–5m/w Like chrysanthemums latter prbly a cross of 2 vars. 12–16m 47 ♣ 12–15m 62 9–15m/10u "grande | mélanges"/w polyadelphia ♣, 13u "nombre infini de races" 63 9–11m/9–10u "plusieurs | évènements" 66–67 wt xox according to this view, a plant as soon as it became accustomed to new conditions, would produce more seeds, & therefore in most cases would produce ♣ less fruit & hence would be said to degenerate!! 66 7–14m, 16–17u "ils | variétés"/15–22w ♦ shows how little weight he puts to character of sterility 25–29w for he certainly admits ♣ varieties distinct from hybrids 18–19m/w both hybrids 66–67 wb♣, part ⇒ * This is quite new view of varieties being born sterile, it is

GALLESIO

certainly case with many pears, apples &c &c not due to mere effects of conditions on the actual ♣ plant, but ♣ is born with xx tendency to be sterile (& hence good fruit or fine double flowers are produced) – think Kolreuter found certain individual hybrid-crosses ♣ more sterile than others, thus if pear seeds are sown, some seedlings are more sterile than others 67 3-4u "celles|stérilité"/1-5m, 13u "leurs|toujours", 20-21u↔, 22-28m, †w↔ in animals out of conditions no case of offspring being born sterile (? do not perhaps get full fecundity for some generations?) but in plants it is very frequent case ||= very important:= view – ☞ xxx XOX 68 17-18u "pour|distinction"/w fiato oxen!! 71 10u↔ 73 7-10m 83 2-5m/2u "ces noms"/ 3u "innombrables" 85 4-8m 90 27u "plusieurs siècles", 28u "conservée" 91 1u "variétés", 3-5m, 3u "Dès|colline", 5u "multiplier|semence", 6-7m 92 26-28m 95 7-8m, 11-18m 96 2-3m/3u "souvent" 97 16-20m/19u/wt 100 15-17m 102 20-22m/u±/wb This is not like Kolreuters certain hybrids 103 3-8m 109 12-14m 116 20u "vulgo Pomum" 117 19-20m/20u "jamais pu" 118 3-5u±, 9-12m 119 12-14u±/10-16w Every one of his hybrids as yet conjectural wb Has the Bergamot seeds?? 121 9-11m/10u "Il|semence" 125 27-28m 126 1-3m 129 4u "n'offre|jaunes" 130 14-16m 133 24-25m/u "ils|dépine" 135 4-5?, 22-23m/u↔ 137 8u "feuille|crépue", 9-10u "la|limonier", 12u "orangier", 21-23m/23u "hybrides|se", 26u "variées|proportions" 140 18u↔, 23-24m/24u "en|1270" 143 22-28m/22u "Ses|especes"/23u "blanchâtres" 146 6u "1644", 24-27m 147 6-10m/1-10w/wt X are the several cases of citrus above given with flowers & fruit of different ♣ forms cases of hybrids sporting.– 11-20m, 22u "aussi|point"/24-28m/25u "une|de"/wb/8-28w These are extreme cases of sporting & hybrids – no more probably like Laburnum – like mottled Hollies sporting back to pure leaves 148 1-2u "arbre|formes", 4-7m/7u "oranges|sans", 14-16m/15u "orangers|cédrats", 18-21m, 22-25m 154 6-7u "qui|d'épines", 7-10m, 11u↔ 155 4-6u "et|ordinaires", 8u "quelquefois|semis" 156 19-21m/20u "couleur|de" 157 3-5u "ne|chétives", 6u "c'est|fécondation"/7u "il|pépins", 8u "se|semence"/5-8w not a hybrid because no ways intermediate 9-24m/23-25m 158 27m/u "exclusive|Chine" 159 25-28m 165 13u "du|de" 166 7-9!/9u "qui|espece" 167 18-19m 194 10-11m/11u "en Médie" 197 17m, 18u "Palestine" 198 19-20m/19u "Théo-phraste"/20u "description dans" 203 4-5m 207 1-2m/2w conjecture 11-23m/17-20u±/7-22w

proofs of old cold climate V. Arago 25u "quel|vigne", 28u "elle|point" 208 3-5m, 6-8m/7u? "certainement" 210 20-21m 217 8-15m/8a "Paludius"/15u "dans|siècle" 218 14-16m/15u "le|quatrième" 222 20-22m 223 3-5m/4u "plus|transmigration" 227 12u "Maderel|Canaries", 13u "dès 1463" 252 20u "1383", 22-24m 257 5-8m 270 13-15m 287 14-17m 292 9-12m, 16-19m 293 11-16m 295 1-6m 297 5-13m/8u "de|transmigration" 321 10-11m 326 27m 327 1-3m, 9-11m, 15-16m, 22-24m, 26-28m 329 1-2m 330 6-8m 331 4-6m/6u "celui|stérilité", 8-9m/8u "cette|singulière" 334 1-6m, 18-22m, 25-30m 344 9-12m, 24-26m 345 11u "d'Acosta", 11-22m, 22-25m 349 7-10m, 13u "l'Espagne", 14u "un|orangers", 16u "tous|greffés", 19u "demi|commencé", 20w to sow seeds of Sweet Orange †3m/u "oranger|Sauvageon" 351 15-17m/ 15-16u "Dans|adroite" 352 1-7m 355 11u "1709|Ligurie" 357 4-6m, 7-8m/w in Liguria 17u "une|portât" 359 1-6m

GALTON, Francis *The art of travel, or, shifts and contrivances available in wild countries* London; John Murray; 1855 [CUL, I, S]

NB1 (by FD)

NB2 91 Authority; 115

2 7-9m 3 1-3m, 6-13m 4 13-14m 5 23-26m 8 31-32m 9 12-15m 14 10-14m 15 7-8m/7u 16 5-12m 17 1-3m, 26-28m 18 26-27m 26 5-6m 31 25-29m 35 23-25m 91 16-17m 115 25-30m

GALTON, Francis *English men of science: their nature and nurture* London; Macmillan & Co.; 1874 [Down, S]

(markings not by CD)

GALTON, Francis *The narrative of an explorer in tropical South Africa* London; J. Murray; 1853 [CUL, ED]

GARROD, Alfred Baring *The essentials of materia medica and therapeutics* 3rd edn; London; John Walton; 1869 [Down, FD]

(markings not by CD)

GARROD, Alfred Henry *The collected scientific papers* London; R.H. Porter; 1881 [Down] ø

GÄRTNER, Carl Friedrich *Beiträge zur Kenntniss der Befruchtung der vollkommeneren Gewächse* 1. Teil; Stuttgart; E. Schweizerbart; 1844 [CUL]

cc, cs, dic, em, f, fg, gd, he, hy, in, is, mhp, no, oo, pat, phy, sp, sx, t, ta, tm, v, wd

NB ♣ N.B. p 137. on varieties of *Verbascum* crossing used
p.212 Fruchnoten (*ie Fruchtknoten*) =
Germen; griffel = stylus; narbe = stigma
SB ♣ Oct. 1855 This book abstracted &
abstracts & references distributed.–

SA1 (pp. 622–3)

This is Index of whole volume

p75 on Honey to p92.

p.104 on time of shedding pollen

to p119 on contabescence

to p128 on richness of pollen; 137 on pollen

varying in species & individuals of *Dianthus*

p137 on fertility of vars of *Verbascum*
according to colour

to p.148

p.220. p222

p242; p250 on concepcion. to p. 253.

p.328 on periods of concepcion; to p367

p.440 on abortion p.444

See over Page

(over) p528 on ♣ dispersion of *Lychnis*
(quoted from Tausch) diurna & vespertina in
hermaphroditism.– I presume the number of
seed here refers to cultivated Plants

p539 on crosses taking place at distances
p.550. do

p560; p564

p571 on crossing &c to 577. do.

p598. on number of seed in *Lychnis*
vespertina–diurna; p600

p366 self-fert often fails in ♣ *Lycium*,
Tropaeolum, *Mirabilis* & *Campanula* &
Lycium –

All these references have been recopied out
into papers in ♣ Hybrid Chapter

SA2 (pp. 622–3) □β

136 368 386 497 – 138 – 134, 135; 136;
386 567 595

✓ p.128 on quantity of pollen.

135 Each embryo requires more than one
pollen grain –

226 Narben-fuchte (*ie feuchtigkeit*) secreted
from stigma at various points

236 secretion of stigma of *Nicotiana* took
months to dry – so very different from that of
Orchis.–

256 Reichenback Vol.I p.120

345, 347 quantity of pollen required for full
fertilisation

351, 600 Successive application of pollen
necessary
for *Orchids*

(over)

◆ In *Corn* & *Hemp* Fields & *Palms* clouds of
pollen p107 ●

Cop

p116 Contabescence

SA3 (pp. 622–3)

Dichogamy Gärtner Kenntniss s.539 on
plants 6–800 yards fertilising each other very
good. p551? p573–577

(Keep)

xi 6m/w Read 7–10m/10w Read 12–15m/13w
Read 17m/w ♦ Read 20m/w Read 21m/w
Read 32m, 33m/33–34w because it will show
crossing 34m, 35m/w read 36w read, 37w
read

φ

75 2w read 18–21w nectar before opening of
flowers 76 5–6w after pollen 18–19u
"Wandelbar faden"/w secretion variable ♣,
no doubt due to conditions 24u ♣/24–25m/w
no ♣ secretion 31–38m/w sometimes honey
in hermaphrodite, but not in unisexual flower
of same species. Sometimes in male
sometimes in female 77 7–13m/w quite
absent in many flowers 78 14–15w increases
♣ flower falls 79 1–7m/w quite sterile Hybrids
have nectar 80 1–10w They do not seem to
know about Vetches 85 9–16m/w does not
think nectar can be accounted for by for
insects alone to favour fructification 87 9–
11m/11u "Tilia europaea"/8w No nectar!! 11–
12u "Tilia odorata"/11–14w small & nectar do
not go together 89 wt generally the period of
concepcion, the spreading of pollen,
secretion of honey, & opening of flower all
together. 1–4m/3u "den meisten", 8–10m/w
often put out by circumstances 16m, 18–20w
Sometimes nectar before opening of anthers
23u "Leguminosen | Cruciaten"/23–26w In
these most nectar, when pollen is mostly or
quite shed.– 90 22–27w Thinks no relation
between secretion of Honey & density of
Pollen – many Families have no nectary 31–
34w no relation in quantity of pollen & nectar
91 1–2u ♣/w Pollen not dusted yet much
Honey 3u "Dichogamen"/4u ♣/4–7w Male
flowers of these no nectar – but females
have 8–9m/w castration no influence on
nectar 12–14w Absolutely sterile Hybrids
have nectar 18u "Leguminosen | Cruciaten"/
19u "Dehiscenz | Antheren"/17–19w in these
nectar begins after opening of anthers. 20–
21w But then in Legum: pollen is brushed
out by stigma 26–30w When fructification has
taken place nectar ceases though pollen not
shed. 95 10–11m 104 11–16m/w pollen shed
before opening of flower 19–33m 106 4u ♣/5–
8m/8u "verstäuben"/1–8w Pollen usually
dispersed in air, except in families where of
large size as these. 10–14w a cloud ♣ 1 1/2
inch in diameter 107 22–25w clouds of pollen
in corn & Hemp fields. 108 12u "6–8"/11–15w

GAERTNER, BEFRUCHTUNG

emptying the anthers takes these hours.—
 109 12–13m/u "Malvaceen | scheint"/w wind
 much influence 113 23–28w castrated flowers
 seldom visited by Bees, than even quite
 sterile Hybrids 117 1u, 2u♣, 3–4w
 Contabescence of anthers 17–19w colour
 often changed of anther 27u♣/26–27w
 sometimes filled with Water 28–29u♣, 31w
 grain ill-shaped 118 31|/1–3m/w even no
 pollen anther shrivelled up. 5–8m/w rarely
sometimes only 1 or 2 anthers or 1/2 anther
 thus affected 13–16m/w Generally all flowers
 affected 17–22w When one flower has one
 another affected, all flower more or less
 affected. 25a "superbus" Europe 25–36m/33–
 35u "Wenn | haben"/26–27w gradations in
 contabescence 29a "barbatus" Germany 119
 wt N.B The contabescence probably due to
 effect of conditions on parents, at least in
 many cases.— 1–4w these anthers can be
 perceived at earliest period of development
 10–12w affections permanent in individuals
 14–15w except in Silene 17–19w cannot be
 altered by cuttings &c or in new soil &c 19–
 20u/a♣ Europe, England, Germany/w These
 species continued so for 4 years 22–23u♣/
 22–31w a plant taken out of wild of Lychnis
 did not alter in the least. 22–31w Nor did
 these alter when moved from pots to plain
 ground. 18–5w Doubts whether hereditary,
 for experiments give different results 1–25w
 This is a point of resemblance to Hybrids
 which keep sterile during whole life.— wb A
 All this vehemently against my notion
 of change of conditions, indeed, almost
 disproves it.— I am not so sure any pecu-
 liarity wd be propagated by layers○ 120 7–
 10w concludes since an individual in earliest
 stage.— 10–15w seems to occur in all plants,
 but more common in some than others, &
 most common in Hybrids. 14u
 "Caryophylleen"/w most common in free &
 cultivated Caryophyllea 18–19w next cases
 20a♣ England, S. Europe, Britain, Italy 22–
 23u±, 27u♣, 28–30m/→/28u "Unfruchtbarkeit |
 Gewächse", 34–36m/w/wb In these female
 flowers, sometimes stamens occur in same
 state as the contabescent flowers 121 17–
 28w In these, contabescence hastens
 conception period, & praecosity of stigma
 always connected with contabescence; yet
 perhaps not necessarily allied 122 8–23w
 Contabescence has no destroying influence
 on female organs: but this not universal, for
 has observed instances with both sexes
 imperfect, very in → (to "Verbascum",
 "Dianthus"), 12u♣/10–17w These species
 with quite sterile stamens produced normal

number of seeds & no more wb
 Contabescence no effect on lengthening life
 of plant, even when conjoined with female
 impotence 123 wt [Must never forget the
 great fact that exotics most subject to these
 affections.] 1–5m/w above shows that
 contabescence confined in its action to the
 stamen alone. 7–10w Generally female organ
 not affected, when stamen are contabescent
 20u♣/16–22w many have attributed this
 affection to planting in damp earth; but his
 found in light sand on mountains 26–30w
 These plants produced more pollen when
 nourished by pure water. wb (no doubt
 cause of contabescence, must be very early
 in life of plant, we know that state of plants
 one year determines its fruiting next year
 C.D) 124 2u♣/2–17w These plants were quite
 sterile for 4 years on female side but
 produced pollen.— affects from it became
 quite contabescent & female organs re-
 maining sterile 116–1w/wb 3 of this plant was
 quite fertile & all flower & ♣ twigs which had
 flowered were cut off, & then all the flowers
 which came were more or less contabescent
 & many with precocious stigma & small
 corollas: (a) subsequently perfect flowers
 were again produced.— (b) Repeated same
 experiment with same results next year 125
 14–16m/w (a) note on last page 24m/w (b)
 26–28m/26–33w never saw a male of this
 species with contabescent anthers, thinks
 therefore state is connected with
 hermaphrodite condition 126 5–12w/→/wt
 Thinks that contabescence of Hybrids & pure
 species must be something distinct. It is
 evident there is no difference in appearance
 in the two classes of facts 12u "Treviranus"/
 14–19w Trev attributes to fungi; G. inclined to
 think this is a secondary cause. Leaves it all
 unexplained 127 wt Pollen when some
 degree ◊ part gathered & placed in water or
 in transplanted plants, but female capacity
 much more easily injured — 1–11m/4w (a) 128
 wt I do not doubt this shedding has caused
 belief in impregnation in closed flowers C.D.
 1–3m/w In these anthers shed pollen
 when closed. A 12u "ungekörnter"/11–13w
 ungrained pollen powerless 23–24m/23–30w
 Richness of pollen always great [I think can
 only be explained by crossing.] Of course
 dioecious & Monoecious plants must be
 excepted 113–2u "8–10", 112u "80–96"/w has
 ten times too much 129 32–34m/w some
 monoecious plants little pollen 131 29–35w
 no relation between size of stigma & quantity
 of pollen 132 29–33m/w quantity of pollen has
 no relation to wind or insects 133 7–8m, 10–

12w little pollen few seeds 20–22w few seeds richer in pollen 31–32w many seeds little pollen 134 6–7w many seeds much pollen 135 11u "ein Eychen"/11–15m 136 12u▲/13u▲/12–16m/w great size of pollen; yet size varies greatly in some of the species. 24–28m/w size of pollen no influence on hybridising 30u "Kleinheit | Unförmigkeit"/31u "bestimmten"/32|| 137 11–13w Pollen different in Petunia 16–21m, 21u "Tulpen", 16–25w Pollen generally same throughout genus but different in different species of Dianthus & in varieties 34–36m/31–35w most important compare Kölreuter experiments & Gaertner's wb good pollen known by bright colour as well as regular shape 138 25–35w Proved that pollen in same species of different shapes, but G. doubts whether all effective 145 15u "Caryophyllen", 16u "48 | kräftig", 17u "Conception"/w 4–6 days 20u "dritten", 33u "9."/w 9 days 147 6–16m/w Henschel's cases in fact showing natural crossing; did Henschel castrate? if so useful facts.– 148 9–16m/w in water all the grains do not explode, but some become transparent 153 wb Finished from 104 – to 153

∅

220 21–37w N.B. When many pistils, then number variable [when many of any organs apt to be variable; Why. Hairs &c &c vertebrae of serpents] wb Nature does not keep count 222 15–22m/w says anthers open in Labiatae before flowers open & implies impregnated then 226 11–15m 229 wb Read to here 236 9–11m 241 9w Read 242 5–12w concludes ♣ all C.C. Spengels dichogamy depends on the abnormal praecosity of pistil!! 247 28–35w Mere opening of stigma of Mimulus does not show yet ready for impregnation 250 17–26w power of conception varies in individuals. sometimes absent without apparent cause 251 3–7m/2–13w want of power of conception most often observed in exotic from warm countries. as in examples. but sometimes observed in home plants. 17–28m/w influence of fresh air, & light seems necessary to fertility of some plants, as in these when placed in pots in chamber, though pollen was produced. 27atm/w (a) 114u/wt, wb unhurt roots appear very important for conception for plants ♣ if they have not ♣ mourned over transplantation, But seldom give good seed.– has often experimented on this.– 252 wt In many cases Plants in pots with roots coming out of vent-hole in bottom, taken up with greatest care, & with pots placed in saucer with water, though development of flower

continued as much & pollen good was produced, yet ovarium was ♣ remained undeveloped & unfertilized – so never in cut-flowers in water 253 wt But Digitalis has stood transplanting out of open ground into pots, & has yet retained capacity of being fertilised.– 1–7m/w (a) wb Chester Read wb/ → (to "Brassica Rapa") But roots were left p333 wb/ → (to p. 252, 23m/ 31–34m) cases of Coniferae producing seeds in cut flowers & cases of Monocotyledons plant doing same.– 328 1–14m/w From general way of speaking of coincidence of stamens & pistils evidently does not believe in Conrad Sprengel 23–28m/w In these Fam. pollen shed & partially spread on stigma before flower opened 118–1m/w occasionally within flowers 329 1–6m/w/wt In these sometimes corolla ready before stamens 9–18m/w Pistils generally ready after stamens 117–3m/wb The relation of development of flowers & organs of fructification not very fixed, especially in Exotics 332 11m, 13–20m/w From this it almost follows that artificial self-fructification was done in House 333 1–2m/wt Many plants more fertile in wild state than in Garden or greenhouse. 11–12u "Gräsern | u.s.w."/13u▲/14u▲/15w Nothing 5–15m/w In some, rich food makes more seed, in others a withdrawal of food. In former, those with dark. 16u "Henschel"/w Has written on the above 335 11–12w aid of insects overrated by some, underated by others 13–14u "Labiaten | Irideen", 35–16m/20–25w admits to considerable extent service of insects in impregnation wb Ch. Morren worth reading 336 22–31m 337 4–16m/w In most flowers stamens & pistils so near together that by the twisting of anthers must be impregnated; & the co-temp ripeness of both bears on this point. 20m 338 12w Campanula 344 11–16m/14–15u/11w Kölreuter 22m, 25–27m/24–31w In these genera, one stamen suffices to impregnate all ovules 2u "Geum"/w 1/8 345 23/w 10 pollen 26–27w failed 30w 20 pollen 112–1w 30 gr failed 346 wt Malta 1–16w Some grains seem used to exact position of capsule &c 5u "Vierzig"/w 40 15–16u "die | versehen", 18 → (to p. 347, 110), 21–29w In Malta 40 grains required for even imperfect impregnation 347 6m, 23w S. p.351 119w saturated 349 6u "15 | 20"/7w failed 14–15u "30 | 35"/w failed 26u "vierten", 34u ↔ 350 36u "nicht | von" 351 5–8m, 16u "wiederholte" 353 11m, 27–31m/w signs of fructification slower after evening fructification than after morning fruct. Is not this like Hybrids.– 358 32u▲/31–36m/w/wb became more fruitful & almost

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exclusively female by the destroying of male flowers – Bernhardt has observed opposite in Cannabis 364 $\uparrow 8-1m$, wb When seeds few number constant, when many seeds variable.– Law of variability – Lower animals, generally most vegetation. 365 $1-10m/w/wt$ (a) In artificial impregnation number of seeds \clubsuit often more variable, accounts for it by isolation out of free air $11-15m/w$ But in some cases can hardly account for difference $17-20m/w$ some \clubsuit are as fruitful in Chamber as in free $22w$ not castration wb All above shows how easily & inexplicably fertility is affected– $\downarrow w$ All these observations show that he must have considered all causes affecting his standard of comparison for Hybrids wb \approx p.600 important experiment showing the repeated application of pollen necessary for full impregnation & this is not done artificially 366 $13-15m/12-23w$ How observed pollen out of another individual in these 3 genera more efficacious ie advantage of crossing – $\uparrow 11-1m/wb$ artificial self-impregnation often entirely fails, for reasons quite inexplicable – Very odd that he never seems to have included Primula in this Category.– 367 $6m$, $11u/wt$, $12u$ "verharren", $14u/wt$ 439 wb Read & skimmed 440 $15-18m/w$ Thinks quantity of pollen merely for security of impregnation. $20-23m/w$ But pollen is perfected. 441 $19-23m/w$ abortion commoner by artificial than in nat. fruct. 442 $36u$ "500 Eychen"/ $33-36m/w$ In polyspermous plants, always some ovules abort.– \ll 443 $13-14u\clubsuit/17u\clubsuit/12-35m/18-26w$ curious experiment try to remove fertile flowers & see whether sterile wd become fertile 444 $28-33m/w$ cuttings & c give plants apt to abort $33-34w$ luxuriant fruit 459 $36m$ 528 $\uparrow 20-3m/w$ p618 Tausch in Flora 1833 p.225 533 23!! 535 $26-32w$ 1 2 3 539 w above 500 experiments we thought it sufficient if our experimental plants were from 6–800 steps from their like kind, when castrated, but was much deceived $8-11m/9u$ "hinreichend"/ w (a) $11-12u$ "der\hatten", $16u$ "zwei"/ w 2/2 flowers $20-22c\leftrightarrow/w$ 0/2 $23-25w$ 3/5 flowers gave good seed $31w$ 2/2 $35w$ 6/9 540 $\downarrow w$ [numbers of flowers giving good seed, as previous page], $\uparrow 3-2w$ 25 were impregnated wb In these castrated flowers no doubt stigma wd remain far longer ready for impregnation than in hermaphrodite yet it shows how much pollen of same species is carried to same flower (V. p145) 550 *table.wet*, "After-befruchtung 202"/ w Very striking this many out of 520 flowers dusted with foreign pollen wb No doubt others refer

to pollen left in flower or brought from outside 560 $\uparrow 4-3u\clubsuit/w$ Is this Lilac, if so no seed. Yes it is 564 $9-10m/12u\clubsuit/8-17w$ Many exotic plants produce fruit but no seed, rather owing to bad pollen than female organ.– 565 zt 571 $34u$ "Frühzeitiger"/ $34-36m/33-34w$ precocious good word wb Power of conception in frühzeitig stigma causes impregnation before flower opens 572 $2-6w$ stigma in such cases goes on growing $20-26w$ chief cause of after-befruchtung lies in act of Castration. 573 $10-12m/8-15w$ has observed after fruct in Nicotiana when 80–100 yards distant; on account of fineness of pollen.– $16m/w$ read. 574 $5-35m/13-15w$ all cases of after fruct. $16w/26w/29w/32w/wb$ (number of species and genera totalled) 575 $2w/1-4w\ll$, $12-14m/wt$ 576 $4u$ "520"/ $6u$ "202 Afterbefruchtung"/ w 499 (remains 29 whose seeds did not grow) wb 8 577 w 8 $31w$ 70 wb The fewness of these after befrucht have compared with those given before in experiment out of doors, show that the latter received pollen from other flowers, I think 598 $5-9m/7u$ "234" 600 $5-17m/w$ repeated impregnation necessary to full impregnation of Tropaeolum 604a $23m/w$ Kolreuter on Contabescence $25m/w$ What books is this of Sprengel V. Pritzel (I have looked & there is none) 610b $26-27m$, $30-33m$, $34u$ "1838 Vol XII" 611b $6m$, $36m$ 618b $41-47m$, wb on distribution of some Lichnis \circ 619a $3m/w$ Mustel on fruit in glass cases not having seed

GÄRTNER, C.F. *Versuche und Beobachtungen über die Bastarderzeugung im Pflanzenreich* Stuttgart; 1849 [CUL]

af, br, cc, che, cs, ct, dic, ds, em, ex, fg, gd, h, he, hy, ig, is, mhp, mn, pat, phy, oo, rd, sl, sp, spo, sx, sy, t tm, v, wd, y

SF \approx Oct. 1855 \clubsuit This work is abstracted & abstracts distributed, except the Bundle herein enclosed.

\Rightarrow p521 top. p524 on germination of Hybrid seed. & all seeds.

The abstract has been carefully compared with those of all Kölreuter & Herbert & c & c

NF1 Gaertner Bastard When read make Abstract; & read one abstract of Koelreuter & make abstract of Herbert & look over Portfolio When finished read Berkeley Criticisms on ...

NF2 I think began Sept 15/54/ 1849 \approx

NF3 p602 Mothers name first
 p.444 Definition of Gemischte & Zusammengesetzte Bastarde & Ausnahmen typus
 p502 Better definition & examples
 Griffel style
 p.602 Nicotiana glutinosa female mother – perenne male father
 p429 Explanation of Kolreuter "aufsteigenden Grad" absteigenden grad p.451
 NB Books of great importance to Refer to Note 62 67 17 p.734 of this Book
 p.157 Seeds long retaining vitality
 p142 See to this important
 p577 fertility of dogs
 Has he ever experimented with the umwandlung of Varieties?
 ♣ p.640 Genera which produce good pollen & ovules & yet require pollen of other species to fertilise them
 p.418 Ask Author
 p.387 Digitalis for comparison with Herbert
 There are facts on variation.–
 Ask Author: p.84 Were any of the Mongrel Peas reared? p.92(?) ♣ Stet p.102 =Table of Primula= p577 p578 p.579
 86 duration of pollen
 322 Maize p292
 Treviranus ought to be read. He seems a Lamarckian.
 SA1 (p. xvi)
 The real odd thing is in Hybrids, that not ♣ varieties not thus affected & 2d that offspring are sterile.
 Does he give any case of two wild varieties when crossed, producing a more variable offspring than two true species? in first generation, because the difference in variability he makes so important distinction in vars & species (p581)
 (over) Hybrids
 Does pistil or stamen ever become monstrous?
 Stigma ♣ becomes more divided
 In Hybrid offspring Does Male sex sometimes fail & sometimes female or always both equally? which more often
 Relation of Hybridisation to Variability
 Dissimilarity of Mongrel offspring
 Did Kolreuter cross many Silene vide p.140 of Gaertner?
 Do not two Hybrids breed easier together sometimes than each with self – for this wd upset Gaertners explanation of weakened pollen.–
 SA2 (pp. 728–729) ♣
 ⇒ For p.178
 (a list of species, and some editorial comments)
 (not CD; note on application of the terms

"calycantha", "communis", "veris" and "officinalis")
 ⇒ (C.C. Babington)

vi 17–21md viii 26–29m/29u "Uebereinkunft"/w great agreement in animals & Plants in Bastardising xi 6–7m xiv 21m xv 15w
 Compounded 5 11–12w confirms Köelreuter 7 15u/wr 8 7–19m/w under apparently similar circumstances produce difft quantity of seeds. Hybrids few seeds 26–27u↔/24–28m/w these have succeeded only once or twice.
 9 12–14m/w cause of failure chiefly in female organs. 10 1–2m, 5/7/8u/wr, 21–22w ♣ Herbert p.371 22u/wr, 25–29w all injurious influences more injurious to hybridising. 11 wt N.B. As damp & rain so injurious to fructification it makes it odder that flowers are not ♣ regularly impregnated in closed state, for they can be impregnated haufig in this condition. In cases of Campanula which are impregnated in bud, are these foreigners? & wd they open in own country. 11u "häufig | Blume" 12u "bloss", 14u/wr, 22u/wr, 25–29m, 31u/wr, 33u/wbr, 34–35m 12 10–12m/w some effect of variability on hybrids Q 14–17m/w no great difference in hybridisation of wild & cultivated 19u/wr, 28–31m/w Disputes Herberts case of fertile hybrids 35u/wr, 35–37m/w thinks has mistaken the fertility of some hybrids, with the results of a first impregnation. 13 1u/wr, 2–5w some hybrid fruits are richer in seed, than the fruit produced by first union. 3/6/9/23/27/31u/wr 14 30u/wr 15 5/10/24/26u/wr 19 21u/wr, 23–26w condition of pollen on stigma changes sooner or later according to relationship 21 1u/wbr 22 9u/wr 23 5u/wr 28 17–21w fruit falls off, from imperfect impregnation 29 6u/wr 30 wt It is not Hybrids – but Hybrid-fructification. Most important distinction which I have overlooked. 18–21m/w Hybrids never produce full abundance of seeds. 21u/wr 32 7–10w Hybridisation requires all outward circumstances favourable. 34 7u "fremden"/w Never the least effect.– 35 23w no mixed effect 31u "rustica"/w female prefers paniculata 32w female 33–34w prefers Langsdorf 43 22–27m/w pure & hybrids out of same capsule, but no tincture. 45 11/27u/wr 46 5–6m 50 1–8m/w Q case of variety with characters like other species 3u Ansätze | Zähne" 52 10u "dreifach | gemischten"/8–10w 3 sorts in same capsules 55 18–22w ♣ Herbert believes in tincture 56 1–16w This is what might have been expected mere physical difficulty? 17–28w This slowness is important as it is character in parents & not

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in hybrid. 29–32m/w injures the other ovules 58 28u/wτ 64 10u "einem|Pollen", 12u "rustico|Langsdorfii"/7–14w In Hybrids father or mother's pollen makes own powerless. so does quite foreign pollen sometimes 15u/wτ/16u "erotischen", 20u/a "Lobelia" Example 15–22w In some pure, specially exotics, own pollen will not impregnate, whilst that of other undivided, or even other species, get own pollen good.— 28u "W. Herbert", 28u "Zephyranthes"/27–31w p.355 so Herbert with Zephyranthes but not good example see xx next Page. 32u "Bosse", 32a "Hippeastrum"/wb Amaryllidae p.371 – in this case it is Hybrid with hybrids 33–34u "Passiflora" 65 wt xx This like Herberts Zephyranthes case; P. racemosa can be fructified by pollen of coerulea, but stigma of coerulea cannot be fructified by pollen of racemosa or by its own – we may say female organ of coerulea injured. 3u/wτ, 5–9m/w xx 10–12m/w takes the view given above xx 13/14/19/25u/wτ, 21–23m/w compares with snails 66 28–31w seldom any pollen has no action on stigma 67 5–9m/w sometimes stigma decays & flowers fall without slightest fructification. 68 16–20w gradation of affinity shown by time of decay of stigma & flowers 69 27u/wτ 72 9–19w Thinks the fruit of hybrids is not due to pollen-influence, but to that power of forming fruit, which the most sterile hybrids without any pollen do produce Repeated p106 73 1–3m/w mother not more powerful than pollen 13–15w Hybridising generally no effect on seeds. 22–24w apple half sour half sweet.— 28/29/31–32u/wτ, 29u "liess", /–34w castrated pear-blossoms in orchard bore much fruit, showing crossing 35m/w thinks experiment not careful enough 75 10u/wτ, wb Disbelieves (perhaps very truly) all these cases of direct effect of pollen on the mothers fruit.— 76 11u/wτ, 19u "Pelargonium"/w ♀ sport in 23u♣/w sports in 24u♣, 28u♣/w sports in wild 77 2/5/9u/wτ 78 1–5w Discussion on Koelreuters 3 cases of seeds directly affected by Hybridisation. 14–15m/w seeds vary much. wb Disbelieves seed ever really affected; the only difference he has ever observed being solely in size.— 80 wb see p499 & p135 81 ↑w♦ This most important, ♣ if crossing varieties ♣ has had anything to do with diverse coloured seeds, then they are crossed naturally by Bees.— wb♦ Has tried Wiegman experiments with quite different results, ie seeds never affected see next several Pages ↑10w All a mistake. ↑7–6m/↑6u "reine"/w♦ The self-impregnated flowers gave same result as the

castrated & cross impregnated & these showed colours altered 82 1–2m/w most constant vars. 19–25m/w here seeds were coloured 28m/w♦ were these mongrels 83 2–3/5/10/16/34u (colours of seeds) 84 1u/wτ, 20–24m/22u/wτ 85 10–11m/w & Berkeley's 10u/wτ, 13u±/w see account p.14 15u "geringer Fruchtbarkeit", 18–25w plants from Wiegmanns Pisum oticia he rather thinks varietats-Bastard rather than a hybrid, because, flower impregnated with common impregnation & pollen of Vicia had no effect. 29w ie offspring of Wiegmanns Pisco-vicia 86 25u "sondern|war"/w Conclusion mere variety, & says nothing about mongrel. 30–33m/w cd not make any of them cross. 31m/wb Loudon makes these distinct species besides vulgaris 87 1u/wτ, 6–8m/w Leguminosen opposed to Hybridisation 8–12w If then mongrelising takes place easily; yet cannot at all between Wiegmanns hybrids 13–15m, 18a "annua" Cruciferae 18–21w W doubts about seeds in Matthiola what to say 19/21/23/25u/wτ, 33u "einer|die"/31–35m/wb Mays not affected 88 wt also Berkeley did not artificially cross.— 89 wt xx It seems he does fully admit that cross fertilisation does in Pisum affect seeds, & as Wiegmann did not artificially impregnate, shows that Peas, when ♣ not castrated, are crossed naturally. Be sure read Book mentioned in note 62 p734 (How strange considering sweet Peas) 9xx, 12/15/21u/wτ 90 17–19m/w female sterility transmitted in cross. 17/18/19u/wτ, 30–35m/wb The tinctures on half-bastards of Koelreuter, Wiegmann & Herbert are upset.— 91 10–17m/w Father & Mother element more powerful in some 11/16/17u/wτ, 21–26w Hybrid pollen more effect on own stigma than on other pollens; but the converse no effect 31–33m/w another severe case of different effects. 92 8u "Lychnicucubalus"/w Hybrids, I suppose 10u "Lychnis diurna", 22–24w colour & size of pollen no relation to fructification 28–30m/w most important see his other work. 28u "Varietäten"/wb speaks p181 of species so holds good with species too From table at end really species 30u "fruchtbar"/wb more fruitful, ∴ crossing cross colours less fruitful ∴ perhaps Hollyocks thus accounted for. So he says most distinctly in his Beitrage p137 in regard to Verbascum. 93 19–20w (a) wb (a) Koelreuter ♣ confused imperfect impregnation in the first cross, with the imperfect fructification of Hybrids, but this shows how similar the case is.— 94 5–12w imperfect fructification differs from no fruit, in

seeds being more perfect 7u "Grösse", 9-11m/10u "ohne|worden", 17-20m/u±/w first cross ♣ never quite fertile as of cross of pure species. 96 10-12w no relation in state of capsule & state of seed. 17-27w fertility of original act of hybridisation so different, that even in flowers of same plant, that it is difficult to make scale of fertility or consequent relationship. wb (a) ♣ Grades of Fructification, imperfect to normal & perfect pollen no more effect than foreign dust; occurs even not seldom in species of same genus, "from want of sexual affinity"- (mere words) 97 3-4u ♣ 101 16-17u "er|aus"/Q 20u "schwachen|Leben", 21-24w out of many imperfect seeds & 1000 buds apparently perfect, ♣ not one germinated. 25u "nicht|gekeimt" 102 1-2x/wt every gradation of imperfection in capsule with one or more seeds, capable of germination. 4-7m/w Important 7u/wt, 12-14m/w most fertile hybrids 103 2u "Sageret", 1-2w See to this Annales des Sciences Nat 105 2-6m/wt can the effect of pollen of plant in producing capsule be analogous to Ld Moreton's case? 108 11u "Morton", 12-17m/w Morton attributes power of hybridisation to capacity of domestication.- 109 9u "grosser"/8-9w greater number will not hybridise 11u "700", 12u "250" 12a "Bastarde" different sorts? ↑14u "versagt", ↑13-11m/w unions which failed with Kölreuter 110 ↑15-14u "eine|Elemente"/w a certain sexual harmony necessary for union.- (I presume in contrast to general affinity) ↑14wt, ↑15-3w pollen does not adhere to stigma 111 8-15w even when pollen does cling to stigma fructification very often fails In hybrids the stigma fails ↑10-9u "wie|scheint"/w (a) ↑10-9w Only certain individuals can be hybridised wb (a) I cannot but think hybridisation commoner with animals than plants.- 112 3u/wt 113 11u "Prof.", table.w shows natural crossing ↑10w 14 genera ↑9u "Alle|Samen", ↑9-5m 114 10u/wt, table.c/w no scarcity○ table.w List of Families which have admitted of hybridisation 115 table.m/w failed with these, but experiments not numerous enough to show cause.- 116 table.u "Primuleae"/w easy table.w Fams. of easy manipulation 5-7m/w capacity for hybridisation not lies○ in Family Character.- 10u/wt, 13-18w ♦ In families with regular species, subdivided into not real genera, most hybridisation 19u/wt, ↑9-8u ♣/↑11-6m/w The spec of most natural Families very ● resist hybridisation ↑2u/w No hybrids in Compositae 117 22u "Apocineen"/w is not this ♣ Vinca 25u/wt, 26-30w thinks

Orchideae & Asclepiadae wd be hard to cross. from structure of flower 119 7u "Gymnogramma", 17w Disputes from hybrids, thinks only variations observed only in Gymnogramma 120 16-20w Dioecious less easy hybridised than hermaphrodite 121 3-5m/wt The capability of ♣ fructification ♣ lies in more special character, than those characterising any whole family 2-4m, 13m 122 2-10w No distinct relation between polyspermous & oligospermous plants & capacity for hybrid. fruct.- 123 wt Dioecious plants a longer capacity for impregnation. wt I see uses Dichogamous = Dioecious 1-2m/u "in|Blüthe", 4u "neun", 5u "zu Conceptionskraft" "Lecoq"/w a book on Hybrids ↑11-9m/w (a) wb (a) Dioecious plants less capable of Hybrid-fruct: at least than some hermaphrodite 125 7m, table.w (asterisks added)/w other observers have succeeded, though he failed 126 8wt, 9wt, ↑16-5u "Aquilegia"/w ♦ Hooker thinks all same species ↑10-1w/wb closely allied genera differ greatly in tendency to hybrid-fructification several examples & I believe quotes Kölreuter but observes only few species in each experimented on.- 127 6-12m 128 2nd table.m, 8wt, 10u "Afterbefruchtungen", 13-14u/wt, 15wt, 3rd table.m/w All this shows that when anther removed, how much crossing can take place from adjoining plants - i.e. intermarriage 129 1wt 130 ↑11-10m/w I do not know whether Kölreuter or self. he succeeded anyhow. ↑7-5u ♣/w Dichogam crosses ↑11u "wiederholten Versuchen" 131 1wt, 3w€, 2-3u "vergeblich|hatte"/m/w (a) wt (a) Reverse case which always failed with Kölreuter succeeded once with him,- but was very difficult Hybrid Plants no ways different - 14w€ 132 4-12w none of these bigeneric seeds germinated. though some had embryo ↑10-4w only ones known Bigeneric crosses w€ 134 ↑8m 135 11-14m/w universal law that pollen of parents fructifies hybrids more than own. 20w€ 136 ↑3-1m/u "Canis|Mouflon"/wb ram or he goat 137 ↑3w€ 138 wt (a) Against limit of genus being determined by power of crossing, even Herbert does not pretend all species can cross, though when any true species do cross, he says they must belong to same genus - so the "reverse crosses!! & cases of Crosses which after years succeed only once, go against law of genus by crossing being connected. 8-22m/12-15w sense given above (a) ↑3-2u "inneren|Arten"/a "in" power of uniting depends on 139 1-2u ↔/w Hence a sexual & systematic

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relationship 15w ϵ , 17-20w genera formed of diverse \clubsuit characters 140 wt When two genera have united, the species do not always in these genera readily unite. Tormentilla & Potentilla, though so close, will not unite. 1w ϵ , 1-3m, 6-16m/ \rightarrow , 17-30w it is quite wrong to infer because some species within a genus, will cross that all will; generally only a few. Herberts cases, however, rather contradict this. Hippeastrum, Azalea, Calceolaria 141 wt (a) Sections of genera will sometimes unite & sometimes not 1-5m/w (a) \uparrow 18-10m/16-14w Sections of genera \uparrow 8/ \uparrow 6w $\diamond\epsilon$, \uparrow 6-5u "blauen | gelben"/m, \uparrow 1u \clubsuit 142 8-12w in his Treatise speaks of species see to this 9-11??, 12m/u/w $\diamond\tau$, 13/15w ϵ , 13a "Pepo" pumpkins 14a "Citrullus" Water melon 15-17w Girou succeeded in these 15w τ , 19w τ , 20-30w The list of sections of genera which will not cross, shows no necessary relation of genera & crossing.- 143 6u \pm /6-15w sexual affinity belongs only to species, & often to only individuals, & cannot be externally recognised. Different Times of flowering do not prevent hybrids. \uparrow 3-2u \diamond , wb \diamond Bush with plant? 144 1w τ , 3-6w annual, biennial & perennial cross. 16-19w evergreen with deciduous cross 21w τ , 22-32w many hybrids wh succeed in summer, & fail in Autumn - some succeed so seldom may be called accidental. \uparrow 2-1m, wb the most different varieties can cross.- 145 3u \clubsuit /w can cross 14u "Lecoq"/w see to this 147 \uparrow 12-10u "Nicotiana | glauca"/15-7m/w Pollen of some plants can impregnate others, but not be impregnated by them. \uparrow 7-1m/w case of Nicotiana which will neither impregnate or be impregnated by other close species. wb \clubsuit 8 specs 148 \uparrow 1u "jene"/wb species 149 wt Van Mons thinks stability in first generation & variability in first distinctive character of species. 1u "diese"/w varieties 8-11m/w analogous to some organisms not varying in domestication 8-10u \pm /9-15w some hybrids as these keep constant in 7th & 8th generations but this rare.- 14w τ , \uparrow 12u "Blyth"/w see to this \uparrow 10-9w τ , \uparrow 3w τ , wb I had better give cases of closely allied & identical species in different climates to show species, & very different species in similar climates to show not direct effect of climate 150 1w τ , 1-15w I quite agree very near or identical species may have been created, but this has to be decided. 14m/u/w τ , 20w τ , 17-22m/w (a) 20-30w Seems to agree with Blyth, I must study him - wb (a) A great power of place - attraction has no

relation to geographical range.- in direct opposition to my view, but agrees with Hooker on Compositae. 152 9/11w τ 153 5/6w τ , \uparrow 10w τ , \uparrow 1u \leftrightarrow /w genera with many doubtful species 154 2/6w τ , \uparrow 7/ \uparrow 6w τ 155 18w τ , \uparrow 5w τ 156 \uparrow 12/ \uparrow 11w τ 157 \uparrow 4-1m/w seeds long retaining vegetating Power 158 1-12m/8-12w Wheat-seed identical \uparrow 14-8m/w These plants identical before So cross with recent. 159 \uparrow 17-13m/w says varieties go back 160 \uparrow 15w τ 161 1w τ , \uparrow 8w τ 162 \uparrow 17w τ , \uparrow 9w τ 163 10w τ , 15u "nahe verwandte"/w \diamond hybrids from close species when united with another, show their differences even plainer than whilst pure 8-11w I think it means only the result of A.B.C where χ differ from each other (a) 15u "nahe verwandter", 18-19u "z. | fulgens"/15-21m, 21-22u "geben | Bastarde", 22-28m/w Remarks This very odd if these close species descended from common ancestor. \uparrow 8-3m/w The existence of species consists of fixed sexual relation to other species wb (a) Is there any case of two close vars. when united to a 3d var. producing very different mongrels. 164 11w τ , 16w τ , 17-18u "die | fruchtbar", 16-20w Kolreuters Law of sterility can hardly be accepted. 24u \clubsuit /w do they seed? 23-30w These 2 Penstemons though so like, as to be considered varieties, cannot be crossed. wb \clubsuit || rarely certain individuals will not be impregnated see G. Beitrage. 165 5w τ , \uparrow 17-13m, wb X There are two P. gentianoides in cultivation the one commonly so called is the Hartwegi so misnamed - the true gentianoides is rare in cultivation differently shaped and not red 166 9u "der | seie"/8-12m 167 \uparrow 14-11m/w nearly related but will not cross \uparrow 4u "H. Lecoq" 168 1-5w I fancy that this is only that parents have originally crossed. 3w τ , 12u/a "Vareitatsbastarde" I do not understand. are circumstances \clubsuit as the second generation of species - bastard Will explain more afterwards 13w τ , 14-24w Holds good with some wild \clubsuit species which fructify each other but do not sport like true vars whereby these plants are characterised like true species. 19-26m/w Get information on these - wild \clubsuit species Fertility tested by himself \uparrow 6m/w (a) wb (a) Genera with species agreeing in Habit, as above, hybridise most, Yet some species of these will not cross. 169 4-8m/w These species cross easily, yet other others of the genus, will not cross. 9-17w Though power of crossing sometimes goes with external resemblance yet the most natural Families & genera as here do not hybridise well.- 14-

16u♣, ↑13wt, ↑12m/w Hybridises differently 171 2u "Umbellaten"/w No Hybrids tried on Umbellifera ↑16-12w Thinks wd hybridise from being so variable ↑9u "Cruciaten"/↑9-5m/w all failed 172 ↑17u "Labiatae"/↑17-10w Labiatae little tried, but I know that Mimulus has succeeded 173 1-4m/w Most Natural Family 9-11m/w all failed ↑10u "Sageret" "Lecoq"/w quotes from Sageret ↑9u/wt, ↑11-9m/↑11-1w Sageret & Lecoq has found vars of Cucurb. will not cross promiscuously (References hardly bear out conclusion) 174 1-6m/wt cases of only few species in very close genera uniting, new species which are hard to specifically characterise.- table.w cases of very close species ♣ or more exactly, species having the same habitus which will not unite.- ↑5u♣, ↑5-1m, wb cases of species having very different habitus which do unite, chiefly from Herbert, except darks○ 175 1-7m, 9wt, ↑14-7m/w So Kolreuter shows, that propinquity does not go with power of hybridising ↑6-1m/w other examples of the same law 176 11-13m/w so says Morton of Beasts 14-20m/w The non-success of reciprocal impregnation clearest proofs that hybridisation not ♣ result of affinity. ↑13w♣, ↑11-3w cases of non-reciprocal fructification 177 2a "Langsdorfi" cannot be fructified by the 4 named sorts, though it can fructify them & some easily. 10-20m/w even when mutual crossing does take place in closely allied species, yet facility not alike (this is new) 21u♣/m/w closely allied, yet unite with difficulty & will not be reciprocal. 178 wt♣ ||officinalis & acaulis not in Loudon.- p721 officinalis = veris = Cowslip - I see it is barely possible without consulting Babington to know which is which wt Here are vars which will not unite 1-2w Most important 3-4u/wt/w on Babington's authority see Table 4-8m/w♣ Compare these very difficult 10-14m, 11-15w very different in Habit, yet unite easily.- 179 7-11m/8w Herbert 10u "Cereus", 11u "schon längst", 13-19w Cactus or Cereus Melocactus Echinocactus, Echinopsis, Phylocactus 20u "H. Neubert", 21-22u "Cereus | Ottanis", 24u♣, 24-25u♣, 25u♣, 27-28u♣, 24-28w Neubert has succeeded in these crosses 180 3-6m/w Mongrels sport & he has seen same thing Cucurb. ↑19-16m, ↑12-8w Flowers very unlike yet cross ↑4-1m/w Colours of Verbascum 181 1-5m, ↑9u↔/m 182 9-13m/w These succeeded with G. having failed with Koel: ↑10-2m/w shape of pistil no effect in hybridising 183 ↑7-3m/w size of pollen no effect 184 ↑6-5m 185 ↑7/↑6/

↑2wt 186 6-8m/↑18w cause of Hybridising a Vital action & allows that the sexual relations is mere word 15wt, 19-20u "sondern | beide"/m, ↑12-1m/w Summary but nothing new 187 1-15m/w Summary but nothing new ↑16-8m/w cases when fructification has taken place, once after repeated failures.- 188 6-14m/w cases of plants differing chemically, compare this with difference in their sexual affinity 10wt, 15wt elective affinity 189 13-20m/w The closer or less close affinity. is shown by action of pollen on stigma & corolla.- ↑10-7m/w a chain of graduated affinities 191 10-13m/w♣ Yet in table does not put K. but i a 15-17m/w reverses with fewer seeds 194 wt Fertility of Hybrid, ♣ is in even less reation (<ie relation>) to affinity of parents than facility of first ♣ union or hybrid-fructification. It seems no relation between case of getting 1st hybrid & this hybrids fertility. This is case with the common Mule.- 4wt, 7wt elective affinity 3-13m, 11u "manche"/12u "leicht"/10-15w many plants easily cross, whose hybrids are quite sterile 11-16m, 16u "sexuell | verwandt", 16u "49", 17-18u "waren | fruchtbar", 22-25m/w and fertility of similar Hybrids very variable 25wt, table.w Hyb. fruct. of great difficulty wb I think Verbascum is case in point. 195 ↑16-14w seeds in pure ♣ parent cross ↑15u "80 | 120", ↑12u "paar | Samen"/w numbers of seed Hyb.fruct. ♣ when crossed ↑10u "151"/↑9u "29"/wb numbers of seeds in reciprocal (u↔) Hyb. fructification wb (hyb.-fruct. best expression) wb (pure. fructification) 196 wt ⚡ Bad simile We might as well as deny that the different were really different, because they had no "elective affinity" (I use word of Gärtner) whereas other two had strong elective affinity & wd unite & make a third.- 4w sexual non-reciprocity of the "elective affinity".- 197 wt The reciprocity of sexual alliance is not only different in strength, but is often entirely deficient 1-4m, 6-8m, 12-24m/w cases of slight unequal reciprocity in very closely allied species, some even thought to be varieties. table.m/w cases of more unequal reciprocity 198 ↑10-1w cases of sexual non-reciprocity 199 4wt, 14-15u♣/w most striking example ↑13w (a) wb (a) Special potency of pollen to impregnate other species of genus occur in Verbascum nigrum & Geum ♣ coccineum 200 wt In cases of entire sterility of one side of the reciprocal union, the other side generally only slightly fertile.- 1-4m 201 wt (z) || The absence of perfect reciprocity even in nearly related species, shows that male & female

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power of union do not go together: but the difference of male & female has no effect on the hybrid offspring $8m/w$ (z) → 202 $\uparrow 16-1w/wb$ Hybrid A + b, crossed with pollen of C, hybrid is always like C. Repeated on p.273, & speculates, but does not explain says vital power of Hybrid is subordinated to the pure species.— 203 *wt* (a) *N. rustica* will not unite with *N. glutinosa*, but hybrid *N. paniculata* — *rustica*, will with *glutinosa*, & the character of *rustica* is seen in offspring.— $8-12m/w$ (a) $\uparrow 7-5w$ → do 205 $1-13w$ as in *Primula* & *Verbascum* (?) But thus question of what species are is begged — $15u$ "*Kölreuter*", $16u$ "*hybride Befruchtung*", $14-17w$ First cross \clubsuit never bring so many seeds as nat. fruct. $\uparrow 4u$ "*jedem Eichen*"/ w from each $\uparrow 2-1m$, *wb* Remarks that Herbert's *Crinum* was not growing in own climate — But he says every ovule was impregnated. 206 $2-4m/4u$ "*Calceolaria bemerkt*", $\uparrow 12-5w$ The number of seeds in Hybrid though dependent on conditions does not pass certain maximum 207 *wt* (a) Can judge of scale of elective affinity by number of seeds in hybrid-fruct., as compared to normal fruct. $1-18m/w$ (a) $\uparrow 16wr$, $\uparrow 9u$ "*nicht constant*", $\uparrow 8-7u \leftrightarrow$, $\uparrow 2-1u \leftrightarrow$, $\uparrow 15-1m$, *wb* an average of seeds taken from a number good plant growing in open nature 208 $\uparrow 15-12m/w$ seeds variable in colour & size *wb* as far I understand this, properly to count good seed, all ought to be tried by germination & growth, but then more elements of growth & death of seeds come into play 209 $\uparrow 11-6m$, *wb* on account of unfavourable conditions, we take maximum of seed of hybrid cross. 210 $1-6m/w$ always requires repeated experiments.— $\uparrow 13-8m/w$ only single instances of these unions. 211 $2x$, $13-22m/w$ in wild Plants number of seeds do not differ so greatly as to cause much difficulty in estimating numbers. $\uparrow 5-1m/w$ There are \clubsuit differences in flowers of same plant in being impregnated by foreign pollen.— 212 $3-8w$ as individuals differ in some respect, as last page, several must be experimented on.— $8-9m/u \leftrightarrow$, $16-19m/w$ cases of individual plants wh were femally sterile $\uparrow 14-1w$ as the difference between nature & artificial self-impregnation is never so great as in Hybrid fructification; he has taken wild plants as base of calculation, which seems to me to be an error. $\uparrow 4-3u$ "*selbst | käme*"/*wb* Effects of crossing every plant by self injurious.— see *Beitrag* p.366 213 $\uparrow 14m$, $\uparrow 8wr$ 214 $\downarrow w$ Sexual affinity calculated by maximum of good seeds till further experiments ever increase this

maximum $\uparrow 7-1m$, *wb* experiments shd be tried at different times on different plants. 215 *wt* (a) Take average of number of seeds capable of germination under normal circumstances as the standard for comparison of best fruits $5u$ "*vollkommensten*"/ m/w (a) $14u$ "*keimungsfähigen*", $\uparrow 6-1m/\uparrow 4u$ "*20 Versuchen*", *wb* very important, if this smaller number be not due to \clubsuit art used in the fructification. 216 *table.a* "*polline*" naturally \clubsuit impregnated *table.w* Scale of sexual elective affinity, inferred from maximum seeds from hybrid-fruct, not from Hybrids themselves 217 $\uparrow 8-3m/w$ (a) *wb* (a) Gärtner thinks that these tables of affinity show that pure species are aboriginally formed sterile.— It is contradicted absolutely by his vars. 218 $\uparrow 1w$ *Silene* of Steudel *wb* Here a genus more fertile than other species *wb* 777/7000 219 *wtee*, *table.w* 3 genera before other species 220 $4u$ "*Kreuzung*"/ w with G. & Köreuter implies reciprocal fertilisation $\uparrow 2-1m/wb$ cases of non-reciprocal fructification. 221 $17w$ Reciprocity holds good generally when hybrid is intermediate in character. $20-23m/w$ Reciprocal case $\uparrow 3-1m/w$ (a) *wb* But when hybrid takes after mother or father type. then reciprocity will not take place.— This seems very curious 222 $4w$ Mother type $6-9w$ Father-type most numerous. $\uparrow 14-11m/w$ (a) $\uparrow 7m$, *wb* I fancy that the predominating power of one of 2 species, as shown in the hybrid — prevents reciprocity.— But there are exceptions. 223 $1-24w$ self & Köelr. find the reciprocal crosses exactly alike. $19u$ "*allgemeine*"/ w This is general rule, specially in wild plants, which are not varieties. $22-23u$ "*Abweichungen | Farbe*", $26u$ "*Ausnahmstypen*", $\uparrow 10-1w/wb$ Difference from animals as Mule & Hinny also hybrid animals differ in same litter; but in animals all half domesticated 224 $1-5w$ Diff in animals & Plants owing to sexes separate in animals. $\uparrow 16-12m/\uparrow 15u$ "*Differenz | Habitus*", $\downarrow w$ In comparison of sexes we must suppose habit the same, & form of parts direct result of sexual peculiarities. Whiskers in Man!! $\uparrow 7-6m/w$ Hybrids varied *wb* Whiskers & Mane cannot be thus accounted for *wb* No difference in Habitus of Plants, when sexes separate (because I say do not struggle for female: so lower radiata. 225 $8-12m/w$ exceptions to uniformity of reciprocal crosses $\uparrow 18-8w$ curious exceptions in Genus *Digitalis*; not reciprocally alike 227 $17-20w$ slight variations in hybrids 228 $14m$ 230 $\uparrow 17-12m/w$ Double flower raised from male or female 231 *wt* Differs from animals for sex no effect on

Hybrids 4-9m/w a 10-14m/w see to this 232 13-19m/w Form of hybrids stable in 1st generation 20-24m/w → does not hold good with animals. 233 8-10m/w experimented with wild plants 234 ↓w/wb It is proved by long course of his & Köl's experiments that bastard even in 1st generation from same parents are always alike; & return in constant course to either parent when repeatedly crossed with such. → (a) Thinks this evidence of permanence of species; but I do not see more than ordinary generation keeping true; perhaps tests the trueness in another way: but a plant does not vary in first generation, when part out of normal conditions. ↑13-4m/w (a) Notice this argument 235 wt (a) Hybrids unions therefore follow same law in first generation as the union of pure species.— 5-7m/w a 6wτ, 9-19w Thinks the few exceptions to this normal structure of hybrids is due to variation 19-21m/u↔/w (a) ↑13-5m/w (z) wb (a) Rather hard, it seems to me to draw distinction; but Gaertner (z) urges the resemblance of Hybrids made at same time & after long intervals from same pure parents. 236 8-14w The normal Hybrid type keeps constant in succeeding generations only in the most fertile hybrids, generally. 237 1wτ, 6-14w very rarely sometimes single sports in a set of normal hybrids out of same fruit; & 9u "einzelne Bildung", 11u "sehr einem", 12u "doch mehreren" 238 2m/w "Digitalis, Lobelia"/wt only genera in which these exceptional types have been observed: (z) These exceptional types from same species always resemble each-other!! 12-15m/w (z)→ ↑12-6m/w on two years a peculiar yellow rare, so unlike as might be thought different kind. The mother type prevailing 239 12-17w From this cross obtained common normal & abnormal type. 240 5-8w one species of abnormal type. wb I observe that these abnormal types often take after one parent 242 2-5m/wt 2 plants of Passiflora differed from each other. 243 6-8m/6-12w neither father nor mother exclusive influence on abnormal types but depends on likeness to one or other. 15-17→, 19-22m/w These abnormal are not vague, but fixed production. ↑7-1m/w similar unlikenesses occur in these several cases 244 11m, 16-23w ↯ abnormal types generally quite sterile; (this very curious) ↑9-4w compares these abnormal types to atavism ↑6/↑4wτ 245 11-15w In abnormal types like both parents but most like one. 246 2wτ 247 ↑16w (a) These varieties seldom repeat each

other. ↑9-7m/u↔/w They occur chiefly in such species as are so closely allied, as to be held mere varieties wb The irregularity of reappearance, & slightness of differences seem only distinct differences with his abnormal Hybrids of the previous chapters.— 249 12-16m/w (a) wb (a) The abnormalities in Hybrids has observed only in plants, long cultivated in gardens, & not in wild plants; but I remember that only one side wild in Kölreuter is sufficient 250 ↑11/↑6wτ 251 20-25w not seldom ♣ in Hybrids one side or species prevails over other; & their prevailing is not accidental but is constant. 252 ↑4-1m/→/wb most difficult which of two parent-forms a hybrid comes nearest to 255 3-7m/wt Does not believe that Hybrids are ever unlike both parents 256 ↑20-15m/w cases where one side in Hybrid preponderates. ↑14-13u♠/w strongest instance ↑7-6m/w (a) wb (a) N. paniculata is almost lost in N. paniculata-vincaeflora, whereas in N. quadrivalvi-vincaeflora, vincaeflora is almost lost.— 257 5-7m/w Father type in this mixture prevails 13-16w seldom in Hybrid two parents of equal force. 258 wt (a) When two hybrids ♣ unite, & one offspring takes almost exclusively after one side, hybrid is sterile. 1wτ, 5-7m/w (a) 11u♠, 11-12u♠, 14-18m/w♦ one spec took most closely after father; was fertile. 259 13-16m/w Hybrids generally higher than pure; seldomer dwarfed. 261 4-5m/w Hybrid Verbascum generally woolly in Pots. 262 ↑13-1w odd that this hybrid no rudiment stamen, considering structure of both parents. ↑5-3m/w (B) wb (B) Female organ generally shows no signs of imperfection even when perfectly sterile. 264 ↑10-9m/u↔ 265 9u "Thiervarietäten", 19-21m, wb The entire differences, of different authors in ascribing more or less to Father or Mother shows there no real rule. 266 ↑15-12m, ↑15-14"...", ↑13u "pater major"/w seems pretty true 268 ↑17-11w in Plants neither father or mother has exclusive influence 269 ↑12m 273 3m, 5u "oben | 202", 1-24w See in Kolreuter whether vars. with a species give very similar Hybrids — 19a "Specifische" (a) 19-20u↔, 23u "Stramonium | Tatula"/22-25m/w (a) different species because hybrids different ↑13u "ganz | Bastarde", ↑11-9u♠/w These with N. glutinosa give quite similar product & therefore considers them vars. ↑9a "asiatica" not in Loudon ↑9/w and these vars. of rustica wb (a) (On Datura see my Abstract of Kolreuter p.8/Bis) I see no reason why varieties shd not equally show this

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distinctness in same way. Does not Ancon sheep impress offspring very remarkably?? 274 11-15w External conditions no special influence on character of Hybrids. 275 4-8w Hybrid *Dianthus* more stabile than other genera- 12u♣/w ♣ Mongrels follow different laws to Hybrids 13-16w *Digitalis peculiar* in its sporting, & exceptional. ↑17-15m/w G ↑8w In embryo plant no alteration in Hybrid from Mother ↑7-6m/w embryo of mother *wb* G Thinks the by far greater number of normal to abnormal Hybrid types opposed to their resulting from external circumstances. 276 wt In Hybrids, form of the cotyledons affected 277 12-19m/w differ 20wt, *wb/↓w* I think children of pure parents, thus go after either one or other or intermediate but as he says for Hybrids how ♣ difficult to judge & compare 279 ↑17-10w Exactly intermediate in number of segments of Pistil, & in sterility of stamens ↑17a "*ruber*" of same parents 280 wt In the cross *Lychnis* quite prevails over *Silene*, so that Hybrid is like var. of the *Lychnis* 2-4m, 7m 281 *table.w* Really intermediate Hybrids Költreuter thought they too many intermediate ↑9-4m/w most difficult to settle whether plant most like Father or Mother 282 2-5m/wt commonest in close species 19w When one part more resembles (but is never identical with) Father, another the Mother; this part this, that part that &c- 283 9-15w This gemengte character constant in those species, where it occurs. ↑16-1m 284 3w sterile 14o, 18w sterile 20-21u↔, 22o, 24o, 27o, 30o 285 13-14w Puts strongly how these 3 classes blend into each other.. 14w When a hybrid most strongly resembles either parent ↑1u "*decidirt | mütterlich*", *wb* These terms used when the two have been crossed not reciprocally - *Relativ-vaterlich* &c used, when they do cross reciprocally & takes after the father in cross specified.- 286 10-15m/w No relation in closer resemblance to Father or Mother to fertility of Hybrid 15-17m/15-23w reciprocal crosses take place though ♣ the offspring take decidedly after one parent. 20a "*syphilitica*" Decided types generally sterile, but not always as in *Lobelia* ↑14w strongest example ↑3-1m/wb ♣ These Hybrids, ♣ are a cross of Hybrid ♣ & a third species - ♦ How is it called when two Hybrids cross? 287 6m/w strongest case 288 5-9w some exceptional types ♣ come into this class. 289 wt Perhaps gemengte (or 2d class) the commonest p.282.- 4m/w (a) ↑7w (a) *wb* (a) So there are species of genus which a prepotent fertility ♣ power on other species; so others have predominating

influence on structure of Hybrids; but these two are not connected 290 5u "*Gattungstypen*", 4-10m/4-25w These kinds specially influence structure of Hybrids of other species, as → These are generally very distinct species.- Even these are sometimes overborne by other species; or rather there is a series of these gattungstypen 291 1-2m/wt Even in the mixed types, one part now resembles one parent, now another part the other parent.- 292 wt No relation between facility with which A will impregnate B or be ♣ impregnated by it, in different cases, & the resemblance of hybrid to the parent.- 10-17m/10w (a) ↑2-1m/wb This seems a Lamarkian 293 1wt, ↑10m 295 wt (a) Always something new in appearance of Hybrids; but not absolutely new, but appear so from odd unions & opposition of parent forms 1-3m/w (a) 7-9m/w (a) 17u "*Mirabilis*"/w cases of in 17-20w N.B Both sporting genera 296 ↑18-11m/w Day sleep of *Lychnis* blended ♣ & modified 297 15-20w power of reproduction by shoots &c Much exceeds that of pure parent 298 ↑8u "*Morton*"/↑8-3w Dogs vary from 10-6 nipples; thinks owing to crosses 301 ↑17-12w Colour variable often, in crosses & unexpected 302 13-20w Variations in colour in Hybrids 303 13-18m/w flowers do not take after Mother or Father in colour.- ↑2u±/↑4-1w/wb Some simple Hybrids retain in successive generations their colour as in *Dianthus* &c. But generally (next Page) case very different; colour most variable 304 wt variation said to keep true.- *Vinca rosea* a store Plant. *Syringa Lilacs* p743. The Book quoted probably cd not be consulted 2-5m/ →/3-4u "*Vinca | coerulea*", 8-14m/w very variable colours in successive generations of Hybrids 19-24w complex Hybrids even more variable in colour. ↑10u "*zusammengesetzten*"/ ↑10-4w These hybrids take almost always colour of father. 305 wt Sports 1-5u±, 3-7m, 8u "*drei | verschiedenen*", ↑14u♣/w Sport 306 ↑10m, ↑9-7m/w (a) *wb* White flowers commoner here than more South.- 307 wt Important on account of ♣ Költreuter *Verbascum Lychnite* with white flowers rarely with yellow on sandy Places - (So Költreuter case goes for nothing) 1-4m/w (a) 8-12m/w seed from yellow gave chiefly white 14-20m/w when crossed colours did not mix, but came pure yellow or white 6-20w See 3d Fortset. p.35 308 ↑13-12u "*gelbe | Blume*"/w vars. 309 ↑10-6m/↓w In Henslows List considered as varieties: I am nearly sure has been experimented on. Watson in Cybele

seems to consider them distinct: says perhaps or probably 2 species both varying. Refer to experiments of Magazine of Nat Hist V. p.493. & VIII.634 & Phytologist 2.164
 ↑6m/↑10-6w Ask Babington.- 310 ↑12-8m/w colours changing during summer 312 ↑15wε
 313 10-12w Blue & Yellow seldom unite 19-22w curious ways colours unite. 323 wt (a) In Mongrel Maize self-impregnated seeds of two colours 6u "selbst"/4-8m/w (a) 324 4-17w in 2d generation of Hybrid Maize seeds variously coloured 325 ↑8-4m, wb It is decided that seeds of Zea not affected immediately as in Pisum. Yet Next Page 326 15-17m/16u "wie | Pisum", ↑7-2m/w The Peas in second or hybrid generation varied in colour independently of immediate action of Pollen.- 329 ↑8-7m/w (a) wb (a) Hybrids are affected especially in Male organs, with exceptions 332 5-11w anthers & pollen in appearance sometimes good yet hybrid quite sterile 333 ↑9u "Liliaceen"/w often mentioned ↑9-5m/↑8u "und | Gewächsen", ↑9-1m, wb/↑9-1w In these plants. pollen, though in appearance good yet no impregnation follows ♦ (may be faculty of female organs) C.D] pollen though swells, does not burst, in water, yet admits it may be owing to female organs, or structure of roots 334 10-18m/1-18w But in cases, where plant can be impregnated by other individuals or species, we can infer pollen is bad. 12a "candidum" p745 Duvernoy 18m, ↑12-8m/w In most fruitful hybrids, pollen is unequally developed.- 336 6-9w The contents of pollen grains commonly fails. ↑6-2w seldom give out contents when placed in water 339 wt (a) In this hybrid M. Jalapa-longiflora, own pollen more powerful than own conception power.- 2-7m/w (a) 340 18-21m/w in Hybrid Birds no spermatozoa ↑6-1w thinks in animals as in plants, male organs more deficient than female. 344 13-17m/w even in most fruitful hybrids normal number of seeds never produced & always mingled with bad ones. ↑14-11m/w compares this fact to result of Hybrid fructifications. 346 7-10w Kolreuter failed in this Reversed experiment 347 ↑14m 348 19m 350 ↑7-5m/u "dass | vermögen" 353 8-12m/w Power of fructification in Hybrids always weakened 17-22m, wb Speaks of bisexuality as quite exceptional in vegetable Kingdom- 355 wt (a) insists male organs more & earlier affected in Hybrids than female 10-15m/w (a) 356 17u♣/15-19w case of pure species with female organs impotent while male perfect 22u♣/w so Passiflora ↑9u "freien | erzogenen"/↑8u♣/w so this ↑2-1m/wb

On other side pollen fails, yet female organ quite perfect & potent; in some Dianthus, this happened only with individuals plants.- 357 ↓m/w The wonderful cases, where in Lobelia, Verbascum & Zephyranthus, pollen wd not impregnate own stigma, but wd impregnate other species; these ♣ stigmas being also impregnated by pollen of other species ↑8/↑7wε 358 wt (a) The foregoing cases seem chiefly in plants brought from a warmer climate.- 1-4m/w (a) 5-9m/w Such anomalies much plainer in Hybrids 14u↔/w Hybrids 3 forms of sterility 17-18w cases of I. 359 1u♣/1-5w case in single individual of the Hybrid ↑20-1w Gaertner has great advantage that the sexual organs certainly are weakened, as producing so few seeds ↑7-3m/w (B) ↑2u, ↑1u/wr, wb (B) Puts this under category, that male less potent than female in each case; but surely Herberts is more true, viz advantage of crossing. - See to Herbert.- 360 wt (B) In this III. pollen of Hybrid wd not act on self, but in both parents; & pollen of latter impregnated Hybrid. accounts for this (not as I shd by advantage of crossing, & which I still think must hold in Herbert's case) but by believing (& it is probable) that both male & female organs weakened & cd not act on each other but only pure parents, or even the Nicotiana on a 3d species. 4u/w (B) 5-8w Is there any parallel III case in pure species? 10-25w These (I, II. & III) cases in Hybrids wonderful parallels to what happens in joining pure species!!! 361 wt (a) Reurges male organs fail first & most in Hybrids 1-4m/w (a) 17-20m/w says above ♣ analogous with animals 21m, ↑13-10m/w (B) ↑8-2m, wb (B) In Dioecious plants not hybrids, in females, male organs sometimes imperfectly developed, yet can fertilise; but in male rudiment of pistil never acquires power of conception. 362 1-25w/wt In L. Vespertina, in female flower, the rudiments of stamen much smaller than in L. diurna, & consequently only in latter are anthers sometimes found. Does not this well show that a rudiment has something essential & real in it - Very Good We can prove Mammæ in Male to be a reality.- Wings in insects & Here we can prove in another way. Gaertner somewhat suggests in Carrot to cut off the fertile flower early & see whether other flowers wd become fertile. At p345 & p.330 long description of crosses of Dioecious plants study it all.- ↑14w (z) ↑11-5w Similar changes take place easier in Monoecious than in Dioecious 363 15xx,

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↑12-8w In doubling male organs always change first *wb* Reasons why male organs more affected than female; seasons quite worthless.— May it not have some relation to Falconers Law of external parts first affected 364 *wt* accounts for hybrid breeding easier with parents than with self by own pollen having less strength; so in cases as below (zz) 1-6m/→, ↑8/↑7u▲/m/w (zz) ↑5a "333" 357 ↑5u▲, ↑5-1m, *wb* I cannot see how his explanation holds good, for the pollen of *L. fulgens* (s.64) did impregnate two other pure species. 365 *wt* (a) says much experience has shown him that hybrids, after 8-10 generations, have their procreative powers weaker & weaker; & hence cannot be prolonged.— (But then all crossing avoided) 4m, 8-13m/13u "*wie | hat*"!/10w (a) 366 2w quite sterile 11-15w Some individuals of these Hybrids quite sterile. ↑16-1w/*wb* Degree of fertility in most Hybrids, except the quite sterile, generally very variable, even in Hybrids from same capsule & reared alike (This shows how innate, & is opposed *<written over "compared">* to its being a character of species, as species.) — (P) Hence different accounts by different authors, as follows.— 367 *wt* A) This unfixeness of fertility of Hybrids, their special character, & not observed in pure species.— 5-6m/w A 13-23m/13w (B) *wb* (B) Some Hybrids, produce only seed at end, or middle, or (generally) beginning of their flowering, & are at other times sterile.— This a peculiarity, confined (when so pronounced) to Hybrids.— 368 ↑10-7[]/w Does not believe 369 *wt* Cases in pure Dioecious plants of changes in sexual relations 1-3m/w (a) 7-12m/w Female sterility of *D. Japonica* transmitted to offspring in Hybrids. ↑7-3m, *wb* Hybrid Plants which produce an extraordinary number of flowers & are quite sterile; caused by sterility p.372 370 *wt* Same thing sometimes occurs in pure species 1-6m 373 *wt* ??In Hybrids crossed with either parent, & thus assuming fertility & the ancestral form, yet fertility variable in such individuals; in the successive generations.— 2u "*eigenen*", 5-8m/w (a) 377 *wt* (a) seems to attribute sterility of Liliaceous Plants to state of roots.— 13u "*der | Liliaceen*"/w (a) ↑5-1m/w all sterile Cape of Good Hope Oxales 378 *wt* My point that plants often sterile & yet not unhealthy not touched on.— G. gives only obvious cases of infertility. 12-15m/w Hybrids in pots more fertile than in open ground. 20-22m/w In fruitful years more birth from domestic

animals 24m, ↑4-3m, *wb* More often cause of infertility on male than female side; as in *Caryophyllea* & *Verbascum* 379 12-16m/w cases when pollen good but female organ 17u "*manchen | unseren*", 20-30w often in exotics, pollen & female organs are ready at different times, & so can be impregnated artificially X ↑10-7m/w insects less important than wind!! ↑4-1m/w Infertility through long cultivation by layers & c *wb* * Would he say that C. Sprengel's facts were due to climatic influences? 380 1wτ, 2-5w Reported by Reichenbach 10-30w case of wild *Verbascums* & in pots, with certain flowers sterile & certain fertile; cannot explain. like Kolreuters cases 381 ↑13-10w Female mules in warm country breed. ↑7u "*erwähnt | Crax*"/ 7-5m, ↑4-2w Black swan with white 382 6u "*männlichen*"/w Male Hybrid pheasant sterile 15-19m/w Morton thinks relation between capacity of Hybridising & domestication ↑5u "*Fruchtbarkeit*"/w (a) *wb* (a) Fertility a fixed attribute of pure species (in natural conditions C.D) Mem. cases of moss not breeding, (these are probably Dioecious) in Hybrids a varying attribute. 383 3wτ, 7u▲/w fertile according to Kolreuter 384 12-14u↔, 15-19m/16u "*immer*", 16-18m/w In pure species artificial impregnation has not always yielded full number of seed ↑7-5m/x/↑10-5w I do not think G had GreenHouse he always speaks of ZimmerO *wb* Hybrids always less seeds than pure parents, as in following examples.— 385 *wt* See in *Beitrag* p398 *Lychnis vespertina* — *diurna* gave with own pollen 234 seed. 1-4m/w see to Kolreuter about *Datura* 3u "200-280", 4u "600-800", 7u "192"/8u "210 | *Samen*"/7-8m/w differences between natural & artificial impregnation ↑6-2m/w (B) *wb* (B) Great differences in different individuals of same hybrids & in different years, in fertility striking.— 386 2m, ↑12u↔/↑14-12m/w Genera with most fruitful Hybrids 387 1u▲/wt Henschel says this fertile, but reverse quite sterile. See Henslow. 13-20w No relation between fertility of pure parent & the facility of uniting, or with these Hybrids having fertility ↑12/↑9wτ 388 1wτ, 5-8m/w Hybrids nearly as fertile, but never quite as pure parents.— *table.w* The reverses of these not equally fertile. "*Lobelia*".w (K) in Table "*Matthiola*".w This not in list → as repeated at p.402 → The table is probably wrong "*Verbascum*".w Some great mistake Not in List!!! *wb* in little degree fertile, which is commonest case 389 *table.*"*Verbascum*".→ to previous table, 8u "*Absolut unfruchtbare*" 390 *table.w*/1-5m/w

The above numbers show that in Hybrids greater inclination for sterility than for fertility. $\uparrow 9-7m/14-3w$ Fertility so variable at different times, & in different individuals, that simple classes of fertile & infertile Hybrids will not do. 391 *wt* (B) Here are 4 cases, in which other authors find fertility whereas Gaertner finds great sterility: was he bad Gardener? $5-10m/w$ various striking cases of difference fertility, as found by different authors. $8u$ "unseren", $8w$ (1) $9u$ "total steril", $11u$ "bei uns"/ w (2) $13u$ "bei total", $14-19m/w$ one year so fertile as to self sow, in next year very sterile. $\uparrow 14u$ "immer total"/ w (4) (B) $\uparrow 6-3m/P$, *wb* (P) cases of Hybrids out of same capsule, of different degrees of fertility & some quite sterile.— 392 $7-15w$ In the greater number of Hybrids sterility belongs more to the individual than to the kind; (ie some are or may be fertile) $\uparrow 14-3w$ in same category stands fact (χ) that Spring or first flower of Hybrids only bring seed generally. 393 $5u$ "ersten Früchte" $7u$ "40 Samen", $8u$ "2-3"/ w Examples of above laws χ $\uparrow 11-6m/w$ In pure species the difference in no. of seeds in early & late flowers inconsiderable $\uparrow 9u/w$ 394 $7m$, $8-14w$ Variability of Fertility cannot be accounted for by luxuriance $17-20w$ In pure species, when periodically infertile not very luxuriant $\uparrow 4-3m/wb$ Fertility does not stand in inverse relation to their Luxuriance 395 $9-14w$ Herberts' case of fertility after 16 years might be due to pollen of pure parent. $\uparrow 6-1w$ No art or \clubsuit culture will alter or improve the organs of generation in Hybrids. 396 $10w$, $16z$, $\uparrow 9-7w$ Fertility does not go by genera $\uparrow 5u$, $\uparrow 4u$, $\uparrow 4-1m$ 397 $\uparrow 8-1w$ The inequality of fertility in hybrids from same generation, shows that fertility cannot depend on outwards circumstances 398 $2-4m/1-8w$ Hybrids in pots easier bear seed than in open land, because too much luxuriance thus checked $11-16w$ tried experiment to see effect of different culture &c & cd perceive none.— 399 *wt* \clubsuit || Certainly a priori, one wd have expected a gradation in fertility of hybrids & old mongrels as Dogs In Gaertner Tables there is app \blacktriangleright to this. $4m$, $\uparrow 11w$ 400 $3-13w$ Contradicts Wiegman that maternal or paternal types fertile individuals sterile. $\uparrow 13-1w$ Chief conclusions (1) Unfixity of fertility in same hybrid The varying form of the \clubsuit Hybrid is the abstract which can be divided into following classes. 402 $\uparrow 2/\uparrow 1m$ 403 $4-6m$ 404 $\uparrow 2-1u$ \leftrightarrow 405 *wt* (a) Hence resemblance of Hybrids to either parent no marked influence on fertility.— $1u$ \clubsuit / w male $5-7m/w$

(a) $\uparrow 20-12m$, $\uparrow 20w$ (B) $\uparrow 10-3m$, $\uparrow 10w$ Examples $\uparrow 7u$ "256", $\uparrow 5u$ "diesen Bastarde", $\uparrow 4u$ "absolut unfruchtbar", $\uparrow 3w$ Examples $\uparrow 2-1m/\uparrow 1u$ "49", *wb* (B) These authors think law of relation between fertility of Hybrids & the affinity of parents; but if we judge of latter by seeds yielded, there is no relation to fertility of Hybrids when reared from them 406 $9-10m$, $9-11m/8-13w$ We conclude that fertility of hybrids stands in no near relation to \clubsuit elective affinity of parents.— $25x/16-19w$ Yet strong exceptions on next page $20-30w$ When plants cross easily both ways, hybrids most commonly fertile. This fertility seems to depend on resemblance in Hybrids of parents, but with exceptions 407 *wt* (a) In Hybrids from reversed crosses, even when quite like each other, Yet fertility not same, & in one case even on one side quite sterile. X \clubsuit Important as shows not in essence of Hybrids.— $2-12m/10u$ \leftrightarrow / w Yes for see p.385 $13-16m/w$ Ease (he probably means Case) when reverse cross easy, yet Hybrid sterile $\uparrow 6-2m/w$ (B) *wb* (B) From \clubsuit facility of union cannot infer fertility of product 408 $9-10u/8-13w$ It seems that systematic affinity of Parents favours the fertility of Hybrids see p.410. $\uparrow 7-5m/w$ Above law it seems has been discussed *table.w* see p.414 Hybrids from these have remarkable fertility & were considered by Kolreuter as varieties. *wb* When we consider these facts we might conclude that fertility of Hybrids indirect relation to affinity of parents 409 $1-20w$ But on other side (\rightarrow this other side seems most strong) many close species will not unite, & (2d) that some species will unite & produce more fertile hybrids than more closely allied species. examples. $18-20m$, $\uparrow 13-12m$ 410 $1u$ "Herbert", $5-7w$ Examples as before 12||, *table.w* Examples of nearly related species having hybrids quite sterile $\uparrow 8-4w$ Most unlike dogs breed & produce fertile offspring. $\uparrow 1m/wb$ concludes that likeness in Habitus cannot be ground cause of fertility or sterility of Hybrids. 411 $12u$ "constitutionellen"/ w considers this an unknown element $\uparrow 8-5m$, *wb* Repeats that as fertility varies in Hybrid from same parents, it belongs to the individual & not to the Kind 412 *wt* Even in quite sterile plants in both sexes, yet flowers remain longer when stigma dusted with pollen of either pure parent so in truth not utterly sterile $2-7m$, $8-11m$, $\uparrow 8-1m/w$ argues against the several explanations of Herbert of special cases of sterility 413 $14-18w$ not on account of evergreen & deciduous leaves. 414 $13u$, *table.w* considered varieties

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 by Kolreuter from fertility "*Datura*",
 "*Malva*".w ia (others).w o o means not tried
 by Gaertner "*Dianthus*".w XX 2nd table.w o
 not tried These 2 are added, though
 Kolreuter cannot dare to call only vars. ↑4u
 "parum vel", wb XX. V. My M.S. p.19 on
 Kolreuter, showing that all Botanists agree in
 thinking these only vars. 415 table.w/wt ia But
 as several of these are probably rare it is
 very important that G. says not so fertile as
 pure parents, for we get then a series table.w
 also highly fertile Hybrids "*Matthiola*".w
 Bentham says var. 3-5m/w but yet not so
 fertile, in any of above cases, as pure
 parents. 3u "allen diesen"/3-10w Yet he has
 not tried all Koelreuters must mean these
 last alone 4u "ausgezeichneten", 5-6u
 "niemals hervorbringen" 417 wt (a) Agrees
 with Herberts constitutional doctrine (which I
 think means only some internal difference.
 3-8m/w (a) 418 ↑12-8m/w (a) 5-2m, wb (a)
 The most fertile hybrids always lose fertility
 in successive generations.- some sterish
 plants if artificially fertilised increase in
 fertility 420 12-25w In 2d & other generations
 of Hybrids, fertility becomes unstable & often
 less, so that even parent-pollen will then
 have little or no effect. This sterility,
 however, varies much in different individuals
 & depends especially on the individuals 13-
 18m, ↑9-6m/w A ↑5-2m/w Fertility never
 greater in 2 generation, than in first. ↑1w,
 wb (A) In Mongrels, fertility even greater in
 second generation, than in first. see further
 on; for this perhaps implies less fertility in
 crossing varieties.- 421 wt (B) This decrease
 of fertility in second generation has been
 observed in less fertile hybrids of *Nicotiana*,
 & fertile *Dianthus* hybrids, as in example
 given. As this is only second generation
 cannot be due to want of crossing.- 1-4m/w
 B 8-9m/w So in animals according to Morton
 15-25w sometimes fertility increased after
 repeated artificial impregnation in succeeding
 generation, but this plant has commonly
 gone back to either father or mother type
 20w, 25-27m/w D wb (D) Many very fertile
 hybrids propagate themselves, with
 unaltered type like pure species, as in list,
 but always with decreasing fertility. 422 3-
 4m, 5-10m/w In 2d & succeeding generation
 hybrids sport much ♣ ↑6-1m, wb some
 remain like hybrid others go back to either
 grandmother or grandfather 423 wt (a) The
 ♣ manner in which type divides, & goes
 back, varies much.- 2-8m/w (a) 13u♣/w
 offspring of this varied more than from
 reverse 15u♣/w greatly & ↑15-9m/w

Kolreuter compares these with hybrids
 crossed with pure parents. 424 15-21m/w
 The exceptional or abnormal hybrids, when
 fertile, generally produce normal hybrids.
 ↑8m 425 12u♣/12-16m/w with own pollen 4
 seeds with pollen of *D. barbatus* 10. seeds.-
 16u "29 gute"/17u "67 hervor"/16-17m/16-23w
 so again, & thus often.- & likewise so with
 very fertile hybrids.- ↑8-3w & so with quite
 sterile hybrids, corolla remains longer when
 dusted with either parent pollen.- 426 11-
 14w examples as last page ↑12-1w/wb when
 parent & hybrid pollen mixed, latter rendered
 quite ineffectual, so that no need to castrate;
 just like when foreign & own pollen applied
 to a plant, own eliminates quite effect of the
 foreign.- This Curious. 427 wt (A) Pollen of a
 third kind will sometimes produce more
 effect, than own hybrid pollen. 1-2w (A) 3u♣,
 5u♣/3-6w 13 seeds with own pollen;
 langsdorfii 16 seeds. 18w, 428 15-19m/13-
 30w The pollen of the two parents has no
 regard to their sexes in the effect they
 produce, but that pollen, which has most
 power of metamorphosis or *umwandlung*,
 which will be discussed afterwards, I
suppose that pollen which soonest converts
 hybrid into pure species, produces also most
 seeds in Hybrid. ↑18-7m/↑13w A wb (A)
 Niger again variability of offspring of self-
 impregnated hybrids.= so mongrels are.- 429
 1/2/4w, 12u "aufsteigenden", 16w, 17-18u
 "väterliche Bastarde"/w Paternal Hybrids - are
 offspring of pollen of ♣ same species twice
 ↑6u "2"/wb If this ♣ hybrid had been
 crossed with pollen of *atro-purpurea*, it wd
 have been a "Muterliche Bastard" or
 "absteigenden" grade p.451 430 1-8w by
 Father pollen more seed generally than by
 Hybrids own pollen, but generally not so
 many as in first cross of pure parents 14u
 "einfache", 15-17m/w much unfixedness in
 this class of Hybrids 17m, 18-30w Like
 second generation of simple hybrids, these
 Paternal Hybrids vary much & differ much in
 fertility, out of same capsule. So very
 different results from repeated experiments
 with same species. 431 1-3m/1-10w The
 more fruitful hybrids vary less, & go back
 more to paternal type, but have often
 reduced fertility, as, - examples 9w, ↑17-7w
 When they take less after paternal type &
 are much less fruitful, so vary much.-
 generally under 3 types, in accordance with
 resemblance to ancestors & parent.- ↑10u
 "schwächeren"/? 432 wt Different species
 have different tendency to communicate their
 variability; old cultivated plants 9-11m/w (a)

↑14-1m, wb In these cases the ♣ type which normally approaches to father or double pollen side is less fertile 433 wt I am not quite sure that these two pages are fully understood 8-13m/w Here the type which came nearest father was most fertile. 17wτ, 18-25w all sorts of variability in type & fertility ↑2u 434 2m, 16-20m/w It is clear that fertility does not always at all increase ♣ in resemblance in succeeding generations, with ∞↔X ancestor ↑12u "fünf"/↑16-12w 5 different types out of this "paternal" hybrid ↑10-8m/w Here case of coming near the paternal type with considerable fertility 435 wt A Commonest rule or appearance in this stage of conversion is that the more the hybrids differ from mother & approach the paternal type, the more they suffer in fertility.- Thinks the reverse more probably really the law. 12-16m/w A 18wτ, ↑12-6w Female organs recover first their powers.- ↑4-1m, ↑1u♣/wb Fertility in this in such as → always very variable 436 4-8w Examples of above variability in fertility 10-30w These "paternal" hybrids are when self impregnated, generally more fertile, than in former generation, & of themselves tend to approach the paternal type; ie even when self impregnated & are variable in structure. ↑10-9u "in | Generation", ↑10-3m/↑8w B wb B This particular hybrid came by itself more fertile, which he seems to consider normal result of repeated impregnations of own pollen 437 wt Think the above like avatismus in Animals 1-4m, 8-9u "in | Generation", 8-12w when go back to Mother, not quite & unequally. 16wτ, ↑10wτ, ↑9u "Puis" "Van Mons"/↑9-4w So these authors wrongly dispute tendency to avatism 438 8-12w Thinks all variation from cultivation when free tend to go back. 19/20wτ, 19-22w tends more to mother than Father ↑10-4m/↑9w (A) ↑3wτ, wb Happens oftener with same genera than with others; never in the very fruitful Hybrids- 439 6u "Lavatera | Generation", 7-10w This first time more to mother in another case more to Father. 14-20w In these going back progeny○ of Hybrids, fertility less, sometimes gone, never increased. ↑13/↑8wτ 440 10wτ, ↑16-4m, ↑9wτ, wb I believe he here argues that going back of Hybrid offspring, & of varieties not crossed, is evidence of aboriginal foundation form of species. ☞ So it is some evidence - V. p.455 my Note. Good. 441 wt Thinks the former Laburnum case a proof of sterility of species & tendency to go back. 1-3m, 9/10wτ, ↑13-3w The occasional approach to

father in simple Hybrids or in second generation of Paternal Hybrids, is rarer than the approach to the mother. 442 8-13w amongst simple Hybrids Those that approach Father are more sterile. 19u/19-20m/w These are apt to tend to Father ↑12-1w The Paternal Hybrids in 2d degree which go back to father have increased fertility. These cases liable to error. 443 6wτ, 6-9w All the above facts like avatismus in animals. 444 1wτ, ↑3-1m/↑2u "weiteren Generationen", wb in very fertile hybrids these goings back to mother or father have not been perceived, so prevented apparently by strength of sexual organs. 445 wt (A) These goings back agree with the Abnormal types, except these latter are the result of the crossing of pure parents: they also are very sterile. 1-3m/w Law of variation 6-7m/w A 17-20w In successive generations more variability ↑13u♣/↑13-11w These sorts of Hybrids give most variation. ↑8w D. barbatocarthusia,-carthusium. ↑7u "väterliche Bastarde", ↑7-3w variation seldom then in last case (♣ next Page on do) ↑2u "paniculatorustico-glutinosa"/wb These hybrids always with one exception approach father (or 2d species) & commonly totally sterile Yet I think they were sometimes more fertile than with own pollen.- 446 4m, 6-10w Male more power in causing variation than female. ↑14-6w Cause of variability lies in act of generation perhaps aided by circumstances 447 ↑16u♣/↑16-12w not to be distinguished from pure N. rustica, but less sterile ↑8u♣/↑8-6w & even in this generation less fertile z/wb Mother Father♦ pure ♣ paniculata Grand Father♦ Mother Gt Gr. Mother (3) Grt Grt grandFather (4) was paniculata 448 1-8w Different species are changed at very different rates with the paternal type, but this varies in same species 449 3wτ, 8-10m/3-10w colour of flower does not vary more in later generation than in first, which is different from other variability ↑15w A ↑7u♣/↑7-1w Even some of these quite sterile in both sexes wb A In some case, especially such as are slow to be converted, the fertility is lessened, especially on male side, even when hybrid has gone back nearly to paternal type. 450 wt A Such Hybrids with own pollen improve fertility & of themselves go nearer the paternal type. 1m, 1-12w Even some fruitful paternal hybrids in 3d degree were quite sterile on male side. Generally with higher degree of Paternal hybridism, so much more fertile. 14u♣/w A ↑13wτ, ↑12u♣, wb In each paternal degree this became

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more sterile on female side, because it approached *D. Japonica* which is naturally sterile on female side. 451 $\uparrow 10w$ 452 1-4w More fertile than corresponding paternal Hybrid 9-12w varies more \clubsuit than paternal hybrid $x \rightarrow$ chinensis-barbatus female barbatus male *table.w* These bore 6-15 varieties $\uparrow 10-1w$ Most of the vars have approached very close to pure maternal type 453 *wt xxx* I shd think caused by female side of Hybrid being most fertile & other side being crossed with same type, through a male, caused their greater fertility. & is partly proof of more fertility on female side. 8m, 10-14w More fertile than corresponding Paternal Hybrids xxx 17-28w But even here amongst those most closely resembling Maternal type, quite sterile individuals are found. Here also male side fails in fertility more than female. $\uparrow 12-9m/w$ A *wb* A In further generations, when self impregnated, become of themselves more like mother & more fertile & less variable- 454 10-20w The more fruitful stick to the hybrid type longer than the less fruitful. Rate of going back varies according to Kind 455 *wt/1-5w* A Neither var. shd be an aboriginal form. This makes me believe the reported fact that Mongrels go back: Bell insisted on this to me one day, in regard to Pigeons, & I think Dixon did. \clubsuit So Gaertners remark that this proof of Real Species fails, for applicable to Varieties 1-15w \rightarrow But it might be said that one var. was an ursprungliche forme.- 8u "*zur Stammutter*", 7-18w The law that these (I fancy both paternal & maternal, anyhow the latter) of themselves, self-impregnated go back to type of Mother, most important. (A) 22-23w The metamorphosis of one species into another like a variety into another seems opposed to species being something distinct as Entity.- XX $\uparrow 6-5w$ In Tollets case of Malay Fowls so long affecting breed is case of a var. with stronger tendency than others to go back, like species *wb* XX It is argued that the sterility of hybrids, shows that species are a distinct entity, then surely the points in which they agree, may be fairly adduced to show that they are not essentially different 457 $10w$ 458 $\uparrow 7-4m/w$ (a) *wb* (a) The rate of metamorphosis depends chiefly on the species employed; but also in less degree on the variety (This rate has narrow limit) of the individuals employed; on account of different degree which they go back in type 459 13-16w The shorter the period of Metamorphosis the less variable 16m, 19w, $\uparrow 14-12m/\uparrow 16-5w$ In

reverse cases, the metamorphosis at different rates, even though the hybrids from the reverse \clubsuit be alike. Thinks this proof of aboriginal creation. $\uparrow 2-1m/w$ A *wb* A Always approach to type of ancestral form before organs of generation quite perfected; ie these are last restored. 460 *wt* It is not likely we shd understand the slow restoration of the generative organs, as long as we remain so ignorant regarding the essential action of these organs; & why two sexes necessary.- 8-10m/6-16w Not seldom quite like pure parents & yet even quite sterile, specially male organs; sexual organs universally \clubsuit in some degree affected 11-12u "*allen | Ausnahme*", $\uparrow 16-12m/w$ Law, that male organs not only more easily affected but slower restored. $\uparrow 7-1m/w$ do not understand. 461 $\downarrow w$ extreme variability of fertility during the *umwandelung*, not connected with any law.- Never suddenly appears by a jump. Yet one almost exception by Kolreuter, with unusual approach to pure type, and Gaertner one other case with relatively little approach to pure parent. These cases show that the gain of fertility \clubsuit is due to peculiarities of the individual 17-22u \pm 463 *wt* (A) As in first generation, decided types (Given in last page & p285) arise close to one parent, so it is evident the number of generations required for metamorphosis must vary much. 6-12m/8w A *table.w* on average 464 $\uparrow 13-7w$ As far as yet known never requires more than 6 or 7 generations $\uparrow 10/7w$, 6m 465 *wt* A Attributes the variability not entirely to the difference of the going back of individuals, but also to variability due to long cultivation, for has not perceived it in the wild-growing, nor in the more fruitful hybrids.- 11-19m/12w (A) $\uparrow 14u$ "*oben | 220*", $\uparrow 13z$, $\uparrow 13-1w$ In reversed crosses, even when hybrids are alike yet they are not metamorphosed with equal readiness, which shows some difference in their nature \rightarrow $\uparrow 2-1u \leftrightarrow /w$ example *wb* \clubsuit Thus *Dianthus* 466 *wt* Hybrids may be considered as a united brother & sister 17w 467 *wt/1-10w* Would not "Reduction" good be term for *Umwandelung* = inversion in Dict. \rightarrow Absorption by Father form *wt* Reduction by the Father or of mother or by paternal pollen or maternal pollen 7-10m/7-17w (B) Fertility of hybrids stands in no special relation to capacity for metamorphosis: Examples,- very sterile & yet in 3 power almost reduced to *D. car.* 13u \clubsuit , 16u "*dritten Grade*", 20-24m/w fertile but require 5 powers & c & c $\uparrow 2m$, $\uparrow 1w$ other

reasons for (B). 468 $\uparrow 8-5m/w$ A *wb* (A) Generally with less ♣ "sexual affinity" of first pure parents the Reduction ♣ slower, & the reverse with ♣ more fertility 469 $8-10w$ Exceptions to ♣ last rule $\uparrow 15-12w$ Examples of above rule 470 *wt* Foregoing examples show no fixed relation between periods of Metamorphosis & sexual affinity of Plants.— $1-2m/w$ A *8u* "*der | Typus*" / $6-15w$ A species with this power of producing a decided type will reduce a species in the reverse manner $\uparrow 13-10m/w$ There is also relation to systematic affinity of species. *wb* Systematic affinity must mean "likeness of characters externally visible. 471 $\uparrow 14-6m/w$ Examples of last Rule $\uparrow 3-1w$ Exceptions to 472 *wt* (Q) The different powers of reduction in hybrids from reversed crosses, show no fixed relation to "systematic affinity of parents $9-13m/w$ Q 473 *wt* (B) Returns to parent-forms through self-impregnation are very slow, & require many generations. $11-15m/w$ (B) 23m 474 $6-10m/w$ The goings back seldom observed in wild plants when experimented on 12a "428" 438? $13-20w$ Conclusions (1) Facility of Reduction not absolutely depends on sexual or systematic affinity.— (2) Returns more often to Mother than Father. $\uparrow 8-6w$ Not all embryos affected alike. 475 $\downarrow w$ I suppose he wd say there was a hatred in the Vegetable Kingdom to these crosses: perhaps his argument directed against those; like Herbert who believe in hybrid origin of species. $2w\tau$, $16-17u$ ♣ / $13-18w$ In reduced hybrids traces of parental character may be yet discovered. $19w\tau$, $\uparrow 13-8m / \uparrow 11-10u$ "*unzweidentigen*" / *w* (a) $\uparrow 1w\tau$, *wb* Thinks the Reduction of species affords "unequivocal" proof that the limits of species confined & fixed. How curious. I can see force in this argument in reductions by self-impregnation.— 476 $1w\tau$, $1-6m/w$ Excessive care in preventing parent pollen, Kept in chamber.— $\uparrow 9-8w$ The old stories of Grasses changing into each other.— $\uparrow 4w\tau$ 477 $8w\tau$ 478 $5w\tau$, $4-6w$ Hornsuch defender of transmutation $13w\tau$, $17u$ "*Berg*" 496 $\uparrow 7w / \uparrow 4w / wb\tau$, *wb* Amongst seed of Vetch, some chickpea, which produced 2 vars. like Vetch 497 $\uparrow 7-5w$ Amongst the seeds he found 4 vars. 498 $18-23w$ 4 vars of Peas, very slightly different, raised out of bought seed.— 499 $8-16w$ no variously coloured seeds produced & it is clear he wd like pairs to prevent crossing $\uparrow 11a$ "51" 3 correct $\uparrow 3 / \uparrow 2w\tau$ 500 *fn nos corrected*), *wt* (a) Remarks that many plants when put out of proper conditions do not vary, & those that do, their

union retain & power of union suffer much less $7-10m/w$ a $11-16m/w$ Cases of change of Form chiefly in Lecoq $16-18u \pm / m/w$ these very fixed $\uparrow 14w\tau$, $\uparrow 10-8w$ long cultivated plants as $\uparrow 6u$ "*Cerealien, Leguminosen*" / $\uparrow 4-2u$ "*Dianthus | Tabacum*" / *m/w* vary 501 $1m/w\tau$ same cause makes them ♣ easily depart from normal Bastard-type $7-9w$ varieties tend to go back; no facts given $8w\tau$, *fn nos corrected*), $\uparrow 12-6m$, *wb* Quotes Herbert, that domestic variations do not affect organs of generation 503 $22w\tau$, $23-24w$ There are 6 of these classes. 504 $5-8w$ Simple Hybrids of own type *2nd table.w* I cannot think why Reduced Hybrids per patrem are here omitted *wb* → (a) & (b) Hybrids alike & so also (c) or Reduced Hybrid per matrem. 505 $9m$, $11m$, $23m/w$ (C) 506 *wt* (a) It is only the quantity of blood from either side which makes a difference. $4-17w$ Thus these are alike (a) But when one factor is more powerful in its influence, then there is a difference, as. $12-17m/w$ very variable & generally very sterile with exceptions. 507 $1w\tau$, $2m/u$ "*aus | Faktoren*", $19u$ "*sind | steril*" / $15-19w$ Excessively variable & generally absolutely sterile $22-23w$ compounded. 3 species same as last only mother a hybrid $\uparrow 2-1m/wb$ In type always (yet a prepotent type in any species has some influence) go to Father: ♣ but in different degrees.— (So Kolreuter also says) fertility varies generally little.— 508 $4-5u$ "*vermittelnde*" / $3-5w$ are very distinct from class 5 $6-10m/w$ In this subclass the 3 pure parents are somewhat allied *table.w* very little fertility in one folling case very considerable fertility $\uparrow 2-1 \rightarrow 509$ $\uparrow 7m$, $\uparrow 5w$ (A) *wb* (A) In the second subclass, species are used which will not cross without the intermediate & 3d species, & therefore are very little allied in sexual affinity.— These always most closely resemble pure father. Excessively sterile 511 $14-19m$ 512 $13-15m/w$ a tendency to vary even in individual plant $17-24m / 22w$ (a) *wb* This extreme closeness to father very singular & against ordinary laws of Hybridism, explained by greater potency of pure pollen of Father, as likewise is shown in the 3d class, in which Mother is pure & yet it seems no leaning to either side. 513 $\uparrow 19-11w$ ♦ It seems that where pollen pure & ovules hybrid, then appr to pure & less variability $\uparrow 9-4m/m$, *wb* not so variable, apparently owing to the potency of effect of pure parent.— 514 *wt* A Conclusions (1) that hybrid ovule or pollen cause of variability. (2) that the pollen, even of hybrid origin has preponderating influence over

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female !!! I do not see how second conclusion 1-6m/w (A) 5wτ, 6m 515 4wτ, table.w Here whichever species has the most typical strength, the offspring resembles it – quite sterile table.w Not one is Double 516 table.w 4 species united table.w In this the several offspring resembled all four parents table.w Excessively variable, no two individuals alike. Fertility lost. 517 wτ It is clear that the more complicated the unions the more variability ensues. ↑14-11w Hybrids can be told from pure only by variability ↑16u "schon | ersten", ↑15-3u "niemals | Arten"/m/w repeated over & over again ↑1m 518 2m, 3m, 8m, 10-13u↔, 14m, 15m, 16m, 17-18m/w not more subject to mal-conformation than pure species 18-19u↔ 519 wτ Some hybrids can be much more easily impregnated when growing in pots than in open land, because too much luxuriance checked.– Good instance of ease of effect of too much luxuriance 1-7m/3w (a) ↑4-2w some seeds look poorer 520 1-10w of these many seed fail quite or seedlings live very short time or rather longer or only just flower 16-17w examples of above ↑13-4w The above one exception to rule, & may be due to greater susceptibility of outer causes 521 ↑14-13u↔/x, ↑11-10u "Sageret | aus"/↑11-9m 522 1u♦, 18u "11 | Bastardarten"/m/x/1-18w♦ Period of germination in Hybrid seeds very various 523 13-14m/x, ↑18u "Bastardsamen | Art"/↑18-16m/x, ↑15-13m/x/↑13-12u "weil | werden", ↑12-11m/w (a) ↑8-5→, wb The typical strength of a species over the other is shown in affecting period of germination of Hybrid seeds 524 13-17m, ↑16-15u "daher | grosse"/↑16-8m 525 ↑4-1m, wb Hybrid seeds do not appear to keep so long as pure seeds 526 ↑4-1m/w all observers agree about luxuriance of hybrids 527 5w long stems ↑12-8w Easily propagated by cuttings &c ↑9u "stocken sich"/wb Even in stocks "make offsets" ↑7-6m, ↑4u "Seitenästen" 528 8-9w Proliferus 17-23w Thought to be related by Kolreuter to sterility of Hybrids 21wτ, ↑9-1w/wb Opposed to this is the fact that luxuriance begins before development of sexual organs I do not think this objection 529 3-8w (3) all very sterile hybrids are not luxuriant 12-17w (4) These hybrids which are most fruitful are the most luxuriant ↑14-10w concludes luxuriance a peculiar quality of Hybrids. ↑9u/wτ 530 4-10w Hybrids flower earlier with exceptions 531 13-19w unseasonable flowers This is odd. Is it not like double flowers? ↑11-4w stamens & stigma increase in number

sometimes, but not both wb rare exceptions to above, when very distinct species united. 532 13-25w Kolreuter accounts for above by sterility, but doubts as most fruitful * Hybrids, are those which produced most flowers 17u "diejenigen Bastarde", wb * Yet these are in some degree sterile 533 ↑16-8w absolutely sterile hybrids have ♣ their flower long preserved, when dusted with pollen of either parent.– 534 ↑15-13w Flowers longer ↑2-1w some exceptions 537 ↑18-5w Because Bees freely frequent quite sterile hybrids, for Honey, thinks no close relation between dissemination of pollen & nectar. ♣ Might as well as say elytre not connected with protection of wings, because present in apterous insects ↑11u "Fruchtungsvermögen" 539 ↑6-1m/w Thinks Kolreuter wrong in concluding these are only vars 540 ↑20-15m/↑20-5w Never gives so many seeds as pure parent. As pure species are often sterile sterility cannot be taken as proof of hybridism 541 wτ can offer no explanation of Sterility 1-6m 542 wτ Duration of plants whether 1 or 2 years always very variable 3-5m/5u "Koch", 7-17w Hybrids longer lived. strong character of such plants, as below ↑4-3u↔ 544 ↑3-1m, wb attributes above partly to sterility, but – 545 4-15w objects that some quite sterile are only annuals, & objects that castrated parents have not life prolonged. 17wτ, 16-18m/w (a) ↑17-12w In crossing hermaphrodite to 2 unisexual plants sexual organs repaired. wb In dioecious plants organs imperfect of one sex. in Hybrids perfect, but functionless 546 wτ Hybrids become decrepid in successive generations. 1-4m/w (a) ↑15-1m/w Hybrids can bear cold better than parents, which is connected with their tenacity of life 548 5-10w However Some hybrids from little related species are tender. 549 ↑18-17u "den | Tulpen"/w These vary during life of individuals but then variable flowers ↑16-1w In This Hybrid (perhaps only a mongrel iy) some of the flowers in middle of summer & autumn went back to Mother in flowers 550 3-5w other cases of above 14-17m/w Suspect the 2 Tropaeolum only vars, yet very different. ↑7-5m/w a ↑7a "speciosissimo" female ↑7a "phyllanthus" male wb (a) This hybrid for first three years had angular 5 sided stigma, & then became like Phyllanthus.– 553 12-13u↔/15u♣/10-20w cases of hybrids in which type has kept very constant, in this case for 10 generations, but with lessened fertility 19x, 21x, ↑8-4w above only examples of progeny of hybrids

not varying 554 2-18w Fertility even more variable than other characters. Rarely becomes more fertile in 2d generation but generally, even in most fertile Hybrids, much more sterile. 556 wt The tendency to go back, he argues, wd prevent new species being formed by variation; but overlooks any mention of selection picking out the new form adapted to new end.— 1-5m/w (a) → ↑16-8w Local & constant varieties are different as long as new conditions are present, but change them & the species will go back 557 wt (a) as opposed to those who believe genera are made by crossing of species, brings case of *Verbascum* with species most difficult to distinguish, yet most sterile.— 1-6m/w (a) 9-15w Thinks monstrosities not occurring more in Hybrids than pure species, though Kolreuter did think so.— 558 wt Has made 1000 artificial impregnations 1-2u "an|Befruchtungen" 559 ↑17-13w cases of Dwarf Hybrids enumerated by Kolreuter 561 11u♠/14u♠/11-16w The doubling of calyx & colouring of do., even in these genera, not once observed. 564 wt Hybrids become double like pure species— Does not seem more apt to be double 1-3m/2u "Jäger"/wt Has described double flowers in all classes. 565 8-12m/w rare case of double hybrid, if parents single ↑11-8m/w sparing & retarded dusting with pollen, most apt to bring double flowers ↑5-2m/w (a) wb (a) Hybrids more inclined to double than ♣ pure species 566 10-15m/w It wd appear that this stock was impregnated by Plants 100 yards off — 567 7c/w♠, ↑14c/w♠, ↑13-7w luxuriant growth no doubt necessary for doubling, but some other cause shown to exist ↑3-1m/w near Hot Spring several Plants double 568 1-4w cases of wild flower double ↑4wτ 569 wt (a) This seems to agree with male organs being most easily rendered sterile in Hybrids. 4-7m/w female organs more often spared from changes in double flowers (a) 7m, 10-14w The coupling of stamens in Hybrids the opposite of Doubling. ↑10-5m/w Pistil more often converted into Petals in pure species than in Hybrids. 571 ↑13-10m/w Monstrous Sea-hound with 2 heads 572 7-10w It is remarkable that vegetative strength owing to sterility does not disturb rest of flower ↑15-1w The Pollen & ovules themselves must have to be modified: the variation is not due to mere mixture of two kinds of cells ↑3-2m/w/wb very strange that corolla as altered ♣ stamen is not modified in Hybrids. wb In the second generation of Hybrids we have much

variation, which is kind of monstrosity 574 wt xxx This remark very curious & bears on what I have shown The large genera var most. I do not know whether remark applied to wild or tame. If wild ♣ as I fancy all is right. If tame it wd indicate that my explanation of spreading & favourable conditions must be superseded by some new law. Could it be tested by Loudon, ascertaining the proportion of genera with single species. by Lindley??? 1-2w Shd this rule hold for domestic plants, then we may account for it by variability being necessary to improve plant. 2-3w As I thought of doing with Domestic animals. Wd it be good to take domestic Plants & see proportion of species to genera??? (or do it all by Loudon. that wd be best) according to Nat Family & whole Kingdom. 5-7w Maize has one (or two Molina!?) species) 8-10w Rye has only 2 species Rice only one? ↑12u♠/w Hardly vary at all anywhere ↑10-9u♠/w These vary vastly ↑10-4m/w (B) ↑7-4m/w xxx (a) ↑1w aescutus Horsechesnut 1a "macrostemma" Red Horsechesnut wb (a) Q Some have thought that single species of genera do not vary (Man!) much, but case of *Platanus* given wb (B) But the *Platanus* of Pavia have more than one species as far as I can find out 575 wt Admits the crossing in cultivation must check the *ausartung* of plants but doubts whether this holds in wild Plants!!! 1-9m, 15-18m/w variation affects every part of Plant. ↑13-7w crossing of species & varieties an evident cause of variation ↑4-1m/w variability quite ♣ owing to mongreling than to external agency 576 1-3m/w Van Mons 2 kinds of variation 13-17m/w some varieties are constant but crosses of where vars. very variable 18-22m/w White Dahlias not one white seedling ↑3u "zum Theil"/↑5-1m/w/wb all agree that vars cross & produce partly more fertile ♣ offspring, than the pure parents.— But exceptions as on next Page 577 3a "von"/wt at p.87 says these two vars grown in garden always kept pure. 3-4u "*Cucurbita major*", 3-8w These unite with great difficulty, but offspring very variable & fruitful 8-10m/Q♠, 8-10m/w says some vars of Dogs, some crosses are more fertile than others Ask 14-18u♠/w K. calls these stabile vars. (Gaertner the following; some Botanists consider as species 21u "unserer|fortpflanzen"/w finds like Herbert the vars of Hollyock constant. 23u "*Lychnis*"/24u "*phoenicea*"/w (A) ♣, ↑11-5m/w Mongrels like offspring of simple Hybrids, only more variable, (which surely might be expected

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C.D) $\uparrow 6-1m/w$ case of variability in varieties *wb* (A) These true species in relation to variability like Mongrels, in fertility like Hybrids.— Yet Lychnis is wild & not cultivated Plant see p.582 at top 578 *wt* In Cucurbitae, on same plant often two kinds of fruit in shape & flavor $1u \spadesuit / 1-4m/w$ (B) $6w\tau$, $7-8u \leftrightarrow / w$ Important $8w$ intermediate & this is commonest in close species see p.283 $13u$ "früher" / $16m/9-20w$ The uninjured & often increased fertility of mongrels, accounted for by luxuriance of Hybrids (I do not see this) & says he finds garden Plants varied from crossing vars. are earlier than ordinary vegetables. (The earliness is hardly same as greater fertility.) ? ask table. ✓ to each line/w On account of greater but not equal to pure species fertility. Kolreuter considered these as only vars: ♣ G. thinks from actual experiments ♣ only the Hyosciamus as true varieties, because by cultivation one turned into other. *wb* Steudel makes *agrestis* a Synonym of *H. niger* G. says they turned into each other 579 $5-6u \spadesuit / w$ same conclusions regarding these $7u$ "Bastard", $10u$ "Bastarde" / $11u$ "absolut" / $8-14w$ says fruitfulness of Hybrids not absolutely ♣ proof of parents being only varieties $7-8m$, $9-11m/w$ ask author, I fancy means only some fertility. *wb* Examples of Hybrids very fertile but not as fertile as pure parents *wb* ♦ These are not hybrids, but nearly the union of two pure species. 580 table.w The hybrid from these quite sterile $\uparrow 20-1w$ seems to admit quite the crossing of varieties left to themselves & may be cause of return of vars to parent forms. says mongrels in their variation in successive generations may be classed like the Hybrids, which he has classed. 581 *wt* Says besides infertility Mongrels differ from Hybrids in ♣ varying in the first generation whereas Hybrids vary in 2d or in paternal & maternal reductions. He gives no case of wild varieties, when first crossed varying more than mongrels; at least I cannot remark any. $1-4m/w$ (a) $6u$ "andere | Bastarde" / w in other respects like Hybrid only more like to pure species. $8m$, $10-25w$ He evidently considers these very important characteristic differences (just respecting p.273) between ♣ crossing species & varieties $\uparrow 4-1m$ 582 $1-4m/w$ mainly repeats p.577 $9-10w$ more accessible to impregnation of other vars $12-13w$ More tendency to revert to parent form $14-17m/w$ more variable $18u$ "gewöhnlich" / $18-19w$ commonly more fertile $\uparrow 6-1m/w$ (a) *wb* (a) Lecoq states great variability in Iris,

supported by observations of Berg, hence suspect that there may be variety-bastards — So necessary to show no need of crossing look at Potatoes & Maize & Rice!!! ♣ 585 $4-7w$ The smaller proportion of Hybrids are "intermediate" 586 $\uparrow 14-12m/w$ speaks of law of both organs being ready at same time! 587 2a "Wimmer" * 15/ all folling numbers wrong $\uparrow 10w \neq$, *wb* see Corrigenda 589 $16c/w \neq$ 590 $2u \spadesuit / w$ Natural Hybrids $5-8m$ 591 $7-17m/w$ cases of *Verbascum* self-formed Hybrids, yet offspring these Hybrids excessively sterile. 598 $\uparrow 15-11m/w$ (a) *wb* says not know how long & in what limits keep true. but wheat shows how long can be preserved under same conditions. 601 $8-10m/w$ The inner nature of Plants cannot be judged from outside.— 602 $4u$ "paniculata" / $3-6m/w$ He puts Mother first & Father after, some have followed an opposite course 605 $\uparrow 8-3m$, *wb* Thinks the facts of Hybridisation show that original species forever remain true 606 $6-7w \neq$ all Q $\uparrow 4-1m$, *wb* as varieties can generally be propagated, as known for centuries, any alteration, if they ever occur, requires careful observation.— 607 $\uparrow 8-3m/w$ (a) *wb* Points in which grafted Plants do differ from same raised by seed 608 $6-10w$ sometimes less fruitful, sometimes more.— 10?, $16u$ "vollkommenere" / $17u$ "zahlreichere" / $18u$ "Geschmack | Früchte" / $16-22w$ seedlings generally bear more perfect & more numerous seeds than when grafted. $\uparrow 13-7w$ sometimes life rendered longer, sometimes shorter $\uparrow 4-1w$ longer in foreign trees 609 $10-14m/w$ evergreen oak grafted on common cast leaves & *Daphne laureola* flowered in winter $15-22w$ effect of one Pear grafted on an earlier kind was to make it actually later! $23w\tau$, $\uparrow 10w$ ♦ 10 true is right $\uparrow 6w\tau$, $\uparrow 3c/w \neq$ 611 $\uparrow 11u$ "Oleander" / w cases of mottled leaves affecting the Stock. 613 $5-9w$ Even the wood keeps distinct at place of grafting. 620 $2u$ "allein | vermischte" / $5u$ "selbst | zu" / $1-10w$ a statement that two kinds of grapes — branches split & joined longitudinally produced striped fruit & crossed foliages. G. does not believe. $\uparrow 8-5w$ other similar cases 621 $9-13m$, $\uparrow 12-9w$ objects that these are cases of sporting $\uparrow 5-2m/w$ ugh O 628 $5-25w$ case of sport in common Laburnum with flowers like C. Adami Is not this like the orchard case? Were they sterile? The sport & parent in Austrian Bramble are sterile. (Herbert has shown are sterile. in Hort. Journal) *wb* (B) He is dreadfully puzzled about the Laburnum case & says not analogous to anything known 629 $4-12m/8w$

B $\uparrow 14-4w$ Power of grafting \clubsuit much longer than of hybridising; even very different genera (A) (It makes it the more remarkable that certain vars. shd. not do well together.) $\uparrow 11/\uparrow 9w\neq$, $\uparrow 7/\uparrow 6w\tau$, wb (A) I think I have heard it said same Family. wb Syringa Fraxinus Olea Chrisanthus – all Oleaceae 630 $w\tau$ The relation of the different kinds which can be grafted on same stock is very different from the relationship on which hybridisation depends $2-7m$, $8m$ 631 $7-13w$ A certain affinity necessary beyond doubt. $11c/w\neq$, $\uparrow 16w\tau$, $\uparrow 15u$ "organischen Structur", $\uparrow 9-8u$ "die Individuen"/ $\uparrow 11-5w$ The above influences not only possibility of graft, but \clubsuit fructification & duration of life $\uparrow 5-1m$, $\uparrow 6u$ "Familien-Affinität"/ wb Family affinity, though greater difference between the graft & stock in wood, yet permits the graft. 632 $8-9m/u$ "schlagen | Die!" / $Q/3-13w$ great difference in powers of grafting. Pear & Apple though altered will with difficulty graft. – Difference in reverse case $18w$ Will not hybridise. $\uparrow 15-12m/w$ can be grafted but not hybridised 633 $11c/w\neq$ 635 $5-7m/5-12w$ Puvis speaks of grasses modifying but not exactly crossing. Has Wiegman shown that grasses cross? $\uparrow 10-4m/w$ 2 colours in turnips not capable of crossing 639 $\uparrow 14-11m/\uparrow 14-1w$ Genera which have perfect pollen & ovaries, but produce commonly no good seed, but will produce if impregnated by pollen of same species, specially by pollen of another individual 641 $\uparrow 4m$ 648 $9-12w$ Mainly how they worked p.354, 369, 374) $15u$ "Herbert"/ m/w See 651 $\uparrow 8-7m/u$ "Unkenntnis | Gewächsen", wb Ignorance of process of fructification in some plants has caused \clubsuit failures 653 $w\tau$ cases in wh he failed but others succeeded $4-7m/7u$ "oben | 126", $\uparrow 13m$ 654 $9-13m/w$ has never seen ill effects from castration, except when all castrated. $\uparrow 9-5m/w$ (a) wb Dichogamous plants less \clubsuit capable of hybridising; & very liable to crypto-hermaphroditism. – 655 $1-20w$ (Can the pollen of another individual or var overpower own pollen?) – $8-9m/8-12w$ Best generally to castrate at moment of opening of flower. $19u$ "Leguminosen", $20u$ "Malvaceen"/ $18-22w$ Necessary have cut or open or partly or wholly cut away petals $22-23u\leftrightarrow/25-28w$ Oenothera Epilobium Fuchsia Clarkia $22-23m/w$ (a) (Quoted) $\uparrow 9-7w$ Lecoq says pollen of Fuchsia not shed for 3 days after flower opened $\uparrow 5-1w$ even whole corolla can be removed without injury to seeds wb (a) Anther \clubsuit ripe before opening of flowers in these Families & the fructification takes place not only some

hours, but even days before flowers open. Then how do Cruciferae & Peas cross?? 656 $16w$ Pincers $657 14-18w$ cut with scissor or pull off stamens, not touch anthers 658 $\uparrow 16w$ (a) $\uparrow 4m$, wb Stigma of Lobelia in own climate seldom protrudes till lost capacity of being impregnated, & hence species bears no seed, but if anthers drawn over stigma produce plants. – I think this is meaning. 659 $1-2m/w$ Pistil grows in Geum after impregnation. $\uparrow 15-11w$ By many plants pollen & ovaries not ready at same time $\uparrow 7-4m/w$ Impregnate easily, because Pollen keeps its strength wb Stigma generally ready when flowers open, but sometimes not ready for some time afterwards 660 $9-12w$ Repeats impregnation several times. 662 $w\tau$ Cultivated in Pots so thus excluded from cross impregnation $1-4m$ 663 $\uparrow 9-1m/w$ The artificial impreg of many flowers on same plant injurious to it. – 664 $w\tau$ (a) The impregnation with own pollen, \clubsuit fertility always greater than in any Hybrid, & equal or at least near Natural fertility, but sometimes less. – Really this accounts for the (i a) of Hybrids. – $2-10m/w$ (a) $10m$ 665 $11-15w$ Plants to be fertilised in chamber facing S.E. 666 $1c/w\neq$ 667 $11-15w$ Many Hybrids bring seed in Pots, but not in open land. 670 $1m/w\tau$ Isolation only superfluous in exotic plants when only one present $4-5u$ "Die | Nothwendigkeit" / $2-8m/w$ speaks of the absolute necessity of isolation (& so does Lecoq) which all shows how some crossing goes on. $8m$, $14-16w$ cutting off all flowers injurious 674 (fn nos corrected) 675 $3m$ 677 (fn nos corrected) 678 $\uparrow 5u$ 679 $4u$ "ganzen Habitus", $5u$ "M. longiflora", $14u$ "5,2", $15u$ intermediate $16u$ "12,5", $17u$ "3", $\uparrow 10-9u$ "Farbe | Jalapa", $\uparrow 8u\leftrightarrow$, $\uparrow 10-5m/w$ seed of this Hybrid returned to two distinct parent forms. $wb\clubsuit$ & so in Maize I am nearly sure 2. vars of seeds in Mongrels 683 $\uparrow 18-15w$ fertility varies more in different experiments. 684 $w\tau$ (Get Hooker to read over this list) There are important facts \clubsuit in this Table not noticed in my abstract or results. $3-7w$ instances of series of fertility $12-13w$ count how many pure species have (K) when self impregnated See whether any difference in two vars., I have seen to Verbascum $22w$ Mothers name first $\uparrow 12w$ succeeded with Kolreuter $\uparrow 11w$ = arvensis Loudon Cat. $\uparrow 10w$ = arvensis Steudel $\uparrow 8u$ "9", $\uparrow 15-3w$ I do not think same species Herbert succeeded see p.653 are these the English species? (yes.) $\uparrow 1w$ no of flowers no of fruit wb See how many genera no result, & genera I believe

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with close species: this bears on vars. *wb* I shd trust this more ♣ (see case p.706) more information given ? of results of self impregnation The very near to approach to (K) & yet the rarity of actual (K) makes me think the effect of artificial fecundation. 685 *wt* Hooker thinks that probably *Canadensis* & *atropurpurea*, are merely synonyms: Hooker thinks *Canadensis* & *vulgaris* distinct 5*w* *Siberia* 8*w* var. Hooker 9*w* of *vulgaris* ?? 12-13*w* Steudel var of *atro-purpurea* 14*w* This means hybrid crossed by Father 22*w* What Ask author Steudel makes var of *atropurpurea* 26*w*/27*w* var of *vulgaris* 28*w* var of *atropurpur* ↑13?, ↑10?, ↑3*w* var. of *vulgaris wb viridiflora* is a Siberian species of Pallas var. of *atropurpurea* according to Steudel 686 *wt* In this country Hooker says *C. littoralis* or *maritimum* is considered a very close but distinct species 1*w* var of *vulgaris* 3*m*, 12-15*m/w* Steudel makes synonyms 13*w* Prop. Poll ↑23-17*w* Dr Hooker considers undoubtedly vars. except *steticum* ○ ↑22*w* Prop pol ↑19*w* wild var ↑18*w* Prop poll *w* wild var ↑16-1*w* In text p.197 & elsewhere *Maritimus* is spoken of as crossing with *C. Behen* Must be a misprint. anyhow *C. Maritimus* = *S. inflata* according to Steudel.- ↑15*w* very different Hooker ↑14*u*, ↑14-1*w* all these i a & c are from crossing varieties. *wb* (*species names equivalent to Silene inflata Steudel*) Some authors think *Silene italicus*, *pilosa* There is nothing in Loudon Catalogue to make me doubt the conclus 687 19*m*, 25*w* = *incornis* of Kolreuter 688 *wt* Asa Gray considers the *D. tabula* as var of *D. Stramonium* & introduced into America Dr. Bromfield in *Phytologist* says he has tried every gradation between these two forms & yet here not fertile (K). This then is case of some sterility, if we are to trust the same class of facts as we infer sterility from.- ↓*w* See p.385 for degree of sterility of *D. tabula* & *stram* ↑23*w* Acta ○ ↑13*w* = *plumaria* Linn. 689 ↑20*w* Prop. Poll 695 17*w* Prop. Poll. 696 ↑18*w* Croatia ↑11*w* ♦, ↑1*w* perhaps var. 697 *wt* [p.225 Much important on reciprocal crosses in *Digitalis*.] 11*w* var of last Lindley makes 12*w* perhaps ♣ var 17*w* some think var of 2. last 17*w* *ambigua* of Kolreuter p.175 *ambigua* anyhow probably distinct 19/20*w* perhaps var ↑19*w* var. of *ferruginea* acc to Lindley 698 2*m/wt* = *angustifolium* Steudel ⟨*u* henceforth: numbers in cols. 2 and 3⟩ 6*u/w* Prop pol 7*u*, 6-15*m/w* crosses more fertile than with own pollen. 10*w* Yet Newman says quite fertile 15*u/w* Prop. poll. 22*w* Prop. Poll. ↑8*w* Dr

Salter Bell says quite fertile *Phytologist* 699 18*m*, ↑19*w* = *niger* ↑18*w* = *niger* Probably vars. ↑13*w* = *niger*? ↑12*w* = *niger* ↑12-11*w* perhaps vars. *wb* p.578. G. says *agrestis* = *albus* as known by experiment - Steudel makes *albus* distinct - 700 10*w* = *undulata* ↑20*w* I think ♦ Herbert p.345 succeeded & they sowed themselves. ↑19*u*/!, ↑13-12*m*, ↑8-7*m/w* Prop. Poll 701 ↑13*md/x* ♦, ↑7*x/w* Prop. poll 702 7-8*md*, 11*m*, ↑18*w* Prop. pollen ↑13*m/w* Prop Pol ↑10*w* This is *speciosa* fertile according to Herbert p.346 703 14*w* = *sylvestris* 15*w* Prop pollen 15-20*m/w* see my slip of Paper about Synonyms 18*w* var. self im 20*w* = *dioica* 23*m*, 24*w* = *Silene nicosa* ↑18*m*, ↑13*w* = *Silene wb* It is evident from Steudel that *Silene*, *Lychnis* & *Cucurbitum* all most closely allied 704 9*w* p.385. contradicted ↑16-12*m/w* Here it is evident that first cross normal ↑16-7*m/w* Prop. pollen 705 22*m*/23*m*/25*m*/23-25*m/w* see *Beitrag* p.598. & compare with p.385 of this Book. Shows that (K) is quite correct ↑13/↑12/↑11*m* 706 4*u*/1-4*m/w* What differences 19*u*, 20*m*/!, 24*m*/*u*, 25*m*, 27*m*, 19-27*w* (This very important) see Koelreuter about this. 23*m* ☉, 30*m* ☉, ↑19*x/w* Loudon ten week start ○ ↑18*m*, ↑16*x/w* smooth ↑15*m*, ↑7*m/w* Prop. poll. *wb* These seem distinct ♣ 707 2*m/w* Kolreuter raised them 4*m*/?, 25*m/w* Sageret raised them p.35 ↑5*m*, *wb* according to Steudel nearly all these are true species of *Nicotiana* 708 26*m/w* f 29*m* 709 ↑15*m* 711 ↑9*m/w* ☉ Prop P. 713 4*m*, 9*m* 717 27*w* = Lamarckian ● 718 22-23*m/w* p.168 some authors think vars. ↑19*u/m/w* Prop ↑18*u*, ↑18-11*m/w* More fertile than with own pollen ↑12*u/m/w* others have succeeded 719 6*w* ☉, 9*w* or *cocanus* 16*w* *cocanus* 20*w* = *vidacea* St 22*m/w* see Herbert p.379 More fertile than either parent 720 3*w* = *vulgaris* 14-30*m/w* Here are plenty of undoubted vars. producing only i a.- Great effect of artificial impregnation or separation in House. 14*m*, 15*m*, 20*m*, 21*u* ↔ *m*, 29*m*, 30*m*, 32*m/w* This really only cross between two peas 32*m*, 33*m*, 34*m* 721 *wt* number of Flower *wt* of Fruit 5*w* Prop. Poll 15*w* Prop pollen 22*w* vars fertile ↑24*w* Florist var of Oxlip. Oxlip primrose ↑24*w* Not normal or K ↑23-21*m*, ↑20-19*m* ☉, ↑17-15*c* ⟨*c* henceforth: entries in cols. 2, 3 and 4 crossed out⟩, ↑14*w* Oxlip ↑13-3*w* p.247 it is evident that he did cross *elatior* & *officinalis*, Table not correct ↑13-12*m*, ↑11*c*, ↑10*c*, ↑9-8*m*, ↑7-5*m/w* cowslip ↑4*w* cowslip *Elatior* ↑4-1*m* ☉, *wb* ♦ If this be *elatior calycantha*, most strange 722 *wt* I see he has not tried *Primula proprio polline* 3*c*,

4c, 5w Cowslip 6w primrose 6-7m ϕ , 8c, 9c, 10w Oxlip var 11w Oxlip. 16w = floridum \uparrow 16w Prop. poll. \uparrow 15w *Silene inflata* \uparrow 14m/w S \uparrow 13w *S. pilosa* \uparrow 12w *S. italicus* 723 26w Prop Polline \uparrow 10w Prop. poll. *wb* I see Moerch considers same species p549 Gaertner says perhaps only varieties 724 *wt* It is impossible to make out whether vars. *albus* & *luteus* are put first & second on principle or by chance 3u ϕ , 3-4w \diamond , 4w Yellow? Yes says p.280 5-7md, 10w \diamond , 8-14w \diamond Colour? If Yellow half agrees & opposed to rule of vars. of same colour most opposed 21w agrees with 20-25m, 30w 1845 1827/ 18 \uparrow 14w *Blattaria* \uparrow 8w Colour? \uparrow 8m/*wb* *Stuedel* make = *virgatum*, which is yellow \uparrow 1x ϕ /w 286 161 725 3-4m, 9w yellow 10-13md/w opposed to rule 17w Probably yellow, both parents being yellow 17-27w Even Babington admits there are 2 coloured vars of *V. lychnitis* 20m, 26m, 29 \rightarrow , 30c (*c* henceforth: whole entry crossed out), 32c/w These lines merely guiding 34c, 37c, 39c, \uparrow 13/ \uparrow 7/ \uparrow 4/ \uparrow 3/ \uparrow 2c, \uparrow 10/ \uparrow 8/ \uparrow 6/ \uparrow 5/ \uparrow 1m, *wb* 226 182 \diamond 119 \diamond 142 x ϕ 726 1w Colour see Index not in index 19m, 25w yellow 26-28md/w \diamond , \uparrow 21w yellow \uparrow 9- \uparrow 20 \rightarrow , \uparrow 9?, \uparrow 9c, *wb* 234 x ϕ 83 727 3w yellow 5m, 6-11 \rightarrow , 7-8w opposed to rule 11c/w why *luteo* put first? 15w Purple 28w yellow \uparrow 20w why *luteo* put first *wb* 179 \diamond 201 x ϕ 68 728 *wt* years no of flowers number of seed 1w bright yellow 2m, 4-9 \rightarrow , 19w yellow 20-23 \rightarrow , 22-28 \rightarrow , \uparrow 13-12u ϕ (first 4 columns)/w x ϕ 138 84 \uparrow 11w = *Scrophyll* \uparrow 8-1m/ \uparrow 8-1m ϕ /w vars yet all i B. & i g. *wb* 22 730.b 62m, 73m 734 62w at Hort Soc.? account of experiment with Peas, see to this 67w Berg Read variation of *Leguminosa* 17w Read 736 82m, 110-112m 737 129m, 137w \diamond 138 140-141md, 145/146m/w Read 149-152m/w Herbert \clubsuit , 152 Worth reading or consulting p.145 of Book 157w See to this Blyth 738 186-188m/w seeds retaining long vegetating power 191w *Omalis* disputes vars going back 207w See to this 3m ϕ , 25-26w Read Girou on vars of *Cucurb* crossing *Sageret* do not crossing 26x ϕ 740 X.10m/x/w Read 742 18-19m/x 743 XVIII.15x 744 27m/w Read on curious sport in *Oenothera* 47-48m/w Read on the 2 *Anagallis* being vars. 745 11-12m 746 XXI.2w Read 3m/w *Beitrag* 6-7m/w Read XXII.1-2w Read 747 17w *Zuccarini* on sterility of *Oxalis* from C. of Good Hope 22w Read 24-25m/w Read 27w Read 28w Read XXIII.7w \diamond Read 21w Read 748 98-99m 752 59m/w But opposed to much alteration Perhaps worth reading 54m/w cases of transformed plants

p.500 text 55w nothing 56m, 57m 753 21m/w on duration of seeds 754 8).5m, 10).3w p.540 755 13).13m/w read 756 XXXIV.2md, 3w See 4w very important *Puvis* 6w Read 12-17m, 17w *Sageret* read 19w Herbert 20w Read *wb* \diamond To get titles it will be necessary to look over these notes at beginning of these notes, for it is impossible to make out by Index the titles 757 23w Read? 45w *Theophrastus* on crossing plants: how old! 51w I dare say V. Baer quoted by Lecoq in V. Berg 52w on variation of *Iris* 759 XXXVII.2w Read Link on relation of grafting to Hybridisation 3w *Puvis* Read?? I have got impression that *Puvis* no good authority 760 46w Read? 53w x Read 761 64w *Diel* XXXVIII.5 *Puvis* on crossing of grasses 22.w x *Beitrag* on pollen & *Stigma* being ready at different times 762 45w Read 763 *Blyth*.m 778 *Lychniti-pyramidatum*.m 781.b 2m ϕ 789 *Vater*.w 253 790 "*Wahlverwandtschaft*".u/w "Elective affinity" Chemical term Dict.

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NB O/

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13 25-27m 75 6-13m 89 1-2m, 26-32m 91 19-23m 92 29-31m, *wb* Yes these are old forms generally verging to extinction *Jäger* 93 1-3m 94 9-15m, 28-32m 96 1-4m

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v 25m, 26m

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phy

NB 37 fibre-cartilage

37 21-24m/22-23u "tissu | fibreux" 38 11-15m
ø

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geo, t, ti

NB1 ◊

362 Glaciation S. of Thames

364◊ Glaciation◊

3◊ ◊ Glaciation ◊

405; 427; ◊; 521; 548; 550; 554

NB2 427 Post-glacial Mammoth & Rhinoceros; 547; 564

226♦; 374♦ Erratum?; p.14 at top. at ● you speak of glacier theory before iceberg theory; but I heard of iceberg theory & alluded to icebergs in S. Am. at last ● of &c but glacier theory 415♦ Holsts; Axel Blytt also p.545♦

Skertchly What a first-rate observer whom I believe always ● on sound observations

484 Glaciation in S. Hemisphere; 506 Stones standing on end

12 20m 34 11m 78 6m 85 4m 101 zb 133 2m
191 19m 226 12-23m 227 37m 326 12m 374
14a "certainly", 14c "posterior", 14w♦ anterior
386 15-20m, 22-38m 415 37-41m 416 20m 427
24u "postglacial", 27-31m, 29u "mommoth | rhinoceros" 442 7-8m 485 1-9m 487 8-9m 488
11-13m 491 16-19m 492 14-16m, 20-22m 496
13-15m, 29-31m, 36-37m 499 5-7m 502 20-
22m 504 16-18m, 25-27m 505 32-35m 506 15-
21m 511 11-13m 521 2-5m 524 2-5m, 23-26m
527 19-23m, 24-29m, 31m 528 6-10m, 16-
20m, 27-30m 529 1-3m 530 4-7m, 8-10m 531
4-6m, 31-34m 532 5-7m 533 18-20m 534 19-

20m 540 10-15m 541 16-18m, 27-30m 542 2-
4m 545 3-13m, 42-45m 547 26-30m/w sub-
sequent to great glacial deposit 548 1-3m,
29-31m 550 18-21m 551 11-15m, 37-39m 554
1-2m, 13-14m 555 15-18m 556 3-6m, 26-28m
559 4-7m 563 8-10m, 18-21m 564 18-23m,
27-30m 565 5-7m 567 34-37m 568 44-47m
613 18z

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geo

NB1 132 - brick earth covering gravel; 165
Do

409; 414; 432 or (500); 457; 335 & Chap
XIV

loess (Mackintosh Erratics of England as far
as Wolverhampton)

Mr. Kerr p230 Falkland Isds frequent

As a bay the Severn floods from melting of
snow more turbid than from rains.

101; 111; 112

NB2 166 Richthofen

(rest by FD)

38 6m 50 3-8m, 11-14m/12-13u "equable |
times" 54 8-12m 75 ↑15-11m 89 ↑9-6m 101
10-12m 102 4-8m 111 14-17m 112 ↑7-4m 114
13-18m/w Conclusions 117 8-11m 118 13m
132 ↑3-1m 154 13m 165 11-13m 166 1-5m
167 10-13m 239 ↑7m 260 ↑11m 261 zb 263
16-20m 335 ↑7-2m 347 15m 355 8m 414 ↑16-
13m, ↑10-3m 420 ↑11-9m/z (drawing), ↑7-3m
421 11-15m/z (drawing), 20-24m/z (drawing)
422 10-15m, ↑10-7m, ↑2-1m 425 ↑12m/u
"Oaks" 428 5-8m 432 5-7m, 15-17m 435 2-4m
457 9-15m 461 ↑23-19m, ↑17-16m/↑17u
"consisting | pine", ↑12-7m 462 11-15m, 17-
21m/20-21u "rot | bogs" 483 ↑2-1m 486 ↑3-1m
487 ↑7-3m 488 7-9m 495 ↑14-10m, ↑1m 544
14-16m 552 9-12m 553 ↑12-9m 554 ↑9m 555
12-15m 561 ↑9-6m

GENTRY, Thomas G. *Life-histories of the birds of eastern Pennsylvania* Philadelphia, 1876 [I] [CUL.1900]

beh, v

NB1 O/

NB2 I have read only first part

Very Dull

Variability of nesting

GEOFFROY SAINT-HILAIRE, Étienne *Principes de philosophie zoologique* Paris; Pichon & Didier; 1830 [CUL]

af, cr, em, he, ig, mn, rd, sp, tm, v

SB □β

65 Curious statement on what plan animals created (good to put at end of Chapt. 6) Q⁴
It is proper to speak of him shortly as M. Geoffroy

214 Law of connexion invariable

215 Properly speaking there is but one animal

215 Q Monstrosities, always resembles other species (allude to this in Ch. 7)

216 speaks of ultimate form of species as irrevocable!

218 Does not seem to attribute Unity to inheritance for speaks of it as Law

11 3-10m 12 4-15m 19 5-11m 32 18-30m (Milne Edwards) 33 5-10m, 11-15m (Savigny) 49 8-12m (Laurencet, Meyranx) 55 26-29m 56 19-22m 57 1-4m 59 23-27m/w ancestral & modern types 61 19-23m 65 12u "par composition", 14u "ressemblance", 23-24w Curious words 26-29m, 26"...", 27Q⁴, 27u "bien|fécond"/28-29m, wb I demur to this alone 66 1-4m/1a "nature"/wt all this will follow from selection. The unity of course due to inheritance 69 18-31m (Cuvier, Serres) 71 12-24m 83 3-16m 111 18-22m 114 18-23m 115 1-7m 209 1-6m 210 1-20m/wt/1-5w As it appears to me strongest argument against G.H. is existence of trees, which are so hardly separate○ from animals 214 4-6m 215 1-5m, 16-28m/21-23Q/26u "développement naturelle" 216 1-15m (Tiedemann, Serres)/8-9u "irrévocablement"/!, 17-21m 217 18-26m 218 wt All this is not G.H. writing but he approves & publishes it 4-18m/10-12!/10u "laisser|distraire"/11u "des|organes"/14-15u "par|imposée", 18-21m, 24-26!/25u "créés 219 25-30m 222 1-16m (Cuvier)

GEOFFROY SAINT HILAIRE, Isidore
Essais de zoologie générale Paris; De Roret; 1841 [CUL, S]

ad, af, beh, br, cr, ds, f, gd, he, hy, ig, in, is, rd, sl, sp, sx, sy, t, tm, v, wd, y

NB ♦ Read 420 to 468 again

SB □R

1

83 With respect to rudiments Vicq d'Azyr says native does not depart from primitive model

90 old Geoffroy states never new organ – in relation to Electric Fishes 94 "Nature always works with same materials"

142 on parallel series by ♣ Geoffroy

165 Goethe believed in Balancement

167 Believed in change of species, as did old Geoffroy. "Modificateurs ambiants" sur

l'organisme". Yes this is his belief 247 Introduce in Preface

257 Distinction between tamed & domestic

260 On animals not breeding. Rein deer good case of animal not spreading not interfering with being domesticated in Ch. 2. M.S. add to case of Goose

281 argues well that F. Cuviers doctrine of Sociability not only key to domestication 286 do

292 Pallas *Spicilegia zoologica*

(over) 2

297 Art. Mammifera Dict. Class. Hist. Nat. – on colour of domestic quadrupeds

298 Cat intestine longer

299 Dog with split○ nostrils

306 We have no case of Spaniel or Blood Hound & with Savages (CD)

344 Mammals in close sub-groups do not differ much in size

350 Remarks on small isld having small mammals – see how small isld have mammals in Malay Archipelago 353 forgets Java & Sumatra! I contradict his statements flat – think of S. America formerly.

382 insists on difference of size in allied dogs. 381 Table of measurements.– All I need say is that author has insisted strongly on differences in size. compared to wild species

433 Old Geoffroy on degree of influence of external conditions on species – Mem. Acad. Tom. xi.p.93.–

(over) 3

442 Madagascar a fourth continent

445 Ceylon same mammals with India

491 On spots &c on young quadrupeds

493 Cross between gold, silver & common pheasant just mentioned Q

496 Cases of ten species of Birds which have assumed male plumage

506 changes of habit in old Hen, like cocks

513 Horns growing on old female Deer

516 – His law of Mongrels & Hybrids. N.Q.

7 5-8m 49 13-14m/?/w what 14-30m 73 20-21m (Newton) 75 3-6m/3-15w This argues against descent of species being held by the Geoffroy sect of Philosophers 76 26-28m 77 15-19m 79 28-29m (Leibnitz) 81 3-8m/4-6?, 25-32m (Herder, Demaillet, Cuvier) 82 20-23m, 26-27m (Vicq d'Azyr) 83 1-2!/u "général|regret", 6-11w compare with Pig with solid Hoofs– 23-25m, 29-31m/24-31w compare in this respect skull of Greyhound & Bull-dog–wb Decrease in size of Frontal Bone in Hornless ox: strictly analogous to the intermaxillary bone of man– 87 14-19m, wb

GEOFFROY, ZOOL. GEN.

compare this fundamental idea with what Decandolle has shown has taken place in Cabbage.— 89 7–11m 90 17–23m/17u "ill nouveau", 27–28?/u "sélaciens", *wb* see previous note for reference 91 6–7?/7u "polyptères" 94 9–10"...", 10–12m 96 22–24m (E. Geoffroy) 142 19–22m 143 3–17m/7–10?, *wb* why Man more perfect than coleopterous Beetle or Bee 144 18–21m/19u "semble" 146 18–20m 147 23–28m (Serres) 148 27–29m (Blainville, Cuvier) 151 11–17m 153 8–10m (Goethe), 23m (A. Saint Hilaire)/w Botany 165 19–25m, *wb* What is developed more in Apterix in consequence of little wings.—?? 166 1–9m 167 10–11m/u "Goethe" "Buffon et Lamarck", 12–15m/13u "modificateurs ambiants" 18u "1822", 23u "docteur Koerte"/20–25m/w see this in Goethe's Works translated by Martins 169 13–17m (Duméril, Blainville, Goethe) 199 15–21m 200 7–16m 202 2–9m/3–4? 203 3–7m 205 8–21m 207 15–17m 232 25–28m (W. Edwards) 237 4–12m, 16–21m/w assumed 26–28m, 29u "quelquefois | nuls" 238 13–17m/19u "espèces sauvages", 23–24m/24u "variables | inégaux" 239 27–29m, *wb* ♦ true wild varieties, would be equally ready to sport *wb* How comes it that there is species to every small variation of conditions? – so it is – How another question 240 1–9m/1–2u "rigoureusement fixée", 16–19m/w does not allude to selection 27–29m/w Man some involuntary selection 241 18–23m 243 25–27m/w don't understand *wb* rest of this section Nothing 244 12–17md 246 24–29m (Dureau de la Malle) 247 12–17m, 26m (Buffon, Goethe, Lamarck) 257 1a/u "apprivoisement"/wt tame wild 1–2m/1a/u "captivité"/wt chained wild 23–24m 258 1–4m, 10–11m, 25–26u "civettes | marabouts"/w Guanaco 259 wt capital cases of non-breeding 1–3m/3u▲, 6a/u "guépard"/5–6w hunting leopard 6–12m, 8–9u "éléphant", 17–19m, 27–29m, *wb* In case of Elephant, cannot be considered as weakling – when we consider feats in war – less so than the stunted elephants in North India – 260 wt/1–19w Ferret not very tame yet breeds – not less tame than many of Renggers quadrupeds– 18–20m, 19u "mais | race", 24–25m, 25u "mais | mêmes", *wb* The effects becoming hereditary, show, that apprivoisement "tameness" has an effect on organization: hence is new condition. Hence sterility= 261 5–15w we must not assume camel could not 15–28m/18w Buffalo?? 21u "partout"/w Camel?! 22w Rein Deer. 23–25m, *wb* The present great diffusion, so different from other mammals, renders probable this is effect of acclimatisation – contrary of

camel. shows not necessary. 263 12–14m 265 12–21m, 22–29md 266 1w♦/3–8w Aperia breeds readily in S. America Rengger 267 6–8m, 13–16m/16a "oie" Canada & Chinese Geese 18–21w Fallow & Rein Deer? omitted 269 12a "lama"/8w 2 spec 13u "l'yack"/w Hybrid? 23–24u "temps immémorial" 272 fig.m 274 1–5m, 15–17m/16–17u↔, *wb* Neither Cat, nor Ferret social 277 6–7w Guinea pig No 8–13w Ass does yet – ferret – Rabbit = Fowl – 9u "sauvage"/9–10m/w because not of much use 278 27–28m 279 1–5m (F. Cuvier), 8u "solitaire | domestication"/8–10w yet many quite tame 11–28m/11u "chat | furet" 280 1–5m, 28–29m 281 1–2u±, 5–6u "importance exclusive", 8–9w Zebra 11–13m/12w untame? 282 3–6m/5u "alimenter", 16–19m, 24–29m/w opposed by monkeys *wb* this doubtless much easier in social intelligent animal – feeding on vegetable food.— 283 8–11m/w no, not in wild ducks 15–25m 284 16–19m, 22–26m 285 1–3m, 5–15w this last argument certainly shows that these species. as well as families probably were not easy to "tame". 11–13m, 14–17m, 17–22w Guanaco, would make one think some species happened to be as easy. 18–21m 286 1–4w is this so? Lord Spenser 4–5m, 9–14m, 23–25m 287 9–12m, 22–29m/22–23u "plus | avantage"/25u "et | soumettre", *wb* Australian dog shows by what little advantage may be induced to take pains– 289 1u↔, 6–8!, 14–16m, 27–28m 292 24–26w In Royal Soc Library? 25–27m (Pallas)/u "Spicilegia zoologica" 293 12–14!/u↔ "fixité | espèce"/w in France 14–15u "quel encore", 19–20m/u, 21u "variations", 22–23u "dénuées | variations"/w 1– p.L; 2 p.294 294 *wb* – only assumed there not proven – 295 2u "intensité", 9–10m (Cuvier) 296 wt would say descended from several wild types.— 1–5m, 10–12m/!, 16–22m 297 3–5m, 13–14m 298 9–12m, 15–20m 299 3u "crâne | supérieurement", 6–7w sudden varieties 9–12m/9u "autre | palmées" 300 21m, *wb* The principal value of this Sect to me is showing other motives besides facility of variation, has determined the domesticated animal – & therefore that variation would probably have occurred in nearly all, which must have been selected.— 303 1m/u "de Pallas", 13–14m/?, 17–22m, 23–28m (Roulin) 305 13–16m 306 10–15w non-selection 11–20m 307 wt The following sections not very important.— 312 14–17m 313 8–9m/9u "si | réussissait", 26–28m (Temminck) 314 6–8m 315 26–27m/w no notice of selection 320 wt Mr Blyth 10?! 1–3m/u "six espèces" 11–12m/11u↔, 19–21m (Duvaucel, Cuvier), 29–30m 324 13–15m/13u "à | degré",

wb Spanish ass & Sykes little ass 339 wt All these sections vague & of little value to me 12-17m/w Lizards unevenly so 340 3-6m, 13-19m/w Whale & smallest porpoise 342 10-12m 343 5-18m (Blainville), 13x/→wb in short in sub-genera no great diversity of size 344 1-9m, 4x, 22-26m, 27-29m, wb like what Lund says anciently was in Brazil- 346 4-9m, 15-26m, wb Polar Bear! 349 7-14m, 17-18m, 24-26m, wb ♦ was S. America once desert.- like Siberia 350 6-7u "très-petites"/?, 20-24m 351 1-5m (Virey)/2-3u "ceux|déserts"/w S. Africa 352 17-24m, 20-24m, wb Bull grows large in Falkland ?- Horses smaller.= are the White Bulls very large? 353 11x, 13-15m/w Java!! Sumatra 21-25m, 26-28m, wb X It is odd no fragment of continent - is it effect of few only being supported - their inter-breeding destroyed by men - Auroks decreased in Russian Forest 354 24-28m 355 21-23m/22u "cerfs" 356 3-5m, 9-12m, 17-20m 363 14-32m, 16-18!!/m, 17-25m 364 10-15m 366 1-3m, 24-29m 367 9-14m 368 16-22m 369 8-11m 370 14-24m/w all very loose 371 3-6m 374 12-14m, 24-28m, wb Mountains = Northern plains 375 12-18m/w How dreadfully false when thinking of Sumatra 376 wt Megalodon!! 377 16-19z 378 1-21w Fatness element peculiar to domestic animals & Greater Prolificness 12-13m/?/u↔, wb Domestic animals are forced into more various uses & exposed to more varied conditions, hence change of size more - but differs only in degree & not kind 379 7-12m/w The subsequent remarks well prove this = 23-27m/25-26u↔, wb because not selected for this end- 380 16u "de chacal"/15-16w S. America! 382 7-13m, 14-16m, 21-23m, 26u "au furet", wb do they differ more than Cats.- 383 25m (Dureau de la Malle), wb Before referred to 384 8-10m, 15-29m 385 wt/1-14m/w Aug. 1841. Saw Shetland Pony exhibited. Whose at withers I measure was 32 1/2 inches (& less in centre of back) - Beautifully formed - I presume have no aboriginal horses. 4a "taille"/8-9w 34.9 English Indes ⇨ 12m/u "froides"/w No India 14u "est|connu" 386 5-7m 387 15-18m 388 9-11m, 20-23m 389 15-20m, 28-29m 390 19-24m 392 16-20m 393 11-17m 404 24-29m (Villermé, Haller), 28-29w/wb & doubtless hereditary 405 1-m 407 10-25m/13-16? 415 24-28m 421 22-24m 430 9-12m 433 24-26m (E. Geoffroy) 434 1-7m, 7-14m, 16-24m (Cuvier) 435 1-6m 437 1-10m/3-5w dont understand 12-20m, wb He overlooks successive creations - not worth arguing against such a view as this pretended one of

Cuvier 438 1-5m, 17-20m/? 440 1-3m, 8-11m, 15-18m, 27-28m 443 11u "archipel Indien"/10-16w How absurd remarks India & East Indian islds 25-28m 445 12-22m 459 3-6m/5u "dans|individus", 18-24m 489 6-16m 490 wt/1-9w The case of Irish Hare which turns when old, makes one suspect not final cause Aquatic birds being white V Dr Fleming - At least my theory will prevent those animals being white wh would be so injured by it- 3-7m/x, 27-28m 491 13u "seul"/w ?? 15"..., 15-32m 492 8-12m, 20-24m 493 22-26m/23-24Q 495 9-11m 496 9-10u "femelle|paon", 14u "poule", 14u "canard", 20u "dix espèces", 24-26m, 27-29m (Yarrell) 498 12-17m 499 27-29m 500 1-2m, 25-27m 501 11-13m 504 1-4m, 10-13m, wb good case of adaptive sexual structure 505 18-21m, 24-26m 506 8-12m (Home), 28-32m 507 1-2m 510 4-8m (Edwards) 511 10u "poules d'Inde", 19u "encore"/w Blyth 513 8u "paons"/15-18m, 22-29m/29u "chevreuil" 516 6-14m, 17-22m/20-22u±/19-20w N.Q.

GEOFFROY SAINT HILAIRE, Isidore *Histoire générale et particulière des anomalies de l'organisation chez l'homme et les animaux* 3 vols and atlas; Paris; J.B. Baillière; 1832-37 [CUL]

af, beh, br, ct, em, f, gd, h, he, hy, ig, in, mn, phy, rd, sp, sx, sy, t, tm, v, wd

vol. 1 NB Have I read the Philosophie Zoologique

p. 241 Book = Edwards Suites Races Humaines

(?p.677 Book worth getting? most cases seem given in text) ??

p.711 Coll of Surgeons worth consulting

16 wt Embryology 1-2m 18 11-14w What is difference? 14u "l'âge embryonnaire"/m, 15u "l'âge foetal" 22 8-14m, 14-32w I do not see how the reverse could be effected even if doubt monsters start from the germ 30-31u± 23 8-11m 24 6-7m, 15-16m/16u "Loi|soi" 25 1-3m/m 39 12-17m/13u "qui|ses", 18-19m, 24-28m/u± 52 14-18m, 25-26m 53 1-3m 59 29-33m 60 2-11m/5u "leur|à", 31-33m 61 30-32m/31-32u "un|même" 62 5-12m, 30m 64 28-31m/28-29u "on|rudimens" 104 13-25m, 17-20m, 27-32m 105 26-32m/x, wb x I ought to apply it to Varieties 115 18u "un|placés" "l'habile anatomiste", 20-22m/20-21u↔, 32→ 116 16-18m/18u 129 12-13m/12u "extérieur|congéniales", 30-31md/31u "sont|congéniales" 131 16-20m/18u "foule|cas" 143 9-14m/9u↔/13-14u± 147 7-9m/8u "mais|ans" 152 12-13m, 15-17m, 19u "Dans|vieillesse", 21-23m,

25-26u "fort | moyenne", 27u "dont l'un", 28u "lui", 31-33m 153 8-12m, 31m 154 4-12m, 5-8m, 10-12m/11u "dessus | moyenne"/12u "à | nain" 158 25-27m, wb p.164 exception 159 6-9m/8-9u "bien | élevée", 16-18m, 21-30m 160 7-10m 161 13-32m 164 8-10m, 22-27m 165 7-12m, 21-22m (Blumenbach) wb Rengger gives plenty of cases 167 9-17m 183 16-19m, 26-32m 184 9-12m, 28-32m 185 24-27m 186 1-3m, 14-16m 189 4-8m, 15-16m 190 7-15m 191 22-26m, 29-33m, wb The Laws of growth & reproduction being so allied, may it explain any of the facts of sterility? Hybrids not. 192 5-22m, 28-33m 193 29-33m 196 4-16m, 22-24m/22u "transmissible"/23u "Il | point" 208 24-31m 210 17-20m, 23-25m 211 2-4m, 17-21m 213 1-4m, 19-33m 215 4-15m 216 5u "particulier", 6-8m, 29-33m 217 1-3m, 3-8m, 14-16m/15-16u "mais | tempérés" 218 29-31m 219 9-12m 220 6-9m/9m 221 1-6m, 8-13m, 21-26m, 32m (Dureau de la Malle) 222 12-14m, 23-25m 223 9-17m/w This is case of animal being smaller northwards 19-24m 224 30-33m 225 5-9m 227 8-9m, 15-17m, 26-31m 229 3-16m 231 11-13m, 14-17m, 26-31m 236 26-33m 240 20-26m, 27-31m, 32w (Last page) Coll of Surgeons. 241 33m (Milne Edwards), wb New Edit? Never published Balliere 242 13-20m/13-16u±, 21-27m, 28-31m 243 1-3m, 8-14m 253 4-8m, 21-23m, 24-26m 254 1-3m 255 28-32m/w corn==cutter 258 26-28m, 29-33m/30u "dogues" 260 31-32m 261 1m, 8-10m, 19-22m 262 wbee 263 7-8m/7u "frères | pesait", wbee 269 5-12m, 23-28m 270 6-7m, 32-33m (Aristotle) 272 6-8m/u±, 14-17m 275 30-33m 274 1-4m 276 28-29m/Q 278 1-2m, 29-31m (Meckel), wb There seems gradation between Monsters of this class & varieties. 281 1-5m, 5-7m, 14-22m/Q 282 1-3m, 24-25m 284 1-2m, 11-12m, 13-14m, 13-21m, 22-24m 285 20-24m/Q 286 1-20m, 26-30m 287 9-14m, 18-20m/Q 22-24m, 26-28m, 28-31m/28-29u↔, 29-33m 288 3-6m, 15-18m, 30-33m (Serres) 289 7-11m, 29-30m 293 21-26m 294 8-15m, 30-31m 299 1-2m 305 16-18m 306 3-6m, 13-18m/16-22w I do not agree 19-28m 307 1-7m, 25-27m (Schreber) 311 7-8m 315 17-19m, 23-25m 316 32-33m 317 20-28m 318 11-14md, 20-23md 319 18-19m 320 11-14m 324 7-9m, 10-12m, 20-23m 525 3-5m, 15-17m 326 13-15m 328 23-26m, 31-34m 334 29-30m 335 3-4m, 12-14m 337 wt Bay horses Goats Pigs Cows 1-3m/? 328 1-6m, 12-14m 344 6-11m/7u "caractères | maladies", 28-32m/20u "était | mâle" 347 17-24m 392 15-20m 400 4-6m, 11-16m 404 27-29m, 30-32m (Meckel), wb X outer reversement not so explained 405 2-9m/4-

6??, 24-26m/24-25u "c'est | uterine" 408 19-22m/20u "cils | sourcils" 409 23-24m 410 17-20m, 21u "de l'irritation", 22-24m, 27-28m/w shows how common. 411 12-14m/?/13u "bouc", 15-16m, 28-30m 413 27-30m/29u "combien | situation" 414 5-8m, 16-21m 415 11-14m, 15-18m, 21-23m, 25-26m 416 25-27m 417 1m 418 8-9m, 13-25m/w This wd go to show that any part which has changed much will tend to change more. 16-18m/Q 420 13-17m, 23-32m 421 4-16m, 24-31m 429 12-14m/w bears out embryological view 29-31m 430 12-15m 431 2-3m 434 17-20m/18-19u "le | mâchoire", 22-25m/25-26u "de | surnuméraires", 27-30m, 33u "la transposition" 435 1-5m 436 26-29m/27-28u "fréquemment" 437 1-6m, 11-13m, 19-23m 439 8-10m, 31-32m 440 18-23m 441 24-25m (Serres), 32-33m 445 11-19m, 15-16m 447 23-25m 450 18-26m 452 8-9m, 13-15m (Breschet) 453 16-18m, 26-27m 456 20-21m 459 wt/1-4w X there have been endless remarks such as this; but they appear vague, considering what endless diversity the whole series of animals must present. 5-7m/x 462 3-6m 467 1-2m 470 11-13m 473 23-25m 478 3-4m, 14-15m 479 19-21m 480 1-2m, 9-10m, 26-28m 483 16-17m, 20-21m 484 1-33w/wb Q Avoiding term of "development excentrique" I ought to say that variation parts, as trunks & branches of arteries & nerves, depend in some degree upon which are first developed in embryo, the first being most constant. 13-16m, 22-25m 485 1-33w/wt No case of hereditariness in any of these varieties, but then hard to discover how seldom father & son dissected. 11-12m, 16-17m, 27-29m 496 5m, 8-11m 508 4-7m 509 1-3m, 13-15m, 17-18m 515 24-26m 527 2-5m 528 5-8m 531 10-13m, 18-21m 532 1-5m, 12-15m, 22-25m 536 17-22m, 29-33m 537 25-30m, 31u "affinité | soi", 32m/→ 538 17-22m, 19-21m 540 22-25m/Q 24-32m, wb This perhaps may bear on some organ single in some animal & double in another.- V. Cuvier Anat: Comp: wb see next Page 541 3-4u "ordinairement médiane", 16-25m/17-18Q 32m (Martin) 542 3-7m/5u "médiane"/9m/1-9w/wt some other cases of monstrosities have been given in Man & Mammifères 544 24-26m 545 25-26m/Q 546 12-15m/Q 548 25-26m 549 1-3m 550 19-24m, 30-32m (Dr La Roche) 552 10-15m/3-15w See what Müller says on this Theory 31-33m 553 1-5m, 15m, 17-26m, 32-33m 557 29-32m 558 1-9m 561 24-30m 564 1-3m, 3-5m 565 3-7m 579 1-2m, 11-15m 580 18-21m, 26-31m 581 23-26m 582 3-6m/5u "bien | poissons" 583 1m, 21-25m, 27-28m, 29-33m/30u "nés | portée" 588 26-29m 589 24-30m

599 6-8m 601 15-17m, 28-33m 603 1-2m 604 4-8m, 11-14m 605 14-18m 606 14-18m, 29-31m 607 24-26m/w ♦ This is hereditary Dict: Med: Sci: *wb* This tendency to monstrosities by arrest of development, is perhaps allied to "avitism".— No, sporting back of hybrids, where germ affected shows no connection with arrest of variation 610 6-8m 613 1-3m, 4-5m, 7m 614 1-2m 622 7-11m, 13-16m, 22-26m 623 1-2m, 5-6m 624 8-13m 630 14-17m/16-17u ↔ 631 5-7m, 18-20m, 22-23m 632 1-2m, 3-6m, 13-14m 634 1-2m/1u ↔ 635 13-27m (Meckel)/18-20Q 21u "cuisse|pied", 32-33m 636 1-3m, 8-15m, 29-32m 637 11-14m, 28-31m 638 1-9m, 27-28m 641 25-27m (E. Rousseau) 642 17-22m, 25-27m 643 17-24m 644 5-9m (Otto), 10-13m, 22-27m 645 13-16m/14u "au|plupart", 26-29m 648 6-7m, 20-21m, 28-31m 649 14-16m 650 1-3m, 1-6m, 9m, 11-13m, 28-29m 651 10-14m 655 11-12m 656 27-30m 657 1-5m, 28-30m 658 1-4m, 26-28m (Borel, Danz) 659 1-8m, 22-24m, 28-29m (Gavard, Soemmerring), 29u "chez|nègre" 660 3-6m, 12-17m, 26-29m 662 7-11m, 12-13m, 15a "général" of homologous organs varying 16-17m, 32-33m 665 8-9m, 10-12m, 14-17m, 22-25m 666 12-13m, 16-20m, 24-26m 667 2-6m, 13-18m, 27-29m 668 1m, 5-7m, 13m 669 10-13m 670 1-3m, 3-9m 671 8-13m, 16-19m 672 17-19m 673 4-5m, 16-19m, 20w Another 21-22x, 22m, 23-26m 674 2-4m, 26-27m/x 675 24-28m 676 22-23m, 24-25m 677 7-8m/8u "rudiment", 10u "orteils|arrondi", 13-14u ↔, 17-18m/18u "que|fille", 33-35m (Béchet) 678 1-13w inheritance of diminished fingers 3-6m, 4u "leurs|incomplètement", 10-11m, 10u "étaient rudimentaires"/11u "Le père", 12-13m, 16u "de moignon"/w rudiment in the father 22u "réduits"/21-22w in granddaughter 26-29m/26u "par diminution"/28u "par augmentation" 681 17w to 702 682 3-6m, 4-5m, 11-14m, 13m 683 13-15m/3-29w How often have light monstrosities accompanied grave ones. 30-33m 684 3-10m, 12-13m/x/u "le chien" 685 wt x quite regular so is to be counted 17-18m/x 686 30-31m 687 3-4m, 9-11m, 13-15m 688 26-28m/x 689 1-2m/x, 8-10m/x, 10u "trois doigts", 18-19m/19u "cinq", 20-22m, 31-33m/x (F. Cuvier), 32-33u ↔ 690 6u "deux", 7x/1u "cheval", 13-15m, 17-22m, 18-22m 692 10-11m, 19-22m/x, 25-32m/w rudimentary organ variable 30-31u "presque|terre" 693 1-2m, 3-4x, 6-8m/x, 10-11m 694 1-2w two thumbs 2-7m, 9-10x, 23-24m, 28-29x, 33m (Bechstein) 695 6-8m, 15-16x 696 14-18m, 20-21m 697 13-15m 699 20-24m 700 8-10m, 14-15w

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vol. 2 NB1 200 Classification

NB2 "Traité élémentaire".w X

SB1 Abortive organs

Hereditariness

Period of Monstrosity supervening cause of

Are rudimentary parts more variable than other parts?

(over) 26; 44; 60; 63; 110; 134; 137; 144; 196; 210; 214; 221; 223; 224; 229; 233; 234; 243; 249; 251; 262; 288; 344; 375; 382; 393; 395; 399; 403; 407; 409; 413; 415; 441; 464; 470; 477; 512; 519

Use the word anomaly for his variations or often Monstrosities Usage "anomaly" is not quite correct

SB2 ☐X

1 Vol 2

29 shells to left in vars. & species of same Family

57 & 110 ♦ on change in habits in old Hens 110 on Carps with imperfect female organ like neuters (Ch. 9)

210 on rudiments of limbs. 223 hereditary in Dog.

224. some rudiment almost always present.— 395 do.

413 certain monstrosities more common in certain species than others,— quite inexplicable.—

The intermaxillary bone when it appears in man is only a rudiment, & yet it occasionally appears so here we have a tendency in a rudiment to appear

SB3 ☐X

Vol I Study of Monstrosities

39 admits that arrests of Development do not apply to variation.

104 Correlation of Monstrosities

115 dispute M. Vernière

116 Monst like other animals X 285 Carp. X 276 Q Compensation Ch. Kidney & super-vent capill

♦ 281 Most abnormalities in abnormal

organs.

294 young spotted old mature

♦ 418 organs most change in position which during normal development change most

484 X₂ Q₂ Parts earliest developed vary least because later formed affected by earlier

635 Muscles of arms when monstrous take after legs – Homologous parts X₂ Q

692 rudimentary organs variable

Vol 3.

352 X₂ trunk so frequent in Fig.– relation between monstrosities & varieties

392 first forms tend monstrous because late organs must be affected by first formed (Andral) X₂ Q₂

402 correlation of Monstrosity without apparent cause X₂ Q

(over) 406 ♦ distinction between amount of development & of position

437 Monstrosities resembling lower animals X₂ Q

26 5–7m, 8–10m/9–10u↔, 14–21w Sowerby facts show almost hereditary 25–27m 27 3–5m, 8u "Canalifères", 12u "cinq|que", 14–16m, 16u "très|nombre", 29–32m/31u "Helix nemoralis", wb over → 28 22–25m 29 1–2m, 2–3m, 7–8m, 11u "genre|physes", 17–19m, 26–27m 44 17–21m (Serres) 57 8–9m/7–11w does not Yarrell say that they fight? 23–25m 60 14–15m, 15–36w p.57 & 110 There is analogy (?) in change of instances of old Hen-birds & mules, with instincts of neuter insects & castrated cocks 22–23m 63 17–21m 110 20–25m (Gaspard) 134 14–29m 137 13m/u "de|séminal" 144 1–7m 196 14–17m, 26–33m 197 15–17m (Blainville), 18–21m 210 24–25u "très-rudimentaires", 25–27m 211 1–2m/1u "rudimentaires", 24–27m/26u "soudés|eux"/27u "rudiment" 214 12–13u "d'un moignon", 13–15m/13u "terminé|par"/14u "imparfaits|rudimentaires" 221 21–23m 222 28–30m/28u "de|non" 223 2–4m/w hereditary rudiment 3u↔, 6u "moignons|courts" 224 1–2u↔, 2–7m/4u↔ 228 23–30m 229 3–9m (Schenckius), 27–29m, 33→ 230 15–19m/16u↔ 233 22–24m, 28–32m 234 1–2m, 3–5m, 23–28m 243 3–4m/u "on|inférieure", 13–14m, 14u "soudés|longueur", 16u "plus fréquemment", 21m/u "soudés", 31–33m/33u↔ 249 11–14m/14u "renferme|deux", 17u± 251 12–14m/14u "par|non" 262 6–9u±/wt/1–13w does not hereditariness prove this, or may same cause affect embryo in its growth? 7–11m, 20–21m 288 18u "de l'éventration", 20–24m, 31–32m, wb xx often before remarked Monstrosity in one part it seems, causes

monstrosities in may other parts 289 12–13xx/u↔ 344 2–7m 375 17–21m, wb May be mentioned as one of the laws governing variation = in what cases have we double organs in one species becoming single in another. Womb? 382 9–13m/9u "représentés", 27–28m, 28u "les|des" 383 17u "atrophie|complète", 18–19m, 18u "nasal", 19u "représente|extérieur", 22–27m/→ 385 11u "à|l'extérieur", 12u "Intérieurement|contraire" 393 15–25m (Meckel) 395 13u↔, 14–18m/16u "attentif|toujours"/17u "cartilages informes", wb It is remarkable that many of the former monstrosities of the head, not uncommon with man has never been observed in animals 399 3–4m, 29m 403 wt/1–7w There is most evident gradation in this sort of rudimentary organ 9–11m/10u "elles|rudimentaires", 12–13u "Les|celles" 407 1–9m/w this may be very important 410 22–30m 411 11–14m/12u "lapin" 413 3u "pourquoi", 7–8u↔, 15–18m 415 15–20m 441 3–6m/4–6u↔ 464 17–21/18u "atrophie complète" 470 22–24m 477 15–17m 512 7–11m 513 4–5m 519 1–4m, 27–32m 536 13–20m 537 16–18m/16u "en général", 28–33m 549 20–25m, 29–31m 550 17u "Elles|dépourvues" 551 1–8m, 10–11u "mais|constatée", 11–12u "c'est|dentition" 552 13–16m, 17–20m 560 7–9u "car|distinct", 11u "l'autre|contraire", 12u "parties accidentelles", 18–24m (Meckel)/18–22u± 561 17–21m 562 28–33m (Bichât) 564 22–25m

vol. 3 NB 187 Zoology Double Headed WormsX

Owen says this book inaccurate – M. de Serres not to be trusted; some truth in law of Excentricity V Müller – Meckel good authority p.503 Try experiments on eggs galvanize them–

SB1 □R (3 sheets)

1 Vol 3

111. The perfect union of one leg or arm of some double monsters very striking

284 – on some double monsters breeding, opposed to their sterility but then it is the one perfect which breeds 377 fertile generally.

350 domestic animals, like man, have numerous variations in veins

352 monsters occur differently in number & head in different species – a trunk specially common in Ele♦ Pigs.– 355 in wild animals very few monstrosities – there is evident relation between monsters & varieties

392. organs or parts later formed, always must be affected by causes producing monstrosities. Quote Andral – on first formed

least monstrous – (shows most monstrosities do not come on very early)

402 on coexistence of monstrosities, without any evident relation of parts.

(over)

406. distinction between arrest of development & of formation

437 Q cases of monstrosities in man resembling Lower animals resulting from permanence of embryonic condition

448 – intimate parallelism between the embryonic, zoological & teratological series.

456 again insists on law of number varying in part when numerous, & being in itself variable

456 Summary on laws governing variation – generally rudiments – (hence cause does not act very early)

462 On homologous parts uniting both in monstrosities & in Nature.– Do not some account for this by division of cells at some period of growth??

479 on germs being originally monstrous

499 arguments for monstrosities being produced late & 500 Read, 503 See Ray Catalogue).– 506,7

(over) 3 Tom. 3

347 – throws over imagination having any effect on nature of monstrosity. 392. Q

593 – summary of Laws of monstrosity, nothing new

604 on parallel series in zoology

609 good instances, showing how easily final causes may be falsely invented.

SB2 Owen

de Soi pour soi – Centripetal Law – Balancement des organes – M. de Serres – old Geoffroy; Isidore; – Meckel; – Carus

(over) Vol 3

I.St.Hilaire. Anomalies

p.89. p.111

p.134 shows how all parts go together

138 143 151

172 – at 267 ✎ skim chapters to 349

246 257 261 264 279 284 321 350 to 359

376 to 279 391 to 418 428 to 547 551

p.592 p.597 p.602 p.604 p.606 p.608

89 7–9m, 18–20u "restent | grêles", 24u "elles | même", 29m 90 1–3m 111 8–14m/x, 25–26m, wb the perfect union of the two adjoining arms or legs of some of these monsters, is very striking. 134 25–29m 135 6–7m, 32–33m (Serres) 138 4–8m 143 22–24m 151 23–27m 172 wt X this, I suppose consists of two limbs united. p.157 8–11m/9u "ce | membre" 187 4–5m, 25–27m (Pallas) 246 11–14m/5–28w case of a perfect ♣ individual bearing

another head with no trunk on it – How curious this new course of the arteries 12–14m/u±, 21u "n'avoir | aucune" 257 9–12m, 29–31m/? 261 14–17m/17u↔/12–26w because the jaw is generally only developed in these parasites – good instance of this Law of "soi pour soi" wb V.p.285 where this is discussed. X N.B I dont see why if a jaw, considered as an amorphous mass, be considered as an individual – why not an additional finger shd not? He wd answer because as additional finger makes asymmetrical part of the perfect individual:– yet why not law of "soi pour soi" put this finger in proper place – improbable 264 1–12m, 20–21m/21u "mais | oiseaux", 22–24m 279 24–26m, 27u "chez | grenouille" 284 2–3m, 4–6m, 12–14m, 16–19m, 20–22m 285 28–32m 286 15–17m, 17u↔ 321 14–21m, 13u "des | originairement"/15u "qu'un seul"/18?/w what 18u "épigénèse", 22–28m 350 4–6m/5u↔, 7–9m, 7u "ses | vaisseaux", 10–12m, 10–11u "sinon | moins" 351 19m, 20u "3,000 naissances" 352 21–23m/22u± 353 3–5m, 7–11m/x/Q 17–20m, 22–24m, 29m 354 1–3m, 8–9m, 13–15m 355 1–7m/2w♦ not domesticated? 8–14m, 20a "classes" Mammifères & Birds 22–24m/23–24u±, 28–33m 356 6u "que | cerf", 7u "lièvre | taupe", 8–9u± 359 15–17m, 28–31m 376 25–27m 377 1–2u↔, 11–16m 378 9–10m, 14–17m, 25–28m, 30–32m 379 3–4m, 7u↔, 8u "sont | ectroméliens", 11u "donc | de", 12u "monstruosités | ectroméliens", 15–20m 391 16–18m/w (a) next page 392 1–4m, 5–8m/x, 7–9m, 9–10m, 17–19m, 20–22m, 25–28m, 29–30m, 31–32m (Andral)/Q 393 1–5m, 6–8m/w a ♣ 9–12m, 29–30m/u↔, wb (a) ♣ Does not this explain variability of hair-size &c &c? Q 394 17–20m, 22–27m, 32–33m (Serres) 395 1–2m, 5–6m, 7–18w surely in embryos the heart is hear to beat very soon? V. Müller 397 7–11m 398 27–31m/w (a) (B) wb (B) Therefore applicable to any part, as skin, which has no central, uniting point 400 17–20m, 24–25m 402 4–8m/x/"/..."/Q 403 28–30m 405 1–6m/2–3u±, 7–9m, 20–21m, 22–23m, 29–30m 406 2–4m, 15–16m, 31–33m 407 2–4m, 16–18m, 22–24m 408 10–12m 414 20–23m, 24–29m 415 1–5m 416 8–9u "faite | féminin", 9–12m/10u "de | hémities"/w clitoris? 13–15m, 22u "et | douteuse"/14–24m/w pooh! a tailless animal excess of development because man has no tail!! 417 11–16m, 19–22m 418 13–16m 428 14–19m, 21–23m, 28–30m 433 3–7m, 30–33m 434 11–16m 435 24–28m 436 13–15u "Les | supérieurs"/?, 17u↔, 18–24m/20–23Q 437 2–5Q 11–17m/11u "par | queue", 15u "absence | biliaire", 22u "cloaque", 22u "la | matrice", 18–

GEOFFROY, HIST. GEN. ANOM. VOL. III
 26m/25-26u "bifurcation | pénial", 28-30m, 30-33m 438 1-4m/1u "par | des", 5-23m/13-15?/13u "la | profonde"/14u "diverses cavités" 439 2-10m/5-7?, 15-20m/18-19w pooh! 20u "chez | anoures", 21-27m 440 23-27m 441 10-11m, 15-27m/19w pooh! 448 21a "embryonnaires" He means embryological 21u "les | espèces", 24-25u±/20-30w What is this? No variation from a likeness of the parents can be strictly normal - 449 4-5w V. next page xxx so be cautious- 8-10w all this he considers only analogy.- 11-13m, 16-17m, 20-26m 450 9-15m, 18-20m (Serres), wb NB in case of limbless, tailless, fingerless races (& reverse) the hereditariness must come on at nearly same age (as in horns) for the early foetus has not these parts.- 451 1-19m, wb xxx according to the bearing of this discussion, there wd be only an analogy, between a man become fat by much eating, or large & one born * fat or large; * which I think is false?- 452 5-11m 456 22-31w What is Owens law? about these organs? is it that the reduction of these organs is one step in development 24-27m/Q/26u "variabilité anormale", 27-31m/30u "constante | importante" 457 1-4m, 5-11m/6-7u±, 9-13w & more chance of exposure to new conditions? 14-16u "par | spinal", 15-20w when any connection but not in so pairs 23-25m, 28-33m/32-33u↔ 458 1-3m, 4-10m, 14-20m/18u "que | conservés", 19u "rudimentaires | formations", 27-28w no examples 29u↔, 30-32m 459 1-4m/1u "avec | des" 460 5-17m, 29-31m 461 29-32m/32u "seulement" 462 8-9m/1u "semblables | analogues", 18-20m, 21u "Loi | soi" 463 9-11m, 24-25m/25u "chez | composés", 26-28m, 29-31m 464 20-22m, 28-30m 465 30-33m 479 17-18m, 18-31m, wb I shd think the cause must be often anterior to impregnation 499 7-9m, 16-17m, 24-27m 500 wt/1-16w Hereditary * legless Dogs & Men with polydactylism show that germ can communicate such tendency 2-3m, 14-16m, 18-33w according to this male wd have no influence in producing monstrosities 22w see Ray Catalogue 22-24m/m, 25-27m/25u "t.xxxiv"/26-27m/27u "t.1511", wb Study this to see whether small deviations as long legs &c were produced - In plants we know it is from treatment of parents & out of generation - 14-16w III 501 1-4m, wb I must allude to III this when I give my view of cause of deviations to parent treatment before impregnation 502 11-13m, 14-16m, 13u "soit | simples", 14-15u "atrophie | yeux", 22-26m 503 1-3m, 2-4u↔, 27-30m/28w Where? 506 26-28m 507 wt/1-5w In plants it

may be said gestation of seeds causes anomaly - but seeing what effect male pollen can do, I shd greatly doubt 1-9m, 11-14w This applies to all slight deviations 12-15m, 20m, 21-22u "qu'il même", 22-23m, 25-28m, 29u "de | anciens" 510 13-17m 515 1-3m, 4-17m, 21-23m/22u "ni | entièrement" 516 2-6m 521 4-7m 522 29-31m 523 4-8m, 9-14m 524 5-8m, 18-20m (Serres) 526 2-7m 529 25-27m 530 1-6m, 8-14m, 28-31m/29u "problème | complètement" 531 1-3m/2u "cette | force" 534 4-6m 541 4-8m 542 11-13m, 14-17m 543 13-16m 545 13-15m, 24-27m 547 3-5m, 15-19m, 25-30m 551 24-27m, 25u "congéniaux | originels" 592 3-6m, 29-31m 593 1m, 22-27m/26-27u "que | nombre", 29u "père | soi", 32→ 594 6u "Théorie | arrêts" 597 9-11m, 32-33m 602 19-22m (Cuvier), 29-30m, wb X Reflect of the possibility of classification of monsters (and many other * artificial things) is showing that classification may be quite independent of any theory of origin, as I suppose is implied in Natural Classification 604 7m/u "parallélisme | séries", 12-17w agrees with Forbes 13-18m/18-19u±, 20-24m, 30-32m 605 12-13m 606 3-4m/3u "cette | que" 608 7-8m/d/wt♦/1-15w♦ rather attributes species to monstrous births than to small changes. 28-29m, 28u "profondeur", 29u "espèces animales", 7x→ 609 23-24←X, 13-15m, 22u "encore | intelligence", 24u "qu'ils | la", 26u "ne | que" 613 13m 614 19m, 28m, 32m, 37m 615 3m, 9m 618 5m Catalogue, 1 11-12w Read Skimmed♦ through

GEOFFROY SAINT HILAIRE, Isidore
Histoire naturelle générale des règnes organiques
 3 vols; Paris; Victor Masson; 1854-62 [CUL]
 br, ex, f, gd, geo, h, he, hy, ig, in, is, sl, sp, sx, sy, v, wd

vol. 1 NB Read

SB □β

♦ 4; 10; 14; 431; a miserable Book - all words, words, words

Abstact Feb. 58

5 Dog not mentioned in Genesis

14 Goats with pendant ears

4 14-15m 5 20-21m 10 4-7m 11 20-24m 12 1-3m, 4-8m 14 22-24m, 25-29m 431 10-14m, 21-22m, 24-27m

vol. 2 NB On Man 167 to 260

SB □β

On extinction I have too much overlooked subsidence of isld like St Helena &c volcanic outburst &c &c

vol 2

185 Rank of Man ⇒ Man

◆ How are teeth in Sirenidae – yes they have but not very ample ♣ naked? Man Elephant

◆ 216; 243 Rank of Man; 287; 304; 311 to; I apply races only to domestic productions

◆ 383 to 438 History of Believers in modification Say that I shall notice only the m conspic writers – when I began I had no idea of rest of catalogue

◆ p.431 – to p.438 Isidores own argument that species change.

◆ 441; 448; 474, 476; 482, 485,

488 → Reference about White Ants important for me; 498 – Must include sexes Explain that I use his race in particular man

185 2–13m (Linnaeus) 213 24–26m 216 1–7m, 9–11m/8–14w variation & sexual difference going together 17–19m/17u "lion-marin", 25u "cravate|gau"/21–26m/w I thought some sexual differences in Monkeys?? vide my Notes.– 27–28m, 30–31m, wb How in young Nylgaus V. Andrew Smith wb Mem. Eyebrows Paget's fact.– 217 2–5m, 6–11m 243 1–7m, 18–20m 244 13–18m 287 1–2m, 22–23m 304 29–30m 311 14–20m/w yet very slight differences even if inherited wd hardly be called Races – 312 11–15m (Kant) 321 15–18m 326 22–24m/23–24u± 328 18–22m 329 1–4m 333 7–8m 337 wt (a) not really known under nature, because inheritance not thus ascertained = sub-species or species 1–3m, 6–8m/w (a) does for species 9–15m 347 23–25m 383 6–8m (Buffon) 386 4–9m (Buffon) 387 6–10m, 12–15m 388 2–6m (Buffon) 390 13–21m (Buffon) 393 9–12m, 13–14m/w this will do for variation 394 7–10m 396 18–23w a collection of individuals which perpetuate ♣ themselves for considerable periods ♣ & which are sufficiently unlike other forms to deserve in the opinion of Naturalists a name○ So with varieties Add found in state of nature. 399 2u "Daubenton", 5–9m 402 16–18m 405 15–17m, 16u "1801|1803", 19u "1809" 406 27–29m (Goethe), 27u "était|partisan" 408 6u "besoins", 7–9m, 26–29m (Lamarck) 416 11–14m/w No change now 418 25–27m 423 11–12m (Cuvier) 431 5–6m 432 20–23m 437 16–19m/w not distinguished from race 441 15–16w Definition of species 448 8–9m/8–12w This refers to alternate generation & larvae &c &c 17–20m (Leuckart) 465 15–17m (Meissner) 474 22–23m/w sexes 476 7–10m (Gould)/8–9w variable? 477 5–9m, 12–14m, 31–32m 478 11–15m/w variable?? 481 7w Drilus 8–14m, 14–15m 482 26–33m (Latreille) 483 25–30m (Desmarest, Audouin, Milne

Edwards) 485 wt (a) Andrew Smith case of Birds of 2 size – Azara's case of Moloths Land-shells are all Dimorphism– 6–10m/7w (a) 23?/u "mâles" 488 16–18m, 19–20m (Lespés) 489 1–3m 498 18–20m

vol. 3 part i NB Oct 19 1860

I have selected ● for my 1st volume on Dom animals – Must be all gone over again & Indexed Especially for Hybridisation very good.–

Cats hybrids p.177 Used

22 9–20m 23 26–29m 27 18–22m (Dareste), 29–31m 28 25m, 26–27m 29 26–29m 34 3–5m 45 18–19m/u "Tels|soie"/w silk-worms artificially fed & well domesticated 25m 46 9–13m, 20–22m (Aristotle) 47 24–25m, 28–30m (P. Julien), 28u "quarante|siècles" 48 7–8m, 13–15m 49 12–15m/13w no selection 50 8–10m, 11–13m 51 2u "dix|oiseaux" 52 7w Colour in mimicry 8–10m/w colour & size in Turkeys 20–22m 55 2–3w Swan not varied 56 20–22m (Varro) 57 10–14m, 32–33m 58 10–12m, 19–21m (Pictet) 59 10–13m/w Guinea Fowl not much variation 60 4–6m, 13–15w Peacock no variation 21–23m (Aristotle) 61 28–29m (Pucheran) 62 7–9m/8u "Zend-avesta", 13–14m/m, 21–23m (Link), 22–23m (Pictet), 33u↔ 63 28–30m (Aristotle) 65 17–19m/17–24w Chinese swans not known form not perfectly 67 20–21w Llamas 69 21–26m (Albert Geoffroy, Linnaeus) 72 6–8m/w Guinea Pig Origin unknown 73 9–15w Ferrets probably Polecat 75 1–3m/w Rabbit not in Greece or Italy 13–14w originally Spanish 24–27m/29u "îles|Baléares"/25–30w rabbits in France & Spain before our era 77 18–19m 78 8–10m 79 23–25m (Hamilton Smith), 31–33m (Fitzinger) 82 wt/1–3w Savages may reclaim animals Caffres nato Oxen – Dogs – Pacific Ocean Ascension Dogs – Pampas Indian take to Horses so readily 7–10m, 13–16u± 83 4–9m (Dureau de la Malle)/7–8w N.Q. 10–12m 84 9–12m/Q 85 1–4m, 20–24m (Fitzinger) 86 12–16m 87 1–4m (Pallas, Gùldenstädt)/2–3Q 88 13–15m 91 10–13m, 15–23m (Pictet) wb Why shd not name of conquering races become modified & transferred 95 29–32m (Joly, Pictet)/31u± 96 2–3m 97 20–23m/w Blyth 98 3–8m 99 1–10m, 2u "Cretzschmar" 100 31–33m (Link)/w Dog w All Q 18–21m 102 1m/u "une|oreilles" 103 7–9m/w How about spots over eyes 106 6–13m 107 18–30m (Pliny), 35–37m/Q 108 3u "tel|Talesius", 6u "chiens|africains", 7–9m/9u "Ehrenberg et Hemprich", 15–19m, 25u "kaukasischen Schakals", 27–29m (Gùldenstädt) 109 8–9m/8u "Rueppel", 9u "C. simensis", 10–14m/w like Greyhound 110 33–

GEOFFROY, RÈGNES ORGANIQUES

35m (Broca) 111 29-32m 112 1-4m, 6-9m (Bellingeri), 14-16m, 22-30m (Cuvier) 113 2-6m (Flourens), 14-17m 114 1-2m 115 19-23m/Q 121 29-30m/w too few recent 123 6-8w Rabbit Coney Bird 7m, 12-13m, 27u "en transitions"/w Only Habit 154 15-19m 155 16-20m (Aristotle, Pallas), 27-29m (Dryander) 157 15m/u "L'hybridité|tétris", 21-22m 158 8-9m/8u "dindon|faisan", 15-16u↔ 159 6-8m, 11-12m 160 12-13m 161 3-4m/??/w see ♣ pp163 4u "surtout|bouc", 19-21m 162 9-12m 163 4-5m 164 7-8m 165 2m, 13m 167 19-21m, 25m 168 2-3m, 18-20m 169 29u "menstruation" 171 32-34m (Hunter), 33u "Wolf|are"/w Dogs 172 10-12m, 13m, 14-15m/w Dogs 173 1m/!, 14-15m 175 35-36m/36u "baudet|sans" 176 16-18m 177 18-19m/Q, 21-22m 179 21-24m, 29-31m/w Pheasants 180 1-4m, 7-9Q 9-14m/11-13w Pigeons crossed 25m (Dureau), 29-30m 181 5-13m 182 9-13m (Gloger) 197 7-9m 199 6-9w same rules hold in individuals 12-15w ♣ The rule holds with squirrels 17-18m 200 18-23m 203 7-9m 204 4-8m 206 13-19m 207 1-3m, 6-8m 211 24-26m (Broca)/w see p.222 216 22-26m/w Dogs & Wolves 28-30m (Buffon) 217 1-3w Q under Dog 4-5m (Flourens), 13-18m (Flourens), 27-29m/w Chacal & Dog 30-31m (Duvernoy), 31-34w Q under Dog 218 2-8m, 16-17u↔ 219 1m, 13-14m, 20m, 25-27m (Francisco de Therau) 220 9-10u↔, 24-29m (Weddell, Denis) 221 19-21m 222 1-2u↔, 18-19u±, 27-31m 223 1-2m, 4u "trois|leux", 5-8m, 9-10m, 19-21m (Broca), 24-26m, 28-32m (Rouy) 225 1-4m, 18-20m, 28-30m 226 3-9m 227 21-23m (Lecoq) 228 17-20m, 21-23m 229 4-8m, 10-13m, 23-27m 234 6-8m 254 12-28m/13-15Q/u "1784" 16u "surl|jaune", 18-20w selection 27-28w 259 12-18m/14w atavism 27-32m (Roulin) 260 1-7m (Cantal) 261 9-12m

vol. 3 part ii SB1 □R

322; 328; 336 to 377; 402; 407,409; 427; 434; 438; 41; 446; 450; 461; 469; 472; 476,8; 482; 498; 507; 529

SB2 □β

↪ 330 Falcons or Hawks caught at long distance from home.

→ ↪ Variability of species in state of Nature

↪ (Not abstracted)

↪ 402 changes in naturalised Helix ⇨ - May bear on Madeira & P. Santo peculiar species -

322 3-12m 323 ↑1→ 324 ↑2-1m 328 5-12m 330 9-17m 332 1-6m 333 1-2m, 7-10m 335 1-5m 336 ↑3-1m 337 6-12m 338 16-21m 340 12-17m 342 ↑19-9m 345 ↑15-11m 347 ↑14-

11m, ↑9-6m 348 2-8m 350 1-7m, 13-19m, 20-25m 351 1-3m, ↑13-7m 354 ↑8-1m 357 ↑11-6m 359 18-21m 360 6-12m, ↑10-5m 365 10m, ↑3m 370 ↑18-16m, ↑8-1m 373 9-13m 376 ↑19-14m 377 10-15m, ↑5-1m 402 ↑17-10m 403 wt Is this allied to Madeira or Porto Santo close species 7-15m 407 6-15m 409 10-20m 427 1-5m/w But how kn parent ↑12-9m/→, ↑3-1m 434 ↑3-1m 435 4-6m, ↑12-6m, ↑1u "1834" 438 ↑7-2m/Q↪ 441 12-21m 446 10-15m/m, ↑2-1m 447 16-18m 448 tab.w six times as long - tail not included wbee 449 ↑13-7m 450 ↑15-10m, ↑9-4m, ↑3-1m/m↪ 451 5-9m/m, 18-21m, ↑3-1m/→↪ 453 1-6m/3-6m, 14-22m 455 5-8m, ↑8-1m/m 461 ↑3-1m/↑1u 469 ↑8-3m 472 17-20m 476 ↑7-3m/Q↪ 478 ↑6-2m 479 1-4m 482 12-14m/w Cart-Horse & Race Horse 498 12-15m 507 8-13m 529 3-17m

GEOFFROY SAINT-HILAIRE, Isidore Vie, travaux et doctrine scientifique d'Étienne Geoffroy Saint-Hilaire Paris; P. Bertrand; 1847 [CUL]

ad, af, beh, em, geo, ig, mn, rd, sp, tm, v, wd

NB1 p.69; p.121; p.134; p.139; p.157; p.212 to p.218; p.229; p.238; p.245; p.258; p.281; 291,4,7; to 312; 332 336 to 357- Omalius d'Halloy on changes in species

NB2 Read 428; ? 454 Book G

SB □β

135 all organs, are same modified &c

139 never a new organ, with respect to Electrical organs

213 Relative position & mutual dependence, more important than forms or functions in ascertaining homologies - "Un organ est plutot aneanti que transpose" - (small changes)

214 Law of Balancement, quote Goethe - attributes Rudimentary organs to Balancement

229 Teeth in Birds, 238

291 monstrosities made by shaking eggs &c 294 Meckel in 1812 proved that monstrosities were arrested embryonic states

298 On affinity of same part in Monsters the same 302 in Monsters, & in normal states

337 It wd seem that Geoffroy has not propounded change of Species No p.345

347 Local conditions only causes of change

350 "Leur monde ambiant"

353 "It is problem for future"

1 16u "1772" 69 10-12m 121 26-28m 134 21-28m 135 11-12m 139 16-18m/?, 21-29m 157 6-10m 212 9-11m/1-11w in ascertaining

homologies 12u↔ 213 wt (a) because small changes will not transport 3-4m, 7-8m/w (a) 28m 214 14-16m/16u "affinités électives", 24-25m 215 1-8m, 12-13m/??/u↔ 218 3-7m 229 15-17m 238 6-8m, 25-28m 245 1-2m (Savigny), 24m 258 13-18m 259 1-3m/1?/2u "différences | est" 281 13-15m, 14u "subordination | caractères" 290 18-24m/21-22u "surtout | verticale", 24-25m 291 12-22m 294 6-16m (Meckel) 297 20-24m 298 14-21m 299 11-15m 301 15-20m (M. Serres) 302 3-5m/w (a) 24-26m, wb (a) if true parts gradually brought near wd become confluent.- 312 8-11m 332 16-20m 336 7-12m/7w Cuvier 337 wt (a) apparently, this refers to theory of change of Species 2-7m/3w (a) 338. 13-15m/w see Catalogue at end 339 22-26m 341 18-19m, 22-23m, 24-27m 345 1-2m, 16-17m/w Mutability of species. 20u "1828", 24-25md, 27-28m 347 1-4m, 9-12m 348 16-20m (Lamarck)/19u "regret", 21-22u "prêter | même" 350 wt (a) Compulsory changes of condition & habits, as in domesticated animals. 6-12m/9u↔ "monde ambiant"/8w (a) 16-18m 351 8-11m 352 12-13u±, 13-15m/14u "Lamarck"/15u "des limites", 23-24m 353 6-9m/9u "ou | encore", 10-12m 354 6-8m, 8m, 16-18m, 27-29m 355 2-5m, 13u "d'un | nouveau", 15-17m/16u "où | eux" 357 2-4m, 26-28m 423 33-39m/? 427 27-38m 428 1-40m 429 1-2m, 20-21m/w not much I shd think 454 29m, 31m

GÉRARD, R. *La Fleur et le diagramme des Orchidées* Paris; Faculté de Médecine; 1879 [Down, I]

GERLAND, Georg *Über das Aussterben der Naturvölker* Leipzig; Friedrich Fleischer; 1868 [CUL, S]

beh, cc, ex, f, h, he, oo, pat, sl, sx, ud, v, y

NB Left off p.124 ♦ ♣ 136

NB2 ↻ On Man alone

♦ p37; 56; 89; 122, 3, 4

SB (8 sides; not CD)

1 Introduction - List of dying out Races Includes all cases from whatever cause - no special account of causes

2nd Receptiveness of savage races for miasmatic illnesses, which arise spontaneously on the meeting of savage & civilized races

This first gives a great number of accounts of spontaneous illnesses. & of the greater ravages of moderately hurtful European illnesses - His theory to account for this - is not that there is some noxious influence emanating from the civilized races

2 caused by their being shut up in ships etc - but that we are all inoculated, as it were, from our earliest childhood with the germs of all kinds of infectious disorders - but that we partly by inheritance & partly by use are able to possess these germs in a latent state - These same germs being quite able to infect savage races. He gives in proof of this - that certain illness seem only to appear at certain intervals - that the

3 inoculation only lasts a certain number of years & then wears out when we are again liable to the attack of this epidemic (I suppose under certain conditions is understood - H.E.D.)

(expanding on "latent state") because we have assimilated their nature to ours & so they are not wholly inimical to us.

4 3 Directly brought in diseases The same principle applies to directly brought in infectious & contagious diseases The first introduction was the most violent but they continued to rage furiously -

The worst of all the smallpox It broke out in Mexico 1520 brought by a slaver - raged then carried to Antilles where it raged amongst the natives without killing one European -

Waiz says Smallpox has killed more than near ♣ drinking together in America. at least 1/2 perhaps 2/3rd of the Population.

5 According to Meinecke smallpox broke out spontaneously in New Holland

We now come to the original illnesses of ♣ savage races An illness raged in New Zealand before Cook - but illnesses are rare

- A gall fever raged in Central America every 100 years (4) Treatment of ♣ illness in Savage Races All dangerous illnesses are made worse thro' mistreatment

6 In America steambaths with cold washing directly after nearly always killed the patients. In Australia they only exorcise evil spirits whom they suppose the cause of all illness - They pretend to draw a bit of stone out of them. They kill the bewitcher & rub the bewitched with his suet. Or to bleed away the Magic They are cleverer in outside injuries & serpent bites -

They are buried before they are dead in Feejee so that they mayn't bother the living. In the New Hebrides they kill delirious patients so that

7 they mayn't infect others - In Melanesian it is all taken for work of demons, tho' they practise bloodletting & such means- ♣

In Polynesia the sick are not cared for. In

GERLAND

Mukuhiva they hold the nose & the mouth of the sick to ♣ keep the ♣ spirit or life firm. only in New Zealand they know better how to manage – They used hot springs, light food, & rubbing of the limbs – In Tahiti they hold it wicked to take Medicine – but they 8 are clever surgeons The Mexicans are acquainted with Medicines– but put more faith in magic.– The drawing out of the stone found in Haiti & Brazil as well as Australia. The Botokuda in Sth Am. alone use natural means Steambaths all over America Real Doctors & magic doctors The Hottentots consider it all as the work of evil spirits – & they & in the Antilles draw out the stone (or here bone) as in Australia In America & Africa they punish unsuccessful doctors

SA (pp. 52–53) □β; ♣ (4 sheets)

2 ♣

Ch VIII p48 infertility of woman only cause of dying out.– intermarriage in Botokudos – general misery & hard work of women – Lactation – &c &c –

Killing children (u) Knisteno kills female Children to save them being brought up to misery – Pooh –

(u) Guianas kill 1/2 children of both sexes – [In Upper Paraguays kill all children but own according Azara, (u) hence race almost disappearing] p51

[Abipones save – not more than 2 children (u) – Indians do not speak of child murder –

[Darish says women p.53 kill ♣ children * to save their beauty: also in Upper Paraguay Azara (u) says p.51. – Proof of Indian women valuing their own beauty.]

Many other cases of infanticide.–

[p.54 in Melanesia only bring up 2 or 3 children] & many other islands of Pacific much infanticide – especially Tahiti – || some women had killed 4, 6, 8, or so ♣ children

⇒ p57 Infanticide in Sandwich Isd

1 Austerben – Gerland – 1868

Great extinction of many races –

p.8 Poeppig "poisonous breath of civilisation"

|| p.10. Williams says healthy ships, bring disease, & not infectious disease – ●

|| s.12 If an Indian tribe is once reduced in number, generally becomes extinct – Tschudi in N. & S. America found this to be the case – In N. America some exceptions.– (u)

Ch. 2.–

Known diseases introduced. Especially small-pox in America – & in all parts of

world.–

Ch. 3

|| * Children suffer in health in p.27. Proportion of women to men in Australia according to Grey 1 : 3 – others says as 2 : 3 – female infanticide practised. (u)

Women little food – long Lactation –

Many causes against health, & so we can understand why numbers of each tribe not great & no increase, but as he says does not explain actual decrease.

⇒ Galton too unsettled to work (over)

Sexual selection

Tattooing. about being so ugly.

3 Sexual selection

|| * Arevi kill (Tahiti) all female children: Tahiti kill in order to keep (u) beauty.–

Wonderful amt of infanticide. in whole Pacific. Laziness one of main causes of infanticide – particularly kill girls – old custom – Thinks religious motive –

|| p.82 Natural physical conditions do not destroy races, viz T. del Fuego & Esquimaux.

Sense of Justice very strong in Savages – shown even by Revenge – Depression of Spirit causes extinction.

Mutual wars – infanticide – Unfruitfulness & long Lactation – diseases brought by Europea – drink &c Depression – Dissolut life –

Tribe when once reduced seldom revives again

Famine.– Unhealthy life – Hostile ♣ appearance of Whites most hurtful of all –

Psychical effects most important – Introduced diseases – When several causes so act effect marked – ♣ Savage races are not increasing, so always must be much ♣ extermination going on, & a little addition from ♣ advent of Whites, turns the balance

4 Sandwich Isld Population not decreasing Said to be increasing in Tahiti. Tonga not decreased Feejie Keep up.–

(The following passages are annotated with literal translation and/or close paraphrase of the text) 1 (title) 3 12–20, 25–43 4 19–29 5 13–22, 32–41 6 wt, 3–8, 11–27, 37–44 7 wt, 2–4, 6–14, 25–36, 39–45, wb 8 8–14, 27–42 9 10–44 10 wt, 1–23, 27–45, wb 11 wt, 1–20, 7–19, 25–40 12 wt, 1–17, 20–30, 30–45, wb 13 wt, 1–8, 3–14, 13–19, 18–40, 19–23, 26–39, 41–45 14 wt, 1–17, 1–17, 16–22, 21–41, 38–43, wb 15 wt, 1–16, 18–22, 25–29, 31–40 16 wt, 1–15 17 11–20 18 12–20, 24–27, 33–45, wb 19 wt, 4–8, 22–27, 30–36, 40–45 20 5–15, 18–22, 25–33, 35–40 21

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GERVAIS, Paul *Les trois règnes de la nature: Histoire naturelle des mammifères vols 1 & 2;* Paris; Curmer; 1854-55 [CUL]
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153 Hybrids - 2 Genera

140 Canines in Equidae absent in females

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GIRAUD-TEULON, Alexis *Les origines de la famille* Genève, 1874 [I by author; CUL.1900]

GIRTON, Daniel *The new and complete pigeon-fancier: or, modern treatise on domestic pigeons* new edn; London, n.d. [CUL] beh, cs, pat, sp, v, wd

NB ↯ Nothing Ap. 1857

7 19-22m 9 30-34m 10 wb describes the Blue Rock by the name of Stock dove 12 32a↔ 14 8-19m, 22-24m 15 1-3m, 12-13m 17 10-12m, 28-30m, 34-35m 18 1-5m, 14-16m 19 13-15m, 36-38m *14 1-3m, 7-9m *15 23-26m/w education *16 37-38m/wb Seems to consider all the Horsemen & Dragoons crossed breeds Can this be so considering how true? *17 17-20m, 31-34m *18 10-19m 20 3-8m 22 20-22m, 34-36m 23 1-4m/1u "with|long", 28u "four|length", 31u "the|Roman", 34u "table" 24 8-12m, 13-15m, 30-32m 31 5-7m 32 7-9m 33 1-3m, 4-5m, 5-6u "the|better", wb so that for me, it is immaterial whether originally different species, as these qualities differ in each.- 34 4-7m, 29-30m, 30-31u "much|

name", 32-35m, 36-37m 35 12-14m 36 2-7m, 17-18m/u "less|thirty"/w Varies 35u "neck|is" 37 19-20m, 23-25m, 33-34m 38 13-17m, 23m, 33-34m, wb This & following shows that domestication has produced much effect.- 39 24-32m 55 18-31m/w a curious treatment for apoplexy 57 15-17m, 23-27m

GLEN, William Cunningham *Collection of Poor Law Statutes* 2nd edn; London; Shaw & Sons; 1857 [Down]

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12 13-15m, 31u "three", 35-38m, 45-47m 13 10-13m/10u "two guardians", 23-27m, 31-34m, 42-45m 14 1-5m 15 1-3m, 11-14m 17 8-11m 19 22-25m 22 22-29m 23 5-26m 25 24-26m, 27-30m, 45-47m 26 1-5m, 30-33m 27 43-49m 28 4-14m/9u "but|money", 20-25m, 45-46m 29 30-33m, 36-38m 32 20-25m 33 1-3m 34 14-22m 36 9-15m 46 12-20m, 32-36m, 43-46m 47 5-7m, 9-14m, 21-25m, 27-32m 48 7-14m, 31-39m, 43-46m 49 1-3m, 33-38m 50 7-14m, 36-40m 52 9-12m, 24-28m 53 3-7m 55 35-41m 57 39-48m 58 26-29m 59 14-19m 63 32-38m 64 32-36m 65 26-32m 66 26-31m 67 10-14m, 42-45m 68 44-49m 69 13-16m, 18-22m 70 25-27m 71 3-7m/3w ie under 7 years old 19-20m, 33-36m, 40-43m 72 5-8m, 23-25m 73 1-4m, 7-10m 74 26-28m, 32-38m 75 25-30m 76 26-32m, 34-38m 77 17-19m, 35-38m 78 14-18m, 29-31m, 44-46m 79 23-29m 80 24-27m 81 43-46m 82 18-21m, 45-46m 83 4-6m 87 20-27m, 35-44m 88 21-26m 89 24-34m, 42-45m 90 30-33m 93 32-33m, 38-39m 95 20-23m 97 43-48m 98 20-25m 99 28-30m, 40-48m

GLOGER, Constantin Lambert *Das Abändern der Vögel durch Einfluss des Klima's* Breslau; August Schulz & Co.; 1833 [CUL, on B]

br, cc, fg, gd, he, ig, no, pat, rd, sp, spo, sy, ta, tm, ts, v, wd, y

NB Only skimmed very poor Book all Assertion

Graba's Ornith Voyage Feroe

p42; p.44; p69; p.74, 75; 89; 98; 103; 113; 138; 140

SB1 □↯

23 tints of plumage vary with Climate

69 Nillsson on variation of Beak in Tetrao saliceti Q

70 many short-tailed birds have 1 or 2 pairs of extra-caudal. (as Kingfisher) can this be compensation or rudimentary. (allude when I talk of important♣ organs being few & not variable.-)

69 References to Bruch's papers (I have read)

74 on changes of Ducks wings & feet, tamed & Geese according Bruch

103 on spreading of sparrows with cultivation in Russia

143 *corvus* & *C. cornix*

Appendix systematics at end on doubtful species

157 on *Tetrao saliceti* & *scoticus* being same species Q

SB2 722. on variability of Head & Beak

Brehm made some of his species from single specimens & dry specimens.

722 *Colymbus* 18 or 20 tail feathers

731 Beak & length of ♀ prom in *Anser segetum* variable – so it is with domestic geese

733 tail feathers increase in number in *Colymbus* with age

♂ Is *Anser segetum* supposed part of domestic goose.–

Bruch in Isis 1828 Band XXI

do Isis 1829 Band XXII

p.629 Caudals increase with age. variable in *Anser segetum* – 16–20!

p.152 on the Sparrow Ch 4

xv 17m/w ♦ Begin xxxi 3m 2 ↑w/wt Defines "Ausartung" – a deformity, as white or cross-billed sparrow, not hereditary – not affecting all individuals under any circumstances – not exact relation to true characters [this not true as all deformities have such relations]– "Abänderung" – is, as a Spanish sparrow, where change is superinduced from climate on previous organization, & affects all; & young inherit it, & gradation into common character can be traced. Alpine plants wd have Abänderung yet not hereditary Monsters are hereditary Vague distinction wb All sports wd be Ausartungs – In Abänderungs the change will ♣ I shd think, supervene by effect produced on mature animal during generation.– 3 wt 1. Variety directly dependent on external influence 2. Variety indirectly so dependent & directly on propagating system. ↓m/w P.S. I think the upshot of his distinction, is whether the change be produced, at early period through propagating system being affected, or whether, during one or more generations, the mature being is affected & altered. 5 ↑3u "wirklichen", ↑1wt, wb true & imagined, true & false, constant & changeable skull-differences 15 6m/1–17w it appears that warm countries affect colours like age. 33–38m/w late arriving XX wb XX Quails from

hot south country with red throats. 21 2x 22 20–25m/w Nut-hatch more blue in warmer countries 23 wt X I might say according to Gloger plumage varies little according to climate wt Green seldom brighter in hot countries–x 1–3m, 22x 24 5–11m/w legs & beaks in diff climates vary in colour 25 19m 27 28m 28 21–29m, 7–34w About 1/5 of Kolreuter's white-variegated in Faro!? & yet these do not pair together 29 3–7m, 4u "Schwandrorsel (Amsel)" /1–7w This Bird in Italy has in first month white bar over tail 8–29m, 29–30m 42 14–17m/w thinks same species 44 10–33w Nillson does not think Tyrol have same as Northern 69 20m (Bruch)/w V. Read 26u "Varietät durch"/w Whistling Duck 29–31m/w Bruch good See to this 34u "Pfeifenten"/34–39w Nillson says out of 30, Beaks differ in all Q 31m/39m/wb Both Read 70 13u "garl mehr"/7–13w many short-tailed birds have a pair of extra tail-feathers. 17wt, 20u? "14 oder 13", 17–25w 3 out of 12 had 14 or 13 tail-feathers instead of 12 Kingfishers in Dictionary. 74 18m/u "etwas | Flügel"/17–20w Goose shorter wings what compared with?! 27m/w Duck 31–34m/32–33u "dass | langt"/33–34u "fast | erreicht" 75 1–2u "Füßel aber", 3u "schwimmt | geworden", 7u "plumperen" 76 24–25m/w Isis 89 15–25m/8–24w Nillson – Tree sparrow in N. is found about houses in greater numbers, than common sparr 98 14–20m/1–23w all cuckoos eggs in different years differ 103 24–30m/w spreading of sparrows 113 41m 117 4–5Q 138 16–34w number of deaf & dumb vary extremely in diff parts of Prussia 140 31–33m 141 14–16m 143 25–28m 152 3–22m 157 33–37m/33u/wt/33–35Q

GODMAN, Frederick du Cane *Natural history of the Azores, or Western Islands* London; John Van Voorst; 1870 [CUL] ♂ mg, ti, tm, v

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GODRON, Dominique Alexandre *De l'espèce et des races dans les êtres organisés et spécialement de l'unité de l'espèce humaine* 2 vols.; Paris; J.B. Baillière et Fils; 1859 [CUL] ad, beh, br, cc, ch, cs, ex, f, fg, gd, geo, h, he, hy, ig, in, mg, no, or, sl, sp, sy, t, ta, ti, tm, ts, v, wd, y

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♦ no marks

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↻ Book of Gervais referred to. on Zoologies (over) p10 History of ♣ Believers of Mutation SB2 □β; ↻

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wider ranges identical.– 12–18w Alph D.C. of course gives infinitely many cases 77 8–15m, 20–24m/w this is like such cases as lvy naturally ranging where cannot fruit 78 24–27m/w not really changes 85 17–23m/w I think other characters of Alpine plants 17–23m/18w on mountains 90 1–5m, 13–20m 95 5–15m/w shows how ignorant we are 118 4–8m, 19–28m 120 10–14m/w Mentions 2 organs 121 12–15m/w analogous variations 124 16–22m/17–18w 2 forms 125 27–28m 127 6–10m 134 19–24m/18–29w nothing whatever compared to geological facts puerile to quote them. 148 19–22m 149 11–19m 154 14–19m 160 wt Did he observe its origin 1–4m, 4–8w Has it spread or increased?? 21–24m, 22–25m, 25–26m (Marchant) 161 5–9m, 15–17m 168 22–26m 169 3–6m, 21–26m, 30–31→ 170 16–23m/w shows how much crossing 27–29→ 171 2–7m, 31m 172 7–18m 173 31→ 174 4–11m 179 wt This wd be very good argument if we did not meet such difficulty in well-known countries 2–7m/5w (a) 11–16m 181 17–24m 183 1–3m 193 7–8m, 9–11m 196 5–14m 238 2–9m 239 2–18m 247 24–25m, 26–27m 249 23–27m 250 3–6m 251 12–13m 252 11–17m 260 15–27m 261 1–12m 336 16–18w↻ All used about dog 341 12–15m 342 4–7m, 18–27m/21–22u "l'arcade larquée"/Q 346 19–22m 348 7–11m 352 1–5m 355 5–10m, 17–18m 357 wt↻ All used about dog 8w All used Cats 358 23–24m 359 16–18m 362 6–8m 363 4–6m, 8–10m, 12–13m, 27m (Cuvier), 28m (Gervais), 29–30m/Q 364 8–10Q↻ 365 26m/26–30w↻ All quoted except antiquity of certain Breeds 367 16–19m 368 3–9m, 24–26m (Cuvier) 369 17–20m, 29m 370 1–5m, 9–23w give summary of facts for arguments – gradation of domestic race – fertility crossing when tamed, & character of those gone wild.– Q↻ 374 14–20m 375 10–12m/?, 27–28m 376 1–10m/4–5Q↻ 377 11–13m, 28–29m 378 1–3m, 4a "Cheval"/9–14w All Q in Ch. 3 on Horses 379 2–9m 382 15–19m 387 17–18m 389 6–7w p.391 Black Asses no stripes 391 25–27m 402 15–18m, 18–27m/22–23Q 406 5–7m, 19–21m, 22–25m, 27–29m 407 6–7m 409 16–18m 416 13–19m 441 21–27m 442 2–4m, 20–24m/Q↻, 25–26m 443 10–16m, 27–28m/w Black less common 30m 444 5m, 25–27m 445 6m 446 11–12m, 27m 458 11–16m 459 17–21m 460 8–10Q 11–13m/12u "2700", 18–20m/19u "1494" 461 7–10m/w is this race 9–18m/15–17m/w Dandolo 18–19m, 20–24m/20–23m 462 6–7m/6u "leur forme"/7u "bien fournir", 8–10m, 12–16m, 25–27m/19–25w Quatrefages (They do not stick their eggs) 29–30m 463 4–5m Catalogue ♂ back cover 38–44m↻ (Boudin)

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\Rightarrow 246 to 337 About Man good.

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\Rightarrow Much about Man. good. [All abstracted for my 1st vol.]

\varnothing 98 good case of bitter almonds not being eaten by Mulots & therefore sown in Preference for wood Q \Rightarrow

4 23-24m 6 21-23m 9 22-24m, 26-27m, *wb* effect of scanty milk when young - given in puppies - But is this hereditary? 22 12-17m/*w* Cresy's fact 27 1-7m 28 7-15m 30 1-4m 35 30m 40 29-30m/*w* read 43 1-6m/2*w* Zebra? 44 2-6m/*w* this is his argument everywhere 9-10*w* Pouters 49 22-25m/ \rightarrow 50 1-6m 52 13-19m, 25-27m 54 12-13m/*w* Turnips & Rape ?? 24-27m 55 3-6m/*w* B. canpestus oleifera 9*u* "Colza", 10*u* "Chou-Rutabaga", 10-14m/*w* Swedish Turnip 27-28m (Metzger) 56 21-24m 57 12-18m 58 9-13m 60 13-17m, 23-26m 63 12-13m/X \varnothing , 20-23m/20-29*w* differs in selected part \rightarrow so in cabbage it is only selected part. which differs 64 4-8m, 11-16m/*w* analogous variations in distinct species 18-20m/"..." \varnothing , 26m, 28m \varnothing , 30m \varnothing 67 11-12m, 22m/*w* selection 69 5-8m, 12-22m 70 11-12m/9-17*w* How are Bulbs of Hyacinth in contrast. I think they can be recognised. 71 8m 72 1-5m, 7-9m, 12-17m 73 6-8m, 14-17m, 27-29m 74 13-16m, 21-24m 75 5-19m, 6-7m/6*u* \varnothing "exactement parallèles", 7-16*w* if these all real species, still odder that not known wild 16*u* \varnothing "présente | races", 22*u* \varnothing "sont | espérances"/*w* Triticums 76 2*u* "Nous | patrie"/*w* Rye 77 10-12m, 18-25m 78 15-16*w* 3 Hordeum 19-20*w* 2 Oats *wb* 5 Triticum + 1 Rye + 3 Hordeum + 2 Oats all in N temperate parts of old world.-! = 11 species + one Hordeum & common wheat apparently known in wild state 79 9-10m, 11*u* "panicule | serrée", 13-14*u* "pourvues | d'arête", 14*u* "albumen", 16-17*u* "ne | caractères", 19-21m 80 21-23m, 29-31m 81 7-10m 82 18-20m, 21-22m 84 3-8m, 26-28m 85 8-12m, 20-23m, 27-

29m, 30-31m 86 3-8m 87 1-3m 88 *wt* In single flowers selectors only try for size brilliant colour & regularity of shape *wt* In Thyme I have noticed grt differr in shape of corolla & \clubsuit stigma 7*w* \bullet run regular 7-9m, 8-11m, 19-20*u* "reproduisent | stérile", 21-25m, 22-31m 89 26-30m 90 1-3m, 26-29m 91 2-5m \varnothing /3-4*u* "encore | aiguillons" 93 18-21m 94 23-28m 97 1-4m 98 15-18m/*w* good selection 100 13-19m 101 14-17m, 20-22m, 24-27m 102 3-5m, 13-15*w* \varnothing what a proof of powers of variability 18-21m/*w* but so it wd be in France & England. 103 14-17m, 18-22m, 23-25m 106 3-10m, 16-19m, 21-25m 107 1-9m, 12-13m 216 10-14*w* Form of shin & heel of Negro 16-32m/ \rightarrow , 18-21*w* could not be produced by Selection 25-32*w* Different amount of Beards before mentioned - views of Huc's 217 1-11m/9-11*x* \varnothing /*w* Conditions with colour 246 16-18m 247 5-8m, 10-11*w* Migration 12-15m 248 9-11m, 12-14m, 18-19m, 22-24m, 23-28m, 25-27m 249 9-13m/1-18*w* These American facts diversity of very good to show not climate - We simply do not know 15-20m 250 1-5m, 8-12m (Humboldt) 253 11-14m/*w* like sexual selection 254 19-21m/*w* Migration good to show race 255 3-6m/*w* this looks like sexual selection 261 3-8m 263 13m 265 2-6m*d* 266 2-6m 268 *wt* This agrees with poorness of colour of productions of Galapagos & Patagonia - But then how in Chiloe? & Tierra del Fuego 3-8m 269 3-10m/*w* Compare tropical Africa & America - Tasmania 275 3-6m 276 1-5m, 13-18m, 19-21m/20*u* "mais | toujours", 28-31m 277 *wt* my notion of correlation & darkness of skin not applicable to Tasmanians for healthy climate, migration- 3-11m/5*w* (a) 24-27m 278 8-12m, 16-22m 279 10-11m 280 1-2m 282 22-25m 283 4-8m 285 8-9m, 22-23m, 25-28m 288 7-13m 289 10-19m 297 1-6m 299 6-27m/9*u* "deux"/13*u* "incisives"/15*u* "phalange | doigt"/11-15*w* mutilations not hereditary Q 300 5-7m, 7-8*u* "ce | naturelle", 9*u* "laideur"/*w* no 301 18-25m, 27-28m/22-30*w*/*wb* This wd be good to show Man exaggerates peculiarities 302 27-30m/? 308 8-9m/8*u* "poitrine", 11-14m, 15-21m 311 1-6m 313 1-9m, 18*u* "que | climat"/18-21*w* but how vague 20-25*w* p308 *wb* It may be said if conditions of life can do something, why not make Pouter & fantail, but we see no corresponding difference & we cannot believe this it seems incredible to me - especially in case of pigeons, & this other agency which is a real agency I have shown selection suffices for 322 13-20m 324 17-28m 326 15-25m 327 22-27m 333 15-

GODRON

21m 334 1-4m/w Jews 336 17-21m 337 12u "genre"/9-16m/w food & exercise 17-21m/w intellect, vistas & happiness 374 19-24m 375 12-15m

GONNE, Christian Friedrich *Das Gleichgewicht in der Bewegung* Dresden; R.V. Zahn; 1882 [Down] ☉

GOOCH, Robert *On some of the most important diseases peculiar to women* London; The New Sydenham Society; 1859 [Down]

GOODSIR, John, and GOODSIR, Harry *Anatomical and pathological observations* Edinburgh; Miles MacPhail; 1845 [Down] ☉

THE GOOSEBERRY GROWERS' REGISTER for the year 1862 C. Leicester; Macclesfield [CUL]

v

NB 192 London; Dwts; Pennyweight; 210 Hamp.O; All ♣ these named gooseberry won Prizes the one year winner?
205 wb 38 206 wb 35 207 wb 44 208 wb 36
209 wb 34 210 4m, wb 39 211 wb 17 wbe
243 kinds

GOSSE, Philip Henry *Letters from Alabama, chiefly related to natural history* London; Morgan & Chase; 1859 [CUL]
beh, gd, oo, pat, v, wd

NF (list of synonyms and antonyms)
NB 106; 146; 161; 191 odd flower; Moths sucking Melons 229; 280 Mules; Beaver fur 300

SB ♣

p106 Partridges laying in Hens nest
146 Aegeria with appearance & manner of flight like wasp
161 Picus eating fruit passionately
229 Moths sucking wounded Water-melons
106 2-14m, 28-35m 146 4-15m 161 9-16m 190
22-24m 191 2-5m 229 24-29m 280 8-15m 300
3-8m

GOSSE, Philip Henry *A naturalist's sojourn in Jamaica* London; Longman, Brown, Green & Longmans; 1851 [CUL, S]
ab, gd

NB p.91 Enquire; 339; 340; 386 Pigs♣; 418♣; 430X; 442, 3; 447; 469; Singing 168
♦ Wool of Sheep - Colour of Cows - Sea-Horse rabbit
SB □β
339 The Alco - or Mexican Mopsy, white woolly var. wd. only associate with another

Dog of its own Breed - becomes passionately attached to single individual Q♣
340 Feral Dog of E. Haiti different from St Domingo of Col. Smith; thought to be an aboriginal S. American feral Dog Q

386 Feral Hogs of Jamaica Q

429. Haiti tradition of Frogs brought by shower - alludes to Moreau case

431 Frogs imported & spread in several W. Indian islds

441 Rabbit feral Q but not common - Slate-coloured Q♣

447 European Ferret rendered useless from their inability to overcome Chigoe infestation Q

469 On the indigenous Capromys of W. Indian islds.-

91 ↑13-10m 331 2-3m, 6u "absolutely mute", 11-20m/ 11u "Alco"/ 12u "from Mexico", 19-22m, 21-22u "a|eye" 332 7u "Mexican Mopsy" 335 14u "Agnara|Surinam", 28-30m/Q 338 28-32m 339 2-5m 340 24-27m, 29-32m/29u "Dog|Haiti"/Q 30-31u "Feral|Domingo" 386 5-7m, 15-20m/Q 389 1-2m/Q 9-11m, 19-20u "well-toothed" 428 3-9m 429 19-22m, 24-27m/ 26u "bull-heads" 430 9-12m, 23-28m, 31-33m 441 27-29m/Q 442 4-8m, 7u "deeply"/Q 443 6-10m 447 4-9m 469 21-28m, 31m catalogue ☉

GÖTZ, Theodor *Hunde-Galerie* 2nd edn; Weimar; Eduard Lobe; 1853 [Down]

GOULD, Benjamin Apthorp *Investigations in the military and anthropological statistics of American soldiers* New York; Hurd & Houghton; 1869 [CUL]

cc, f, gd, h, he, phy, tm, v, y

NB All for Man Chapter

93; 107; 115; 116; 126; 131; 132; 134 Height; 207 Colour of Hair; 256 length of legs - not rank; 288 do in Sailors; negro 298; do - arms 301; do foot 302; Pelvis of Indian 310; do 316; Inferior vitality of Mulattoes - 319; Summary of eyes 359; Size of head 371; Size of Lungs Negroes 471; Pilosity of Negroes Q 569 ♦

SB □β; ♦♦

x♣ p93 Different stature of men of W. Virginia & New Jersey





x♣ 107 115 growth longer continued

x♣ ♦ 126 Causes of statures xp.136 do.

x♣ 134 sailors stunted

[Even so simple an affair as stature depends on concealed conditions.- Yet a direct nature for transplanted infants affected]

☉ (Military Statistics)

⇒ 206 colour of Hair & Eyes, seems effect of conditions
 ♦ 256 Length of legs in white soldiers, the most variable element in stature
 ♦ 288 Sailors in comparison with soldiers have longer legs & shorter arms, in a degree entirely disproportionate to difference in height
 ♦ 289 Neck greater.— chart — waist & hips small.— 290 instep thicker.— Direct action.— 298 in Blacks distance from tip of finger to patella differs much from Whites
 301 Blacks — Length of Humerus
 302 do great length of foot (u) 
 310 Red men very long arms — palms very broad
 316 Table of Summaries
 317 Length of two sections of arms
 319 Summary in words on differences of races ⇒ less Vitality of Mulattoes
 358 Better Summary
 371 Size of head varies with stature, not in same proportions
 471 different capacity of Lungs in Black & Whites (u) 
 569 No difference in pilosity between Black & White but this is the U. States.— [U. States Sanitary Commission]
 91 27–34m/w p109 & 111 p115 36–40m 93 13–22m 107 8–13m, 35–36m 111 11–21m 115 9–15m 116 3–8m 125 4–8m 126 5–11m, 16–18m 127 4–5m, 6–8m 131 5–7m, 11–15m, 18m 132 3u "agency|influence", 12–16m, 31–33m 134 12–14m 206 ↑18–1m 207 4–16m 256 ↑5–1m 288 5–11m, wb These cases not known to be inherited 289 5–7m/ 5u "girth"/6u "3"/7u "breadth|hips", 24m/→ 290 21–25m 298 25–30w ie distance from tip of finger to patella 32–33w see p. 253 299 1–5m 301 16–18m/17w♦, 26u "fore-arm"/w♦  humerus 30–32m 302 13–15m 310 6–8m, 19–22m, 32–35m 316 2w Summary Table 317 7–15m 319 12–13m/w Mulattoes 24–28m 359 4–9m, 14u/w  371 12–19m 471 10m, 15–18m 569 9–10m/w Pilosity 12–16m 620 ↑15m 640 wb 9

GOULD, John *Handbook to the birds of Australia* 2 vols.; London; by the author; 1865 [CUL]

beh, br, ds, f, sl, sp, sx, sy, t, tm, ud, v, y

NB 145 variation in nests

SB ♦

97 female larger & brighter Gould  Vol I

118 Merops Young

124 Dacelo Y & sexes

130 Halcyon Y

135 — good case Kingfisher with sexes cur-

iously different — young male like female
 136 sexes with different .. Kingfisher

Kingfishers

140 Y

How are young in species in which tail differs in colour. & ring-neck.

[When adult obscure 2 like I think young always alike] no

Sexual Selection

145 Y; 168; 177; 181



193 Y complex changes; 196; 200 sexes

210 males conspicuous & shy Q

213 2nd year males assume plumage; 215 Y; 249

256 sexes & Y

260 sexes alike young different; 266 do

277; 278  N 

300 Menura visits same mounds


310 tail & nest of Menura

(over)

317 N  Nest dome — yet female obscure — strongly against Wallace  Splendid Birds during Breeding Season

(I have erased recently all marks I must look over volumes.)

[I may put the case that many Birds which differ sexually build domed nests.— & many which do not differ & are not brilliant also build such nests.]—


395 female less than half size of male Q 

419 castanotis

442 Bower Bird — Give figure to 461

457 Beauty causing shyness Q

471 Corcorax displaying himself to utmost advantage 

(It wd be well to look apropos of nest, whether many of Honey-suckers are bright — 597 peculiar noise made by wings by males 

602 female never beautiful

[In same genus with sexes alike, & young either like or unlike adults.?)

All about Sexual Selection

94 21–25m 97 1–6m 99 12–15m 118 21–22m, 32u "this|deep" 119 2u "black|blue" 124 10–15m 125 12–15m 130 8–11m 134 5–10m, 15–17m/w very fertile 31–35m 135 6–9m 136 26–34m 137 22–25m 140 7–11m, 19–21m, 30–32m 145 15–17m, 30–35m 162 3–7md 168 13–15m 169 24–28m 181 8–9m, 16–18m, 18–19m, 33m 182 13–15m 193 20–21m/20u "brown", 22–26m/25–27u±, 28–30m 196 3–8m/3u "throat|back"/4u "jet-black"/7u "uniform|head", 20–21u "throat|grey" 197 10–11m 200 21u "Carnegieae|Graucali", 23u "sexes|colour" 210 3–7m/Q 213 12–14m 214 12–16m 215 28–31m

GOULD, AUSTRALIA HANDBOOK

249 1-2m 256 24-27m 260 8-11m/8u "sexes alike", 8u "young"/10-14w observe bird 266 19-23m/w get/observe birds 277 1u "sexes considerable", 17-19m 278 31-33m/32u "black scarlet" 279 6-13w how is rest of plumage 15-20m/w common to both sexes whilst others differ more 280 1-4m 285 9-13m 287 12-13m, 21-23m 290 22-26m 294 16m, 18-21m 300 26-29m 301 23-26m, 32-34m/33u "appearance/roofed" 302 15-18m 303 21-26m 308 8-13m, 22-23m/22u "powerful voice", 24u "own/beautiful", 24-26m/24u±, 29u "of grounds" 309 1-3m/2u "domed", 33-35m 310 1-3m, 30-34m 311 11-14m/13u "and/in" 312 9-11m/12u "domed/one" 317 wt (a) many species all so far as known differ greatly by sex & build dome nests 6-9m/w (a) 11-13m/12u "build dome" 318 19-21m, 24-27m 319 28-29m/28u "which/shaped" 320 6-18m 323 24-26m, 33u "dome" 324 18-22m 325 3u "dome-shaped" 340 5-7m/6u "opening/side" 341 27-29m 358 19-21m 359 26-29m 362 2-5m/2u "dome-shaped" 363 32-34m 364 19-20m/19u "domed" 365 15-17m 374 2-4m/3u "domed", 33-34m 383 4-6m, 7-9m/7u "recommended/observer", 10u "domed form" 386 27-28m/27u "entrance/about" 387 19-20m 388 17-19m/17u "dome-shaped nests" 389 3-5m 391 9-12m/9u "of/form", 18-19m/18u "are/similar" 395 16-19m/17u "which/size" 407 3-5m/4u "dome-shaped" 414 7u "Plain/finch", 16u "domed form", 19-20u "absence/female" 418 2-5m/3u "pendant"/6u "offer" 419 27-29m/u "upper/white" 440 24-27m 441 3-6m 442 wt B. genera no doubt co-descended O by some ancient bird, which acquired their strange instinct. 1-3m 443 23-26m/24u "differed"/25u "third larger", 30-32m, 33-35m 444 2-4m, 3-6u±, 5-7m, 11-12u±, 16-17u "which/males", 11-14m, 19-20m/x±, 26-27u±↔, 29m±/u± "pick/leaf", 32u± "opening/the" 445 8u "blue-black", 11u "velvety/shining", 14-16m, 20-23m/w Eyes 25-27m 447 12-15m 448 2-6m, 7-9m/8u "both/these", 9-12m, 12Q 12-14u±↔ 449 14-18m, 16u "2 1/2/long", 22x±/22-23u "flying/side"/"...", 27-29m/28u "the/pink" 451 1-2m/2u± "three/in", 3u± "beautifully/grasses", 5-6u "bivalve/by", 10-16m, 10u± "stones/within"/16-17u±↔/17x±, 21u± "round", 23-24m/24u "formed/individuals" 452 16-18m 453 8-16m 455 1-2m±/1u± "thick/4", 2-3m/3u± "Snail/berry", 9-12m, 10x±, 10u± "4/high", 11u± "some/berries" 457 20-24m/Q 26-27u "two/conflicts" 458 26-32m 459 25-28m 460 5-9m, 22-25m 461 2-6m, 8-11m, 21-26m 464 14-17m, 30-35m 471 10-14m 478 23-24m, 25-27m, 30-33m 483 19-21m 486 8-17w

generally beautiful & nest not domed, I think. 495 11-12m 496 33-35m 497 13-17m 502 14-17m, 31-33m 504 5-7m/6u "rest/shaped" 509 16-17m, 30-31m 525 6-7m 526 31-32m 527 16u "of birds"/15-17m/w nest open & cupped 531 32-33m 534 12-15m 535 22-26m 542 21-26m 547 9-10m, 18-20m/18u "denuded"/19u "knob"/20u "less lanceolate" 556 1-6m 562 3u "on/shaped", 6u "in/top", 17-22w beautiful birds 21-27m 567 22-25m 573 23-26m 574 15-17m 581 1-2m 588 14-15m 597 1-5m/3u "a hundred" 602 12-17m 603 32-33m 604 1-2m 607 1-2m 617 6-11m, 20u "the/brown", 30-31u "upper/rufous", 33-35m/33u "tail/white" 625 4-6m/w ♦ 633 30-32m

vol. 2 NB 538 New Zealand many ♣ anomalous Birds

6 18-22m/19u "yellow/centre"/20u "crest" 7 18-22m 10 7-10m, 19-21m 12 3-4m 14 33-34m 17 33-34m/w and white cockatoo 18 5-16m/8-11w Generally different 20 6-9m, 16-19m 22 4-5m 25 4-5m, 29-31m 28 20-23m/20u "the plumage" 30 10-12m, 32-34m 31 27-29m 32 1-5m, 10-11m/u "thighs/green"/w var 36 22-24m, 25u± "the/scarlet", 33u± "throat/red" 37 3-5m 38 24-27m 40 31-32m/31u "rich/glory" 41 19m 45 34-35m 46 1-4m, 4-7m 48 32-34m 49 31-33m 54 7-11m, 24-27m 55 27u "beautiful bird" 56 ↓w Hence It does not seem as if variation had occurred early in life, but had crawled backwards or invaded the young. & it seems whenever this happens it invades both sexes - & ceases to be limited to one sex. - ↑5-1m/↑5w one of the most Beautiful spec wb In other species of genus young very different - very beautiful. Shows not descent - from differently coloured ancestors 59 11-14m, 33-35m 61 22m, 24-25m 63 12-14m 66 24-25m 67 20-21m 68 25-28m 70 8-10m, 32-35m 72 3-5m, 20-21m, 22u "band/less", 23u "conspicuous/blue", 24u "bordered/above" 74 15-17m 76 18-20m 77 5-6m 78 19-20m 82 14-17m 83 12-14m, 32-35m 85 15-17m 87 35m 90 35m 92 2-4m 95 19-20m 97 18-29m 99 34-35m 101 21-22m 102 32-33m 109 11-12m, 14-15m, 29-30m 111 1-2m 112 1-3m 113 28-31m 117 22-23m 119 7m 121 29-31m 129 30-31m 132 16-18m 134 12-14m 143 18-19m 144 24-26m 147 25-28m 149 12-13m 154 27-33m 178 16-20m 180 28-31m 183 4-5m 186 6-9m, 20-22m 187 19-21m 188 10-12m 191 20-23m 200 6-7m 203 6-8m 212 7-10m 213 30-31m 215 12-15m 220 8-12m 228 30-33m 232 23-25m 234 4-6m, 23-25m 236 33-35m 255 15-20m 264 19-23m 275 20-26m 276 18-22m 283 33-35m 285 28-31m 295 29-31m 312

33-35m 319 26-28m 329 7-8m 333 24-28m
 335 18-21m 337 27-32m 351 14-15m 355 27-
 29m 359 24-26m 360 29-32m 362 18-22m 363
 31-32m 364 1-4m 366 24-26m 373 16-18m
 378 15-17m 380 6-8m 383 13-17m/14-15u
 "this | perceptible", 21-24m, 33-34m 384 16-
 19m 433 zb 491 21-24m 497 15-19m 500 31-
 35m 502 25-28m 503 13-17m 505 20-25m 511
 26u↔, 29-31m 513 6-8m 520 22-23m 527 5-
 8m 530 24-28m 531 13-15m/13-14u "straight |
 beak" 538 27-31m

GOULD, John *An introduction to the birds of
 Australia* London; Richard & John E. Taylor;
 1848 [CUL, I]

ex, gd, in, mg, oo, sp, sx, v

NB p.8

SB1 p.8 to 18; p.23; p.30; 36; 51; 64; 70; 75;
 82; 101; 112; 134

I have forgotten to observe the relation of
 range of genera & species

SB2 □β

10 Smooth Trees accounts for no Wood-
 peckers

10 Many representative Birds in Australia of
 those of North. (but I do not know, whether
 f. in intermediate region: I did ask.

15 Vars of Birds in Tasmania, migrating in
 one & not in other Ch. 6

23 Strix numerous in species & individuals in
 Australia

36 Grauculus of Tasmania

51 vars of Anthus 70 vars of Cacatua - 75 -
 101

64 Law of representation in Australia chiefly
 holds E & W

71 Nestor of Philip Isd extinct

82 Megapodium 3 species Q or rather
 genera - all male keep for hatching.
 Description of Habits

8 22-27m 9 15a/8-13wε (not CD) 10 25-28m,
 38-49m 11 3-5m 15 1-3m, 6-17m, 19m, 37-
 38m 16 1-2m 17 1-2m 18 41-43m 23 22-31m/
 1-31w this wd look as if number of species
 & number of individuals were related - not
 so in plants 30 12-20w I daresay true 31-
 46m/w♦ Hence in mundane genus - close
 species represent each other in different
 parts of same continent 36 1-4m 51 41-45m/
 42u "extra-tropical regions" 64 28-36m 70 39-
 44m 71 13-14m, 38-40m, 42-45m 75 41-42m
 82 39-42m/w mother attends them p88 83
 35m/u "12-13" 84 19-20m 85 5-7m·88 3-7m
 89 17-19m, 38m 90 46-47m 91 9-10m/10u
 "lat | South", 21-23m, 25-26m, 29-30m/29u
 "six feet" 101 17-19m 110 23-26m 112 2-6m/
 wt what authority? 122 table "Name of

species".w You may shorten name. table
 "Number of Volume and Plate".w This column
 nothing (pp. 122-33, many entries in column
 headed "South-eastern Australia or N.S. Wales"
 marked with a cross) 134 25-30wεε, 34-36m

GOULD, John *Introduction to the birds of
 Great Britain* London; Taylor & Francis; 1873
 [CUL, I]

beh, cc, ex, fg, gd, is, mg, oo, sl, sp, tm, y

NB ♦ 23 S. Selection

SB ∞

5,7,8 On migration

7 Birds not common in parts of England
 where not formerly known.

11 Destruction of Birds during severe winters
 13 Protection of certain species unduly
 increases other species

16. On slight differences of Birds of Britain &
 Europe & on small size of insular Birds

21. Eggs in Holes generally white; but others
 white as with Wood-pigeons & exposed.

22. Water-birds can swim at once; & one
 kind of grouse can fly almost at once.

5 15-24m, 33-39m, 46-50m 6 44-49m 7 5-9m

8 1-7w So France is not S. 14-21m/10-20w

In Ireland no 25-29m 11 15-20m, 31-37m, 45-

49m 13 20-22m 16 1-9m, 12-22m 17 7-9m, 8-

12m, 12-14m 21 19-26m 22 2-7m 23 1-8m 42

31-43m

GOULD, John *An introduction to the
 Trochilidae, or family of humming-birds*
 London; Taylor & Francis; 1861 [CUL, I]

beh, cs, gd, ig, in, sp, sy, t, tm, v

NB1 All references seem here abstracted.

Those not struck out, all refer to slight
 variations & doubtful species.- No doubt
 many of the doubtful species could be
 cleared up by more specimens.-

141♦; 146 var; 158 var; 161 var; 164 do;
 167 do; 170 do; 174 do; 176; 177, 8 do do

174 tips of 4 central tail feathers, tipped with
 dark green

Mem vast numbers of species are known by
 only few spec.

would it not be worth while to quote all the
 cases of doubt -

State that many of the doubtful forms would
 be cleared up. & considered distinct, on
 other hand would be connected by
 intermediate gradation.

♦ 7; 9; 14; 18; 19; 20; 22; 52 Vars & close
 species.

61 var; 62 do; 67♦; 74 ♣ close species; 83
 do; 86 var; 89 var; 91 var; 98 do; 102 do;

GOULD, TROCHILIDAE

106 do; 109 do; 112 do; 116 do; 118 do; 120, 126♦ Salviae; 127 var; 129 var; 136 var; 138 var

NB2 Mr G. says ♣ he has never noticed vars; but then he admits some slight individual variations & if he find 2 forms for 2 districts ever so slightly different, they are called species.— In the same district at same time, seem to be similar variation hardly can occur; → (to NB1, 61 var)

States as the Groups have been carefully monographed — & also confined to warm part of our Continent, good to consider ♣ what amount of doubtful species were offered — Then state within same region could hardly vary. on account of crossing — SB ♦♦

p.7. Humming Birds very confined ranges.

8. Juan Fernandez p. 141

9. West Indies distinct species.

14, 17, 18 Great sexual differences: given exhibition of ♣ p.20 nest ornamented with feathers

♦ 22 singing & beauty not together

p.20 nest loaded with stone to make Heavy & keep level

⇒ 28 pugnacity

p.35 sexual ♣ similarity

52 do ⇒ females in excess

67 ⇒ do female more beautiful gorget than male

75 ⇒ do

120 more than 20 males to 1 female — male very gorgeous.—

⇒ 49 Males Shafts of feathers expanded in male

7 5–32w Humming birds very num. & confined ranges 35→ 8 30–36m 9 20–28m, 31–32m 14 37–45m 15 wt Bates Butterflies when underside displayed this is beautiful 1–2m/m♂, 24–29m/24u♣/25u "pierce|bases"/28u "Bourcier|bird" 17 21–25m 18 1–10m/5u "beards", 14–19m, 19–23m, 30u "blue ear-tufts", 33u "bearded", 43–46m/44u "undertail-coverts", 49–50m/50u "from behind" 19 6–8m, 9–15m, 17–21m, 24–26m, 41–50m/42–44"..."/43w of the nest 47–51c↔ 20 1–3m, 36–43m 22 11–16m/1–13w because the charm suffices Nature never extravagant 18–39w However fighting & beauty go together p.28 28 46–50m/w males? 29 16–22m/19–20u "perceived|fastened", 23–26m 34 31–33m 35 1–3m 46 21–27md/ 26–28m 49 32u♣, 33–36m, 41u "similarity|appearance" 52 19–22m, 37–42m/42–47m/18–47w so that weapons of war might be gained even when males few 61

12–15m 62 8–11m 64 35–40m/26–43w Males or females more numerous? 67 17–22m, 35–38m 74 25–31m 75 25–29m 83 38–43m 89 24–26m 91 37–38m 98 28–32m 102 15–16m, 21–25m, 41–44m 103 15–17m 106 26–32m 109 13–15m 110 9–10m, 13u↔, 14u "white|four", 17–20m/18u "That|sole", 23–25w see p102 for Andes○ ● case 37–38m 111 4–9m/6u "attractive as may be" 112 29–32m, 35–39m 113 32–36m 116 5–9m 118 1–8m/6w only 119 35–38m 120 11–13m 126 11–16m 127 38–41m 129 31–34m 136 42–44m 138 40–44m 141 27–35m 146 26–29m 158 26–31m 161 7–10m, 20–22m 164 28–30m 167 15–20m 170 18–20m 174 40–42m 176 1–3m 177 16–18m, 22–23m 178 2–5m, 30–33m

GOULD, William *An account of English ants* London; A. Millar; 1747 [CUL, pre-B]

2 13w Myrmec○

GRABA, Carl Julian *Tagebuch geführt auf einer Reise nach Färö im Jahre 1828* Hamburg; Perthes & Besser; 1830 [CUL, on B] beh, br, gd, is, mg, sp, tm, v, wd

NB ♣

50 to 67; 62 wild Pigeon; 80; 102; 106; 118; 150; 187; 205

SB

51. The White Raven not fixed (Magillvray 3/745) Descript of — other ravens drive away, only at Faroe as pair together

56 anthers varying in measurements & tints & 67 Q

♦ 63 C. livia varies (read)

65, 80 Larus 2 spec. varies much in beak & tarsi Q

103 ♣ seldom found 2 birds of same kind of same dimensions — took great pains on 100s of specimens

107 another capital case of Uria, see to this Q (p150 another case of 2 forms breeding together)

118 Colymbus, beak & tarsi variable Q

205 there are migratory Birds in Faroe Q

The Pied Faroe Raven is analogue of Hooded Crow & Jackdaw & Magpie(?)

title page w♦ See about Pie-bald Raven mentioned in Macgillvry Vol. 3 end. Does Ch. Martins in Voyage to Scandinavia mention this Bird.— p70 1 w♂ Read 38 16–23m 50 25–28m 51 16w vol 3 p 745 of Macgillvry 17–19m, 24–25m/24u "nicht|auf"/25w not a fixed species 52 10u "Der|stark", 11–12m, 15u "sehr|vorne"/12–16w agrees pretty well with Mac. 25–28m/w exactly same

as Mac 30m/u "hornweiss" 53 16u "die | mittlern", 20u "Schwanz", 21w black in Mac. 23u "rein schwarz"/w agrees 25u "Krallen | weiss", 27-30m/w varies 54 wt very curious being produced only at Faroe 9-10m/w ornithologist 10u "Viell. | Brehm"/11u "Brün- nich"/w have named it 14-17m/u "gewöhn- liche | vorkommt"/w pecking him away 20- 23m/u "dass | erhält", 14-2m/u "ein | Junge" 56 27-29m/w measurements not here to be trusted 57 2-4u "Mai | übrigen", 8-9m 59 1-3m 62 18-21u "das | behalten", 18-25w Des- cription 63 17-26m/20w varies 24u "eine" / 25u "eine Andeutung" / 25-26m, 27-28m/28u "ist | gemein" 65 22-27m, 29u "Knoch- enbildung", wb skeleton 66 4-7m/5-6u "die | wirken", 11-13m/w very rash to trust to measurements on dried skins 19-24m/w does not trust to measurement without they are constant over 25-30m, 26u "Papagei- taucher"/wb Puffin 67 4u♣, 7-9w differences of 2 specimens- 22-27m/24u "1 11/12" 80 13-15m/14u "5 Linien" 102 22-30m/24-25w Variation 103 4-8m/7-8u "und | wären", 22-26m, 23-25u "hundertel | untersucht" 106 20u♣, 22-24m, 25-26u "halben | Zoll", 27u♣/Q wb Faber wb See MacGillvry for other localities 29-30m/30u↔ 107 1u↔/wt/1-7w Uria ringvia var of U. troile. is certainly only a variety, though he at first doubted 8-17w MacGillivray 5 p.328 with picture of head. Q 7-9u "einigen | Auge", 16-17u↔, 19-21m 118 21-22m 146 14u "dunkelbrauner"/10-13w 2 other chance visitors 22-25m/w Goldfinches arrived 150 6-8m/Q 187 8-12m/9u "die Hälfte" 202 19m 205 wt Faroes about 160 miles from Shetland & further from Iceland 7-10w in Iceland I think many migratory Birds 11-12m/ u↔/w migratory Q

A Graduate from Cambridge *The Darwinian theory of the transmutation of species* London; James Nisbett; 1867 [Down]

GRANT, Robert Edmond *Outlines of comparative anatomy* London; J.B. Baillièrè; 1835 [CUL]

NB (back cover of each of the four parts) Nothing

Part 3, Catalogue, 18 25m 19 40m 20 6m supplement to Catalogue, 1 16-17m 3 10-13m, 45m 6 25m, 29m

GRATIOLET, Pierre *De la physionomie et des mouvements d'expression* Paris; J. Hetzel; 1865 [CUL, S]

beh, he, pat, phy, t, v

NB1 Book 14; p.311 Book; p135
NB2 p.123 Hensleigh; p137; 161; p.167
Dyspnoea; Englehart; Mouth O B

title page 1u/3u (author, title), wb See p436 for Lecture 7 1-4m, 22-25m 12 8-10m, 15-20m, 21-25m 14 17-20m 15 4-12m, 15-17m 17 5-8m/w rolling eyes 18 15-19m/? 19 17-19m 23 15-16m, 18-20m 24 3-5m, 10-21m 26 18-23m 35 19-25m/22 "... 37 1-9m/..." 42 8-13m 43 9-12m 47 5-13m, 14-17m 51 12-15m/w p256 p346 52 1-8m, 12-23m 53 9u "presque | regard", 10-12m/10-11u "mouvements | sensibles"/12u "tête inclinée", 13u "chairs du", 14u "flasques" 65 18-25m/"..." 66 2"..., 4-8m 73 3-5m 75 12-15m 78 8-13m 79 12-14m/w colour changes suddenly in Turkey 21-22m, 23-25m 81 1-7m, 15-17m, 19-22m 82 5-8m, 20-23m 83 10-15m 84 8-13m 85 10-14m 90 6-7m, 24-25m 91 4-9m, 17-22m 92 6-25w Have the capillaries muscular coats? Does Beale discuss this? (of course) 20-25m, wb This view of nervous power merely general 94 1-7m/1-5"..." /4w oh 16-19m 98 6-10m/8w Cats 14-16m 99 3-6m 100 15-20m/? 101 1-8m 104 21-25m 105 1-4m 106 7-10m 113 6-8m 115 5-23w seems to say that noise of laughing & crying the same 117 9-13m, 19-20m/?/u/wt 118 9-13m/w hence close eyes 22-25m, wb Bell wrong on expanding chest for effort 120 wb retardation of circulation 121 14-18m/5-17w to check the circulation 19-21m 125 21u "bâillement" 126 4-9m, 13-16m 127 5-7m 129 9-11m/w trembling at dawn of life 12u "l'action | froid" 144 wt to see distinctly 1-4m 145 1-4m 146 4-7m/w tears too bright light 152 5-8m 155 8-25m 157 4-7m 160 14-25m 161 11-19m, 23-25m 168 14-21m 186 17-25m 187 21-25m 188 1-3m/!"..." 189 13-24m 206 19-21m 207 wt This is Key-stone inherited 1-2m, 4-7! 212 24-25m/"..." 213 1-4m/1-5"...", 16-19m 217 22-24m 218 19-24m 221 11-13m 230 4-11m 232 4-6m, 10-12m 233 8-9u "oublent | respirer", 10u "cet | qui" 234 11-14m 247 18u "excessive tourmente", 19-25m/→/wb shortest injured limb 248 1-5m 250 8-15m, 22-25m 251 3-7m, 20-25m 253 6-9m, 23-25m 254 4-6m, 7-9m/w astonishment I doubt 19-24m 255 3-4m, fig.m/w like Husckke 256 8-11m 257 5-9m 264 5-12m/6-8w Piderit 21-25m 265 17-20m 268 11-16m 283 wt to 287 10-14m, 18-23m↔/20w do 23-25m 284 6-10m, 10-15m, 22-25m/w ● (about placebo effect) 285 10-19m 286 wt The wish to stop crying increases it - 1-4m, 8-10m 287 10-11m/w Lemon 289 13-15m/14u "M. Chevreul" 290 20-25m 311 5-7m 322 13-18m 323 12-18m 324 14-18m/15m/14-18u± 334 6-21m/8w

GRATIOLET

opposite feelings 335 13-15m/10-17w anger does the same 16-21m, *wb* Is it not because it has led to action see Note in Portfolio 336 5-10m, 17-21m/21u "*pousse|affreux*", 24-25m, 1-25w can pain be said to excite an animal - yes if not accompanied by fear whipping of a horse shows it - ♣ collapse soon follows *wb* (See Bell) 337 17-25m 338 4-8m 345 18-23m 346 11-14m, 19-23m 351 *wt* Antithesis to humility 1-12m 357 10-12m 358 20-24m 359 *wt* hides his face 3-6m/w shame 16-18m, 20m, 22-25m, *wb* hiding thus is wildness & distinct from shame, which makes a blush 360 1-3m 362 1-6m 369 15-18m 370 14-19m 376 16-25m 378 21-25m 384 24-25m 436 5-7m 438 *wb* p253 Hippocrates: cannot feel pain in 2 places at once

GRAVES, George *The naturalist's companion* London; Longman, Hurst, Orme, Brown & Green; 1824 [CUL, pre-B, S Charles Darwin August 4th 1825] ∅

GRAY, Asa *Botany for young people: part 2, How plants behave* New York & Chicago; Ivison, Blakeman, Taylor & Co.; 1872 [CUL, I]

fg, mhp, oo

NB 17; 18; 34; 42; 45; 12 error

12 21-24m/21u "*is|right*" 17 2-6m 18 31-33m, *wb* No, because a tendril that has caught nothing coils 34 16-23m/w insects & pollen 37 20-21m 42 5-15m 45 28-37m (Linnaeus)

GRAY, Asa *Darwiniana* New York; D. Appleton & Co.; 1876 [CUL] cs, t, v

NB1 Westminster R July 1875

NB2 357-58 Design & Purpose

Raindrops 157

Cloth 85

p338 about variations wearing out of once-crossed

iv 7-9m 11 4u∞ "*he*"/w Dana 357 29-31m 358 19-33m

GRAY, Asa *First lessons in botany and vegetable physiology* New York; G.P. Putnam & Co., and Ivison & Phinney; 1857 [CUL, I] ct

NB 51 *Sarracenia*; 165 *Proteine*

49 20-24m 51 29-38m 120 1-6m 123 14m, 25m 127 34u "*whole|ovary*", 38-40m/39u "*orange|berry*" 130 19u "*Caryopsis|Grain*", 23u "*Indian corn*", 26-29m/26u "*hazelnut*", 29u "*in|husk*" 165 17u "*Proteine*", 23u "*as|lining*", 25u "*Protoplasm*" 210 17m

GRAY, Asa *Manual of the botany of the northern United States* 2nd edn; New York; 1856 [CUL]

gd, sp, sx, t, v

NB 257 Q var. of *Azalea*

p80 *Rhamnus* dimorphic clearly

♦ p123 *Crataegus* wrong

SB1 □✕

Asa Gray

Phanerogams (*calculations showing*) 2.6 species to genera; 134 Families

(*line across page*)

Introduced by Decandolle on whole U States (*calculations similar to above*)

SB2 ♁ (not CD; lists of species naturalised from Europe; some calculations by CD in pencil similar to above)

(∅ = marks by Mr Norman identifying plants naturalised from Europe; most m/u mark "common")

4 22u 6 4md, 17m/u, 36m/u 7 5m/u, 38m/u 8 4m/u, 16m/u 9 11m/u, 13m, 28m/u, 35m/u 10 10o, 18o, 27o, 32o 11 19m/u 12 3m/u, 6o, 12o, 24m/u 13 11o 14 26m, 30m 15 18-26m/w These remarks mean nothing 19 36o 21 21m/u 23 4m/u, 18-19m/u 24 12m/u 25 1o, 8o, 11o, 14o, 20o, 33o, 40o 26 1o, 6o, 17m/u 27 7-8m/u 28 6m/u, 8o, 10o, 13o 30 9o, 16o, 35-36m, 36m/u, 39u 31 4o 32 31m/u, 32m 34 13m/u, 35m 35 11m, 13m 36 1o, 5o, 15o, 21o, 24o, 27o, 28o 38 16o, 20o, 36o, 39o 39 1o, 5o, 24o 40 4o 41 13o, 17o 42 24m/u 43 6m/u, 10m 44 8m/u, 13m/u, 18m/u, 24m/u, 25m, 27m, 35o, 39md 50 12m, 28m/u 51 35m/u 52 16m/u 54 28o 55 3o, 9o, 31o 56 22o, 29m/u, 31o, 35o 57 1o, 9o 58 22o, 28o 59 6o, 21m/u, 26m/u 60 4o, 9o, 23o, 31o 61 11o, 14o, 29o 62 10m, 14o, 17o, 33m/u 63 10o, 15o 64 19o, 24o 65 11m/u 66 2o, 5o, 10o, 16o, 21o 67 33o, 37m/u, 40o 68 1o 69 1o, 36m 72 9m/u, 15m/u 73 11o, 19o, 22o 74 9m/u, 13m/u, 17md 75 23-24m/u 77 35m/u, 41m/u 78 6m, 8m/u 79 3-4z, 6u "*Flowers often polygamous*", 41o 80 *wt* long-style & short pedicels is more Masculine *wt* In *R. catharticus* 5-6m/u 81 40m 83 23o, 38m 84 35m 85 5m/u 86 30m/u 87 22m/u, 36m, 46m/u 91 19m/u, 33o, 38o 92 15o, 20o, 25o 93 6o, 11o, 16o, 22o, 25o, 33o, 37o 94 5o 98 2m/u 99 24m/u 100 27m/u, 30m/u, 41m/u 101 11m/u, 14m/u, 32m, 41m 102 2m/u, 17m, 42o 103 5o, 9o 104 4m 105 10-11m/u, 21m, 24m, 27m 108 28m/u, 30o, 40m/u 109 30m/u 112 11m/u, 26o, 29md, 43m/u 113 12m/u 114 3m/u 115 3m/u, 22o, 28o, 31o 116 26m/u, 30m/u, 42m/u 117 30m, 42m/u 118 13m/u, 29m, 31m 119 5m/u, 41m/u 120 2m/u, 12m/u, 28m/u 121 8m/u, 26m, 28m, 29m/u, 36m/u, 43m/u 122 30m/u, 36m/u 123 1o, 6o, 14-26w NB This

was omitted by me 27o, 41m/u 124 7m/u, 10m, 13m, 17m, 34m 125 16m, 17m, 18m/u, 38m/u, 40m 126 2m, 4m, 8m, 33m/u 128 23o 129 5m/u 130 11m/u, 19m, 39m/u 131 8m, 9m, 10m/u, 11m, 13m/u 132 7m/u, 21m/u 133 4m/u, 31m/u 134 6m/u, 30m/u 135 6m, 7m, 8m/w 3 136 24m 137 4m/u, 9-10m/u, 34m 141 2o, 18m/u 143 24m/u, 30m/u 145 42m/u 146 39m 150 30-31m/u 151 25m/u 152 1o, 8o, 30m/u, 33o, 41o 154 29o, 35o 156 1m, 8m, 11m, 23o, 28o 157 10m/u, 13m/u 158 22m/u, 26m/u, 27o, 34o 160 1m/u, 12m/u 161 14m/u, 17m/u, 28m/u, 34m/u 164 3m/u, 23m/u, 41m/u 165 22m 166 18m/u 167 22m, 24m, 34m/u, 42m/u 168 10m/u 170 9m/u, 21m, 22m, 24m/u, 29m/u, 36m, 43m/u 171 2m/u, 12m/u, 13o, 40u 172 1-2w DD 7w DD 8m, 21m/u, 25u, 33-34m/u/w DD 173 21w DD 26m, 30m 174 3w DD 4m/u 176 4o, 33o, 41o 177 3o 185 19m/u, 26m 186 25m/u 188 14m/u 189 9o, 18o 190 6m/u, 28m/u, 36m/u 191 13m 192 10m, 13m/u, 20m, 24m 193 11m/u, 17m/u, 37m, 45m/u 194 10m/u, 19m, 20m/u, 27u, 38m/u 195 11m, 27m/u, 36m/u, 38m 196 25m/u 197 6m/u 198 8-9m/u, 21m/u, 26m/u, 31m/u, 50m/u 199 5-6m/u, 26m/u, 34m/u 201 21m, 22m/u, 27m/u, 32m/u 202 18m, 28m, 33m 204 23m/u, 29m, 30m, 31m/u 205 6m/u, 12m/u, 39m/u 206 19m/u, 21m, 22m, 26m/u, 31m/u, 40m/u, 44m/u 208 1o, 5o 210 20m, 38m, 46m/u 212 14m, 15m/u 213 2-3m/u, 5m, 8u, 9o, 37m 214 16m, 17m/u 215 10m/u 217 40m, 42m/u 218 17m, 17m/u, 24m/u, 40m, 41m/u 220 45m 222 4m/u, 28m/u 224 7m/u 225 4o, 11o, 14o, 21o, 23o, 29o 226 4m/u, 5o, 8o, 15o, 22o, 29o 227 1o, 35m, 37o 228 4o, 26m/u, 30m/u 229 14m/u, 21m, 22m/u, 23o, 33o 230 6m/u 231 5o, 13m, 15m, 17m, 20m/u 232 5o, 11o, 15o, 19o, 25o, 34o 233 5o, 38m 234 4m/u, 22o, 28o, 31o, 34o, 41o 235 1o, 11o, 17o, 23o, 25o, 31o 236 3m, 19m, 27m 237 7m/u, 20m/u, 33m/u, 42m, 43m/u, 48m/u 238 6m, 8m/u, 16m/u 239 39m/u 240 22m, 24m 241 5m/u, 8o, 15o, 20o, 25o 242 17m/u, 45m/u 244 6m/u, 10m 245 5m/u 247 20m, 35m/u 248 17m/u 249 24m, 26m/u, 37m/u, 42m/u 250 2m, 5m, 7m, 9m, 26m/u 251 11m/u, 29m/u 252 44m/u 255 38m/u 256 3m, 8m, 28m 257 7m, 9m, 17-19m, 36m/u 259 34m/u, 37m, 38m, 39m 260 5m/u, 19m/u 261 10m/u, 14m/u 262 19m/u, 28m/u 263 17-18m 264 23m/u 268 21o, 36m 269 1o, 13m, 17m 270 22m 272 24m/u, 40m/u 273 4m/u, 17m/u, 25m, 26m, 28m/u, 44m/u 274 9o, 15o, 40m, 41m/u 276 8m/u 277 29m/u 279 1o, 8o, 13o, 25o 280 21m/u 281 18m/u 283 22o, 30o, 35o, 39o 284 12m/u, 14o, 20o, 26o, 29o, 35o 285 41m/u 286 38m/u 288 7m/u, 36m/u 290 23m/u, 32m/u 291 6m/u, 14m/u, 16o, 19m/u, 23o, 27o, 32o 292 39m/u 293 9m/u, 22m/u,

27m/u, 35m/u 295 42m/u 296 22m/u 298 27o, 31o, 41o 300 1m/u 303 17o, 21o, 28m 304 1m/u, 10m, 14m, 28o, 34o 305 12m 306 13m/u, 26o, 34o, 37o 307 3o, 7o, 13o, 27o, 40m 308 7o, 10o, 16o, 30-31m/u 311 31o, 40o 312 3o 313 38m/u 315 26m/u, 32m/u, 35o, 43o 316 3o, 13o, 19o, 33o 317 6m, 11m, 15m, 28o, 38o, 42o 318 1o, 12o, 15o, 17o, 22o, 26o, 34o 319 40o 320 4o, 8o, 13o, 17o, 24o 321 33o 322 1o 324 4m, 22o, 30o, 43o 325 15-16m/u, 17o, 24o, 31o, 36o 331 19m 333 23o, 28o, 40o 334 4o, 29o, 34o 335 8m/u, 40m 336 18o 337 8m, 25m/u 340 5m, 13m/u, 21m/u, 23o, 29o, 32o, 40o 341 1o, 13o, 16o, 23o 343 33o, 41o 344 3o, 9o 345 20m, 36m/u 346 36m/u 347 2m, 35m/u 350 19m/u, 28m, 29m, 30m, 31m/u 352 18m/u, 26-27m/u 353 6m/u 354 4m, 5m/u, 14m/u, 25m/u, 36m/u 355 13m/u, 35o, 43o 356 24o, 30o 357 34-35m/u 358 8-9m/u, 18m/u 359 26m/u 361 28-29m/u 362 41o 363 13o, 20o, 26o, 32o, 39o, 44o 364 9o, 17o, 21o, 25o, 29o, 35o 365 14m/u, 20o 367 14m/u, 29m, 37o 368 12o, 19o, 25o, 29o, 36o, 42o 369 3o, 16o, 22o 370 5m 372 6o, 20m/u, 24m/u, 28m/u, 35m/u, 44-45m/u 373 10o, 17o, 36m/u 374 4m/u, 5m, 9m, 22m/u, 29m/u, 41m/u 375 12-13m/u, 20o, 33m/u, 35o 376 1o, 38m/u 377 14m, 27o, 33o, 39o, 45o 378 17o 379 22m/u, 36m/u 382 4m/u 383 20m/u, 34m, 35m, 37m/u 384 18m/u, 21m, 30m 386 27m 387 6m/u, 13m/u 388 3o, 21m/u, 35m, 41m 389 2o, 17o 390 4m/u, 11m/u, 15m, 40m/u 396 2m/u, 14m/u 397 14m, 17m, 19m/u, 39o 398 19m/u, 24o, 28o 399 7m/u, 23m/u, 36m/u 401 8m/u, 34m/u, 40m/u 402 28m/u, 42m/u 403 1m, 12m/u, 19m/u 404 22m, 37m/u, 40m/u 405 1m/u, 4m, 9m 406 19m/?, 22m 407 3m/u, 12m/u, 18m/u "hybrid", 43m/u 408 23m/u, 39m/u 409 1m/u, 16m/u 411 12m/u 412 33m/u, 34m 413 5m/w Omit whole genus Mr Norman 418 38m/u 419 28m 422 2m/u, 8m/u, 15m/u, 20m/u 423 11m/u 425 21m, 22m/u, 39m/u 427 11m, 11m/u, 37m, 37m/u 428 8m/u, 48m/u 430 11-12m/u, 21m/u 431 16m/u, 20m/u 432 22m/u, 37m 433 12m/u 434 24m, 24m/u, 40m/u, 44m/u 435 1m, 14m/u, 30m/u, 31m 436 4m/u, 11m/u 437 18m 438 6m/u 439 17m/u, 18m, 20m, 21m, 22m, 23m, 31m, 31m/u, 32m, 33m, 41m/u 441 26m/u 442 1-2m/u 444 12m/u 445 18m/u, 23m/u, 30m/u, 39m/u 446 10m/u, 18m, 36m/u, 45m/u 447 37m/u, 43m/u 448 25m/u, 45m/u 450 10m/u, 37m/u 452 14m/u 453 9m/u, 20m/u 454 20m/u, 25m/u, 40m/u 455 6-7m/u 456 41m/u 458 18m/u 459 22m/u 460 15m, 17m, 20m/u 461 3m/u 462 12-13m/u, 14m 463 16m, 19m/u 464 13m/u, 19m/u, 22m 466 1o, 7o, 28m/u 467 14m/u, 22m/u, 33m/u 468 19o, 28o, 37o, 43o, 49o 470 4m, 38m/u 471 5m/u, 10m/u, 27m, 27m/u 473 43m/u 474 2m/u 475 2m/u, 25m/u 476 39m/u 479

GRAY, NORTHERN U.S.

37m/u, 39-40? 480 8m/u, 17m/u, 32m/u 481
 21m/u, 28-29m/u, 37m/u 482 11m, 25m, 27m/u
 483 20m/u, 32m, 34m/u 484 28m, 29m/u 485
 14m/u 491 26m, 27m/u 492 35m, 37m/u, 46m/u
 493 23m/?, 35m/u 494 10m/u 495 1m/u, 16m
 496 12m/u, 24m, 27m, 29m/u 497 2-3u/3m,
 10m/u 498 7m/u, 17m 500 3m/u, 22m, 24m/u,
 45m 501 24m, 26m, 28m/u 502 9m/u, 14m,
 16m, 17m/u, 27m 503 18m/u, 30m 505 26m/u
 506 32m/u 507 13w Mr Norman omit 510 10u
 511 6u, 30u, 31-32m 512 6u, 24u 513 9m, 19u,
 23u, 31u 514 28u, 30m 515 6m, 7m, 8m, 9m,
 11m, 12m, 16u, 37u, 41u, 43u 516 11m, 14m/u,
 27u 517 9m 518 15m, 18m/u 519 10m/u, 13u
 521 31u, 46m 522 7u, 7m 523 15-16m 524
 20m/u 525 34m, 36m 526 11u, 14-18w
 Naturalised 527 4u 530 14u, 31u, 43u 531
 25u, 35u, 40u 532 27m, 29u 534 19m, 22u 540
 4-5m/u, 8m/u, 27m/u, 41o 541 1o, 9m/u, 17o
 542 4m/u 543 38m/u 544 2o, 10m, 24o, 29o,
 34o 545 8m/u, 12m, 42m/u 546 4m/u, 10m/u,
 15m/u, 44m/u 547 21m/u 549 3m/u 550 14-
 15m/u, 39m/u 552 1m/u, 11m, 15m 553 31m
 554 11o, 18o, 20o, 30o, 32o, 40o 555 zb 557
 15o, 22o, 34m 558 20m/u, 33m, 36m 559 16m/
 u, 34m/u 560 2m/u, 9-10m/u 561 14m/u 562
 33m/u, 42o 563 28m/u, 33o 564 1o, 39m/u 565
 4m, 10o, 21o, 41m 566 1m, 7o, 28o, 33o, 38o
 567 4-5m/u, 17m/u, 25o 568 19m/u 569 3o, 7o,
 11o, 29m 570 43m, 44m/u 571 5m, 24m/u,
 40m/u 572 25m/? 573 18o, 24o, 30o, 33o, 41o
 574 22o, 29o 575 6o, 20-21m/u 577 19o, 22m/u,
 26o, 29m/u 578 10m/u, 11m, 19m/u, 34m/u 579
 10m/u, 15m, 18-19m/u 580 23m/u, 34m/u, 46o
 581 10o, 18o, 23o, 27o, 31o 582 23m 583 15m/
 u, 23m/u 584 13m/u, wb Here Mr Norman
 ends

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80 11-17m 84 21m

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122 30-33m/30-31u, 33-38m/33u/35u/36u/38-
 39u 123 9u 125 17u 128 13u 130 13-14u, 20-
 21u 131 3u, 7-9u 132 9-12m, 18-21m 134 22-
 31m 135 5-7m, 16u, 18u, 27u, wb ● 136 3-6m
 143 32u, 34u, 36u 386 19-21m/20u 413 15-
 17m/15u, 26-28m, 35-36m/35u, 37-39m

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33 30-31m, 34-35m 42 9-10m/9u "viele"/10u "Verbreitungsfähigkeit" 43 13-16m, 33-37m 45 11-13m, 23-25m 50 26-29m 60 35-37m 62 21-25m 68 36-37m 83 31-32m 88 32-34m 98 35-36m

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cc, che, fg, ig, mhp, pat, phy, t, y

SA (pp. 52-3; 2 sheets) □β ↻

Dr Haberlandt Schutzrichtungen 1
p.23 The hypocoty of Phaseolus first geotropic & then apogeotropic do not allude to, as may be different in different plants
25 The coats of seed by rubbing roots causes bending which increases geotropic bending - compares with what Sachs says about Earth. p.26 shows by drawing what takes place. (mem diff. with Peas.
48 seedlings resist frost wonderfully
52 Winkler & Irmisch - the sinking of hypocotyl. axis in Earth - shorten so that cotyledon drawn into Earth
66 must break through Earth, or at least find cracks to pass through - Brakes through bowed to protect growing point p.69 do. - explain grasses breaking through the ground by turgency & stiffness of cotyledon.
69 Plants with hypo(gäisch) cotyledon break through ground bowed - The convex side of arched hypocotyl turn up through apogeotropism.
72 Helianthus annuus weight of Cots. cause bowing
79 - Allium true Knee in the Cot.
79 experiments with cutting off Cots of Barley repeatedly & did not Kill
(over) Haberlandt p. 94. Cots of Lupinus anatomically intermed between sub-► & hypo(gäisch) Cots In Leguminosae all gradation between the 2 states
98 The 2 sides of Cots. not usually so much differentiated ♣ as in true Leaves.

title page wt Can Nutation help seedling rise through earth wb p.4; 12; Time 16O; w∅ 29; Dry 61; Mangroves 63; Climate 64; See

Wiesener chlorophyll 2 10-13m 3 1-3m 4 10-13m 7 7m 11 12-16m, 18m 12 26-28m 15 2m, 31-34m 16 7-11m 17 12-15m 18 35m 23 32-37m 24 8m, 25-29m 25 14-23m 29 27-30m 30 21m, 30-33m 35 1m 37 16-18m 39 6-8m/7w (FD), 33m 43 27m, 33-37m/w weight of seed 45 6u "trockenen", 10-13m, 34-35m 48 7-10m, 10-14m/12u "Jelälter", 17-19m 49 12-16m, 27-38m 51 20m 52. 31-35m 53 1-6m, 11-15m/12u ↻ "hypokotylen"/14u ↻ "Verkürzung | Keimachse" 58 7m 61 1-5m 66. 13u "bergenden | Erdreichs", 1-14w may not sensitivity to light of PhilexiaO serve to find way through cracks 30u "genannte Keimblattscheide"/21-30w short♦ stem bowed to protect bud at end ↑4u "27"/wbr 67 28-30m/w This explains grasses getting out of ground 69 wt Put * He attributes most importance to older part & partition of young plant. We have learned much from this valuable essay, though our observations tend to differ in some points 1-10m/6-8u "rückwärts | nachfolgt"/ 11m, 17-18m/12-24w This is utterly different from my view 12-24m/17-18w do not understand 28u "Raumverhältnisse | wird" 70 10-15m 71 14m, 36-40m, 36-40m/wb So he knows nothing of my Nutation 72 24-30m/w weight of Cots cause stem to bend 75 15-19m/10-20w He evidently considers this the sole Nutation 76 19m, 22-27m 77 1-4m, 20-25m/20u "Keimblatt", 24-26m/24-26u "mittelst | Rede", 33-35m/35u "Sachs | Experimentalphysiologie" 79 6-13m, 21-25m/w bears on my light experiments 85 12m 88 14m 94 4m, 14-19m/w Lupine cotyledons anatomically 15u "grünen, vergrößerten"/17-18u ↔, 23u "Rückbildung", 25m/u "ausser | bau", 31-32m 95 wt Gradation 2-22m, 17w Bean 96 26-30m, 26u "Aussenseite"/26-29m 97 25m 98 1-16m/w Different function of upper & lower surface - the Upper much more active 18u "der Transpiration", 29-31m/w in Cotyledons 31-35m

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NB 20
20 29-36m

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cc, ds, em, mn, phy, t, v

NB p.79 Regrowth

p.80 & elsewhere extraordinary tendency in Larvae of Medusae to produce monsters & varieties.-

98 Monstrosity throwing light on primordial parent-form.-

NF ♦ p218; 220; 232; 233; 243; Best passages Häckel (cannot refer to this book - only 120 pp.)

36; 73; 80; 92; 97; 100; 103

79 6-12m 80 14-22m/w Slight changes in conditions cause monstrosities 81 3-4w new structures arise 98 15m/18-24w Monstrosity throwing light on primordial parent-form

∅

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tm

vol. 1, 169 11-13w does not satisfy me 181 8m 220 21m 280 14m 287 7-15m, 17m 389 28m 394 21m

vol. 2 SB 321 about differences between spiral tendril & notochord

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af, beh, ct, ds, em, fg, h, in, oo, pat, phy, rd, sp, ss, sx, sy, t, tm, ts, v, y

vol. 1, xxvii 3m/4w skimmed 5m, 22m, 36-39m/36w R to 39-43m/41w R xxviii 2-5m/4w R 22m xxxi 21m

∅

280 6-15m

∅

vol. 2 SB Band 2.- Ernst Häckel

♦ p.36 add spores to test of means of propagation. or proof of internal separation given not to Hackel; 59 on eggs of insects of many cells

∅ Vol. 2

p.242 colour of pelagic animals

244 Selectio feminina

245 Sexual selection; 246 do good ∅ Cop

239 good criticism on my term of struggle for existence - says ought to be confined to struggle between organisms for same end - all other cases are dependance - Misseltoe depends on apple.

259 Law of Perfection ∅

270 Rudimentary organs; 272 do

over

(over) ♦

In man Chapt I might add as proof of theory - "the progressive perfection or development of organic beings" - their diversity or differentiation"

[Under Man - allude to fullest description of Rudiments ever given by Hackell]

p278 Rudiment in Man & injurious, in what animal fully developed? Propose vermiform of intestine - see Todd Encyclop Man Cop ∅ Rudimentary organs to p. 285.

305

♦ 361 Book order Cop ∅

♦ p238

xi 22m, 29-33m, 33m, 35m, 36m, 37m, 38m, 41-46m xiv 9-13m/11w R 49m xv 1-20m xvi 13-17m, 36m/w R

∅

cli wt abstracted cliii 4u↔/wt it is indisputable 1-3m (Huxley) clv wt says if no prejudice no one wd doubt affinity with tailless or anthropomorphic apes - 8-10m/5-13w next division of tailed & tailless apes of Old World 28u "Gesässschwienel"/25-30w anthropoids no callosities on rump 44-51m/w Men sometimes have large canines. wbr clvi 9-13m/8-15w none of these existing anthropoids is ancestor 36 33-42m/24-42w Formation of spores a distinct process 37 7-9m, 10-12u "solstrenger"/w ? Spores of Ferns?? 59 10u "aus|zusammengesetzt"

∅

171 20-22m 242 18-42w Sea - Pelagic animals of many classes colourless & transparent - good 243 38-42m/w/wb larvae which are pelagic colourless and not the adults 245 10-13m/11u "menschlichen", 17-21m, 27u "Wamme|Stiers"/27-31w dewlap of Bull a defensive weapon!! 30u "Schnabelthiers"/35-37w ornith ♦ 246 26-

32m/w X women ornament themselves to attract men 33-41w women the most beautiful & song 247 16-22m/w may act materially on both sexes 28-30w acts on intellect 253 3-12w Divergence or Differentiation of organs * explained, as I have done for species 259 1-10m 270 8-18w organs become rudimentary as slowly & as by as many steps, as they are first formed. 272 9-26w not only organ, but whole individual may be said to be rudimentary. 275 1-25m/6-8w eyes rudimentary 277 8-9w Limbs rudimentary 278 27m, 28m, 32u "Menschen | rudimentärer", 33u "Processus | Blinddarms", 36-40m 279 26-42m/28-32w rudiments of sexual organs in both sexes 284 1-20w eg Parasitic animals are rudimentary wholes. 305 2-10m 427 11-20m 428 22-38m, 22-28w line of descent 429 2-21m

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ad, cc, cs, hy

vol. 1 NB (w not CD) 43∅; 49 facts for D; 52; 108 Baer; 117 monde ambiante 5 17m 43 10c/w∅ 49 21-22m 52 19-20m 109 9x/1u "Baer" 117 4u "ambient" 118 13-18m (Naudin, Lecoq) 146 17-20m/w no 148 5-6?, 19w no 160 17m 165 12m catalogue, 79 wt hybrids crossing - Aperca○ & sheep & goats wt p118 Saporta & Gaudry 8-21w Adaptation bad term 80 wt 160 wb 13

vol. 2 NB 45 very good (by FD) errata 71; 16; 195 93; 106; 108; 111; 340? 1 4-6m, 7-8m, zb 11 13m 45 4-22m 71 19-20m/19c/w∅ 76 17c "by"/x 93 21-22m 106 17-19m 108 23-24m 109 1-2m 111 29-30m, 31u "Gnetum | Ephedra" 112 3-4m 195 22-23m/c/w∅ 197 8m 235 20m 340 7-9m 375 32m 408 zb

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vol. 1 NB 381 cause of var. 382 grt. var. of Sponges; 385 do. 462 on origin of Sponges

381 25-30m 382 15-37m/w variability of Histology of Elementaries 383 22-28w variable in the species & in the individuals 384 28m 385 22-39m

∅
462 30-33m/31u "homophyle"

vol. 2 ∅

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ad, ds, em, ex, h, he, hl, ig, in, is, mn, or, phy, r, rd, ss, sy, t, tm, ts, v

NB1 p240 I must no about embryology
♦ 390; 409; 437 to 509

NB2 ♦

∅ 469 Classification of Mammals; 492 of Quadrumana; 501 Genealogy of Man.-
Read 1st Chapt

p228; 390 to end

good p.5 - for the beginning of my Book

Nothing about Sexual Selection○

SB □β

Hack-

p.230 reduction of parts an advance in ordganisation

p235 imported rudiment-Lung

p446 anomalous forms surviving in Rivers.

p457. Manner of descent of Birds

Placentata descended from several implacentata

481 Contrast of adaptation & inheritance
Lion & Sea-Lion

482 Intermediate forms

Man all used.

vii 2w Read ix 31w I have read x ↑6w I have read ↑3m xii 19w Read xiv 32m/w Read xv 19m, 31m xvi 12-13m, 13-15m 5 24-27m/?/16-28w (a) Perhaps begin my Book wb When theory generally accepted I say light will be thrown on the origin of man & his history. * The meaning of this cd hardly be misunderstood, but I can see is○ not the period of going into details. now that the views 12 23-26m/14-27w List of Rudimentary Organs

∅

228 26-32m/↑w I shd think more differences in * civilized individuals than in savages (?) Bates 230 3-5m, 11-19w lessening of number a result not cause of development 231 30-33m/31-32u "die | Rückschritt" 235 1-7m/wt Very important organ a rudimentary Lung 11-12u±/w ovaries 22-23m 236 3-5w See to this 251 17-23m, 18u "Organen", 19u "Kiemenbogen", 9-17w Branchial arches

HAECKEL, SCHÖPFUNGSGESCHICHTE

20u/wt, 27-31m 252 19-20u "drei | Schwanzwirbeln" 253 3-9m/4-7u "muss | Stammes", 21-29m 256 1-25w the lower forms change more slowly than higher Applies to Man (or I think terrestrial)

∅

390 19-32m/22-29w single origin most probable 409 20-29m 437 3-4m/u▲/w This last remnant of class 16-20m/17u "Pallas Nachtschmecke"/18u, 24u▲, 28u▲, 33m/u "während | embryonalen" 438 1-3m, 10u "weil | noch", 27u "merkwürdig übereinstimmt"/25-28w embryology of Amphioxus 439 wt X I shd say creations like larvae of Ascidians gave rise to Vertebrata 5-9m/w x Both groups out of same sources 442 29-33m/w Selachians parent-form of all chief Vertebrata 443 24-27w Selachii only in remnant 444 33a∅ 445 6-8m/w Selachians parent form 13-16m/14u "Urfischen"/12w Selachii 446 9-13w Rivers 447 11u "Flussfischen", 10-12m/w Rivers 14u "Zwischen | Amphibien", 14-16m, 17u▲/w Rivers 22-24w separate intermediate class 448 11-12u "Stammformen | Wirbelthiere", 16-20m/18u/a "Lurchfische" Lepidosiren 450 12-15m 453 13-16m 457 wt I shd prefer supposing that both classes descended from forms more intermediate than Dinosaurs & Solenhofen Birds 16-19m/18u "zweifelsohne | dieser" 461 20-23m/21-22u "Ornithodelphien | unterschied" 462 4-6m/5u "Jurazeit" 463 wt Man has cloaca 2-6m/6u "zwölfte Woche", 8-10m/w Breast bone like Birds 19u "eine | Klasse", 27-30m, wb absence of teeth a change 469 24m/w Hydrax 471 1m 472 17m 473 27-28u↔ 474 wt X Placentata descended from several implacentata or Marsupials 6-10m/w thinks X 475 27m 481 wt contrast of adaptation & inheritance Sea-Lion & Lion - 10-16m, 21-25m/w separate Lemurs from Monkeys 27-30u± 482 1-22m/w intermediate forms, leading to various orders.- 26m 495 27-33m 496 9-13m, 20-23m 497 22-25m 498 1-3m/2c/u "Rolle"/w∅, 7-8u "dass | kann", 21u "Affenähnlichkeit | Menschen", 22u "einen | Volke" 499 28u "Rolle" 503 10-12m/11u "abgekürzte Vererbung" 505 9-11m/9u "entfernter" 506 8-11m, 18-22m, 24-26m, 31-34m, 35-37m 507 2-3u "theilweisen | Behaarung", 2-3w loss 28u "aufrechte | Sprache"/26-31w 2 chief points upright position & speech 33u "Kehlkopfs"/wb Head of windpipe 508 6-7u "höhere | Extremitäten", 8-11u "Indem | Sehens", 18u "Veränderungen | Gefolge" 509 17-19m/18w (a) 25-26u "den | erblicken", 26-27u "August Schleicher", wb (a) Remember a special part

of Brain for speech 510 18-20w speech polygenitive 29u "Sprachen | Ursprache", 30-32m/wb but we know nothing about lost primitive tongues, during earliest stages. 511 15-21m/w my argument & Huxley 512 20m, 25u "Afronegern | findet", 29u "Mongolen", 30u "Mesocephali", 31u "Amerikanern" 513 25-43m 515 1u "meisten | Asien", 2u "das | Ort", 22-26m/23w islands 517 11-12m 518 6-9m 520 20-24m 554 19m

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NB *wcc*

170 col. 3 23m 251 col. 1 41m 285 col. 1 60m, 61m 287 col. 3 53m/u "Sarstedt"

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NB var insects do not vary in all localities p125
201 joints of Antennae variable - 201 Referred
125 1-4m 201 wt joints of Antennae variable

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NB Orthoptera 121- to 133
128 Katy-did calling
133 Fiddles of Locusts

SB 56, The weevil of N.A. attacks the introduced Pea

59 Remarkable variations in sexes & individuals of Brentidae

68- variable instincts

121 - Males musical Grasshoppers; 124,125 - Males

128, 132,33 I fancy these musical instruments, which are secondary sexual differ much in 2 sexes - Rivalry of Males

x \emptyset 165- musical male Cicada

315 - Night-Moths dull coloured

373 - Larvae of Hymenoptera spin from lower life like Caterpillars - same structure in very different groups.

24 27-28w(CD?) At what season 26 10u "dors", 10u "darers"/? 56 17-20m 57 5-7m 59 26-28m, 28-29u "even|sex", wb How in different species? of genus? 68 34-35m 69 1-6m/2u "variable instincts" 121 35-38m 124 29-31m 125 1-5m, 31w \blacktriangle 128 5-8m/5u 132 1w Acrididae 23u "the males" 133 9-15m 165 17-20m/18u "The|organization", 26-28m, 34-37m 315 33-34u \leftrightarrow 373 12-14m

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NB \blacktriangle 142 Differences of Plants in Lanzarote & Fortaventura Remarkable \emptyset

HARVEY, William Henry *Nereis australis, or algae of the southern ocean* London; Reeve, Benham & Reeve; 1849 [Down, I]

HARVEY, William Henry *The sea-side book; being an introduction to the natural history of the British coasts* new edn; London; John Van Voorst; 1849 [CUL]

NB 66 Q

66 6-16m/Q 27-29m/Q

HASSE, Carl *Das natürliche System der Elasmobranchier* Jena; Gustav Fischer; 1879 [Down]

HAUGHTON, Samuel *Six lectures on physical geography* Dublin; Hodges, Foster & Figs; 1880 [Down, I]

HAWKINS, Benjamin Waterhouse *A comparative view of the human and animal frame* London; Chapman & Hall; 1860 [Down]

HAWKINS, Richard *The observations of Sir Richard Hawkins, Knt, in his voyage into the South Sea in the year 1593* London; The Haakluyt Society; 1847 [Down]

HEAD, Francis Bond *Rough notes taken during some rapid journeys across the Pampas and among the Andes* London; 1826 [Down, pre-B]

126 8w O 127 4w oh 8-10z, 12-13w oh 128 1m 129 6m/u, 13w R

HECKEL, Édouard *Du mouvement végétal* Paris; G. Masson; 1875 [Down, I]

NB Vol of Trans Phyll◊
19 22-24m 49 3-7m, 9-15m

HEDERICUS, Benjamin *Graecium lexicon* London; J. Rivington; 1816 [Botany School, pre-B, ED]

HEER, Oswald *Contributions to the fossil flora of North Greenland, being a description of the plants collected by Mr. Edward Whymper during the summer of 1867* communicated by Professor Stokes, F.R.S.; 1869 [CUL, I]

HEER, Oswald *Flora fossilis arctica* 6 vols; Zürich; Wurster; 1875 [CUL]

⊗

HEER, Oswald *Flora fossilis Helvetiae* vols. 1-3; Zürich; J. Wurster & Co.; 1876-77 [Botany School]

HEER, Oswald *Die Miocene Flora und Fauna Spitzbergens* Stockholm; P.A. Norstedt; 1870 [Botany School, I, FD]

15 27m 17 13-15m/13-14u

HEER, Oswald *Le Monde primitif de la Suisse* trans. J. Demole; Genève & Bâle; 1872 [CUL]

HEER, Oswald *Recherches sur le climat et la végétation du pays tertiaire* trans. C.T. Gaudin; Winterthur; J. Wurster & Co.; 1861 [Botany School]

HEER, Oswald *Untersuchungen über das Klima und die Vegetationsverhältnisse der Tertiärlandes* Winterthur; Wurster & Co.; 1860 [Botany School, I]

ad, af, cc, ex, fg, fo, gd, geo, gr, is, mg, no, or, sh, sp, t, ta, ti, tm, ve

NB Read from p.115 to end

SB □β ↻

Oswald Heer N.B. Hooker says the Mull Flora Miocene according to Heer allied to that on W. Coast of Greenland.

p.116 to 120 In Iceland various Miocene Trees – with American character like rest of Europe N.B. During Glacial period would Mediterranean & Ara-Caspian joined with Black Sea prevent S. migration of temperate plants & thus destroy many forms whilst in N. America would have remigrated from N. Or is it not that greater area of Old World has caused greater advancement of consequent extinction. Odd Horse surviving in Old World & it & Rhinoceros extinct in New World.

121 Madeira Tertiary flora Diluvial not many so ancient as Iceland. Thinks some of the fossil plants formerly lived in Europe

122 N.W. American fossil pl. like those of Europe. Subtropical up to 50° North

124 At Eocene period European Flora not American (NB Nebraska lower Miocene shows affinity with Europe.) In India Miocene feeble American character which is stage in Upper Miocene – Pliocene – disappears at diluvial period.

126 It seems one palaeotherium in under-Miocene period.–

127 Considering the well-proved warmth of Miocene period, the hot parts of world were probably very large & number of tropical forms ought too to be very large

128 List of Tropical forms together with cold forms which now flourish on Madeira which show how they could have lived during Glacial in Tropics. Mem. C. Moore list at Sydney.

129 list of trees which can bear our climate, but of which few bear ripe seeds.

131 Willow seeds perish if not sown immediately – showing on what odd particulars distribution, for instance to N. Zealand, may depend.–

132 general conclusion & comparison of state of Europe during Miocene Period

135 Miocene Insects American same general results as from Plants

137 Apparently Zones of Tem. in Europe during Miocene as now

138 Reference to paper on Arabo-Caspian since Murchison & Co

143 On Proportion of American forms now in N. Europe from Martius

144 On connection of Europe & N. America in Diluvial Time – On relation of several Atlantic Isd in formation of plants to Europe – on greater relation to Europe than to Africa – On relation of living Madeira shells to extinct European species.– Relation of Madeira plants to American

148 on separation of shells at C. Cod.

149 Arguments against Hopkins deflected Gulf-Stream

150 Arguments against Lyells views on World Temperature from change of Land.–

116 19–23m/21u "*Liviodendron islandica*" /w American? 32u "*Platanus aceroides*", 38u "*Rhus*" 118 3u "*Pinus Mx.*", 6u "*entspricht Nordamerikas*", 7u "*amerikanischen*", 9u "*Alle Islands*", 10u "*sind Formen*" 119 20–21u "*nord Tulpenbaum*", 23u "*Juglans bilinica*" 120 13–14u "*jetzige hat*", 9–15w Tertiary vegetation of Iceland, like rest of Europe a decidedly American character 16–21w ♦ Iceland existed as Volcanic Is. in Miocene period. 121 1w Not so ancient as Iceland Plants 12–13u "*Laurus verschwunden*", 18u "*muss Zeit*" 122 1–4w N.W. American plants like European 3–7m, 16–21m/18–21u ± 124 18u "*eocenen*", 19u "*die amerikanischen*", 21u "*untermiocene*", 22u "*subtropischen*", 27u "*grossentheils Arten*", 28u ↔, 32u "*Der deutlicher*", 34u "*pliocenen*", 35u "*noch subtropische*", 37u "*Der das*", 47u ↔ 126 44–45u "*reicht hinauf*" 127 13–29w considering that range of Hottest countries was so great during Miocene – the number of species in Equatorial regions ought to be very great; had they not been destroyed during Glacial period. 128 wt There are truly tropical forms which flourish in Madeira, so cd have borne the Glacial climate. At Sydney some tropical forms live. See C. Moon letter to me. 129 7–19w All these trees can bear much colder climate than own, but do not get ripe seeds 46–47m/47u "*reift Früchte*" 131 41–42m/w Willow seeds perish immed. if not sown immediately 132 10–12u "*unteres treffen*" 135 2w Insects 4u "*Pflanzenwelt übereinstimmen*", 30–33m/w American Insect-forms 136 29m 137 13–14u "*Bewohner geben*", 17–22w Zones of temperature as now in Europe during the Miocene period 42–45m 143 33–34m, 46–48m, 50–54m 144 22–23m/23u ↔, 28–29u "*erstens Insel*", 31u "*weit aus Bowdichiana*", 32u "*einer Art*", 34a "*sie*" / [...], 38–39u ↔, 41u ↔ 145 3m, 4–8m/w Relation of Madeira Plants to American forms 17–20m/w Land-shells like tertiary land-shells of Europe 26–45m/28u "*527 einheimisch*" 146 41m/u "*Zur solche*",

49–51m, wb It is remarkable extinction of Rhinoceros & Horse in America & not in old World, as there seems to have been more extinction & replacement of forms in New World than in old. 147 1–3m/1u "*australisches*" /2–3w Australian forms in Madeira 46–48m/w ♦ Hooker says no *Pittospora* is Indian.– 148 40–42m 149 7x, 45–51m/w Remarks against Hopkins deflected Gulf-Stream 150 1–8m/1–2w World Temperature

HÉLIU *La loi unique et suprême. 1, Genèse terrestre* Paris; Brasseur; 1878 [Down]

HELLER, Karl Bartholomaeus *Darwin und der Darwinismus* Wien; Universitäts-Buchhandlung; 1869 [Linnean Society of London]

HELMHOLTZ, Hermann *Popular lectures on scientific subjects* trans. E. Atkinson, introduction John Tyndall; London; Longmans, Green & Co.; 1873 [CUL, S] ad, che, phy

NB 219 imperfection of eye; 227 do.; 269 do.; 390 do.

234 ♦ like *Drosera* – pressure Good – chem action & Heat

Nothing for Descent

♦ Mrs Treat preserved T.H. Farrer Answers to Donders Helmholtz

219 10–20m/10–14"..." 227 13–24m, 26–30m, 32–34m 228 3–11m 234 6–10m (*Johannes Müller*) /w so with *Drosera* 235 15–18m 269 14–23m 372 13–17m 390 5–18m 391 15–19m

HENFREY, Arthur *Botanical and physiological memoirs* London; The Ray Society; 1853 [CUL]

cc, fg, he, hy, phy, spo, tm, wd

NB xxi, xxii &c; 2; 8; 23; 42; 94; 307; 310; Book 312 X important; Book 317 X? to end of part

346; 352

116; 118 Books on Divergence of Leaves

SB □β

xxi Statement that C. Adami produced by budding – doubts p.317 to 320

xiii Nat Hybrid in Laburnum

3 Teeth in Whales

42 *Littorella lacustris* never flowers under water

310 Hybrid Ferns

312 Single-leaved *Fragaria*

312 On Hereditariness in Sports of certain Trees

HENFREY, BOT. & PHYS. MEM.

313 my view of cultivation, putting luxuriance very strongly forward Ch I

314 Sports

xi 10-11m, 22-27m xii 2-11m, 18-21m, 25-26Q xxii 2-10m, 14-16m 2 32-38m 3 37-38m 4 40u/wæ 8 22-29m 23 34u "multiplication" 24 12-25m 39 22-25m, 30-34m 42 9-14m, 21-27m 45 7u/wæ 46 10-12m, 33-36w p xxiii 81 33-35m 94 15-1m 95 7-17m 97 33-36m 108 30-41m 115 42-43m 116 12-24m, 27-29m, 28-31m/28u "Principles 16" 117 3-6m, 9-12m 118 wb (Fibonacci numbers in plant organisation) 119 23-30m 195 11-18m 307 36-38m 310 19-32m, 41-45m 312 20-21m/21u "Godron", 41-45m, wb Henfrey cannot trace this essay 313 5-16m, 21-24m, 32-35m, 40-44m 314 5-12m, 21-27m, 25m, 29m, 32-39m 315 2m, 6-10m, 10-11m, 11-23m/13-15w seems to think 15-16m, 20-21m 316 14m 317 1-3m, 5-9m, 18-19m/19u "Horschuch's plants", 21-23m, wb A. Henfrey says that Hornsuchs essay is long & formal essay in the earlier numbers of the Ratisbon Flora for 1848. Ueber Ausartung der Pflanze.- 318 36-39m 319 9-12m 320 1-8m 322 4-14m 347 19-20m 352 34-38m

∅

HENFREY, Arthur *Outlines of structural and physiological botany* London; John Van Voorst; 1847 [Down]

ct, gd, phy, tm

NB ∅ Aquatic Pl no epidermis no fibro-vascular bundles - but elongated cells no stomata

HENFREY, Arthur (ed.) *Reports and papers on botany* London; The Ray Society; 1849 [CUL]

gd, mn, oo, v

NB p.471 Hooker on Conifers in S. Hem.

SB1 □ 9

p263; 285; 289; 313; 319; 320; 361, 2; 384; 386; 388; 418; 421, 2; 427; 435, 7; 447; 450; 465; 468, 9; 4♦

SB2 □ β

263 on variable twisting in *Solanum dulcamara*

385 Remarkable distinction in E. & W Flora of C. Colony (as in Australia)

388 Flora of Azores

422 Central European Plants on S. Nevada & Pindus - p447 - 450 Endemic Alpine Plants

- Hooker on Islands having wooded plants of Compositae.- Summary of -

435 Thistle of Pampas not social in Europe

437 Rhetian Alps 106 Phanerogam in 23 Fams - 468 Cordillera 250 sp in 50 Fams.

468 S. American Alpine forms at great height in Cordillera, with Arctic forms

469 Hooker on resemblance of Vegetation of Pacific isld being more apparent than real.

471 Hooker on Coniferous Tree of Australia ∅

263 10-16m 284 19-21m 285 7a "case"/7-10m/w ie when style developed before corolla 15-18m 286 12-13m, 14-17m 289 10-11m, 25-26m, 28-30m 313 17-18m 319 21-29m 320 1-5m 361 27-37m 362 6-9m, 31u "general Japanese", 38m 384 29u "Rubus"/27-30m/25-28w Is this f. in Tropics 385 6-13m 386 20-25m 388 1-6m, 29-35m 389 38m 390 4-7m 418 17-19m, 22-29m, 29-32m 419 4-6m/w no. ♣ Antarctic Lands 11-12m, 30-36m, 36-38m 421 27-33m/32u "provided the"/33u "with climate", 39-42m 422 8-12m, 36-39m, 40-43m 423 1-4m 427 17-19m 435 5-7m 437 1-5m 445 27-29m 447 20-24m 450 16-24m/w species Alpine 465 5-12m/w not isolated Mountain 468 26-30m 469 15-28m

HENLE, Jacob *Handbuch der systematischen Anatomie des Menschen* Braunschweig; Friedrich Vieweg & Sohn; 1858 [CUL] phy

NB p135-162

∅

133 wt (a) Muscles all blended together 1-6m/w (a) 21u/wτ 135 wt to be reduced to 2/3 - sides cut off where I have put pencil lines (preparation of fig. for reproduction), 11-13m/w see Back 136 4w pyramidis 6-17w The Pyram is not attached to skin between Brows - I must refer only to movement, however. caused. 34u "sehr dünne"/35u "sehnig"/36w sinewy 40m/μ "M. pyramidalis" 138 38u/wτ, 42-44m, 45-50w/wb (a) It does not seem clear what muscle acts in those who can move their ears. 139 6w (B) 35-42m/38w (a) 142 fig.m/wæ 143 33m, 34-36m/34u "M. malaris"/35u↔ 144 5-7m/6w (a) 32-38m/34w (b) 145 fig.w (names of muscles) 146 14m, 38-43m/38-39u↔ 147 31m, 33u "bedeckt|orbicularis" 148 fig.m/w♦ (names of muscles) 149 wt All the 3 previous muscles (ELS) sometimes equally draw up nostrils as the levator prop. 22m, fig.m/w (names of muscles) 150 24-34m/w hardly distinct from platysma 151 3-5m/w (a) 7m 154 12u "M. l sup." 155 12m 159 3-18w Nothing particular ∅

HENRY, William *The elements of experimental chemistry* 2 vols.; London; Baldwin, Cradock & Joy & R. Hunter; 1823 [CUL, vol. 2 only, pre-B, S]

HENSLOW, John Stevens *Descriptive and physiological botany (Lardner's Cabinet cyclopaedia)* New edn; London; Longman, Orme, Brown, Green & Longman; 1837 [CUL]

ad, beh, br, cc, che, co, cs, dg, ds, ex, f, fg, fo, gd, gr, he, hy, is, mhp, mn, oo, or, pat, phy, sp, sx, t, tm, ts, v

NB1 ♦ Are there yellow hyacinths for there are blue & pink—?

♦ The purple Dahlias show approach to the third colour or blue ?

♦ Does *Desmodium gyrans*. p.166 sleep * *Zostera* ♦ is one of family, not peculiar characters & Ground-Nut ♦ the most hostile flower p.278 to non-intermarriage theory Does not flower under ground

NB2 ♦ People constantly speak about every organism being perfectly adapted to circumstances, if so how can there be a rare ♣ species breeding power being efficient (food not sufficiently ♣ abundant is answer

NB3 ♦

If my argument see previous page be pushed to its extreme it will include every organic being — which is unfortunate. Geograph: range has ceased to argue for this &c &c &c.— Transmutation of organs have done so.— That is criterion

↪ How close an analogy between dicotyld. seed. & bulb.-food in each case laid up in a modification of leaves. for a germ

♦ I do not understand whether the bud makes the leaf, in the axilla of which it stands? p.79

♦ Where can I find many facts about monstrosities in plants bearing on laws of abortion degeneracy & adhesion

♦ Continue description of woodcut

NB4 Ask Henslow

↪; ♦ The simplicity in ultimate structure of Vegetables very remarkable

2; → 11 — ? *Marchantia* —; 28; 51; 52; 56R — ♣; 58; 71; 79; 98; 118; 114; 140; 163; 169; 188; 195 reference ask Henslow — coral; 201 ?; 186 ♦ ?; 220?; 221?; 223; 233; 236; 241; 249?; 253; 254; 256; 259; 261; 263?; 266 266?; 272?; 276?; 279?; 281; 286?; 288?; 290?; 294?; 300?; 303; 308; 312

[49 Twining stems]

p173. Water will not freeze till 16 1/2° in capillary vessels authority? — in relation to

roots melting.

Spiral p175.

SB □β

p.130 Variation in Phyllotaxy — Flower pentamer. & tetramerous.—

15 cylinders becoming Hexagons & Dodecahedrons — for Waterhouse view

p169 Poisons —

114 Cotyledons of Sycamore due to division
167 *Dionaea* Knight gave bits of Beef to Fly-Catching Plant.

220 Night-flowering plants with lurid flowers — *Cereus* with splendid flower only at night Coloured ??

277 The pulp round many fruits does not accelerate their growth

278 Exceptions to damp closing pericarps

1 *zb* 2 21–27m/wb Phen Life 1 Physiological description of organs in themselves & in different animals 2. Theory of cotransmutation of organs, not separate, or Descriptive Botany relation to habits & conditions, which cannot be told by consideration of separate organs. 11 13–18m/ ? 49 fig. 41.w Left hand Right H 51 12–17m 52 6–10m/w tree of life 56 4–7m 57 3–17m, 18–21m 58 1–22m, wb How can tuber be distinguished from sporule of cryptogams? by being organ for its production? 71 3–8m, 9–10m 98 3–18m 105 7–9m/8–9u "is|stone" 107 1–6m/3–4u "Lindley" 113 7–10w V. p268 13–19m 114 22–25m/24u "proven|subdivision" 118 11–29m/26–29m/1–29w is this merely apparent, will be said that parent never was regular flower? 120 11–17m/w find out some true species which is distinguished by bearing thorns 26–36m/w all this might be put strongly to favour my theory 121 1–15m 122 1–7m 126 8c/wæ 127 16u "twenty-one", 31–34m/32u "eight", fig. || 128 wbc 130 8–11m/ 8u "few cones", 15–17m 132 19c "9/34"/w 13/ 34 22c/m/w 21/54 (he means 55) 163 19–38m 164 1–10m 165 22–23u "but|depressed"/21–24m/w try this with Ether ↑1u/wb *Drosera* has duct But *Dionaea* not so 166 6–12m/w Does *Desmodium gyrans* sleep 24–28m 169 1–5m, 7–27m, 33–39m 173 14–20m 186 14u "carbonaceous matter"/15–19w whence derived primarily 188 12–19m/ 1–21w touching mutual impregnation 193 1–31m/10–26w try with *Corallina* wb if *Corallina* do, then doubtless the *Nullipora* will, although living in 200 fa. 195 11–20m/13u "feet", 17–19w where described 17–21m/wb relates to the three colours in varieties 201 19–26m/?/23u "free|exceptions", wb State in new Edit — case of species having pure colours 220 2–4m/2u

HENSLOW, DESCR. & PHYS. BOT.

"night-scented stock"/wt Is this peculiar variety 221 29-38m, 38u↔/w is there a bag here? wb how like vipers 222 21-27m, wb describe (See Humboldt) Argument for one origin how curious the similarity in products between animals & vegetables is - 223 22-27m 232 16-22m/w Oak & Chestnut - Chartworth Vol 2 233 37-39m/wb will it ever check flowering or more especially fruiting?||→ 234 1-5m 236 28-31m 237 8-19m 238 19-22m, 24-29m 240 2-12m, 29-30m 241 1-9m 249 22-24m, wb How do you reconcile this with Lemna 253 11-22m (De Candolle) 254 24-36m 256 12-21m 259 30-35m 261 19-31m/23-26w where related 262 1-8m, 10-14m, 23-30m/30u "in succession", 32-39m/37u "Stylidium", 38-39m/wb I examined this at Maer 263 1-2m/wt/1-4w has opposite tendency ♣ fact (a) 26-27u "the influence"/w Subularia &c &c 33-38m/wb How can these cross - 264 1-15m, 26-33m 265 12-16m 266-267 wb Then it is certain whole grain of pollen must be wafted even as in Palm!- where 30 miles apart 272 15u "ovaries"/w ovules? 18-20m/19u "ovules|abortive", 31-35m 276 16-22m, 25-33m 277 22-27m/24-25u "pseudospermic|provision"/w how 28-31m, 33m/u "compensation|which" 278 13-16m, 29-39m 279 21-26m/22w hermaphrodite 24-26m, 24c/a "produced|the"/w is carried wb But Dic Class says that the Arachis flowers above ground 280 18-22m 281 1-6m 286 13-27m 287 16-21m/?/20-21u "scarcely differ", wb Azalea, Rhododendron, Lychnis & Cucubalus? 288 3-9m, 13-18m/18u "marked|species"/16-23w is not this arguing in a circle ||11-3m/wb From the not greater number of hybrids in Dioecious might it not be argued that there might be super-foetation by the more fertile pollen?- ||5a "we"/wb a great exception Herbert & Knight 289 16-23m, 26-35m 290 4-12m/w argue against this 12w who? 12-13w Most strange doctrine, when we reflect on animals.- Potato - Dahlia even granting two species wb sowing Ribston Pippin ♣ a ribston pippin but not quite like, is produced 294 3-24m/w periodicall ♣ opening of flowers even in dark does not harmonize with this 300 32-35m/w No 303 wt Compare St Helena in distance with Sandwich Isls 10-19m 308 1-18m 312 22-32m/19-27w See Bowerbank's work wb What is the character of my Van Diemen's Land Fossils 313 28-29md

HENSLOW, John Stevens *A dictionary of botanical terms* London; Groombridge & Sons; n.d. [Down, S]

NB ↪ Lancinata not given

HERBERT, William *Amaryllidaceae* London; J. Ridgway & Sons; 1837 [CUL]

ad, beh, br, cc, ch, cs, dic, ds, dv, f, gd, he, hy, ig, mhp, no, phy, sp, spo, sx, sy, t, ta, tm, ts, v, wd

NF In Letter talked to me of an Appendix -

NB1 Read whole Memoir

p.8; 28; p.32

411, 12, 16 - Supplement

p.28

Any Plates of Hybrids

136 &c &c description of the Hybrids

V. Hybrid in Index

NB2 411 Labels for Gardens

↪ Oct 18/55/ This Book has been fully abstracted & the abstracts distributed.-

p412 Case of Hybrid sporting into character like other species Q

p416 Hybrid from *Rhodora Canadensis* & *Rhod. Ponticum* in Flower

8 3-30m (Lindley), 32-40m 18 20-33m 19 1-8m (Jussieu), 20-27m, 37-39m 28 38-44m 29 2-17m, 22-27m 32 32-38m/38u "on|ripened" 211 18-26m, 27-35m 283 12-19m/12m/13m/15w fertile Hybrids 20m/21w infertile Hybrids 284 1-3w note p.412 335 4-7m (Kölreuter)/w in ♣ 1775 & following years 7-8u 336 30-31u "hybridising|offspring"/w ♦ what in varieties?! 337 wt (a) I see in Journal he in fact gives up genera - ie thinks some genera, which will not cross, have probably descended from one stock 3m/w (a) 6u "any|intermixture"/w Fowl or Peacock! 9u "to|genus"/9-18w Grouse & Pheasant all one genus. if term genus thus ill-used some other term must be invented. 29-30m, 34-38m/37-40w Polyand 41-42m/ 41-42m/w/wb (botanical terms) 338 16-18m/17-27w not known probably because changed gradually - same answer can be made to those, who say. when was species made? 37-38Q 40-41m/w ? where published 40u "Mentha"/wb Pallas specifies the Labiatae as plants which cannot naturally be crossed. He must, however, be refer to Snap-Dragons 42m/wb No Papilionaceous flowers Some Monoecious & Dioecious... 339 19-24m, 42-43m/43u "father" 340 1-2m, 5-7m/5u "black|pony"/5-12w instance of my law of variation agreeing other species of genus 30-33m/32u "31 sterile"/33u "quote|constitution", 34-36m 341 wt (a) contains remarks on acclimatizing of plants 1u "Sweet|Britannicus"/m/w (a) 6-9m, 9-10u "naturally|approximated", 10-15m/12u "isolated"/15u "ready to intermingle", 33-37m/34u "varieties|prevented", 41-42u "did|sterility" 342 wt + is this not error: does not

constitutional difference confer some difference in innermost organization, or rather on whole organization 1-4m/3-4u "greater | others", 7u "constitutional"/w + 8a "botanical"/w ie external 16-32w It might be worth while to consider native conditions in Kölreuter 23-24u "dissimilar | genera"/w Crinum 27-32m, 41m 343 wt Animals & plants are domesticable because not rigidly adapted, & these are easily hybridisable.- 1-2m, 5-15m/10-14m/10-11"...", 16-17m, 114w Crinum 112-4m, wb/1w Habits & c determining sterility (& hence probably intermarriage in some degree) is very important, as solving the case of willow wren & explaining great importance generally solving question of habits in determining what is species - a fact tacitly admitted by all naturalists. Habits being not fixed in domesticated animals, or indeed in plants, not exactly related, ♣ to the varying conditions causes the greater facility in being crossed.- 344 17-23m/18w Calceolaria 29-30m/u "abundantly fertile"/"...", 32-34m 345 wt * Loudon both of Europe, figured in Bot. Mag. 99, & 2183.- 2u♣/w * Linaria 3-5m/u±/w Mexico Penstemon 4a "gustifolium" Louisiana 10u "whole | which"/11-14m/13u "offering | fertile", 22-28md/22w Cereus 42w Cucumis 346 5-6m/u "reproduces | abundantly"/wt Did I not examine this at Maer ??? 4u/a "special"/wt p.352 properly Lowii 17.1455 Herbert Bot. Reg. 4a "speciosa"/4-7w Bot. Mag. 3604 this reference from Loudon 12-14m/12-13u "that | genera", 15-17m, 18-23m/18-20"...", 36-43m/x/wb X This would all apply to animals. but breed is. not introduced with this consideration.- 347 wt We know there is something in intimate structure of Marsh Plants which renders it wholly impossible to live in dry & vice versa with dry. & as ♣ crossing ♣ makes constitution half way, it affects the most important part of whole structure, - even as much as form of heart or other vital structures.- 4-5u "In | parents", 12-18m/w How exactly similar to giving dash of courage to greyhounds by Bull-dogs blood 23-24u "accidental | seedling"/23-31w This is like sudden appearance of cowslip from primrose it is analogous to Australian dogs, producing piebald young. 25-31m/26w X 33-34m, wb X against my theory.- change, however, is sudden - & not many generations.- From foregoing facts, about constitution we should expect such changes to be slow. & likewise any attempt to change aquatic to dry plant This is only one

particular, in others the change? wb/35-42w See. Sir J. Banks Vol I. Hort. Transact. Laurels not raised by success. generations 348 10u "connected | membrane"/11-14m/11-21w Now does this tendency to sport in hybrids decrease after several generations of same appearance same fact as in varieties of animals where crossed.- 22w/24w♣, 119-1m/w must be read 119m/w♣ read 117-6[...], 115] 349 6u "the | out"/w 3 13u "cross-bred seeds", 28u "coverings"/w 3 32-38m (Gaertner, Hedwig, Kölreuter) 350 1-8m/4u "full | seeds"/wt I doubt whether Gaertner now allows this. See to it.- 25-31m, 25-28m, 38-43m (Gaertner) 351 6-11m, 27u "every ovule"/15-17w impossible to be more fertile 26-29m/m♣/22-27m/26u♣/27u "big revolution"/29-30u "Datura | laevis"/26-30w x Crinum Datura wb Might not Gartner have been a bad Gardener & so not had his plant so healthy - I think Herberts positive facts outweigh negative: he knows so well causes of error & trusts to nothing but appearance of hybrid plants- 352 8-10m/7w Lobelia 9-14m, 14-16m/15u "seeded abundantly", 18-19m/u "Wiegmann | language"/w♣ Enquire at Linn Soc 23-26m, 28-32m, 33-38m, 41-43m, wb does the multitude plants preserve them, by allowing very many impregnations, the stigma keeping its power - with respect to wheat 353 2-8m/w Note in Philosoph - Transaction. about White Blue Peas 354 9-18m (Gaertner, Wiegmann, Knight)/12u "is | erroneous"/13u "oat"/16a "racemosa" Scarlet 18-22m"/"..."/22u, 24-28m/w This must be functionally dichogamous. 27u "Calceolaria"/24-28w In Calceolaria ♣ stigma ready before ♣ pollen 29u/a "Pelargonium | Alstroemeria"/29-33w in these ♣ stigma ready after pollen 116-2m/114u♣ 355 3-5m, 8w Zephyranthes 13-17m/w This shows two sexes differently affected by conditions: are sexes ever unequally affected in Hybrids.- 15-19m, 23-25m 356 (u♣) 1u/3u/4u/7u/wt Crinum, Hippeastrum 20-24m, 21u "accidental impregnation", 29-35m 357 (u♣) wt Pelargonium 1-5m, 8-12m, 9u, 10u, 14u, 14-17w see Sweets work on Geraniums 20u/21u, 24-25u±, 27||, 29w Passiflora 32-37m/34u "not | fruit"/w !! my notion of fruit improving 358 wt Note p.411 11-12w Gladiolus 10-15m/13-22w seems to leave out of question, greater indelibility of some stocks than others 16-24m/21-24m, 25-30m, 36-40m/w good step in series of infertility 359 19-20m/20-23w Rhododendron Rhodora Azalea 30-32m, 38m/u♣/w Nicotiana 42-43m 360 6-11m/6-14w I am sure I have heard of some such

HERBERT

facts in animals: new characters educed this is constitutional ? difference 21-23m, 112-10m/112u "fragrance", 118-6m/116u "very number", 112-1u "Altaclarae" 361 5-8m/5u "profusion", 42-43m/u ↔ 362 wt I should think it impossible that many hybrid permanent species were produced from the conditions of the place seldom being better adapted to the hybrid than to either parent. 1-3m, 1u "important", 4u "themselves | situation", 15||, 15u "Rosa", 21-24w Rosa nothing particular 25-31m, 43||/u "honeysuckles" 363 7||, 8u "magnolias"/w Magnolia 7-11||/w Calceolaria 13u "Calceolaria", 23-43m/35-36u "therefore | thereof"/26-30w (a) Q wb (a) My rule of variation from domestication producing changes analogous to those found in other species of same genus, thus is seen to hold good with varieties produced by crosses 364 5-7m/3-8w there is a case of different constitutions crossing 16-22w Calceolaria Loudon makes 12♦ many species & many vars. 23-30m/26-27u "they | sorts" 365 6-9w Gaertner tried only few, but fertile 10||/w Gladiolus 366 9u "floribundus", 18-21m/w (a) 27-31m/w Is this fact owing to these being double 33-43m/34u "almost"/36u "double"/37u "pink"/39u "although | together"/34-38w these if single, or quite fertile would be true species wb/1w (a) Now this shows that some ♦ species will not cross (which cannot be accounted for by constitution), which yet by their appearance must be forced into one genus - || on other hand we have seen most remote forms forced into one genus - shows definition of genus will not serve & shows power of crossing has no close relationship to affinity, (even of constitution) but to some other causes - age - 367 27-28w Camellia 369 31-43m/35-36Q♦, 42-43m 370 wt X weakly analogous to successive generations fixing peculiarity 1-5m/2w X 23-36m/24-25w Turnips 371 wt B. This may be well O introduced in my views of all organic beings marrying - 4-7m/7-14m/5-12m/10w B 6-12m/w Mr Knight makes very same remark Vol I Hort. Transact. 15u "different | aspect"/15-22m, 27-32m/27-34m/w in this case of hybrids tested probably by slight infertility (a) 116u "pollen | another"/16-1m/w my theory explains this: because offspring differ in the two cases, in one going back to parent, & in ♦ other remaining constant 113a "stock" But they do not yield so much seed with pure parent 113u "fecundate them", 112a "themselves" still stronger when with a 3d species 112a "fertilise"/wb but they fertilise less wb Probably stigma would

actually prefer pollen of other plant; as stigma ♦ remains open to choice - & as in Mammalia bred in & in, loose passion (but I do not know whether prefers other kind)- 372 7-10m, 18-31m, 30-36m/w No. note p.375 38-43m 373 wt XX I think these facts only show that constitution, or internal differences are far more important than external.- 23-30m/25w XX 28w Nerine 28-34m/31u "Loxanthus", 114u "conformity", 114u "4 | mule"/w XX 113u "verified" 374 3a "feature"/wt namely the difference of the perianth being centripetal or centrifugal, in addition to ♦ its distortion 6w P 8||/w Heaths 9-12m, 25-29m/27u "referable | genera", 33-38m/33-34u "The | especially", 115u "complete fertility"/1w/wb P As constitutional differences, probably, show ♦ greater distance of common ancestor, than external differences, so as these constitutional differences can be readily discovered by facility of crossing - such facility admirable assistance.- in same way habits of animals so useful. 375 1-7m/1u "sixteen"/7u "1835", 34-35m 376 10-16m/w last step in series of infertility 114-1m 377 1-2m/wt It is analogous to the seedling Camellias recovering their simple flowers 8-16m, 18-23m, 35w Nicotiana 113-1m/112-1m/11u ↔ /wb Variation in ♦ unimportant character 378 3a/u "different power"/wt Gaertner p.262 says false 1-15m/1-7w♦ case of the passing of a plant from one Linnaean class to another. wb NB See P p.374 The value of crossing, as a test of genera & c is of little value, as the Natural System seeks to know relationship & does not attempt date of separation 379 wt (a) This cross in Gaertner i a, & i g. ie less than (K)a normal. May not much be attributed to skilful gardening ?? 9-13m/w Petunia (a) 11a "P. nycatanigenaeflora" Hardy 11a "phoenicia" frame 11-13m/13u "than | parent", 14-16m/15-17u±, 20-23m/21-23m/21-22u "in | itself", 116-4m/117w/113-1w anagallis failed with Gaertner; Hibiscus not tried by G 380 11-14m, wb Hybridise sensitive Plant & sleeping Mimosa & then try my experiment - 402 8-12m, 21-24m 411 23-33m, 37-41m/37w p.358 412 1-7m, 33-40m/35-37Q 38-40m 416 52-55m/w considered by Lindley a true genus Catalogue (New works in course of publication by James Ridgway & sons, April 1837; scored on last page against Forbes, Horticultural tour through Germany, Belgium and France)

HERMANN, Ludimar Elements of human physiology London; 1875 [Down]

105 10-13m

HERMANN, H.C. *The Italian alp-bee* G. Neighbour & Sons; 1860 [CUL] beh, ct

NB ϵ Cells Instinct &c & Marked
6 9-12m, 19m/u "Yellow Alp-bee", 21-23m 7
1-4m, 25-27m 8 17-19m, 21-24m 10 3-5m,
10-14m 11 29-30m/29u "2,000" 24 10-16m/
15c/w (not CD), 31-36m 25 1-9m

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161 21c/a "surprising"/w some degree of 22c/w ϵ

HERSCHEL, John Frederick William *Physical geography* Edinburgh; Adam & Charles Black; 1861 [Down, FD]

HERSCHEL, John Frederick William A *preliminary discourse on the study of natural philosophy* London; Longman, Rees, Orme, Brown & Green & John Taylor; 1831 [CUL, on B]

25 8-19m 35 20-27m/22u ϵ "depending|will"
93 10m/w yes 1833 135 21-28m 136 2-8m 167
24-31m 182 1-20m (Bacon) 287 27-33m 351
5-12m, 29-33m 352 1-7m, 16-20m/16"...

HERSCHEL, John Frederick William A *treatise of astronomy* London; Longman, Rees, Orme, Brown, Green & Longman & John Taylor; 1833 [CUL, S 1838]

118 3-10m, 24-30w●

HERSCHEL, Mrs John *Memoir and correspondence of Caroline Herschel* London; John Murray; 1876 [Down]

HERTWIG, Oscar *Über das Zahnsystem der Amphibien* Bonn, 1874 [I by author] [CUL.1900]

SB □β
101 101 257
(over) O/

HERVEY-SAINT-DENYS, Léon d' *Recherches sur l'agriculture et l'horticulture des Chinois* Paris; Allonard & Kaepelin; 1850 [CUL]

sl

NB 23 219 dates; 229 speaks of History of Chinese standing w Δ 1000 years

SB □ \mathcal{R}

229. ancient precise Rule for selection p.219 This great Encyclop was published in 1737.- but it is compilation

p221. Name of this Encyclopedia
23 5-6m/10u "Ma-touanlin" 24 zt 219 3-5m 221
2u (title) 229 9-12m/10w ϵ Plot 12-14m/12-13m 239 8-9m 254 4-7m 255 7-9m

HEWSON, William *The works of William Hewson*, F.R.S. ed. G. Gulliver; London; The Sydenham Society; 1846 [CUL, I by editor] phy, v

SF (letter from Gulliver)

NB Blood corpuscles nothing particular for me, I think

p.218 p.238 vars. ∞ in vars. X in Do

⌀

218 5-7m, 18-19m, 35-37m 219 10-13m 236
39-40m 237b 47m, 48m 238a 13m, 14m, 23m
238b 18m, 20-22m, 27-29w very variable wb
what var. 239b wt send blood 6m, 46m/w
white♦ owl wb♦ which is white owl 241b 10m
⌀

HEYWORTH, Lawrence *Glimpses at the origin, mission and the destiny of man* London; Williams & Norgate; 1866 [Down, I]

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HILDEBRAND, Friedrich *Die Geschlechter-Vertheilung bei den Pflanzen* Leipzig; Wilhelm Engelmann; 1867 [CUL, S]

cc, cs, dic, ex, fg, hl, mhp, oo, rd, sp, sx, ti

NB p37 ϵ ; 28 abortion of Rag Floret of Compositae for ●; p20 Digitalis most fertilised by pollen first on closed stigma

1 18-22m 3 10-12m, 20-22m, 24-26m 4 8-12m
5 10-19m 7 wt Dioecious & Mon. plants
flower in Spring, when little honey in other
flowers 1-2m, 24-25m, 26-27m 9 23-25m 11
1-3m/wt Consider Thyme a case of
Polygamia 6-18m/11-25w each kind of flower
on separate tree → ash-♣ tree? 12 7-10m 13
wt It may be that lower plants have survived
owing to having this advantage of separated
sexes. 6-7u "mehr|zwitterigen"/w Doubtfully
Thinks Hermaphrodite earliest state 9-11m,

HILDEBRAND, GESCHLECHT

11-12m/ 11-15w (a) Lower plants oftenest have separated sexes 30-31m 14 20-23m/ 21u "Mehrzahl", 23-24m 15 3-7m/4w Sprengel 30m 16 14-17m (Sprengel), 18-24m, 27-28m 18 8u "Protogynische", 10-11m, 21-32m 20 12-16m 21 12-20m 22 13-17m, 18-23m 23 21-25m, 27-30m 24 9u "Protrandristen | Blüthen"/5-17m/w Rudimentary organs 14-16m 25 13-15m 26 10w p11 11-14m/ 10-16w In Thyme anthers of Hermaphrodite O flowers developed before the pistil 14-17m, 16-29m 27 6u "alle | sind", 11-15m 28 14-25m/15-18w Compositae 17u/wt, 19u/wt, 20u/wt, 26-34m 32 1-4m, 17-25w more dichogamous than non-dichogamous!! wb 2 divisions when anthers lie so close as to fertilise the stigma & when distant from stigma 36 32-33m 37 12m, 12-13u "die | übertreffen", 19-22m, 27-34m/30-31x 39 23-33m 40 1-6md, 23-27m 42 1-10m 43 13-16m 45 3-6m, 10-15m 48 11-14m/5-20w In Cruciferae, manner in which anthers open checks self-fertilisation 51 1m, 5-7m 53 11-15m 54 fig.w Viola tricolor 56 12m, 20-34w D does not know the self-fertilisation by movement of petals. 57 17-21m 59 10-15m, 15-18m 62 19-22m/w Does not Cyclamen self-fertil. 63 7-9m, 31m/w Borgni O 67 26-29m 73 20-21m/w Dimorphic 74 1-4m, 28-29m, 32m (Walz) 77 12-14m, 23-25m/w waterflower 28-31m/w come to surface wb instead of flowering under water, as we see is quite possible. 78 14-16m 79 29-33m 80 1-28m 82 16-19m/1-20w adduces Snails - I think must have been primordially self-fertile 13-16m, 12-20w Thinks flowers are hermaphrodite to favour crossing - one to favour seeds.- like bulbs & c 84 17-19m 86 13-17m 87 4-9m 90 4-10m, 14u "Alter | Gesetzes"/w age of law

HILDEBRAND, Friedrich *Die Verbreitungsmittel der Pflanzen* Leipzig; Wilhelm Engelmann; 1873 [CUL, bound together with previous item, I]

ad, fg, gd, mhp, oo, phy, sp, sx, t, v

NB p5 & 6 List of authors on Means of Distribution

p36; p.80; 104; 107; 112; 114-117; 129 to 150; 155 to end

SB ⇨

p. 5 & 6. List of works on Means of Distribution.

36 fruits eaten by birds on trees - those which stick to furry coats on branches of Herbs (p.160)

80 fruits with Arillus (My case)

104. wonderfully many adaptations for scattering seeds fleshy fruits more open.

107. fruits which do not open have only 1 seed.

112. fruits do not become coloured or tasted until ripe. (Like calyx of Polygala) & shell of seed hard as a protection

114. good remarks on coloured fruit

116 wonderful economy in the means of distribution - nothing superfluous & vary 2 ways - confined to the female flowers

129 - Bears on what useless Q

144. Cases of same sp. with 2 means of distribution

145. Means often differ much in allied plants.

150 When many seedlings of same sp. struggle together all weakened, not different sp. kill each other more easily - & thus good of distribution.

151 & parents close interbreeding

2 12-14m 4 11m 8 2m 9 zt 13 3m 20 20m 26 23m 36 1-7m 41 17m 48 8-10m 52 15-16m 57 21-23m 61 4u 73 3z 79 17m 80 2-11m 90 26-27m 99 25-26m 101 27-29m 102 22-25m 104 17-30m/w all sorts of adaptations to scatter seeds 29m 107 1-2z, 3-5m, 23-31m, 33-34m 112 3m, 12-15m/14u "hervortretende"/ 15-16u "der | Geruch", 16u "angenehme Geschmack", 26u ↔ 114 18-22m/19u "Asparageen | Früchte", 25-29m 115 5-7m 116 3-6m/3-4u "an | Früchte", 24m/20-26w Great economy in superfluous adaptations 117 1-4m, 17-20m/17-18u ↔, 23-31m 125 12z 129 19-26m 130 26-30m 144 22-34m/ 23-29w on same Plant 145 1-16m/w Means of Distribution often differ much in allied Plants 150 5-12m/1-34w When seeds of same kind ♣ sown together all struggle together & all weak - not so when different kind for then the strong kill the weak 151 22-26m 155 28-33m 157 11-14m, 18-20m 159 14-22m, 17-20m/21u "ausbilden | nicht" 160 3-4m/u ↔ /w Hooker 6u "Vögel", 7-10m/7u "an | strauch" 161 8-12m/u ± 162 wb [When pollen is brought from a distance commonly - it is possible that means of distribution wd be less necessary C.D]

HILDEBRANT, Gustav *Die Verbreitung der Coniferen* Bonn; Carl Georgi; 1861 [Down] ♂

HINDS, Richard Brinsley *The regions of vegetation, being an analysis of the distribution of vegetable forms over the surface of the globe in connection with climate and physical agents* London; G.J. Palmer; 1843 [CUL, I] gd, no, sp

SF □β

11 Greenland 2 species to genus
 36 Species of European genera in Mexico distinct – like other alpine regions no peculiar Family & few genera (Like lakes & Arctic regions
 48 Mountains of Brazil vitis, Galium, ♣, Gaultheria (Nothing)
 54 Alludes to Pisidium or Guava at Tahiti – 62
 62 Vaccinum & Fragaria on Sandwich Isd
 63 – 47 species in Low Arch, belonging to 40 genera & 27 Families (small size few individuals & therefore not new species)
 94 Relations of Abyssinia to Cape of Good H. Protea, mesembryanthemum
 NB1 What has Schow written, who is so often quoted on Bot Geog.??
 NB2 p.11; p.14 to end

11 1–2m 14 16–20m 15 2–7m 17 17–20m 20 27–28m, 28–29m 22 27–29m, 30–31m 24 16–17m 25 4–7m 27 12–13m, 16–18m 30 13–19m 36 8–9m, 13–14m/12–18w Contrast this with species being same further north; also T. del Fuego 17–19m/u "It | genera"/9–16w so lakes & Arctic regions 21–23m 39 6–11m/7u "stronger | than", 18–20m 41 17–19m 43 23–32m/27u "ribes, rubus"/28u "andromeda"/29u "vaccinium"/30u "berberis" 44 20–22m/21u "of | abies" 47 21–34m/24–25u/26–31w ♦ No European forms *wb* see to this 48 6m/7?/4–5w not species 49 20–24!/22–26m 54 14–17m/12–20w compare with mountains of Brazil p148 V. Von Martius 27–28m 58 10–13m, 15u "ribes | vaccinium", 17u "salix", 18–20m, 23m, 28–31m 62 1–2m, 16–17m, 31–34m 63 13–15m, 27–33m 64 1–2m 68 7–10m 71 1–3m 74 15–18m, 28–34m/w some of these are American ∴ ought they not to be considered mundane 79 17–20m, 20–22m 81 13u "salix | viola"/w mundane. 18–19m 82 26m 83 9–11m/11u "stronger | India" 87 26u ↔, 31m 88 24–29m 90 10–12m 94 20–22m 98 15–18m 101 9–12m 102 4–8m, 12–13m 104 1–4m 115 23–28m 117 32–34m 119 1–10m 121 14–19m 122 11–15m 125 9–12m 128 4–5m/4u "dwarf | stunted"/w so in Himmalayah 130 15–18m/15u "Sempervivum"/17u "sedum" 133 19–25m 135 17–18m 136 16–20m/17w odd 27–34m 139 7–10m, 29–31m

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HODGE, Charles *What is Darwinism?* London and Edinburgh; T. Nelson & Sons; 1874 [Down]

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HOFACKER, J.D. *Über die Eigenschaften welche sich bei Menschen und Thieren von den Eltern auf die Nachkommen vererben, mit besonderer Rücksicht auf die Pferdezucht, mit Beiträgen von F. Notter* Tübingen; G.F. Dsiander; 1828 [CUL, on B]

beh, br, cc, cs, fg, h, he, pat, phy, sp, sx, tm, ud, v, y

SB Hofacker

10 on Heredetary colour of Horses; when forefathers for some generations of same colour, more easily transmitted. p94

15 on confining of animals of 2 colours & offspring taking after one or other NQ

34 on handwriting hereditary Q_h

83 of Hybrid NQ canaries Birds propagating for 4 generations: inter se? Q♦

98 on changes of colour in calves from parents of two colours. with age Q_h

107 on stags with one horn, producing a Family of. Q_h

7 27m 8 1–8w Shape of hoof &c &c hereditary 10 1–6m/5–10w approximate colour 12–13u "dem | seyn", 23u "nur | sich", 27–28m/28u "5.87"/wb colour of forefathers appearing easier in colts 11 1–5w/wt Horses of different breeding establishments of different colours 12 wt Chestnut appeared when neither parent chestnut 7u/wτ, 8u/wτ, (u: "Goldfuchs" and "Hellfuchs") 10u, 11u, 13u, 14u, 15–16m/u, 18m 13 17x_h/Q_h/w Chesnt 11–27w cases

HOFACKER

of new colours appearing 14 7-8u "braunen | Braun"/7-11m/w brown mare always bore chesnut foals 17u "Mausrappen", 17u "Braunen"/16-19w Mouse-black from black & brown 26-27m/w piebald 15 1-6w not so with Horses 8-11m/w like Hollyocks 13-14m, 15-23u± 16 1m 17 6-11w great tendency (without white young destroyed) for all animals to become white - 23 7-8w Mulattos smell like Negros 22-26m/w odours of different parts of body hereditary 24 4u "Rheumatismen | Catarrhen", 25-27m/18-27w when both parents fat young fat very early. 25 16m/u↔ 29 12-16w great strength hereditary 30 wb Genius not hereditary - [How many qualities together make Genius] 32 3-13w Hereditary genius 23u "Bach | 50", 24u "Bernouilli" 34 8u "Handschrift"/6-15m/w handwriting hereditary 35 4u "Brugnone"/1-7m/w recommends starting horse not to be bred from. 14-22w cross of pointer & shepherd dog, after many generations when become like sheep dog still pointed birds 36 21-29w/wb short & high hereditary (produced by manner of life) 37 8-10w diseases of eye hereditary in horses. 39 21u "Grösse | Geschlechtstheile", 23u "leicht | gebären"/22-23w facility of birth hereditary 43 1-2m/w 20 female cats for one male 60 15m 80 1-13w sex of plants influenced by conditions 83 17-18m, 29-30m 84 8m/w genera 18u "Perlhahn", 19m/u "Haushenne", 20u "Jungen der", 25m/w gen 89 6u "Absicht | Grösse", 10-11u "Junge | Zebra" 6-12m/w hybrids of one kind resemble father & of other kind, mother 12-13m, 21m, 27-29m/w Fineness of Hair after father 90 8-9u "Den | Vater", 11u "Den | Mutter", 13u "Die | Vater", 15u "Mutter | Ohren", 18u/wt, 23u "Schweif", 23u "Mutter" 91 2-4m, 6-11m/8-9u "Zahl | überwiegt", 11u "7:2", 12u "3:1", 13u "16:3" 93 3-4m, 14u "keine Bastarde", 20-25m/23u "Statur"/24u "Länge | Beckendurchmesser", wb Pelvis 94 wt/1-24w stallions transmit qualities more than mares. because generally former of long-continued good breeding but mares are less so & crossed. 16-25m 96 7md, 8md, 11-14m, 15md, 19m/u/wt 97 wt/1-5w Duns hereditary colour - but these are picked cases of hereditary transmission of colour (u: colours in 3rd column) 3m/u, 6u, 8u, 9u, 10-12m/12u, 22u, 23m/u, 27-29m 98 19u±, 20u±, 23-24m/u± 99 4-5m, 14-15m 100 3-4m, 6u "Männchen" 101 6-9m/w men affected by producing one mule 102 22-25m/w children like first husband 105 19-20m/u "oder | haben" 107 8-9m/9u "Burdach", 11u "Nabelbruch", 13w Hare-lip 21-25m/w one-horned stag Q[♂],

26Q[♂] 110 (u = names of diseases) 13-23m/13u/14u/18u/19u/20u/21u, 22u/22-23u, 24-27m/24u/wt, 25-28w tendency to bleed on small hurts 111 7u "Roz"/w glanders 9-10u "Exostosis | tarsi", 11u "Exostosen", 20u↔ 112 9m, 23-28m/26-27u "weder | Schauher", wb discussion on hereditary venereal diseases probably, when from father, not actual mother. 114 16u "nur | Vater", 17-18u "nur | nachkommen" 123 22-24m 130 8-13md/8u "nur Raçen" 140 3-18w many old nations married their near relations

HOFFMANN, Hermann Zur Speciesfrage Haarlem; De Erven Loosjes; 1875 [CUL] cc, che, cs, ds, fg, gd, he, phy, sp, sx, t, tm, v

NB All abstracted

p.53 Papaver somniferum self-fertile

p66 On Causes of Variation & Range of Viola lutea & tricolor

11 Adonis aestivalis self-fertilised prot-androus

Look over, some references for Good for crossing Book

p4 What he considers evidence of specific form | p27

7 causes of variability

8 Reversion

17 on the form of Anagallis blue & red arvensis cd not cross them !

22 Range of & differences of -

3 18-21m/w no - Cytisus adami 4 12m, 21-23m/22u "Blosse | Nachweis"/13-27w It comes to this that without direct evidence of descent from 1 to other forms must be considered as species! Blood Hound & Fox Hound ♣ 7 1-5m/w external conditions do not influence when no relation to chemical nature of soil.- 9-23m, 24-25u "sondern | Erscheinung", 26m/u "unabhängig | Impulsen"/24-36w Excites not direct cause !! like an illness excited on effect of a poison which I have said 8 13-14u↔, 12-17w thinks reversion prevented by successive changes of structure. 11 24-27m/24w Adonis 17 13-15m, 17-21m, 29-34m/w did not cross 18 6-10m/6u "Bemühungen | kreuzen", 26-34m, 27-31m 19 2-7m, 11m, 14-17m/w crossed with no result 30-32m/31u↔ 20 5-6u↔, 11u "isochronisch" 21 29-31m 22 2-4m/3u "sich | decken" 26 30-32m 27 wt yellow berry holly also nearly constant ∴ according to his rule a species! 3-4m/u± 28 3-7m/w reverted to parental & typical form 22-24m/w only evidence that it is a var. is above 30 34-37m 32 7m 43 31m 46 22-26m 47 23w Papaver

alpine 24-37m/27-30w Covered with net 37→
48 3-10m, 14-17m/15u "anscheinende|bei", 17-
21m/w Protandrous state variable 50 24m 53
28u "Selbstbefruchtung|kann", 33-34m/33u
"keimten sie", 35u "72|producirten"/34-38m 59
5-7m 61 16m 66 2-4m 68 12-20m, 23-26m,
37-38m 69 19-22m 70 4-7m

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of Liebig* London; Macmillan & Co.; 1876
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development and fructification of the higher
Cryptogamia* trans. F. Currey; London; The
Ray Society; 1862 [Down, S]
fg, tm

NB 439; 406 pollen-tubes of Conifers; 415

∅
280 26-29m 284 1m, 11-13m 285 7-9m/8u
"third internal" 286 1-2m 287 5-7m, 12-13u↔
289 1-5m, 20-23m 290 14-16m, 32-36m 293
17-19m, 27-29m 294 28-30m 295 2-5m 296
27-31m 297 8-11m/w archegonia 298 2-3m
299 22-25m, 36-39m 406 15-20m 415 12-17m,
18u "endosperm", 19-21m/21u "end|second"
439 13-22m

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natural philosophy* London; Henry G. Bohn;
1861 [Down, S of Henrietta Crofts-Adel]

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Stuttgart; E. Schweizerbart; 1876 [Down]

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physiology* London; Longman, Brown, Green
& Longman; 1852 [CUL]

beh, y

NB Chapter on instincts - (Notes &
References in M.S. notes -) Nothing Else.-
234 Family trait long inherited
214 change of ♣ sobbing in child; & so with
laughing, pain primary
223 Habit, good

91 24c/w (not CD) 201 5-8m, 24-26m 203 2-
4m 204 17-20m 205 6-7m, 10-13m 208 27-

31m 209 12-14m 210 26-30m 211 11u
"automatic|action", 12u "from instincts", 17u
"congenital propensities" 213 18-21m 214 23-
28m 216 33-35m 220 11-14m 222 8-10m, 27-
32m (De Candolle) 223 1-5m, 28-31m 224 19-
22m, 24-25m 234 5-11m, 27-29m/Q 244 21w
instrument

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physiology* 2nd edn; London; Longman,
Brown, Green, Longmans & Roberts; 1858
[CUL, I]

beh, mhp, t

NB p.79-114

111 Effect of attending to any part

237 Habits in plants

239 do to quote Habit & Instincts compared
p212 Read whole Chap of Instincts & Habits

79 16-17m (J. Müller) 81 2-4m 83 4-8m, 23-
26m 85 28-31m 86 23-25m 87 15-17m 91 14-
18m/15w 193 93 4-6m 104 17-29m, 23-27c,
29-31m 105 1-6m 106 6-9m, 14-19m 111 15-
20m/15u "effect|circulation"/16u "suddenly
directed"/17u "often|immediate" 228 22-28m
237 23-30m 239 5-13m 246 29-31m

∅

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other subjects* London; Longman, Green,
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reflections* London; Longman, Orme, Brown,
Green & Longmans; 1839 [CUL]

beh, he, pat, phy, sx, y

SB □β

10 Strong sentence on Hereditariness - 22
18 Child most like parent in feature & c
inherits its diseases

20 Hydrocele transmitted through female

25 Form of hereditariness occurring in
children & grown up people at same age

33 Disposition of members of same Family
to be affected similarly under like Maladies

35 Hereditary diseases appearing at same
age

x 25m/c/wæ, 27m xi 3m, 5m, 9m, 11m, 13m,
15m, 24m, 26m 1 10m 10 10-17m, 24-28m/
"..." 13 10u/10-11m (Whewell) 16 7-23m 17
15-21w faulty texture of skin, hare-lip
stratismus○ all hereditary 18 4-8m, 9-10m,
10-13m, 19-23m 19 2-16m, 30-32m 20 5-7m,
9...], 20-27w blindness often hereditary gives
cases also deaf & dumb. 32-33m 21 wt
disease of heart hereditary, 4 brothers died

HOLLAND, MED. NOTES 1ST EDN

between 60 & 65 – another case in their generation – obesity hereditary – cutaneous diseases hereditary – 7–8m/w case of Patella was wanting to father & son. 10–15m, 18–25m, *wb* are men more exposed – hence Rheumatism & haemorrhage?? more intemperate.– hence gout.– 22 10a "effect"/4–10m/w Pellagra of Lombardy gives Reference 20–23m/"...", *wb* Diabetes. Prout & Co ♣ Self say hereditary asthma. 24 22–24m/25–28w enlarges this strongly *wb* Suicide seems on sufficient evidence to have tendency to become hereditary Pinel Dr Rush D Burrows 25 1–31w Chomel rates as high as half proportion of rheumatism cases where patients have suffered 21–24m, *wb* Make some remarks about diseases, not connected with particular stimulus, being hereditary, as gout, scrofula. ♣ 26 *wt*/1–26w♦ I presume more men, than women are subject to gout, to ♣ rheumatism & to haemorrhagic tendency? 1–2m, 12–15m, 29–33m/4–34w♦ Consult this.– to see whether predisposing causes act chiefly during manhood, as in gout, in relation to secondary male character *wb* speaks of cases where a child escapes hereditary disease (& likewise resemblances in countenance) for one generation 27 28–32m 31 23–28m 32 1–5m 33 24–30m 35 1–10m/x, *wb* x Boerhave gives cases of schirrus, icterum & melancholia, at certain age in same family 36 29–33m 37 *wb* H. says looking over works of Morgagni gives many cases of hereditary diseases to which he incidentally refers. 65 8u "attention"/10u "direction | consciousness"/8–10m, 22–25m 66 1–5m, 13–15m 67 3–7m, 16m, 22–24m 68 2–5m 69 1–3m 70 8–10m, 20–22m 323 *wt*∅ These muscles which are subject to involuntary action (so eyelids & eyebrow∅) are not subject to Pulse.

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beh, hl, in, pat, phy, ta, y

NB1 276 Mind & Body cannot work hard at same time

NB2 19♦

24♦ Wonder that all not inherited

31 Hydrocele per female

inheritance at corresponding age & in same Family – 33 Ask – 44 good

♦ 36; 40

xiv 3m 5 10–11m 9 8m, 32a "way", *wb* as to the duration of Life, and the influences upon

health of individuals & communities the various physical & moral conditions to which they are submitted 11 4w fully 12 14–17w∅, 24–31w∅, 30c/w∅ 13 23–24m 19 11–14m 24 14–16m 31 25–29m 32 6–9m 33 1–2m/w at early age? 7–9m/w eyes 19–21m, 22–24m 35 28–30m 36 26–29m 40 30–32m (Chomel) 41 1m, 16–18m 42 2–3m 43 14–15m/w 49 16–18m, 21–22m 44 *wt* When peculiarity appears in several members of family without having occurred in parents it is clear comes on at same age – and it is form of inheritance 1–2m, 5–6w same age 6–10m, 13–16m, 22Q∅, 30–32m 45 25–27m 49 1–5m 50 21–25m, 28–33m/29u "certâ | schirrum"/31u "icterum"/33u "certâ aetate"

∅

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3 19–21m

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SB □β

Hooker Antarctic Flora

1 Auckland & Campbell Isld – Arctic Plants (G)

4 Ranunculus with hooked seeds – curious variety

23 case of wide difference in proportions of Nat. orders in Falkland & Aucklands

30 case of plant common to highest mountains of New Zealand (G)

53 Myrsine common to Cape. Abyssinia & Azores

56 *Gentiana* eminently alpine & yet not common ♣ N & S low-lands

61 *Veronica* with 3 stamens sometimes

62 Remarkable variations Ch 4

73, 74 No alpine plants in S. p.74 (Gl.) North much richer in species than the S. – even in S. America – 75 N. Zealand very poor Flora, contrast with Australia–

97 One Arctic group common to S. varying in N. but not in Campbell Isld N.B I notice in Webbs Canary isld that often only one form of a varying plant is there found

114 A species varies more in one country than in another p.271, p115 or not varies in one

116 Variation Ch. 4 varying in one country more than in another

211 All Antarctic Lands take after T. del Fuego, except Auckland & Campbell Isld –

217 Plant extinct at St Helena between Hookers 2 visits Few species to genera generally in isld

246 True Arctic plant or representative in T. del F. p.280 do

268 *Acaena* with beautiful hooks confined to Kerguelles Land &

275 Wandering species ♣ from Australia.– exiled sp of Decandolle

276 On representatives & identical species going together 277 On relation of number of individuals to species 278 Very good cases

288 Plant constant in leaves in Falkland, very variable at R. Plata

306 A form from one country unites two in another country

315 On confined range of *Senecio* species, yet genus very large range

327 American *Epacris*, very distinct form.

387 Tussack group so eminently fitted for cattle as to be on road to extermination in country where no quadruped (Hooker) often Hooked seeds

390 At Chonos Isld the flora unite but Dr Hooker remarks no blending of forms as if from descent Ch.6.

549 On affinities of *Lyallia* of Kerguelen to Bolivian Plant

vi 18–19m/19u "Crozet|volcanic" vii 15–16m/15u "vast|continent" 2 32–36m/w great difficulty 4 13m/u "uncinati"/w/ V. Plate 15–17m, 20–22m/w var. 41–43m 5 35–39m (H.C. Watson)/36–38u± 7 4m 10 6–8m, 16–17m 11 6–7m, 12m, 22u "species|one", 33–34m 13 5–7m, 9–11m, 17–20m, 38–39m 15 10–12m, 28–29m/28u "decidedly|form" 18 13–15m 22 41–42m 23 3–10m 30 25–26m 33 2–7m 35 16–22w Mr Norman not to be counted with varieties

– nor any species introduced as notes 37 25w not count. in Norman 39 25–27m, 43–45m 40 24–26m 53 3–8m (De Candolle) 54 21–27m 55 26–30m, 28–30m, 31u "Indeed|genera", 33–35m/34u "confined|Andes", 41u "blue-flowered" 56 1–2w How alpine a genus! 3–8m, 9–11m, 14–15m 57 6–11m, 41–44m 58 11–17m, 61 7–8m, 10–12m, 33–35m 62 9–17m, 9–12m, 14–16m/16u "3-valved" 66 37–40m 67 6–9m, 11–13m, 20–22m, 33m/w var 41–42m 73 36–43m/40u "on|occur"/w explain 74 1–5m, 6–11m, 12–15m/13w whence paucity 21–25m, 28–31m/w♦ S. America even isolation compared 39–44m 75 1–3m, 10–12m, 14–15m, 16–18m, 21–23m, 26–27m/26u "exuberant|necessarily", 29–30m 78 4–9m 80 27–29m 82 4–8m 83 1–4m 85 16–17m/16u "most|L.", 20u "L.|Tasmania" 90 20–23m 92 37–38m 97 14–15m, 17–18m, 19–21m, 24–28m 101 34–36m 103 25w Mr Norman end here 104 21–23m 106 1–3m 107 15–16m, 35u "500 miles", 40–42m, 44–46m 109 32–37m/33u♣ 111 24–27m 112 11–14m, 21–22m/21u "natural|cannot" 113 wt Mr Norman nothing to be counted in this part 16–17m, 25m, 34–35m 114 6–9m, 25–30w This Lycopodium may have travelled along Andes 115 3–5m/4u "like|does", 27–28m, 41–44m/43–44u± 116 7–8m, 14–15m, 17–18m, 31–32m, 35–36m, 46m 117 7–8m, 9–13m, 16–21m, 23–25m, 26–27m 118 7–9m 119 15–16m 124 38m 126 37–39m 127 22–23m 129 wt Mr Norman, nothing to be counted in this Part 132 18–21m 134 8–9m, 15m 141 11–12m 145 wt Mr Norman not count this part 146 10–13m 162 3–5m 167 16–18m 169 31–32m 209 8–10m 210 1–4m, 1m 211 4–7m, 9m, 15–16m, 20–22m (Humboldt), 22a "west"/u "west|stream"/w East 24–25m/25u "Gmelin's 'Flora Siberica'" 27u "approximated|geographical"/w 1000 miles 29u "flanks|Himalayah"/30u "Tristan|Cape"/29–31m/w not flanks, but opposite side of continent 33u "Sandwich"/w in Labiatae & Lobeliaceae 39–42w/wb actually same species? very good yes Have a list 40–41m/u±/w *Cynococcus*○ a grass 212 21u "North|Antarctic"/w Panama? 23u "granitic"/?, 36–37m, 39–40m 213 28–29m 215 21–25m/?/w do not understand 216 23–25m, 25–27m/27u "twenty|plants", 29–32m/29m/29–30u±, 36–38m/37u "16,062 feet" 217 2?/u♣, 5–9m, 22–24m, 26–27m, 30–32m, 34–35m, 35–40m, 37–40m 219 16–23m/18?/u "Colobanthus" "fossil" 221 33x♣/u 223 28–33m 224 26–28m 225 10–12m, 26–27x/26u "This|plant", 39m 227 9w var 33–36m 228 18–20m, 40–41m 229 33–39m 230 8–9m, 14–17m, 21–23m, 24–25m, 26–28m, 29–31m 231 31–32m 232 26–28m, 28–29m, 39–42m 233 1–4m, 31–32m, 35w not

HOOKER, FLORA ANTARCTICA

count as var. 240 21-25m 241 15-16m/16u "American Andicola", 30-35m, 37?/u▲ 242 1-4m, 6-10m (De Candolle), 22-23m, 34-35m 245 32-40w This is first European genus with no evidence of other species on Cordillera of Chili or Peru 246 4-5m, 21-22m, 26m, 27-28m, 35-36m 247 6-9m, 9u±, 11m, 15u "excluded North", 33m/w var, 37-41m 248 10-12m, 43m 250 27w var 29-30m 251 1-9m/14w var 2 18-19m 252 20-22m 253 3-4m, 8-12w I think these are Oxalis in the Cordillera of Peru 27w var 259 12-13m, 30m 260 1-2m, 8-10m/7-12w I suppose not found in intermediate districts 25-26m, 32-33m/32u "maritime", 35-37m, 38m 261 3-5m, 9-10m 262 13-14m, 21-25m, 34m 263 26-27m, 39-41m 264 3-4m, 13-14m 267 38-39m 268 2-5m, 18w var. 19-20m/20u "South Georgia", 38-41w/wb A plant with hooked seeds confined to Kerguelen Land. V Plates beautifully hooked. 270 6-7m/w var 31-33m, 42-43m 271 1-2m, 4-5m, 16m, 20m, 23-25m, 26-27m 272 1m, 7-8m, 13-22w another case of plant skipping the intermediate parts of S. America. 28w var. I 40m 274 5m/a "another" 3d 8u "even rudiments", 32u↔, 38m/u "same species" 275 25-28m, 35-37m/36u▲/w large range 36-37u▲, 39-40m, 41m/m, wb This not holding in Birds, is argument against much accidental transportation 276 3-8m, 9-12m, 30w var 40-41md 277 9w var 37-39m/w it may be if all individuals of all the species be counted. 278 2-3m, 5-7m, 8-12m, 19-20m 279 5-6m 280 22w var. 3. 27-29m/29u "of America", 34m, 39-40m 282 20-21m/21u "in flowers" 284 21-22m, 30-31m/30u±, 37-38m 285 3m 287 21-23m, 25-26m, 31m 288 4-6m, 7-8m 289 wt Nothing marked in this Part 302ii 8-9m 303ii 24m 305 16-19m 306 1-3m, 16w 2 vars 18-19m, 20-21m, 25-27m, 28-29m 307 23w var. 1 308 33-34m 309 14w var 1 312 26w var I 313 2w var 1 12w var 1 315 17-21m/19u "both flowers", 22-25m, 31-33m, 36-38m, 38-39m 317 8-9m, 9m, 12w var 322 32w var 323 8w var 32m, 35m 324 10-11m, 19-20m/! 326 31w var 1 327 22m, 37-39m 328 2-4m 329 19w 1 species 36w do not count this 331 1-5m, 26-28m, 40-44m 334 12-14m/w water-plants 21-24m/23u "perhaps" 335 23-26m 336 1-3m, 30-32m 337 16-17m, 27-30m, 35w var 338 27-29m 339 1-2m, 9w var 12-13m, 29w var 2 340 wt Though we cannot explain same species common to Australia & Fuegoe yet the generic connection is in harmony -: hence the identity of some species with Europe is in itself probable 1-2m, 14w var. 2 24w 4. 341 17-18m 343 14-16m 344 36-39m 345 15-19m 346 13-16m, 17-

21m 347 14-16m, 19-20m 352 38w var 1 354 19-21m, 39-40m 361 8w var 363 28-30m 368 6-9m, 25-29m, 32-36m 370 1-4m, 35w var. 1 372 35w var 373 17w var 1 378 7-11m 379 11w var 5 381 34w var 3 382 23w var 3 384 19w var I 386 17-20m 387 1-7m 389 15w var 4 25-27m, 33m/w Mr Norman end here 390 16-20m 391 34-36m 392 31-33m 393 10-12m 394 23-25m 395 17-18m 457 17-29m 543 7m, 9m

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af, beh, cc, ch, gd, geo, gr, oo, no, sp, t, ti, tm, v

vol. 1 NB See index for case of coloured Ticks.-

24; 28; 30; 101

109 - Tropical & temp vegetation

159; 248 Glaciers; 257 Cedar & Deodar; 293; 314 - Cocks crow; 380; 400

p221 - Poa annua & Shepherd's purse 314; 380; 400; 221

24 4-9m 28 6-8m 30 31-33m 38 5-21m 101 28-31m 109 14-16m, 24-27m, 30-33m 159 28-30m 221 6-10m, 23-25m 248 29-33m 257 5-7m, 24-37m 293 30-34m 314 8-10m 342 26md/a/w♦€ 380 18-23m 398 10-24w about 500ft♦ 262ft see 440 vol 2. 24-34m/31u "of English"/34c "Dioscorea"/33-34u "Saponaria | Dioscorea", wb 2 not English 400 10-14m

vol. 2 SF □β

p18 Mixture of Tropical & temperate plants p39 & N. American genera & Japan.

25 Himalayan Reptile allied to N. America p.305 do

67 gathered 47 plants without rising - 30 average in England - alludes to struggle.

92 few Mammals in moist cold atmosphere.

96 Bengal Toad rise to Tungu - a good height Q

255 Rose on plain of Bengal - Salix in Terai, shows how little form related to climate Q

280 Khasia flora richest in India, owing to very various sites

281. ♦ Primrose & cowslip not one species on Khasia mountains (Hence very ancient according to my view & hence probably aboriginal) some change at early period of growth

302. A judge will tell whence Elephant came (Ch. 4)

336 Stylidium an Australian genus with 1 species here.

NB1 Mixture of Tropical & tem plants – p.18
25; 26

On mixture of European, N. American &
Japanese forms 39

57

67 – on no. of plants in limited species

92; 96; 150; 255; 281; 302; 305; 314 flowers
under water; 312.& 317

Mixture of Tropical & temperate plants – 319
333; 336; 415

p.281 On Khasia range H. speaks of
Primrose & Cowslip!

◆ p251 & Poa

NB2 p38 rippled sand

18 24–30m 25 31–34m, 34–39m 26 31–34m 39
1–4m, 6–25m 57 24–27m 67 24–27m, 31–36m
92 4–11m, 16–21m 96 19–23m 150 12–16m/12u
"double"/14u "twins" 255 20–26m 281 6–8m,
32–33m 287 9c/w€ 302 6–18m 305 21–27m
312 6–7m 314 26–36m 317 30–31m 319 28–
33m 333 15–21m 336 11–13m, 25–27m 415 9–
25m

HOOKER, Joseph Dalton *Introductory essay
to the flora of New Zealand* London; Lovell
Reeve; 1853 [CUL]

HOOKER, Joseph Dalton *Memoirs of the
geological survey of Great Britain* vol. 2, part 2;
[CUL, I]

gd, geo, ig, no, phy, v, y

SB1 □β

399 Tasmania 200 miles long has four times
as many flowers as New Zealand 900 miles
long (& higher mountains)

410 Venation generally very important in
Ferns; but differs in older & younger forms of
some species – kind of transition – Ch. 8

SB2 *

Prelim good – upright ferns but distinctly
large separated

Ferns drifted being greatly objected to by
whom.– Why not allude to Bunbury & Lyell
on N. America

I valuated○ the Owen

Most interesting indeed quite amusing

Whole Plates

I wonder you do not suggest aquatic plants
appear to meet so well all the same case
with leaves of fern & cones–

<over> 391–392; 399; 410; 429; 437

title page w Hooker Carboniferous Plants
n.d 391 18–21m 392 5–9m, 17–19m 399 15–
17m 410 24–29m, 30–33m 411 2–3m 429 29–
33m 437 29–39m

HOOKER, Joseph Dalton *On the flora of
Australia* (introductory essay to flora of
Tasmania), London; Lovell Reeve; 1859
[CUL]

cc, ch, che, co, cs, gd, geo, hl, ig, is, no, oo
se, sl, sp, sx, t, v, wd

SB1 □β <24 sheets>

I intended in this but to copy out all Falkland
& T. del Fuego plants on parallel lines

<lists of plant species and their sexes>

<on p.24 of lists> This list has been marked by
Hooker for close species.– NB See what big
genera are left out.– They ought not to have
been left out for mem. highness.– But
Hooker does not know Carex○ or Urocinia○
so these ought to be left out.– Leave out
genera with single species.

SB2 □β ⇨

Hooker Flora of Tasmania

V. no two countries present all vars. of same
sp. on common p.xiv

– But – marked vars. on confines of range

– simplest groups present most variable
species

vi. more unstable than stable forms – social
plants constant

vii no relation between isolation of group &
closeness or definition of its species.

– Extinction allows us to define groups.

ix conditions of cultivation are not really
unnatural

xiii one var constant. the other var. of same
sp. variable.

xv. Flora of isld not nearest related to
nearest mainland

xvi. great contrast between Hebrides & Fidji

xvii Effect of dampness in extending range
of Tropical products

– Has used glacial hypothesis for New
Zealand Mountains

xviii Fuegian species not entering Mexican
table-land

xix to Geological succession – no
progression

xxiv Many plants are higher (so-called)
plants reduced.

On Highness & Lowness

xxvii Richness of Antarctic in forms – xxviii
not so very peculiar a Flora as thought to
be.

xxix Peculiarities common to same orders in
diverse parts of world.–

xxxi on similar proportions in great groups
(due to battle of life)

xxxiii xxxiv Relation to Africa – xxxv Invaders
in S.E. Australia

xxxvi No of species to genera in Australia

wide rangers in Tropics – Hooker thinks not material to know Look to A De Cand – Again I suspect very few confined to hottest parts of Tropics. which might be expected from range in Australia & C. of Good Hope.– There must be discussion in Alp. D.C. on range of Tropical plants compared to temperate.– if the range were given N. & S it would be best.– But America from Atlantic Ocean complicated problem.– xlix 15–18m 1 3–7m, 7u/9u ♣, 10u "Malayan Peninsula", 13–16m, 20–23m, 26–28m, ↑7–2m, ↑3–1m/↑2–1u "great | genera" li 8–11m/w most favourable in conditions & larger 12–13m/x, 17u "1700", 20–21w Eyre's O desert between ↑12w wonderful lii "Acacia".w 82/133 sp. "Eucalyptus".w 55 liii 18–19m, 22–23m, 25m/w in S.E. a much more mixed & imported Flora liv 1–4m, 17–20w (a) One intruding dominant form might well destroy several closely allied representative species. ↑21–20m/w (a) ↑21–20u "It | area"/m/x/w yes because dominant forms wd only invade the land.– ↑16–12m/w was not S.W. corner an archipelago with representative species like Galapagos or Madeira & P. Santo with respect to land-shells??? He hints at this further on. wb Indian Tropical plants formed in big area & fitted for Tropics & not for temperate parts have invaded & almost exterminated Australian Flora of Tropics.– Further on states that Indian Flora (as distinct from Malay) is formed in low part of Malay lsd wb (a) Pampas & N. temp. Europe & Siberia are all lately tenanted lands by dominant species & are not number of species few?? Perhaps different case altogether Iv 9?, 16–19m, ↑5–1m lvi ↑20–19m lxxiv 3–4m, 15–17m, 19u "fully one-fifth", 20u "one-tenth", ↑21–18m, ↑14–11m lxxxv 2–5m, 14x, 18–19m, 23–25m, ↑15–11m, ↑9–5m lxxxvi ↑3–1m lxxxvii 6–9m, 11–13m, 15–17m, 18–19m/w This looks again as if S.W. corner was original focus of Australian forms ↑21–20m, ↑18–1m/w very striking looks to me conclusive that never continuous land.– x wb x we can with some probability suppose that plants wd have marched along continuous land– but we know hardly anything about march across seas.– lxxxviii 9–12m, 15m, 19–24m, 25m/u "eastern", ↑9x/w it looks as if more transport during Glacial Period – Icebergs ↑12–10m/w dominant invaders lxxxix 5m/u "theory | migration"/w You do not know effect of Salt-water on the seeds.– 10–11m/w ? I do not understand 15–18m, ↑3–1m xc 1–2m, ↑2–1m xci ↑9–6m xcii 2–5m/w some excessively ancient connection xciii 7x/u

"220 | genera"/w ♦ Hooker believes only few 8a "are"/wt almost exclusively 4–6m, 7–11m/w But I suppose many found in Tropics??? – see p.xcviii for same question xcv wt/1–15w I wish I knew which of these genera are not found in lowland Tropics & include species representative of those f in northern Europe or N. Asia for on Glacial view these have been modified since Glacial period. (next page 38 identical species are given) It has always been my greatest fear that there has been so much modification since Glacial, that it wd. upset view.– Some few genera may formerly have been mundane & Tropical & not now so.– ↓w For Glacial strike out all those marked Trop. Strike out those marked with * Are many of these genera monotypic like the identical species – ?? Water plants ought ♣ perhaps to be struck out – no. not so if not found in Tropics. X This mark means species identical with Europe (♣) but the water plants not struck out. because not marked by Hooker xcvi <similar markings, no w> xcvi–xcvii, SA <note for Hooker, 8 April 1860 on numbers of supposedly post-Glacial genera not found in Tropics but common to Europe and Australia> xcvi 3u "38"/w These plants immigrated during Glacial period.– "Montra"x/w Water "Alioma"x/w Water "Glyceria"x/w Water ↑6–1m/w Hooker says about 18/38 are monotypic ↑2–1m/u "great | plants" xcvi 1–14m, 2u "them | alpine", "Taraxacum".m/w composi great range tab.w These genera I presume not found in Tropics? wb ♦ The species in S. Africa seem not to be identical – is this fact or want of knowledge of species are your facts taken from Drege? xcix 20–21m c 1–4m/w Arctic Plants 11a "30" Fuegian 14–16m, 20–22m, 22a "is" doubtful 23–27m ci 12–15m, ↑9–6m, <mark by FD> cii 2–4m/u "types | migrated"/wæ, 11–12?, ↑14–12m, ↑2–1m ciii ↓m civ 1–2m/u "and | Islands", <mark by FD>, ↑9–1m/w good about Struggle cv 1–4m, ⚡ ↑5u "unoccupied | England"/w were these spots bare? cvi 2–3m/??, 1–21w ⚡ very good showing how many of the same species are naturalised in Australia & U. States with very different climates; opposed to your conclusion cvii "38"m, "51"m cviii "78, 79, 81, 85, 89, 92, 93"m, ↓w Several Indian plants & US shows us such grt necessity of constant introduction of seed. cix "115"m, "139"m, wb No remarks on cultivated plants!!! cxii 14wææ

<bound with previous item> HOOKER, Joseph Dalton *Introductory essay to the flora of New*

HOOKER, AUSTRALIA

xli Exclusive Tropical orders are all Indian. See MS note liv

xlii Great range of many tropical sp. because are much Extinction during Glacial. good see MS note Ask Hooker.

l Entire want of reciprocity between India & Australia

li Wonderful difference between S.E. & S.W. Australia

liii to lv In S.E. a much more mixed & imported Flora: The invaders have destroyed many indigenes

lvi Tasmanian list classed geographically

lxxiv Discussion on. On European Plants. much modification in Tasmania lxxv The Alpines of the mundane genera are more variable than the Alpine & Australian genera.— Perhaps the latter existed before Glacial epoch.—

lxxvii Wonderful facts on absence of Aus. Plants in N. Zealand— showing non-continuous land. Dominant invaders in N. Zealand. lxxix Lord Howe's Island.—

lxxix Antarctic Plants xcii & xcvi S. African forms: (<u>⇒) relation with respect to Glacial period

xcv & xcvi Important lists bearing on Glacial.— Many monotypic ♣ in Australia

xcviii Grand list bearing on Glacial distribution V. good remark p. cii

c. not reciprocity in Europe with Australia

<over> Hooker Flora Tasmania

pci Relation of fossil & recent plants

ciii Discussion on Glacial Flora

civ Good remarks on Struggle for Existence

cv. On Naturalised plants good— M.S. Remarks on.—

cx Many Native Esculent plants

SB3 ☐☒ ⇒

C. Darwin References to whole in Abstract of 4to Pamphlets

v 11m/u "and|both", 14–15m/w proof? chiefly from variation in arctic countries ↑5–4m vi 10–11m, ↑19–17m/w crossing vii 4–5m, 7–8m, 11–16m, ↑15–11m viii 3??/u "a|unalterable", 18?/u "weakened|exhausted", ↑19–18m/w ? without selection doubtful ↑18–17x/u "the|inhabits" wb x I doubt whether holds with animals.— With Elephant it does perhaps.— ix 5u "neglected"/w with or without propagation by seed?!! 14m/u "original|apple"/w good 15u "extent|Roses"/m/w where are facts on roses? ↑20–19m, ↑17–12m/w good ↑3–1m/w good x 21–22m/?? xii ↑5?/u "different|provinces", ↑3u "more|permanent", ↑3a "permanent" & more easily disseminated xiii 3–5m/w ♦ do not understand ↑21–29m/w Battle

of life pretty equal.— ↑6–4m/w Does it differ beyond having bulb.— xiv 1–3m, ↑18–17m, ↑12–11m xv wt Is there not Epacris in Sandwich: how allied to Fuegian genera of Epacris? 1u "very", 2u "often", 3a "Africa" yet African, & islands, barren 5u "some|forms", 8a "found" exceptionally 8u "Tristan d'Acunha"/w Is it not nearest to America? 1–8m, ↑11–9m/w/wb As coral islands themselves are included, they will generally have subsided, at intervals & been stocked by sea-borne plants & coral-soil very peculiar.— ∴ In Indian Ocean comparison not valuable. xvi 1–15w An isld so lofty & ancient as Tahiti, whether rising or sinking must have been long peopled. 1–15w Hardly facts enough known — some islands rather near continent included.— (Marianne & Caroline Isd ought to be included.— & Gambier Isld) 5–7w I doubt whole case ↑8–1m xvii 3–7m/w Effects of dampness on range — 9–20m, ↑5–4m xviii "29"/m/w I doubt because the temperate forms have crossed the Equator in old & new world, & tropical orders still exist in both ↑5–1m xix "Lycopodiaceae".m xx 1u "genera"/w & Devonian not different 13u "cone|Araucaria", 15u "Cretaceous", 16u "Juglans"/w Juglans old & intermediate 18u "Characeae"/x/w Lyell says in Middle Purbeck xxi 7m/u "900", ↑18–14m xxii 1–2m, 4–9m xxiii ↑16–14m/w good ↑12–9m xxiv 1–3m, 5–15m/w Highness & Lowness. ↑19–17m/w I have somewhere discussed this ↑10–1m/w good ♣ Highness & Lowness xxvii ↑11–9m xxviii 9–20m/17–18u±, ↑22–18m, ↑15–11m, ↑6–3m xxix 1–3m/w peculiarities common to Orders xxxi 3–6m, 9–12m/w Shows relations of organisms most important in battle of life. 18–19m/w A Farmer in Australia would I presume follow same rotation of crops at equal ♣ intervals in N. & S. xxxiii 12u "South Africa"/11–17m/w curious 19–20m, ↑15–14m/m, ↑9x xxxiv 1–10x/w Those with cross abounded○ next most in S. Africa This looks as if affinity to S. Africa had come round by N. ↑15u "the genera"/w chiefly mundane orders. xxxv w Invaders, with more species modified. w This makes difference look considerable w & all over World Alph De Candolle xxxvi 6m/u "six", <in table 1b>c "Cruciferae"/w Coniferae w ♦ How many species xxxvii 2m/x xli ↑9–7m xlii 8–10m/w must take old & new worlds as distinct categories. ↓w/wb What a number African & some American NB great extinction within Tropics during Glacial explains vast range of many tropical plants in at least old World Ask Hooker.— Whether there are not many

HOOKER, NEW ZEALAND

Zealand (reprint of)

cc, ch, ex, f, gd, geo, in, is, no, or, sy, t, v

NF pxxxiii Note Definition of "Antarctic" I have I think been misled, & often in doubt by not knowing this definition earlier

SB □β ⇨

Plants common in New Zealand & South America but not European

(not CD, annotated by him with locations of species listed; 6 sheets)

Abstract no 20 (6 sheets: abstract of Botany of the antarctic voyage "Flora Novae-Zelandiae", not this Introduction)

ii "Chapter 1" w J Lubbock you had better skip this first Chapter x 16m/u "reproduce | processes", 17m/Q 17-23m, ↑22-17m, ↑12-8m, ↑5-1m xi 1-3m, 5-6m, 8-9m, ↑14-12m, ↑11-9m/Q ↑8-5m, ↑1m/Q xii 17-19m/?, ↑4-1m/Q xiii 5-7m, ↑11-10m/↑11u↔ xiv wt shows that vars. ♣ on these different in different countries 3-6m, 12-14m xv 1-5m, 7-9m, ↑10-9m xvi 13-18m, ↑3-1m/↑2u "transport | sex" ↑4m xvii 2a "typical" /wt of that species 2Q/u "we | common", ↑16-14m, ↑12-10m xviii 7m/u "of | seas" /w V. Harvey Whether absent in Tropics ↑22-20m/w Decandolle 250,000 I think! 9u "did | Zealand" xix ↑17-16m, ↑8-7x/m/w how many common to North? ↑6m/u "greater | peculiar" /w see further on. ↑4-1m/x/↑4u "100 genera" /↑3u "confined to", ↑2u "one species", ↑2a "species" /wb different?? if different points to some ancient connection.- xx 2a "so" /wt comparatively 2a "Africa" /wt about 1600 miles! 2u "placed | Africa", 1-4m, 4u "Antarctic", 4-5m/u "New | Australia" /x/m/w Does this remark extend of Fuegia? 4-5m/x/m/w exactly like White M & Europe. circumpolar cold 8-10m, 11-14m/x, 15-16u "many | Tasmania", 18-19x/m, 22-23u "individuals | scattered" /w Yet Decandolle says often social! ↑12u↔/a "related" they wd not be 2 natural orders, if there were many connecting links.- ↑10-8m/x, ↑1u↔ xxi 13u "the | birds" /w are these land Birds. I think not. ↑8-7m/x xxiii 14-28m/14-15x/m/20!/u/m "Chili", ↑16-13m xxiv 2-3m, 9-13m, 14-15m, 18-23m/w division of Alpine Floras 18x/m, 19x/m, 18a "Those" regions or flora 18-19u "none | Arctic" /w || But surely there are northern European forms.- 21a "Alps" X/m would you add Auckland & Cambell Isd & Kerguelen land? No 22u "mountains" /w see Meyer 23u "Pacific Islands" /w Sandwich? ↑11-6m/w ♣ do not quite understand ↑9u/m/w which ↑8a "difference" /wb ie show more species to be in common ↑8?/u "three", ↑7u "they" /w in difference ↑7-6u↔ ↑4u "Fagus" /

wb X/m why These are Java, N. America, Europe. Give up wb Mem. Beech leaves before Glacial in T del Fuego xxv 1u/a "the | islands" /w which?/m, 9-16m/10-11Q 16u "the | islands" /w which? T del Fuego? 20u↔/w - Can this be from change of seed? ♣ (Mention under my Ch.6) 22u "Sonchus" /w vide (& algae) ↑11-10x/m, ↑11-7m/w/wb very curious. So mammals in the 2 Americas - & Australia. Decandolle. Australia. & even C. of Good Hope - Might it not be that NO temperate plants of S. shores of Australia wished to get still further south & far from wishing to get north. Yes. The tropical plants wd crowd the equator & some few might cross. Hence Borneo plants wd have come from equatorial regions. wb The mere numerical preponderance of N. forms, from form of land wd account for it wb It wd make great or some difference whether northern or southern forms first occupied the gaps in the Tropics; when once occupied, S. forms wd have little chance of holding their own then. wb If it require time for some degree of acclimatisation than I think it wd certainly make difference wb But being driven out wd not make any difference in spreading. wb If cold first came on on N. side? I think it wd explain. wb No: it wd be that the southern plants wd be not driven out by by fresh arrivals from further south, or only feebly so. Yes ♣, ↑9u "are | transit", ↑8u "have | altitude" /w attributes apparently to ♣ altitude xxvi 15-18m/w if an individual dies suddenly, is his formation sudden? xxvii ↑12-10m, ↑10u "Myrtaceae" /w any species in common p.xxx 1 in common ↑10u "Epacrideae" /w p.xxx some in common ↑10u "Protaceae" /w do - not one only 2 altogether? → X/m, ↑9-4m, ↑10-1→♣, wb This is all fully answered at p.xxx p.xxx. Compositae & Orchideae Australian genera. Surely there is considerably more affinity to Australia with Tasmania than to any other quarter of World, both in same species & genera Yes p.xxx: this was very impressive in looking over the Flora. vide Strezlecki whether Eucalyptus formerly in Tasmania NO xxviii 4u↔/w ie very distinct. 5-7m/!, 8-10m, ↑19-17m/w So at C. of Good Hope very many bushes. xxix title.w Endemic ↑20u "Phaenogamic", ↑20-16w more than ♣ 2/3 of which peculiar or 507/730 ↑12u "genera", ↑11u "Australia" /↑11c "otherwise" /w great inaccuracy○ & making order. ↑8u "twelve species" /w & 5 genera ↑4u "Dammara", ↑2u↔ xxx wt Are many of the 60 European species Annuals 1u "New | Caledonia", 3u

"but Thuja", 6u "Atlantic"/w Canary Isd 10u "one|species"/w X₈ of these Calceolaria seems the only special one to S. America why not Fuchsia mentioned 10-11u "Mimuli|Ourisia", 13-14m/u↔, 16u "and|Australian", 19-20u↔, 22-27m/24u↔/26-27u↔, ↑15u↔, ↑11m/w♦ 76 genera are S. American - of which 17 not in Australia (p xxxii) or in Old World. ↑11→/↑15-11w Q p xxxii♦ as well as in number of genera♦ Therefore I infer N. Zealand in species, as well as such genera as Fuchsia & Calceolaria, more allied to S. America than is Australia X?₈, ↑11→/wb have you lists? 11a "American" of which only 12 not in Australia, & 29 (some of them unaltered forms from old temp: antarctic land. Yes) not Europe; & 39 not in Antarctic wb X₈ of those 89 common (→ 17/76 of the genera to which these 89 species belong, are confined to New Zealand (ie not Australia) & America. ∴ are not Arctic see Q. p. xxxii This shows, again, much affinity between N. Zealand & America - It clearly is not transport direct from S. America to New Zealand which has caused affinity. V.(Q) p xxxii) to N. Ze. & S. Amer. there are 29 not in Europe; (→ How many of these not f. N. of Equator? see opposite page for 7 of the 29 species; are there more?) which are these? are they N. Asian, 1 is N. Asian, or are they all southern forms. or almost mundane except Europe ↑12-7m/w p. xii. Flora Antarctica there is said to be Arctic forms in Auckland & Campbell Islds ↑10a "above" of the 50 indicate no particular affinity ↑9a "4" These seem all world to me but wd require cold ↑9a "species" come direct to each from North ↑9w Are these all Australian? (u₈) p xxxii, 17 may have come by Sea. ↑8w - Therefore the affinity is not closest by now coldest regions.- Yet affinity by mountain plants. ↑7-6u "decided|species", ↑6-5u "genera|also", ↑3-2u "240|countries" xxxi 1-2m/w The making of species & conditions renders this doubtful.- ♣ Galapagos ● though 8w & Casuarina 9-11m/w very wonderful; but yet we know not means of transport viz duration of vitality. anyhow not continuous land.- 12a "Clanthus"/w a Legum, & most rare Family in N. Zealand. 12-13u↔/w Has Norfolk Isd many Leguminosae in common with Australia 14u↔ 20u "admirably|transport"/w ? generally killed by sea-water; yet some Float & Mimosa sensitiva survived 50 days. 23u "land|between"/22-24m/w ie in negative point of view, which wd be very strong if we knew means of transport.- 22-24w X₈ R.

Brown has said some survived. Gulf-Seas 27u "Edwardsia" 28u "the|Carmichaelia" 29u "feebly|plants", ↑14X₈, ↑13u "89", ↑13u/a "some"/wb 26 confined to Southern temperate Zone ↑13u "Myosurus aristatus" ↑12w 7 ↑8c "former"/w N. Zealand ↑8u "representative", ↑8-6m/↑7-6u "is|shown", ↑6u "Fuchsia|Calceolaria", ↑5-4X₈, ↑1u "76" xxxii 1a "17"/wt yet only 12 species not f. in Australia (I shd think from N.Z going further south) 1-2m/w (Q) V. p. xxx(Q) 1a "found" either 1a "Australia" || 1c "elsewhere", 1X₈, 2c "latter"/w 17 3a "form" some groups 4X₈, 7-9X₈/u±, 9a "European" ie 29 14-15u "Many|numbers", 17-24wcc, 19-20u "16|were", 21-22X, 23a "five" which are the 5? Sonchos Pr● Sanaxicum Cotula 23-24m/w "The|so", 24a "ones" in N. Zealand?? ↑14-9m, ↑8-4m, ↑4u♠/wb Have these become since extinct in Australia or have they arrived by other route: Australia has many European plants not f. in New Zealand. xxxiii 1u "European|Australian", 1-5m/w absent in N. Zealand 7-8X₈/X₈, 7-14m, 10u "Those|Europe"/w - come from North 13XX₈/w either from Common source of Old Antarctic land. 15-16→, 17-19m/17a "those" species 20a "these" antarctic 20a "genera" but not genera f exclusively in South 20a "50" genera 22u "Drosera"/w such genera may be representative, from ● in North. ↑8-5m/w Definition ↑4-3m/x₈, ↑4→/wb & we have seen New Zealand contains some 17 not in Australia xxxiv-xxxv (marks against nearly all lines, indicating location of species listed) wt X₈ Would you mark genera f only S. of S. Tropics with S. - only N. of Tropics with N. Excepting mountains within Tropics ♦ would you mark the Genera not f. North of Equator♦ S. Tropics? wd it not have made it much more interesting of the identical species had been put in. ↑17-12w very strong case (p80) only one other species known wb This very strong Antarctic genus (p128 F.N.) with species on all the S. lands including Tasmania wb p.154. N.Z. very remarkable alpine plants of N.Z. Tasmania, & Fuegia, nearly allied to extensive Australian genus of Stylidium. xxxv wb X₈ 7 North having representative species 18 Mundane & doubtful 25/50 Southern genera (There are 5 cases of representative species between S. America & ♣ Australia & not occurring in New Zealand.) xxxvi 1-13w S 14-19m/X₈, 20-31m/24u/a "New Caledonian" great subsidence of 28-31m/X₈, ↑5-1m/m, ↑2u "Epacrideae" xxxvii tab.m/w see average

HOOKER, NEW ZEALAND

number of species $\uparrow 16m/u$ "that|genera"/w
 This variability is rather different from actual
 vars. for if very polymorphous. vars. are not
 designated. $\uparrow 12-11m/\uparrow 11u$ "necessarily
 vague", $\uparrow 8m/u$ "that|tendency", $\uparrow 6-4m$, $\uparrow 3u$
 "and|variable" xxxviii 1-2m/w How in N.
 America? 3-5m, 8m/w more variable 12m,
 14-15?/u "geographical|characterize", 16-17m,
 $\uparrow 4u$ "Banksia|form" xxxix $\uparrow 12-9m$, $\uparrow 4-2m$

HOOKER, Joseph Dalton and BALL, John
*Journal of a tour in Morocco and the Great
 Atlas* London; Macmillan & Co.; 1878
 [Botany School]
 gd

NB Geographical Distribution; 417 to 446
 whole discussion

1 1-10m 417 24-36m 420 1-6m 421 11-17m,
 25-29m 436 1-7m 440 28-35m 441 4-8m/6u
 "half" 445 1-6m, 23-28m 446 14-23m

HOOKER, Joseph Dalton, and THOMSON,
 Thomas *Flora Indica* 2 vols.; London; W.
 Pamplin; 1855 [CUL, vol. 1 only, I]
 af, cc, ch, ds, ex, fo, gd, hl, ig, in, is, no, oo,
 phy, sp, sy, t, ti, tm, v

NB1 ♦ If very few temperate European
 plants occur in S. Africa probably Africa
 hottest part of world during Glacial period:
 but Heath ♣ extended over whole -

The connection of Flora of Old & New World
 before Glacial period, when temperate forms
 inhabited now ♣ arctic regions - probably by
 Beering St -

Hookers remark, somewhere, that flowers
 whose organs are only a little meta-
 morphosed from leaves are most variable is
 only part of general law, that lowest ♣
 organisms most variable.-

Glacial epoch; p.87; p.101; p.103, 4; 104
 Khasia & India & Java; 105 Japan & China;
 108; 113; 253; 126; 235

NB2 ♦ Mayatts cinquefoil strawberry
 advertised

p.11?; p.13; p 19 to 43; p82; 87; 91 to end
 of Introduction

p.2; p.22; p.28; 56; p89; 91; 165; 171, 2;
 186; 207; 217, 8; 222; 226; 233, 34; 240;
 243 to 248 Ask Hooker; 251 ♦; 258

← (to NB1) Glacial

SB □β (last three references on separate small
 sheet)

over (Flora Indica)

p.13. Remarks that local Botanists new
 species makers (Ch. 4)

p.24 Says generally plants vary more in one
 climate than another (Ch. 4)

- Cannon. (he means 'canon') Similar climate
 in distant areas not inhabited by same or
 similar plants

p26 Plants of N. Zealand more variable than
 those of India

27 Dry hot lower hills of central India poor in
 species

28 Individual variation (Ch. 4)

29. Organs least modified vary most XX

30 Cedar of Lebanon & Deodar

30 Division of vars. of more permanent
 which accompany change of locality ?? (Ch.
 4)

32. Change of value in timber - Oak
 worthless at Cape

32 Great change in medicinal properties of
 Plants in different climates

37 Many extraordinary instances of
 deficiencies, as no Oaks & Pines - Caution
about Islands. Woodpecker & Vulture in
 Australia

41. India & Java formerly continuous! Argues
 against chance introduction as too
 harmonious;- ♣ look at dispersal of
 Boulders.-

41. Good remarks on strife of Plants

82. Mean temps of Equatorial Zones (?) for
 Glacial - at 30° of Lat. 1 for each Degree 1°
 for 300 ft ∴ 3000 = 10° of Lat

87. Lower Himalaya & plant of Ceylon at
 8000ft, often identified (Glacial)

91 India very general sort of Flora (& very
 central site C.D)

92 Local numerous assemblages of species
 only connect on temperate & subalpine
 districts

99 4000-6000ft truly temperate veg.
 supersedes Tropical

113 Connection of Africa & India, especially
 mountain plants p.129 do p152

114 Cases of identical & representative
 species in remote & exceptional areas

- Abnormal very wide rangers but
 disconnected?? ⇒ p.165 do ♣ ↗

237 In Khasia orchids 1/12 of vegetation

(line across page)

p2. On Highness & Lowness - Low variable
 Q

28 Ranunculus species of widely diffused,
 therefore variable Q

165 The most perfect species in group ought
 to be used for classification

171 Organ of vegetation, as wood of no
 value for classification

207 - Orders of limited extent point in many
 directions, just like Cucurbitaceae of Wight,
 though he took distinctness as element.-

217 Berberis aplexus of species (Ch. 4)

218 *Berberis* some species evergreen, some deciduous & some variable - (so in Privet? & Oaks). Q

219 Marked vars of *Berberis vulgaris* (Ch. 4) 233 & 34 on remarkable structural differences in member of same Family. p.234

237 Point of classification

240 All water plants wide rangers & variable The Glacial references are marked at end of Book

p248 "structure of grave interest in a Physiological point of view, but of no weight in systematics"

249 Connecting link between two Nat. Fam.

259 *Corydalis* one of few genera with many species in Himalaya, in which majority are remarkably distinct.-

Introductory essay, 11 28?/u "descriptions", 29u "definitions" 13 5-10m/w Shows how vars. & species run into each other 22-25m

19 20-23m 20 3-6m, 23-27m 21 2-11m 22 3-5m, 20-22m/!, 24u "but\in" 23 1-4m 24 16-18m/16u↔, 20-27m/22-23m 25 4-5m, 8-10m/8w What 11-16w? Yet parentage of scarcely any oldest plants known 16-24m/20w (a) 32-36m, wb (a) All very good against mere climate or change in conditions.- 26 4-8m, 9-14m, 35-36m 27 2u "dry\lower"/2-8m/w How absolutely opposed to Gardner & Bromfield 9-10u "Such\is", 12-17m/14w (a) wb (a) Everywhere existing conditions of existence thought to be cause 29 3-6m/5-7Q 9-10m, 9-33m, 15-16m, 32-33m/32u "leaves\bracts"/33u "perianth" 30 7-11m/11u "2", 12-20m/16-18u "habit\exposures", 28-34m 31 1-4m/w Why put under 2d Head? 32 6-9m, 16-21m 33 21-24m 35 17-23m 37 22-30m 39 16-19m, 23-24m 41 2-5m, 8-10!, 9-11m, 14-19m/15-23w are not oceanic currents Harmonious Look at drift deposits.- 42 1-2m/u "is\continuous"/?!, 3-8m, 19-21m 82 5-9m/w See next Page 83 1-2m 87 9-22m 91 8-20m/10-16w India & Africa oldest parts of world 92 27-30m/w Have you list? Several species of same genus? 32-36m 93 2-10m, 11-16m 96 33-36m 98 29-32m 99 10-11m, 25-28m 101 1-5x/2u "*Gentiana*"/3-4m 103 22-28m/22x/2u "*Malay peninsula*", 32-36m/33x/104 1-4m/w can they have travelled up? 18-23m/w When these connected the few Australians arrived in Ceylon 105 6-9m, 11-14m, 19-23m, 25-29m/26w (a) wb (a) I suppose these species are found in temperate China: this is important.- 106 1-2m/wt I presume absent in Tropics 108 1-3m/1x/11-22m/17x/109 1-4m 112 10-14md 113 15-22m, 27-30m/27-28u

"mountain\Africa" 114 8-11m/9u "Few\identity", 10-16m, 20-24m/18-30w Wandering species seem to connect whole world.- together 32-34m, 35-36m/36u "identity\species", wb Identical Species & representative going together. 115 22u "representation", 28u "*Chilian species*"/29u "representatives"/26-30m/w are these genera Chilian 116 1c/a "Western" East/ 120 5-8m, 17-21m/15-23w during cold period wd be driven here as last refuge 126 (u♣) 11u, 12u, 13u♣, 13u, 17u, 19-20m 129 27-34m 133 2-7m 152 24-28m 165 19-20m/20w (a) ↓w It is only species common to distant points of continents, & when accidental sea-carriage out of case. wb/24-36w It wd be worth seeing in all such cases, whether there were small aberrant genera, indicating extinction. There were cases before in Book. (Myrsine at Cape & Abyssinia a case ??) 170 22-27m 173 28-33m 235 13-17m, 20-23m 237 3-6m 253 1-4m/x

vol. 1, 2 wt 2. 22-33m, 39-46m/41-45Q 22 44-47m, 49-51m 28 43-47m 29 25-28m 33 19m 40 8m 46 (u♣) 17u, 18u, 19u, 22u, 23u, 27u, 28u, 29u, 32u, 33u, 34u, 35u, 36u, 37u, 38u 56 28-32m 89 20-23m/22u♣ 91 8-11m/w here, I think, some temperate forms occur 157 zb 165 35-37m 171 41-46m, 53-56m 172 45-53m 186 9-11m 207 38-43m/w like ancient Fossils - There are living Fossils 217 46-52m, 53-55m 218 30-38m/34-36Q 219 3-6m 222 3-8m 226 35-39m 233 32-37m 234 24-26m, 27-30m, 34-37m, 38-39u "explained\apparent"/w What mean? 237 3-6m/3w What? 37-41m 41-50m 240 1-2m, 5u "thalamiflorous polypetalous", 6-7m, 21-27m, 33-35m/33-34u "all\ranges", 35u "from\stamens" 241 46m 243 ↓m/w If these characters did not vary & so in *Barberus* they wd be good species. 247 1-2m 248 1-6m/2-4"...", 26-31m 249 10-12m/11u "being\structure" 251 41-45md/w♣ Is having a style a peculiarity 258 wt owing to *corydalis* 1-3m, 45m 259 1-3m, 33-34m

HOOKER, William Dawson *Notes on Norway* 2nd edn; Glasgow; George Richardson; 1838 [CUL, I by J.D. Hooker]

HOOKER, William Jackson *The British flora* 4th edn; 2 vols.; London; Longman, Orme, Brown, Green & Longmans [Down, FD, 1st vol. only]

HOOKER, William Jackson *The British flora* 4th edn; London; Longman, Brown, Green &

HOOKER, W.J., BRITISH FLORA

Longmans; 1838 [CUL, S C. Darwin April 1841]

f, fg, gd, mhp, no, phy, v

NB1 178 variety

NB2 *Galium aparina* O hooks on seed & leaves *Agrimonia*? I should doubt acting as hooks In end of August flowers of *Lathyrus Nissolia* do not open ♣ have petals ♣ 1/2 size of those in spring, & of a very pale dirty purple, but yet get seed, are produced abundantly.

NB3 p.35 ♦

(untranscribed w: W meaning Water-plants)

1 21w 2 7w, 23w, wb ♦ some water 3 2w ♦ Marsh 7w ♦ water 40w ♦ water 5 34w, 41w 6 1w 8 14w, 27w, 40-41w 9 8w, 18w, 28w, 37-38w 10 9w 11 31w, 38w, 46w 12 4w, 13-14w, 46w ♦ Marsh 13 20w ♦ Marsh 25w ♦ Marsh 15 4m, 16-19m 16 32-37m, 38-43m, 45m 17 5-9m, 36-39m, 43-44m 18 5-8m, 10-16m, 19m 19 29-32m 21 1w, 6w 24 7-9w, 28-29w, 47w 25 6w, 25w, 37w 26 8-9w, 17-18w, 25w, 37-38w 27 13-14w, 21w, 32w, 47w 28 13-14w ♦, 30-31w, 38-39w 29 4w, 28w, 34w, 40w 31 6w, 12-13w, 18-19w 33 15w, 38-39w 34 43-45w 35 1-8m/4-5w ●, 44-46m 36 10-14m, 22-25w 38 28-30w 40 24-26w 41 11w 50 13-14w, 41-42w 53 26-27w 54 30-33w 57 38w ♦ 58 2w ♦ 60 11-13w, 24-25w 66 42-45w 68 8w, 17w, 34w, 43w 69 6w, 16w, 23w, 27w, 33w 70 6w, 19-20w, 31-32w 71 1w, 18w, 31w 73 7w 74 10-11w 75 4w ♦, 9w ♦, 14w ♦ 89 5w 90 15-16w, 25-26w, 33-34w 93 8-10m, 13-14w, 29w 95 24w, 32w, 40-41w 98 27-28m/w Below Barston 100 22-23w, 46-48w 101 13-18w Eastbourne 107 44w 108 4-5w 110 8-10w 111 43-45w 112 5-6w, 45w 113 4w 114 29w, 36w 115 8-9w, 26w, 34w, 43w 116 9-10w, 20-21w 118 12-13w, 30-31w, 39-40w 120 112-1w Down, Aug 45 129 28-29w 130 20-21w 131 17-18w 132 22-23w, 34-35w 133 6-7w 137 35w 138 4-6w 143 6w, 38-39w 144 4-5w, 12w, 23w 145 8-9w, 31w, 43-44w 146 4w, 14w 147 10w, 34w 148 19-20w, 29w 150 32-33w 151 6-7w, 15-16w 152 16w, 22w 153 3w, 9w, 20w, 34w 154 11-12w, 25-26w, 33-34w, 41-42w 155 9z 160 29-31m 161 3w, 27-28w, 34-35w 162 12w, 15-17w, 35-37w 164 41-42w 165 28w 166 32-33w, 43-45w 167 11-12w 172 37-39w, 45-46w 173 41-42w 174 20-21w, 30-33w 178 28-30m 179 2u 181 10-11w, 20w 190 13-15w, 36-38w 192 11w, 18-19w 206 7-9w 208 33-34w 215 3w, 11w, 19w 216 31-34w 217 17w 218 27-28w, 33-34w, 42-43w 219 2-3w, 31w 220 39-40w 226 44w 227 7w, 18-19w, 26w, 39w, 45-46w 228 12-13w, 32-33w 229 19w 232 42-43w 235 17w 237 41-42w 238

29w Down 36w Down 239 2w Down 13w Down 28-29w, 35-36w 240 20-22w 247 40-42m 249 17-18w, 22-23w, 37-38w 251 24w 253 27w, 35w, 41w 254 1-2w 262 17-19w 270 9-10w 273 zb 274 24-27w Down Aug. 29th 281 15w, 47w Down 282 33w, 34-36w ♦ 284 25w very common 289 5w Down 292 2-4w, 20-21w 296 42-43w 297 42-43w 298 14-15w, 41-42w 299 3-4w, 36-37w, 42-43w 300 5-6w, 39-40w 301 30-31w 302 17-18w 303 10w 304 9-10w 305 18-19w, 26-27w, 40-41w 306 38-39w 307 1w 313 7-9w Down common 15w Maer ♦ Down 27w Beechy Head 314 35-37w Down June 22/43 46-48w 315 3w ♦ Maer 15w ♦ Maer 29w Eastbourne 35w N. Wales 43w Down 316 2-7m, 8-18m, 22-24m, 27-32w Down June 25/43 27-29w Down June 15/43 38w Down 317 3-4m, 37w Down 318 17-18w, 27w ♦ Maer 43-45w Down May 21/54 319 21-22w, 30w Down 320 8-10w, 18-19w, 26-28w 321 18w, 24w, 29w, 39w 322 6w, 12-13w part W 28-29w Marsh 33-34w Marsh 323 33w, 42w 324 6w, 11-12w 325 wb 9 water 3 marsh 328 40w, 47w 329 7m, 9w, 19w, 30w, 47w 330 6w, 14w, 19w ♦, 30w 331 3w, 3w ♦ Bogs 12w, 14w ♦ Bogs 31w, 33w ♦ Bogs 332 5w W/Bogs 28w W/Bogs 36w W/Bogs 44w W/Bogs 333 15w ♦ Marsh 17w, 27w Marsh 29w, 44w ♦ Marsh 45w 334 4w, 5w ♦ Marsh 34w Marsh 45w Marsh 336 6w Marsh 40w Bogs 337 3w rocks 14w Marsh 27w Water 42w Bogs 338 10w Bogs 17w Marsh 35w Bogs 42w Marsh 339 22w Marsh 48w Marsh 340 7w Marsh 48w Bogs 341 10w Bogs 342 33-34w 343 21w, 33w, 41w 344 41u "watery"/w Marsh 345 4w 346 32w Water 347 7w, 20w, 29w Eastbourne 30w 348 4w ♦ Down 350 35-37w part Marsh 351 31w Marsh 352 9w Marsh 27w, wb 1 Water 3 Marsh 354 39w Marsh 355 14w, 35w, 45w 356 36w 357 21w, 43w 358 14w, 27w, 41w 359 35w 363 29w, 41w 364 3w 365 5w 370 34-35w 375 43w Bogs 376 30w 377 4w, 10u "wet rocks", 11w, 32w, 34w 378 30w Water 379 26w, 31w, wb ♦ 434 2m/w 398 19w 403

HOOKER, William Jackson, and ARNOTT, George Arnott Walker *The British Flora* 7th edn; London; Longman, Brown, Green & Longmans; 1855 [CUL] sy. v

NB Q 486 Variability of *Zannichelliae* 166 "39".m, "5".m 167 "7".w 8 "18".m, "23".m 168 "39".m 486 17-22m/Q 560 9-12m/6-10w In 4th Edit. this is a *Bromus* 17-18u ←

HOOKER, William Jackson et al. *Supplement to the English botany of the late Sir J.E.*

Smith and Mr Sowerby vols. 1, 2, 4, 5; London; J.D.C. & C.E. Sowerby; 1831-65 [Botany School]

HOPE, Frederick William *The coleopterist's manual* London; Henry G. Bohn; 1837 [Down, I] ∅

HOPKINS, Evan *On the connexion of geology with terrestrial magnetism* London; Richard & John Edward Taylor; 1844 [Down, I]

HORNER, Leonard *Alluvial land of Egypt* London; Taylor & Francis; 1858 [Down, I] ∅

HOUGHTON, William *Gleanings from the natural history of the ancients* London; Cassell, Petter, Galpin & Co.; n.d. [Down, I] ∅

House of Commons *Report of the Select Committee on wild birds' protection* London; House of Commons; 1873 [Down, I by C.D. Groom Napier] no

NB Dr Groom tells me that there is much in this volume about the increase & decrease of Birds of last year in England
48a 24-30m, 32-43m 121a 50-53m

HOVELACQUE, Abel *Notre ancêtre* Paris; E. Leroux; 1878 [Down] ∅

HOWORTH, Henry Hoyle *History of the Mongols* part 1; London; Longmans, Green & Co.; 1876 [Down, I] ∅

HROMADA, Adolf *Die vorsokratische Naturphilosophie und die moderne Naturwissenschaft* Prague; Druck der Stadthalttereidruckerei; 1879 [Down]

HUBER, François *Nouvelles observations sur les abeilles* 2 vols; Paris-Genève; J.J. Paschoud; 1814 [CUL, pre-B] beh, che, em, f, fg, oo, no, phy, sx, ta, v

vol. 1 SB 171 Queen killing sisters 10 minutes after Born -
184,198 can sting each other without being killed, but risk is run.
190- How Bees treat strange Queen
220 Queen killing larvae of other Queen
231,235 mistaken Instincts

◆ Not abstracted

169 2-3w Read 171 ↑6-1m/↑6u "peine | minutes" 184 10-22m 190 ↑11-9m/↑10u "la reconnoissent"/↑12-9w their own Queen ↓w

W. Fox says workers know strangers 198 1-5m 200 5w Read 208 1-2w Read 220 9-18m/w V.224 ↑7-1m 224 3-7m, 11-13m 225 4-9m 231 ↑8-2m 235 ↑5-2m 359 ↑3-2w Read ♦ Read 360 1-3w Read

vol. 2 NB 104 - Wax secretions piling wax 140 seems to consider architect a different race

SB □R (2 sheets)

p426 to 430 Very good

43♦ show same peculiarity appearing in many ♣ Evidently different for old & battered Bees.)

442. Bourdon workers lay only Males & Workers

444. Ants always killed by copulation

It seems quite possible that the 1st row may be formed differently, as they cannot initiate work with usual number of Bees

(over)

66, 67, 69 X Instinct 188

98; 110 Vide Pl 4; 120; 141 to 187; 211; 215 219 Instinct bending comb

286 The fallen comb

222 to 226 size of Drone cells.- gradation of size before & after. 3 or 4 rows or when Honey abounds (247) Bears on W. Indian cells

234 to &c

238 inclination of prisms to base not yet inserted - distorted.-

250

342 Ventilation 357 to 360

374 Bees begging for Humbles

Huber proper Bees have very acute smell - (2)

On First Wall p110, 146-141

□ thus

2/3 of diameter of cell

175 repeat over & over again edge rounded of outer margin of base of first cell

235 ribbon of wax surrounds whole comb when bigger

(over: drawing of small circles and hexagons)

(words here indicate that this is a scrap torn from the abstract of a different book and re-used)

66 15-20m 67 1-2m, 7-11m 69 5-8m 98 9-12m 104 20-25m 108 11-18m 109 13-22m 110 6-9m, 6-8u "six | cellule", 12-13u "mais | élévation" 120 6-8m 140 3-8m, 10u "les | architectes" 141 19-21m/20u "petite cavité", 21-23m 142 3-5m/3-4u "bords | cire", 8-9u "mais | alongés"/w this will be the posterior face 14-15u "étant | alongé", 17m/9u "de | diamètre"/u "portion | brute" 143 wt □ [He speaks of this as connected with ^ independently of walls] 3-5u "Le | rectilignes",

HUBER, ABEILLES

4-13m/5-25w If the sides of separate cell one are angular before other cells formed fatal to my theory. opposed by my facts.- yet Icaria; but Icaria only becomes angular after some cells formed 20-23u "douées | épaisse", 23-25m, wb [This is very last part excavated!!! that they begin near where 3 planes meet.] 144 11-13u "ainsi | autres" /w | presume simultaneously 146 2-5m/5u↔, 11-14m 147 18-20m 148 16-17m/17u "une | droite" 149 15-23w when (1) cell only 2/3 of diameter in height ie. 2/3 of total height what will acquire 150 3-4u 151 7-8u↔, 17-21m 152 16-18m, 21-23u±/w ♦ Queen cells 153 2-4u↔/2a "derrières" /wt or posteriors 12-22m/12-13u "tardèrent | partie", 18-19m, 23-24u "à | là", wb [I believe never done, except when cell added or where Bee can stand] 154 4-7m 155 11-18m 158 19u "approfondir | cavités", 22-25m 159 13-18m 161 12-1w/wb [Here he speaks as if 1st cell completed before any trace of other 2 above on same side, & one above on opposite side. inaccurate 164 5-9m/5u "mais | elles", 8-11m/9-10u "elles | cavités", 17-19m 165 1-2u "dont | prolongés", 3u "tandis", 9-12m/9-10m/u↔, 16a/u/wt, 22-24m, 23-25u↔ 168 6-7m/w 1st cell of 2d row 7-8u/8a "mais quelques" other 15-25w He speaks as if one hex outline of 3 rhombs always first formed, ♦ but says nothing about these being zig-zag 169 2-5m/4-8w so that they begin on level of base of prisms 7-11m/1-11w Error here hexagon before excavating 16-3m/w Error 15-3m/w/wb it seems that this rhomb was completed on one face before the face in 2d row was begun: I doubt this. 170 1w [Here it is clear, that he thinks hexagonal outline completed before excavation begins 12-1m/wb it is clear that they perfect one rhomb & then other two 171 wt/1-5w I may say after outline of trihedral pyramid formed; & added to, the outline seen through wax guides according to Huber the excavation of the base & making the internal planes 1-3m, 7-8u↔ 172 2-5m/4-9w ie first of 2d row on posterior face 173 20-22m/21u "d'abord arrondi" /w always round 175 1w [Error - in fig 21 he draws hexagonal outline with no pyramids!! 18-6u±/m/w but then all outlines obtained ♣ from adjoining cells 176 12-16m, 18a "élevant" /18-23w first an arched line, then converted into 179 2u "aucune | bornent" 180 wt/12-18m/1-19w Here he shows he thinks hexagonal outline at first up & down vertically 15-16w of pyramid bases 182 20-24m/21u "alternativement" 183 14-17m/16u "l'obscurité | gâteaux" 184 6-14m/12u "creuses |

bloc", 21u "une | des" 185 8-11u↔ 186 8-15m, 16-19m 187 wt [I doubt about wax being added in successive stages.] 5-11m/7-11m 188 2-7m/4-5w Internal 211 1-5m/w How can this be considering Drone cells & other irregularities? 215 6-9m 219 10-17m, 18-20m 222 1-6m, 24-25m 223 1-3m, 9u "trois | quatre", 14-15m/14u "à quatre" 224 7-8m/8u "formes bizarres" 226 15-16m/15u "il | poute" 227 7-12m 228 4-8m/w because cd not stand to measure?? & edges rounded?? 234 13-17m, 20-25m 235 10-16m, 23-25m/w/wb the little wall of first wax surrounds the whole comb 236 5-8m 237 15-20m 238 3-5m/4-5u "quatre | cinq" 242 1-3m/w/wt no pyramids like case in Fig 2 Pl IX 247 6-8m/w Drone cells 250 7-12m 252 wt All about Proportions except words about fallen comb. 256 12-16m 286 19-25m 287 23-25m 288 16-19m 294 16-20md 295 24-25m 318 (err. printed 317) 3u "à | quart" 342 wt Has shown by laborious experiments; that Bees require constant ventilation on acct. of carbonic acid, & that they do ventilate the Hive. 1-14m 343 1-3m, 24-25→ 344 17-18u "dans | tout" 357 5-9m, 13-16m 360 20-24m/w only workers know how to ventilate 374 12-16m 426 12-16m/w Hated & killed by other bees 428 16-17u↔/12-19w shows [vast] number affected same way 430 7-16m/12-13m 433 22-25m 442 11-19w Many workers of Bourdon fertile & lay only male eggs 444 3-9m

HUBER, Pierre *Recherches sur les moeurs des fourmis indigènes* Paris; J.J. Paschoud; 1810 [CUL, pre-B]

beh, cc, em, in, mg, oo, phy, sp, sx, v

20 3-7m/? 60 14-17m/14u "fourmis rouges", 18m, wb F. rufa in tree at Moor Park 61 10-12m/11u "représentent | l'enfance", 14-15m 75 4-10m 77 9u "au sexe", 12-14u "donnent | mâles" 79 9-11m/10-15w differs in larvae of different seasons 22-24m 80 21-24m 84 16-20m 85 24-26m, wb Differ in species & variable in individuals 88 11-14m 110 4-7m, 8-10z 111 10-14m 114 6-8m, 9-11w Virgin Queens 12-15m 115 5u "cet | leur" 116 21-24m 118 15u "le plus" /16-19m/w Free Queens feed themselves 144 wt Migration 3m/u "puis | femelles" 145 24→ 146 23-24m/w Make roads 150 15u "quatre mois", 17-19w 4 months afterwards 22-24m 151 1u↔, 9-10m 159 4u "fourmis" /5-6u "ont | d'armes" /4-6m/w what genus? 7-9w V. Latreille Treatise 165 9-13m 173 17-24m 179 16-19m 181 7-8m, 15-17m 183 13-14m 186 5-9m 188 9-20m/9u "les | manoeuvres", 20-23m 189 7-12m 192 5-

8m 193 24→ 194 4-10m 195 24→ 196 3-6m, 8-10m 201 wt X Coverings for Aphides on stems. 8-10m/x 204 19-22m 205 19-21m, 22-24m/→ 206 5-7m 207 1-4m 210 13-15m 212 12u "larve|nymphé" 213 1-5m/2-3w like M 215 2-5m 216 3-6m/4u "indifféremment|ces" 219 12-13m 228 1-4m/3a "soin"/wt of the males & females 229 7-12m/12u "gardent|nid" 230 2-8m 231 14-16m 232 14-17m 233 9-11m, 12-14m 234 1-3m, 8-10m, 15-16m 235 8-9m, 19m, 21m 239 10a "retour" without Booty 10-12m, 17-21m 240 11-12m 241 1-5m, 7-20m 242 9u "noir-cendrées"/w F. fusca 14a "mineuses" F. cunicularia 243 20-21m 244 1-4m, 6-10m 245 7-10m 251 6-11m, 10-12m, 15-16m 252 7-11m/8u "rarity", 18-24m 253 1-4m, 11-14m, 17-19m 254 13-16m, 17-19m 255 4-6m, 12-13m 257 12-14m, 15-18m, 23-24m 259 3m, 16-22m 270 8-11m/wt/1-15w They must mistake the amazon workers, for males or females, for these are fed by their own workers. 14-15m, 16-18m 271 16-17m/16u "une fois", 24m 276 3-6m, 18-20m/w different? 21-22u "quel|cendrées", 23u "comme elles" 277 3m, 4u "quelquefois", 5m/1u "la|auxiliaires"/w different 7m/w♦ What says 8w F 13x/1u "certaines|fourmis", 15u "on|troupes", 18-20m, wb X it is remarkable any ants preying on & keeping slaves of same species 278 22u "cendrées" 279 2u "et|captivité", 113u "assiégées|assiégeantes" 282 7-13m 283 6-9m, 18u "cent|pas" 284 2-4m, 7m, 9-10m, 12-14m, 19-22m/19-24u±, 23-24m, wb not due not knowing road 285 3-5m/4u "fauves", 20u "mineuses"/20-24m, wb F. cunicularia 286 3-5m, 11u "sanguines|roussâtres", 13-16m, 19-22m 297 3-6m/4-10w & variation in individuals as F. Smith shows 300 1-7m 310 10-14m last plate w▲

HUBER, Johannes *Die Lehre Darwin's* München; F. Leutner; 1871 [Down]

NB O/

HUBRECHT, Ambrosius Arnold Willem *Studien zur Phylogenie des Nervensystems* Amsterdam; Johannes Müller; 1882 [Down, I]

HUC, Evariste Régis *Recollections of a journey through Tartary, Thibet and China* London; Longman, Brown, Green & Longmans; 1852 [Down, S]

DIE HÜHNER und Pfauenzucht in ihren ganzen Umfange Ulm; F. Ebnerschen; 1827 [CUL, pre-B]

dg, fg, gd, he, hy, ig, oo, phy, sp, sx, sy, t, tm, v

NB p1 to 21 Rest Nothing

SB 11 Crested Fowl either wattles or beard, parent no beard easily killed by Hawks: cannot see them for tuft ♀ can hardly see to eat) Q

12 Breed without Middle long tail feathers NQ♂

17 Black-boned degenerate in Germany Q♂

20 Hens with spurs NQ

4 wb How many eggs has wild F.? 6 17-18u "vierzehn"/w 14 tail feathers 9 wb (14 kinds with subdivisions) 11 wb The tufted fowls prevent fowls from seeing food & will grow them, & be easily killed by Hawks. who ever would have thought that a tuft on head wd determine whether fowl shd be more easily killed by Hawks.- 9-12w has either flat-tufted or feather beards 18-20m/Q♂, 23-25w Pure breed no wattles 12 wt Some think little wattles because nourishment go to crest - 1-4m, 5u "mexikanische"/5-6w all Mexican Hens said to be of this race 14-17w sometimes feather footed & always rough skin 17w varieties of Tufted Hens 18u "brabantische", 20u "goldfarbige", 22u "Gewöhnlich", 28w Large Birds 32-36w/wb in this & longtail feathers wanting & other tail feathers smaller wb I shd think these were Gold & Silver speckled Hamburgs 13 11m, 18u "Kolo"/13-23w Long in legs with small Body & red flesh with ornamental Beak. Like Philippine Hen. 14 26u "Steissbeins", wb Tailless hens, shortening of coccyx is the cause 16 7-10m/8w (a) 21-23m/22w (b) wb (a) In crisp Fowl Hen has no tail? wb (b) Woolly Hen, black legs & comb common in China, Japan, &c 17 wt Black-boned Fowl degenerate in Germany Q♂, 1-2m, 5-9m/w Mongrels intermediate 11w bantams 17-20w naked feet very small 20w do. 21w feathered feet 24-28w Feet very short Belly almost touches ground.- wb Feet wonderfully feathered 18 21-22u "einen|Schwanz"/19-22w Hens from isthmus of Panama 19 5-10w Philippine Hen with excessively short legs, wings scrape ground 11u "Hamburgische", 13-21w Belly & legs like Velvet very sharp Beak, tuft of feathers over ears Legs & feet blue with yellow soles. 13u/wt, 24m, 25u "paduanische", 26-29w/wb is as big again as foregoing double comb & tuft of feathers Rough Voice 20 wt Bahia Hen race of Padua hen 2u "Persischen|Peguanischen"/2-6m/w Yet their feathers very late 9u "türkische", 10-11w Beautiful feathers 20u "Sansevarre"/w white

HÜHNER

comb; under other comb. 22-23w very big eggs 27-28w Hens spurs like cocks *wb* [I suspect all this copied from some Systematics Book] 21 *wb* See Linnaeus Syst Nat (my copy) vol II p.737 for good references Bright & Pallas & Willughby 3-4w 5-toed breed spur divided 65 *zb*

HUMBOLDT, Alexander von *Cosmos* 2 vols., trans. E. Sabine; London; Longman, Brown, Green & Longmans; 1846 [Down] vol. 1 ϕ

HUMBOLDT, Alexander von *Essai géognostique sur le gisement des roches dans les deux hémisphères* 2nd edn; Paris & Strasbourg; F.G. Levrault; 1826 [CUL, pre-B, S] geo, mi

176 10-13m/11c "O"/12m/w E 17-21m, 32-33m 326 24-26"...", 28-32m 327 9-12m, 14-16m, 18-19w A 25-26m/25w A 31-32m/w A 328 1-11"...", 4-5m/z/5u "grès schisteux", 6-11m/6u "nids roguous"/7u "juxtaposition"/11u "rubanée", 23m/u "zones parallèles"/22-24"...", 30-33m/w No centre to mine *wb* A. do. Obsidian nodules no centre 329 1-3m 334 6-16m

HUMBOLDT, Alexander von *Fragmens de géologie et de climatologie asiatiques* 2 vols.; Paris; Gide, A. Phian Delaforest, Delaunay; 1831 [CUL, on B, S in both vols., vol. 2 Chas Darwin Monte Video Novem: 1832] geo, mi, sp, t

vol. 1 NF1 Metaphysics

NB2 Interesting parts begin P.84; The Andes P143

NB1 27; 53; 97

NB2 Species theory O/ March 57

7 *wb* Metaphysics 27 14-16m 53 1-8m 74 1-20m, *wb* 95 14-20m 97 6-17m/7-8w seems high 133 10c "horizontales"/w secondaires 137 12c "amphibole"/w Diorite 144 15u "Teneriffe"/w Tolima \circ

ϕ

vol. 2 NB 320; 331; March 57 O/

320 12-14m/13w 1200-1500 327 *w* 13m/u "260-270", 15-16w 328 15-18md, 19-20m 329 8-12m 331 7-13m/10-11u "d'un la"/12a "Barrière"/w 1560 13a "Mysore"/w 2400 361 *w* 385 10-15m 386 1-20m 387 15w 62d 560 15-19w \diamond /wb \diamond 621 18-19m

HUMBOLDT, Alexander von *Personal narrative of travels to the equinoctial regions of*

the New Continent during the years 1799-1804, by Alexander von Humboldt and Aimé Bonpland trans. M.H. Williams, 7 vols.; London; Longman, Hurst, Rees, Orme & Brown; 1819-29 [CUL, pre-B and on B; vols. 1 and 2 (1822, in one binding), vol. 3, 3rd edn (1822), vol. 4, 1st edn (1819), vol. 5, 1st edn (1821), vol. 6, 1st edn (1826), vol. 7, 1st (1829); I in vol. 1 by Henslow: J.S. Henslow to his friend C. Darwin on his departure from England upon a voyage round the World 21 Sept 1831] [CUL]

af, beh, br, cc, co, cs, ex, fg, gd, geo, gr, ig, is, mg, mhp, no, oo, se, sp, sx, sy, t, v, ve, wd

vols. 1 and 2 NB 177, 186

SB

Vol I p61

121 top

123 bottom

Abstract at end of last Vol

125 m

195 m

262 b. The diffusion of volcanic Dust explains diffusion of Lichens.

270 m.- an oak allied to that of Thibet. How transported was acorn - Volcanos show elevation, this subsidence - hence Continent extended nearer.- Pidgeons bring grain to Norfolk - Maize to Arctic America Nutmeg - Grain like fishes falls in India. (a)

274 - When studying Geograph of Canary Botany look to this part.

(over)

(a) Bruce describes East of Nile daily, whole troops regiments of enormous dark glittering \clubsuit pillars of sand, raised by whirlwinds

274. Camels abundant in Fortaventura & vegetation different than from \clubsuit other Islands - N.B Numerous wild asses formerly in Fortaventura. Vide Early part of Chapt.

(line across page)

2d Vol

p269 - Goats; 276 t.-

vol. 1, 60 28-30m 61 16-21m 98 10z 171 16-29m/19m/"... 172 2m/"... 199 15-16m/w Geology 203 23-24m 205 21-20z 212 10-13m/w quote on craters of elevation 219 9-11w A 222 11-15m/w A 240 8-12m 262 19-27m

vol. 2, 9 4-20w 35° to 25 or perhaps 30 to 20 called by seamen Horse-Latitude because subject to calms in which horses die for want of water, food & are thrown over \approx 19 5-9w 177 *wb* 6 in year 186 7-9m 187 24-26m 207 4-19m 208 9-17m 209 15-19 210 1-6m 213 5-14m 214 19-22w Agrees with

equatorial rise 20–27m 217 4"..., 12–27m, 28–31.circled 218 4..." 219 21–28m 224 17–21m 225 3–21m, 7w 20 February 19w 20 (1797)? 20–21w 20, wb Guadalupe to Quito 1650 miles in Borneo ○ Rialza to ● 53° of Lat = 3180 m 226 wt (a) Guadalupe & Cumana 400 miles St Vincent to Caraccas 370 – 3–11m/w About 400 miles 16–20m/? 227 12–19m, table.w/wb ♦ 229 3–16m 269 19–23m

vol. 3 NB1 July 6 1881 to p417; April 3 1882 finished

NB2 360; 383; 491, 2, 8, 9

SB

14B Allude to this, when saying, the causes of the progress of intellect from Monkeys to Man is inexplicable.

p42. Aug 1872

48. M.

63. note

71 Mr Milne

P.205 Sleep of Leaves

106. t

227. M & note. like Indian Castes

229 b. expression thinking

234

360; 383 Q; 491–9 Silla of Caraccas vegetation

48 9–14m, 15–17m 106 6–12m 205 20–28m 227 18–24m 229 19–30m 316 wt ● 332 25–30z 333 1m, 25–29z 360 wt Thus man has trained plant to its own destruction.– Nature makes seeds somewhat palatable to ensure dissemination 5–9m 383 wt Birds sing better in one district than in another 5–18m 491 1–13m 492 1–4m/3–4w see (a) 493 12–20m/12m/w (a) 17–18m, 21–23m, 23–26m/w ? do not understand See original wb (a) Have not probably plants migrating from equatorial mountains to both temperate zones & not vice versa – 494 6u "befaria"/w spec. different V x 497 11–12m 495 8–13m, 14–18m, 22–26m 496 2m, 5–6m, 10m, 12–21m, wb a rising mountain, (like isld in midst of sea) affords a station free for seeds to germinate, from other mountains.– We may consider all seeds equally wafted, but their growth in most cases is prevented. 497 1–21m/5w x wb The distrib. of alpine plants, (considering elevation) can only be compared to imagining case of new continent. A desert isld has never been found.– 498 1–4m 500 wt The Befaria is other species 2m, 11m, 15m 520 12–15m, 21m, 22–23m

vol. 4 NB 84, 6; 106; 111; 173; 231; 333; 336; 351; 380; ♦ 384 Geolog. Cop.; 422;

437; 441; 447; 459; 484; 489; 506

p.466–522 ornamentation by Savages

527 Tears Monkey; 528 – recognizing pictures of insects

5 11–25m 6 3–8m 11 8–16m 20 14–19m 21 1–8m 27 10–14m/w 630 miles 29 17–20m 30 1–18m/4–6w with Chimbrazo 32 29–32m 36 13u 20 "1796", 17u 20 "1796"/w 4.1797 28u/w 20 "1811" ? 1812 30u/w 20 "1811" ? 1812 45 20–29m 46 1–15m 84 18–20m 106 1–3m 111 18–21m 112 1–2m 116 11–15m, 12–14m 173 15–21m 231 13–24m 232 8–11m/8w V 246 246 2–9m 333 19–24m 336 18–19m/u, wb in Paraguay cannot run wild 351 29m 380 14–17m 384 13–18m/14–15w Like Patagonia 422 15–20m, 18–19m 437 22–30m 441 24–28m 447 18–20m 459 28–30m 466 14–17m, 17–24m 489 11–13m, 16–20m/17–18u "three | tortoises"/20u "thirty | millions" 490 11–13m, 19–21m 506 1–5m 514 7u "furnishes | colour" 515 5–9m 518 17–22m 522 11–16m 527 7–11m, 16–17m, 22–28m 528 23–29m 556 11–28m/15–19u±

vol. 5 NB 79; 80; 81; 98; 101; 107; 110; 161; 180; 193; 221; 352; 410; 440; 503; 540; 565; 585; 590; 620; 672

17 20–23m 18 15–19m 24 15–17m/w Yes 25 1–3m, 11–13m 26 19–22m 79 3–4m/w like Guanaco 80 18–20m 98 13–20m 101 11–14m, 19–22m, 24–26m 107 1–4m 110 24–28m/! 161 17–21m, 27–30m 180 6–21m 181 26–28m 183 14–17m 193 6–10m 221 24–30m/w & M & p.225 222 1–2m 225 14–19m 352 3–7m 410 2–8m 440 3–14m 454 1–6m, 1–25m 456 2–12m/2–5w Chili 457 1–2m 459 1–11m 503 8–16m 540 11–15m/w V p543 541 16–19m 543 5–12m/8u "squirrels", 8u "parrots"/9u "macaws"/7–8w so dispersed 565 10–16m, 17–20m 585 5–25m/9–22w good to give idea of number 590 ↓w To show how animals prey on each other – what a "positive" check. 8–20w Think of death only in Terrestrial Vertebrates ↓w/wt Smaller Carnivora – Hawks – What hourly carnage in the magnificent calm picture of Tropical forests. Let him from some pinnacle view one of these Tropical how peaceful & full of life 23–25m/wb Probably two or three hundred thousand Jaguars in S. America What Slaughter! Daily – & as many Pumas 620 10u, 12–14m/w 33yr 672 3–9m

vol. 6 NB1 Nothing respect to Species Theory

Granitic areas of Parime p526; p604

NB2 390 Geolog – before any general view & Patagonia

71 17–32m 73 1–6m, 10–26m 74 4–7m 99 26–30m 100 1–16m 101 19–23m 102 14–30m part 2, contents page p. 391.m, p. 624.m 409 wt 2c,

HUMBOLDT & BONPLAND

20-29m/"..." 411 15-19m 417 1-10m 421 13-14? 422 16u "Vincamarca", 17-21m/"..." 423 16-29m 425 2-8m 441 18-30m 461 1-11m 464 1-3m, 19-30m 465 15-18m 466 1-7m 471 17-19m/"..." 503 12-13w 300m 600 16-22m 504 2a "25,000"/wt some error 519 1-10m 526 15-17m, 22w 1020 23-30m/26w 420 527 1-8m, 1-18m/8-17m 529 7-27m 531 1-16m 532 1-30m 533 1-29m 535 1-18m 543 1-21m 579 2-29m 581 1-5m 582 8-25m, 22-25m 583 1-12m 586 1-5m 591 1-30m 592 1-30m/1-16m/11u/?, 19-30m/w I think most decidedly so Either way, but in each spot one direction far more prevalent 593 1-3m, 6-9w not necessarily so, but since appears frequently to happen 17-18w Change as gradual or sudden 19-20m, 28-31m, zb 594 1-30m, 9-10m 595 zt, 1-28m, 16-18m 596 1-29m, 17-25m, wbee 597 1-3m, 8-9wcc, 23-28m, wb n.28 604 24-31m, 24-25m, wb p504 25000 square leagues 609 21-25m 631 11-20m (von Buch) 645 13-20m, 20-25"..." 646 6-10m

vol. 7 NB 51 - Coral

86 - to 90, 291, 309, 320

75; 439

SB □β

Humboldt Vol. I

275 - Suggests the former union of Canaries with Mainland

Vol. 3. p48 Male animals giving milk

106 The male wh. reasons best

227 good remarks on races of Man, especially in mountains, who do not intermarry with others keeping uniform.

383 Monkeys differ in disposition greatly - from certain isld can be tamed easy

360 Birds ♣ destroy corns owing to goodness of seed.-

492 Violet on Peak of Teneriffe common to Pyrenees

493 Silla of Caraccas has alpine plants of same genus as lowlands

497 On relation of Befaria of Caraccas, are specifically different from those of Bogota

Vol 4 p.173 Gyrocarpus, one S. America - 1 India - 2 Australia (Has been put into many orders) some have made order for it & one other genus

p336 wild cattle on Llanos, in relation to Paraguay

422 Alligators males kill each other in love-season (Ch.6)

489 Turtle ♣ lay 100-116 eggs.-

Vol 5 101 The Pulex penetrans distinguishes a new arriver from Creole

193 On great destruction of Cattle, so that Farmer beggared by Bats, & those increase

favoured by Drought - lilyO?

352 Birds do migrate in Tropics

410 Near social plants, generally a few stragglers, at least with trees

503 The Colchicum always solitary amongst grasses: allied plants social.

591 Black Jaguar said never to mingle with others (vars keeping distinct

Vol. 6. & 7 Nothing

51 16-26m/25c "fathoms"/u "20|30"/w ??? feet 52 1-15m/8?/8-9u↔/9?/11c/ wε/Q 25-30m 53 28-31m 54 1-25m, 26-27m 55 26-28m 75 14-17m 87 9-30m 89 3-23m 134 3-34m 291 4-21m 309 4-29m, 27-28m 319 9-21m 320 1-25m, 21-26m 369 13-14m 434 21-25m 439 4-11m 480 1-14m

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fo, geo, mi, se

vol. 1 NF Height of town of Lima above Callao. 582ft p25

Fall of R. Magdalena in feet - p23

♣ p.63. Elevated Shells

63 1-13m

vol. 2 NB Tome Saltpeter Concepcion

259 4-9m, 12-19m 261 6-16m 345 4-6m, 33-36m 346 12-20m 347 5-13m

HUMPHREY, George Murray *Observations on the limbs of vertebrate animals* Cambridge & London; Macmillan; 1860 [Down, I]

NB O/

HUNT, Robert *Researches on light in its chemical relations* 2nd edn; Longman, Brown, Green & Longmans; 1854 [CUL]
cc, gd, hy

NB p.215 to p.239 (p.238 Abstract); p.376; p.378

217 1-3m (Daubeny), 5-8m/8u "its illuminating" 226 1-12w Salt those plants as Silene which have maritime species 13-20m/21-23m/24m/14-24w one might alternate the glasses 229 25-28m/w when 234 36-37m 235 1-3m, 14-16m, 19-23m 236 12-16m, 32-37m, wb This wd do instead of picking off flowers 237 wt Look over annuals & consider which are easiest raised. Werner looking glass? 7-11m, 10-11m/w (a) 14-20m, 15-18m, wb Make Hybrids under red glass. 238 9-10m, 22-36m, 23-36m 239 15-16m, 24-26m, 29-32m 376 5-10m, 17-22m 378 4-19m 379 27-32m

HUNTER, John *Essays and observations on natural history, anatomy, physiology, psychology and geology* and

OWEN, Richard *The introductory lectures on the Hunterian collection of fossil remains* 2 vols.; London; John Van Voorst; 1861 [CUL] beh, cs, ct, em, he, phy, sx, tm, v, wd

vol. 1 NB Add to Hubers case -p.50 Wasps recognizing each other like by ants

Expression 144 Relation of lapping & sucking with form of lips, so as to expose teeth

185 Oxen compared to Cows & Bulls of same breeds with respect to neuter males

(line across page)

Sexual character

♦ p185 → 236 Castration of Bull, short curled Hair on face

♦ 194 Zebra painted for Ass - very good

245 On split Lizards tail will form 2 tails Pangenesis

267 Expression

Hunter remarks p.194 male more eager than female p194 ||"she requires being courted" to give her desires."

p236 Description of Eunuch

xiii 3-14m, 17m, 34-40m xv 8m, 9-13m, 24-30m 45 1-3m 50 27-33m 144 2-14m 185 24-29m/w Oxen of Black Cattle larger than male & female 42u "and|not" 194 18-20m, 22-27m, 28-30m 236 1-12m, 14-23m, 26u "his|curved" 245 20-24m 267 31-32m

φ

vol. 2 NB p.2 Negro small extremities & Head

p.135 Musk Deer has ruminant stomach in embryological condition

322 Geese crossed with wild

461 φHumble-bees 6 or 8 different sizes in Workers

2 20-35m 3 1-7m, 14-19m 135 35-38m

HUNTER, John *Memoranda on vegetation* London; Taylor & Francis; 1860 [CUL, I] phy

NB 1 proof that ♣ shoot in same line with trunk does receive more sap than laterals; (also w by FD)

1 17-19m

HUNTER, John *The natural history of the human teeth* London; J. Johnson; 1778 [Down, Robert Darwin]

HUOT, Jean Jacques Nicolas *Atlas complet du précis de la géographie universelle de Malte-Brun* Paris; Aimé André; 1837 [Down, ED]

HUSSEY, Mrs Thomas John *Illustrations of British mycology* London; Reeve, Benham & Reeve; 1849 [Botany School, S]

HUTCHINSON, W.N. *Dog breaking* 2nd edn; London; John Murray; 1850 [CUL, S] beh, pat, sp, v

NB 24 line on page & rather narrower lines Sir B. Brodie

SB1 □β

39 Pointer which not taught wd move round to opposite side of thicket Q

46 Retriever killing one Bird to bring other Q

111 Dog running straight to bring anything dropped & not on trail

144 Puppy pointing by self Q

279 Different breeds of Dogs more liable to distemper Q

Hutchinson on Dog

SB2 33; 39; 46; 111; 143; 279

9 25-26m 33 23-25m, 26-28m 39 25-28m 46 8u "two partridges"/12-17m/"...", 19-23m/21c€/21-22"..."", 1-26w Colquhoun Moor & Lock - exactly parallel case 48 7-12[...], 17-23[...], wb 231 words 111 10-25m 143 19-24m, 27-31m 144 5-6m, 10-12m, 14-16m 279 27-31m, 40m

HUTH, Alfred Henry *The marriage of near kin* London; J. & A. Churchill; 1875 [CUL] beh, cc, phy, ta, v

SB ♁ Ch. VI; 285 with respect to pigs attributes the result to fat. *; 297 M. Legrain; 302 Reference to Journal

86 1-9m, 7-10m/8u "relative ages" 138 3-6m (Darwin) 142 23-31w animals have no such horror 143 25-32m 146 25-26w oh 152 20-23m 157 28-31m 272 20-22w began with 300 sheep 24-28m 274 17-23m/22u "sign|degeneration" 278 21-32m 280 18-22m 281 13-17m 282 4-22m 283 5-8m 284 22-34w differences in different animals like difference of withstanding changed conditions 285 25-31m 286 7-15m 291 5-10m 295 1-15m 299 1-6m/w 3 generations of Brothers & sisters 7-20m, 19-22m 300 3-4m/3u "fifth generation", 27m/x, 31u "paired" 301 1-2m, 14-16m 302 3u "sixth", 7-14m 305 14-18m 307 18-21m 312 23-28m

HUTTON, Thomas *The chronology of creation; or, geology and scripture reconciled* Calcutta; W. Thacker & Co.; 1850 [CUL] gd, h, sh

NB 202♦

SB1 □β

202 case of Shell, which can bear heats of

HUTTON

plain & ascends above 10,000ft of Himalaya
SB2 202; 408; 407; 410; 413
202 25-27m/Q 407 6-11m 408 1-4m/w
antiquity of man 410 1-5m 413 10-13m

HUXLEY, Thomas Henry *American addresses*
London; Macmillan; 1877 [Down] ∅

HUXLEY, Thomas Henry *The crayfish*
London; C. Kegan Paul & Co.; 1880 [Down,
I]
gd

NB Good facts in last chapter on
Geographical Distribution - Japan & S
Hemisphere &c &c
8 1-2m 10 14-15m 17 18m 19 21-24m 20 9-
10m, 23-24m 22 7-9m 31 17-18m 32 26-27m
33 13-14m 35 7-12m 36 10-12m 39 4-6m 43
8-9m, 10-12m 71 17u "fibrous tissue" 99 3-
8m, 11a/cæ, 12cæ/"..."

HUXLEY, Thomas Henry *Critiques and
addresses* London; Macmillan & Co.; 1873
[CUL, I]
t

NB1 (by FD)

NB2 287 Material & formal morality Used

HUXLEY, Thomas Henry *Critiques and
addresses* London; Macmillan & Co.; 1873
[Down, ED, I to ED]

HUXLEY, Thomas Henry *Evidence as to
man's place in nature* London; Williams &
Norgate; 1863 [CUL, I]
af, beh, em, h, pat, phy, sp, sx, t, tm, v, y

NB ♦ p.65 Diameter of H. Ovum
74-73 ribs; p.110 Owen's quotation
SB1 23 specific characters which man-likes
have in common

24 affinities

27? 26 when possible (Dutch)

X 38 Expression

Boston Journal Nat. Hist. vol IV & 1867 (he
means 1847) Dr Savage (p.211 Huxley 46
do.)

X 48 Expression picking up 50

49 Polygamous

65 to 119

Look at all scores before writing about man

137 Correlation of frontal sinuses & strong
muscles

144 good reference (p.46)

153

♦ Reduction of Wise-tooth

SB2 Man 34 43 ♦

Species th 40 variability in skulls of ♣
Orang

Read Lubbock - Wallace - Lyell - Prichard
- Pickering - Loring O

21 32-36m 23 21-35m/25u "their|than" 24 8u
"possess callosities", 10-12m, 14u "into|
excrescences", 27-30m 26 1m 27 9-12m/w
masculine chants 13-14m 33 15-20m 34 1-
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13m/w The expressive face of young Orang
32-37m 39 17-19m, 21-24m, 27m 40 17-22m/
22-28m/14-28w Important as bearing on
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45 3-6m, 30-31m 46 1-4m, 35-36m, wb On
Chimpanzee p.21 48 18-21m/19-20u↔, 20-
26m, 26-30m/27w Expressions 49 20m/u
"the|sex"/w Polygamous 21-23m/w sexual
selection 50 5u "a|yell", 8-12m 52 7-9m, 13-
14m 59 16-23m 65 19-29m, 34-36m 67 19-
22m 70 9-12m/1-11w Key-note of Book 26-
28m/w Africa 74 31-35m 77 4-7m 81 4-7m 84
1-7m, 10-15m 90 25-28m 91 4u "to|deep", 6u
"as|man", 18-20m, 19u "a|foot", 29-32m 92
13-16m, fig.w fig.20 93 1-2m, 3-7m, 14-17m
94 6-9m, 12-16m 95 11-15m 102 1-6m 103
14-17m 104 zb 20-25m, 27-32m, zb 106 11-
16m 109 18-23m 110 16-19m, 28-37m, 28-30u
"conceive|growth", 31u "or|degree" 111 1-4m
119 2-7m 137 6-29m 144 35-36m 153 13-36m,
wb Skulls in some races fixed in others
variable - Rutimeyer wrong about Orang
brachycephalic

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Macmillan & Co.; 1879 [Down]

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the classification of animals* London; John
Churchill & Sons; 1869 [CUL, I]
em, h, phy, rd, sp, sy, t, tm

NB Sp Theory

p.53 Natural system?

65 - Digit in Fishes

73 Mammary Glands

77 to 85 on Classes

87 Class of Mammalia

93 Placenta - 99

class of 99 Man ♦ Primates

6 wb ♣ 53 32u "rudimentary"/w nascent 65
4-8m 73 21-23m 77 25u "Articulata", 26u
"Arthropoda" 78 13-14m/13u "Annulosa" 81
8u "Echinodermata|scolecida", 18-21m/19u
"Annuloida" 85 29-30w ♣, 29m, 30-31m/w ♣ 87
15-18m 88 13-15m 89 1-4m 93 1-10m 99 4-
10m, 17-19m/18u↔

HUXLEY, Thomas Henry *Our knowledge of the causes of the phenomena of organic nature* 6 vols; London; Robert Hardwicke; 1862 [CUL]
oo, tm

vol. 1 title page 5-12m 16 19-20z, 29-32z 20 19m, 21-26m/22u "limits"

vol. 2 NF (not CD)
38 25m 48 1m

vol. 4 NB Phil 1813

vol. 5 NB1 Fan-tail have tail & feather fixed in relating points; 111 too strong; 113; 122 very good on Relations of all Beings in struggle of life
NB2 122

111 27-31m 113 8-9m/9u "absolutely|one" 115 2m 122 2-32m

vol. 6, 143 1x/u "Sanskrit" 151 8m/w (not CD), 28m

HUXLEY, Thomas Henry *Lay sermons, addresses and reviews* London; Macmillan & Co.; 1870 [Down, S]

NB O/
(other marks by FD)

HUXLEY, Thomas Henry *Lectures on the elements of comparative anatomy* London; John Churchill & Sons; 1864 [CUL]
af, fg, phy, tm

NB ♦ 15; 19; 62; 69; 72; Character of Fishes Birds; 288 (by FD); 140, 143 visceral arches; Have read the last Ch. p.298

SB ∞

15 Sponges true sexual Process

19 Infusoria do

62,64 Fishes & Amphibia hardly distinguishable - (good case telling how unlike say a Frog & Salmon.-)

69 Birds are aberrant Reptiles.

70 Hiatus between Birds & Mammals.

72 Mammae extreme modification of sebaceous glands-

298 Result on homology of skull compared with Vertebrae

15 29-33m/29w Sponges 19 4-7m, 10-12m 62 26-37m 63 1-36m 64 8-16m 69 9-12m 70 35-37m 72 11-15m 75 29-30m/29u "Arthropoda" 76 18u↔ 81 9u↔ "Coelenterata" 80 8-13m/w↔ Molluscoids 31u "Molluscoida" 140 11-21m 289 1-3m/1c/w↔/3c/w↔ 298 2-7m

HUXLEY, Thomas Henry *A manual of the anatomy of invertebrated animals* London; J. & A. Churchill; 1877 [Down, I, S, FD]

HUXLEY, Thomas Henry *A manual of the anatomy of the vertebrated animals* London; J. & A. Churchill; 1871 [CUL, I, S]
fo, ig, tm

NB p174; 248; 375; 387; 461; 469; 482; 484; 486; 491; excelent abstract of the Anatomy of Apes

SB ↗

174 gradation in characters of Vertebrata of Amphibians in amphicoelus nature

375 Intermediate types, Hippotamidae

387 Toxodon show how impossible to construct animal from parts of skeleton

461 on outer & upper incisors some falling out in certain Lemurs - Others permanently have only 2.

76 2-4m 79 zb 115 30-36z 174 22-28m 248 36-38m 375 32-38m 387 16-25m 409 32-36m 461 35-37m 469 1-3m/3a "Cynomorpha"/wt all ● 482 7-14m 484 37-39m 486 30-37m 487 18-21m, 27-37m 491 30-31m 492 12-16m

HUXLEY, Thomas Henry *The oceanic hydrozoa* London; The Ray Society; 1858 [Down]

NB O/

HUXLEY, Thomas Henry *On our knowledge of the causes of the phenomena of organic nature* London; Robert Hardwicke; 1863 [Down, FD]

HUXLEY, Thomas Henry *Physiography* London; Macmillan & Co.; 1877 [Down]
geo

NB 10 variation of compass
10 17-20m

HUXLEY, Thomas Henry *Science and culture, and other essays* London; Macmillan & Co.; 1881 [Down]

HUXLEY, Thomas Henry and MARTIN, H.N. *A course of practical instruction on elementary biology* London; Macmillan & Co.; 1875 [Botany School, FD]

HYATT, Alpheus *The genesis of the Tertiary species of Planorbis at Scenheim* Boston; Boston Society of Natural History; 1880 [Down, I]

INGERSOLL, Ernest *The history and present condition of the fishery industries: the oyster industry* Washington; Government Printing Office; 1881 [Down]

L'INSTITUT: *Sciences mathématiques, physiques et naturelles* 2 vols., 1ère section; 1837 and 1840 [CUL] ϕ

cc, cs, fg, fo, gd, geo, gr, ig, mi, no, sp, y

vol. 1 SF ↗ Paper Boards in volumes; L'Institut & Year on Back

SB □β

255 (he means 253) Mammals of W. Indies – a Sorex in Cuba & Rodents

285 Blocks of Granite in S. Shetland – proof of S. Continent

149 ↗ wt Humboldt wt Andesite Mexican albitic Trachyte 156a 17–25m ↗, 17–20m 173 wt ↗ Edwards on Corallines 192b 3–13m ↗ 205b 26–38m (Lartet), 39–54m 206a 6–17m 243a 2–70m 243b 4–62m (Buffon, Lartet) 247b 47–59m ↗ 248a 66–71m ↗ 253 ↗ wb Cuvier says genus Capromys confined to Cuba West Indies Gervais. 253b 20–40m ↗/34–39m 273 wt ↗ (names of various metallic salts found in mines) 279 wt Blocks transported on Shetland 283b 35–43m/"... ↗ 297b 51–54m 315 wt 319 320 ↗ Brogniart fossil vegetation 319b 16–22m 320a 63–69m/? 320b 44–51m 321a 8–20m 330b 46–53m ↗/48–55m (Ehrenberg) 331a 50–62m/51–61m ↗ 346a ↗ 39–46m, 53u "beaucoup l'arrondis", 61u "radeaux | glace", 62u "des | d'eau"/w of facts? 68–71m, wb ↗ surely a local circumstance 346b 11–15m 367b ↗ 27–52m 369 wt Analogy of Molluscs with Vertebrata 371b 9m/u "centripète"/? 374a 22–62m 405a ↗ 10–25m 417b 47–70m ↗ 418a 1–38m ↗

vol. 2 SB 221 Cross of Cerf & Axis

274 Bees in Nova Zembla Baer

345 Isopod Crustacea 800 young

408 Prevost has crossed two Ranae, but not toad

49 wt 53 53b 21–31m 57 wt 58 84 wt 87 87a 32–35m 101 wt p106 106b ↑28–26m, ↑21–23m 133 wt p137 137a 10–14m/14u ↗ "13", 30–32m 143b 40–42m 149 wt p154 & 151 151a 19–22m (Kirschleger) 154a 3–6m 157 wt 159 159a ↑14–5m 165 wt 169 169b 11–20m (Wesmael) 173 wt 175 175a ↓m 181 wt Read 189 wt 193 misprint V. 189b 3–4m, 8–9m, 14–16m, 22–24m, 24–26w just like Pl ↗ 29–33m, 35–39m 193b 39–41m 205 wt 207, 211 207a 49–54m, 62–67m 211b 62–67m 213 wt ♦ 218 Geology 218a 33–41m 221 wt p221 221a 43–44m 221b 1–3m/3u "zoologie générale" (I. Geoffroy) 229 wt 232 232a 28–29m, 32–35m,

49–50m, 54–57m 233b 16–21m 237 wt 242 Geology 240 242a 4–11m/5u "le | servant" 255 wt 256 256a 13–14m/u "par | germes" 269 wt 271, 272 271 wb Nylgerres?? step to S. Hemisphere wb ♦ I suppose Nylgerries vegetation is analogous to Cordillera according to Humboldt – European genera, species all different geographically (considering revolution in climate) Mountains of Caraccas, further than with European, like the ↗ 271a 59–66m 271b 5–11m, 30–50w West Indies mountains in relation to Caraccas – Tierra del Fuego: is more connected 53–57m 272 wb No doubt M Martins paper ↗ on the vegetation of Alpine in Europe ↗ 272a 37–39m 272b 7–12m 274a 34–36m/w Means of crossing plants wb Look in Index for former paper by M Baer on some plants not flowering 274b 9–15m, 50–70m 275a 10–16m 293 wt 293 293b 5–12m, 19–42m 301 wt p303, p306 303b 14–16m (Martins)/14–19w This author wrote in Bibliotheque Genève 20–23w 2d paper abstracted in L'Institut 306b 15–18m, 27–30m, 47–51m, 54–47m, 58–60m 313 wt 316 316a 63–68m 321 wt 321 321a 33–37m 322a 42–45m/43u "non | Phoque", 62–65m 329 wt 336 336a 23–27m 345 wt p345 345a 23–25m 381 wt 381 381b 42–43m 389 wt 392, 394 392a 58–60m 394a 58–60m 405 wt p408 408a 14–17m

ϕ

437 wt 444 444b 35–58m, 61–62m, 65–69m

INTERNATIONAL HORTICULTURAL EXHIBITION and botanical congress London; Truscott, Son & Simmons; 1866 [Down]

114 35–39m 115 28–32m 117 30–31m

IRMISCH, Thilo *Beiträge zur Biologie und Morphologie der Orchideen* Leipzig; Amrosius Abel; 1853 [CUL]

fg, oo, phy, tm

SA (not CD; pp. 78–9; tr of part of fn; then:)

(Compare A Brogniart's treatise ↗ on these plants ety –) that however Brown's opinion (in which Brogniart agrees with him) according to which the fruitful stamens of Cyriped belong to a different whirl, than does the Stamirodium,

(over)

is the one, in accordance with nature – the history of development also most clearly shows.

NB 25 ♦ Birds nest not parasite; 78 View of Anther in Cyripedium; 55 Epipogum

vii 39m, 40m viii 14m, 26m, 27m, 39m 22 23w R 25 36w not parasite 55 6–9m 78 44–46m

JAEGER, Gustav *Die Darwin'sche Theorie und ihre Stellung zur Moral und Religion* Stuttgart; Hoffmann; 1869 [Linnean Society of London, I]

JAEGER, Gustav *Die Darwin'sche Theorie und ihre Stellung zu Moral und Religion* Stuttgart; Julius Hoffmann; n.d. [CUL]
ad, beh, cs, no, oo, sx, v

SB (following from p. 63) X old Black rat with Aegyptian parent, the colour was not originally black – Now the Hanoverian Rat occasionally produce a blue-black var & it is said this var is rapidly increasing – so that he believes will sooner or later supplant the common brown var.– This he attributes to much greater difficulty in Cats seeing the black var. in the dark in Houses.–

NF p86 Crossed marked Pig (this book only 64pp)

14 5–20m 16 20–22m ♦ 18 18–27m 19 3–29m
20 3–29m 21 14–26m 39 8–15m (M. Wagner)
55 4–27m 56 1–25m 58 9–23m/12–21w
Measured legs & neck of Flamingos & P.
very variable the long-legged being the more
numerous. 23–25m 59 1–13m/w The male
chosen or favoured by the female 13–26m/w
J; who has had not much experience with
animals, ♣ states that he has observed a
male silver pheasant which ♣ had been
victorious, had been chosen by the female,
had its ornamental plumage spoiled & ♣
immediately his rival got the upper hand &
led the flock. 60 22–27m 63 24–27m/w From
comparison of X → (rest on SB)

JAEGER, Gustav *In Sachen Darwin's insbesondere contra Wigand* Stuttgart; E. Schweizerbart; 1874 [CUL]

ad, beh, br, cc, ch, cs, dv, em, hl, in, mhp,
oo, r, sl, sp, ss, sx, tm, ud, v, wd

NB 106 Climbers; 243–244 Expression

SB1 ☐ ☒ ∞

p.4 to 16 on ammonites & c changing in
successive strata & on variability

p.29. variations which were perpetuated
without selection

p.33–39 causes why fruit & flowers not
made very large by nature, as under
cultivation

40. Selection cannot act on embryo, in
relation to environment

48. explains how use increases a part.

52. thinks insects feeding on a new kind of
plant, wd gain a new odour & wd then not
cross with other individuals

69 Eggs of silkmoth vary in resisting cold

70. Several pigeons killed by Hawks all
white or yellow vars.

86 Higher form can adapt Characters &
range further??

90. In all divergence there is always
advance or retrogradation of organisation

114 nictitating membrane a necessary
constituent of Eyelids

SB2 (an apparently unrelated fragment)

SB3 ∞

on account of view of constant (old) forms &
variable forms considers dom. plants & ●.–

The grain ○ a fixed form, but many allies –

The ● fixed very isolated – Plants wd be
best – Is any cultivated & variable plant
monotypic?

☞

p69

p102 good nectar

All marked

p243 Expression

p106 Climbers

(over) Many marks; p38

SB4 ∞

p.115 on use of skeleton of Vertebrates its
ground-plan.–

p.130–134 Sexual S. use of barb of fishes
as exciting organs.

176 to 183 Each new modification
necessarily throws back the embryological
stages, unless whole evolution is longer –
(not so with insects)

4 23–28m 5 1–3m, 1–23w It is a mistake to
assume all species variable – Yet domestic
20–24m, 28–30m, 34–36m 8 23–26m/25–26u
"nämlich variirende" 9 31m, 33–36m/w/wb It
may be no selection also ○ wb If all species
varied equally all wd be in confusion 10 5–
16m/7–21w very false calculations. number of
species wd not arise Case like Russia ○ 11
29–36m/w 2 periods 1) of plasticity & 2)
invariant 12 wt It is strange all animals ○ shd
have lost their flexibility at same time 5u
"Biegsamkeit"/w flexibility 14m, 18–21m/18–
36w if long exposed to same conditions form
hardens & loses plasticity – how came it so
many domestic forms vary. 29–30u "sondern I
Art"/m, wb variation makes the form new &
vigorous. This is like effects of crossing (a)
13 12–15m/w (a) 14 wt This is proof that the
variable forms have given rise to many
species. 1–4m 15 8–14m, 20m, 26–30m/w (a)
wb (a) Yet Terebratulae very old & yet very
variable: so Foraminifera 17 4m 29 7–9w
without selection 15–18m/w with selection 30
3–12m/? 33 22u "Stiefmütterchen"/11–22w Not

JAEGER, CONTRA WIGAND

good soil for many generations— often start from too large fruits— Pang 34 25m 38 15–21m, 27–30m/24–36w no naturalist could improve variability in characters not possessed by the forms 39 4–7m/1–5w/wt To make gigantic gooseberry like gourd tissue would have to be allowed & roots for supply 40 6–11m/w cannot act on embryo before Birth relation to external conditions 48 4m, 32–35m 49 1–8m/3–5w blood increases in 33–36m 52 12–20m/13–24w odour of mint probably easily changed, & thus wd not pair with old stock. 53 29m 69 20–26m/w Eggs varied in their resistance to cold. 70 13–17m/w struggle between nestlings & Caterpillar 21w (a) *wb* (a) found several pigeons killed by Hawks & all were white or yellow vars!! 86 27–36m/14–36w Higher forms can range further can adapt themselves more? 87 8–12m/w extermination only when(?) 88 5m/1–8w ♦ On progressive development 90 6–9m 92 1m 99 18m 102 ↓w & protected from rain & evaporation & stored for use – & saving of Honey from other preys 22–27m 103 1–5m, 19–22m/w to decrease number of visiting insects very good 104 22–31m/8–29w Thinks visitation by insects searching for pollen might cause secretion of Honey— 106 24–28m/1–29w Plants growing in shade have thin stems – a character of climbing plants – no movement of Axes by wind 107 10–14m/7–28w Fruits stronger leaves support the plant 114 9m, 18–19u "nothwendige Augenlider", 17–21m/w The nictitating membrane a necessary constituent of Eyelids 115 24–31m/w thinks I am wrong 117 26–26m/29w (a) *wb* Roaring to disturb prey & then to track them?? & so with Rattlesnake 130 17–24m 131 14–23m 133 1m, 4–8m/7–9u, 8–30w Thinks males are sacrificed to protect female for good of species??? 32–36m 134 8–29w Brilliant male butterflies decorated to save females, whilst laying??? 163 23m 176 wt With each new change – process of evolution necessary thrown backwards – not so with insects 3–11m, 22–25m 183 1–7m 190 24m 218 10–12m 240 13–18m/w Instinct of Dogs to scratch backwards variable 242 1–11m/2–3w Expression 244 wt good criticism – an habitual movement implies nervous force – I ought to say nervous force independently of any use 3–4m, 35m 245 18–19z, 23m 246 2–27w accuses me of confusing Reflex & partO-voluntary movements 250 17–26m 251 10–19m

JAEGER, Gustav *Lehrbuch der allgemeinen Zoologie* 2 vols.; Leipzig; 1871–78 [Down] ♂

JAEGER, Gustav *Seuchenfestigkeit und Constitutionskraft* Leipzig; Ernst Günther; 1878 [Down, I] ♂

JAEGER, Gustav *Seuchenfestigkeit und Constitutionskraft* Leipzig; Ernst Günther; 1878 [CUL] ♂

JAEGER, Gustav *Zoologische Briefe* Wien; Wilhelm Braumüller; 1876 [Down] ♂

JAMES, Constantin *Du Darwinisme ou l'homme-singe* Paris; E. Plon & Cie.; 1877 [Down]

NB O/
♂

JAMESON, Robert *Manual of mineralogy* Edinburgh; Archibald Constable & Co.; 1821 [CUL, pre-B, S] che, geo, mi, se

NF1 ♂ Charles Darwin Esq. MD, FRS, ASS?? Member of the Royal Medical Society of Edinburgh Honorary Member of the Royal Plinian Society

NF2 Tusus ♣ Contrarius Ceriltrum Giganteum

(*u = mainly colours of rocks etc*) 4 10w is this emitted from the Trap Rocks near Edinburgh 6 18w Is found in the oldest primitive rocks 10 22–27w Owes its deliquescence to the Lime & Magnesia Blue & Red colours are owing to the Iron 11 17w Rock salt has never been found in Scotland 17 7w Sub Sulphate of Alumina 23 7–8w Easily distinguished from Marble by yielding to the Nail *wb* Easily mistaken for Satin Spar but can be distinguished by its softness 28 10–11w melts like Ice Before the blowpipe 36u "rare/w very 29 wt All Alum is not prepared from this Mineral 29w Always associated with Volcanic Rocks 31u, 35u, *wb* * Fluor – called so from being used as a flux 30, 19–20[...], 19–26w False Topaz (& according to their respective colour are called false gems.) 31 10w Chlorophane 32 1w Phosphate of Alumina *wb* Phosphate of Lime was formerly thought to belong solely to the Animal Kingdom: & after that, it was thought to be an animal formation 34 *wb* * First discovered in Arragon 35 6–18z (*drawings of crystals*), *wb* Fragments of Arragonite will scratch Calcareous Spar. 36 3u, 29u, 30–31z 37 2w Iceland Spar 38 20–21w Never contains organic remains 39 wt A block of Statuary Marble values 200- 4–11w while marble equal to the Sarian is found in small pieces

in Sutherland 40 34m, *wb* The Break-Water at Plymouth is composed of this rock; & therefore is much attacked by the Pholas. 41 *wt* Sometimes this limestone contains fragments of shells such as the Nautilus &c, & gives rise to a very beautiful appearance.— it is called Fire-Marble 20w Is supposed by some to be of volcanic origin 21*, *wb* * It is disputed whether this mineral is caused by fusion; or by fragments of a broken strata ejected by the Crater 42 18m/z, 19–21w Formation of distinct concretions 29w occurs only in Secondary rocks *wb* * Is only found in very small quantities in Scotland; but is found in great quantity in England 44 1–4w The Flint only occurs in 3 upper deposits 9w The newest of the Secondary Rocks 11u, 19w Extends from Flamborough Head down to Sidmouth 20*, 20–21w so-called because it is found emitting through rocks So called from Agaric 45 3–4u/w in Salisbury Craigs 11–12w does not yield to the Nail.— 31w is continually forming 46 7–9w generally diverging 32* 47 24w * Nearly all Rome is built of a compact Variety of this Mineral 28–30z, 31–33w Formation of the Concretions 48 31*, *wb* * Easily know by its pearly lustre 49 24–26w * So called from Lucullus a Roman Consul who proved these sorts of Marble 33u "*fetid*"/*wb* Owing to Sulphurs Hydrogen *wb* * If the variegated specimen be immersed in weak Muriatic Acid The limestone is dissolved, but the animal matter remains.— 50 22w Owes its colours to bituminous matter 26w Often globular 51 19–27z 52 *wb* : It is Carb. of Lime with Alumina & Silica met with in the Coal Series 54 17w also accompanied with Copper Pyrites is called Copper Slate 20–23w Owes its dark colour & bad smell to animal matter 55 *wt* Extends for a very great distance in Europe & varies extremely in thickness 5w Magnesian limestone 13–14w Called so from Dolumin a celebrated French Geologist 22–25w Is harder & heavier than limestone 30w sometimes it is slightly flexible 31–32u 56 7u, 16*, 18w Only occurs in Secondary Rocks *wb* * The Cathedral Walls of the City of York are built with this mineral 57 11u 58 16u 59 16u 62 27–28u 63 14–15w The Damascus Steel is supposed from this mineral 29u 70 1–3m, 28w from Dr. Withering 71 30w 2 also in Shropshire 72 20–21w Something similar to Porcelain Earth easily distinguished by its great Sp. Grav. is called Cawks 74 11w Is of most common occurrence 77 *wb* Calcareous. Fluor. Heavy. Spar. often occur together 78 14–18w Alestone looks like some varieties of

Quartz. but of course much softer called so because the first kind that was described was of a blue colour *wb* (The term Sparry is nearly synonymous to Foliated) 82 4*, 34–35u, *wb* * Occurs most abundantly in the upper parts of the vein 88 3w has lately been met with in Brazil 4* 89 *wt* * Have not I a specimen of this in my Cabinet? *wb* (Nearly all these Lead Spars are daily forming: thus Spades &c have been found coated with Carb: of Lead) 98 17w Carb: of Copper 106 4w to shine 14w Arcenate of Copper 20u, *wb* * By a late Analysis appears to be Phosphate of Alumina 107 7w * Phosphate of Uranium 108 5–9c 114 4–7z 115 17w x Phospate of Iron Vivianite *x/z*b 118 1u, 2u, *wb* Occurs in isolated irregular pieces in different strata.— 119 5w Talc is derived from a Japan word meaning Tallow 12u, 13u, 18w (*Greek*), 25u, 26u 120 9–14w Nearly always contains Magnetic Iron Ore 121 4–9w often accompanies & is intermixed with Shock-crystal 24a/w dark copperish 122 14w in Calton Hill Arthur Seat Pentland Hills when heated changes into a red which is used as a pigment 26u/w pearly 35u, 36u 123 *wt* Crayons are prepared from produced Talc mixed with the various colouring matters 17w The Chines ornament their walls with ground Talc *wb* (Rouge is made by extracting the colouring matter from Saffron by Carb. of Potash praecipitated by Acetic Ac. * sediment is well mixed up with powdered Talc) 124 2–3w made into Culinary Vessels 12–13w Used for coating Furnaces in Norway 126 5w & in by ● Shropshire 127 10u, 14–15w Case 2nd of the Museum begins here 32u 128 18–21w occurs sometimes associated with Volcanic Rocks 35w * from its scaly structure *wb* very beautiful 129 5w rather unfrequent 26u/w X Foliated Structure 130 7w lustre inclining to Metallic 131 3u, 28*, *wb* * looks like Bronze 132 15u, 30u/30–31w Copper colour 133 12u, 16w occurs as a constituent of Greenstone 134 16u 135 11u/w colouring matter 32–33m 136 20–24w Called so from a Dutch officer who first discovered it in the Cape of Good Hope ↑6x/*wb* x generally botryoid & internally diverging 138 17u, 28w rests upon Calcareous Spar in drusy Cavities 139 31u 141 5u, 6u/6–10w named White Garnet generally assuming the form of Garnets 12u 142 2u/*, 4–6w * The lava generally contains a good deal of Soda. whereas the leucite contains only Potash 22u 143 34–36w The crystals are generally twin placed cross-wise 147 12–15z, 12u, 16u 148 *wb* (Supposed Zeolites to be formed by

JAMESON, MINERALOGY

infiltration) 153 4w Warelite. Appendix II P333. 9u/w Signifies a Rock 154 13w from the mountain Adula 156 6w appears to have suffered heat 22w One of the most abundant minerals in the Crust of the Earth 157 9u, 26-27w contains Soda not like the other Felspars, Potash *wb* Potash was first detected in the Mineral Kingdom in the Lepidolite 158 1-2m/16w this perhaps ought to be a distinct species 159 3-5w Salisbury Craigs * the White variety 160 1u, 2-5w Braid Hills Pentland Hill There must be some 100000 tons of Soda in this rock 23w is met with in the centre of solid granite & deep in mines 161 28-29w For the process of making Porcelain see Jameson's System. 165 3w from shining 8-9w The green colour in the secondary rocks of Edinburgh is caused by augite 21u, 34-35m/w colours owing 167 11-12w from Coccus a grain 170 25u/w blended in other rocks Refers to its toughness 28-29w contains much less Magnesia than Augite 172 6u, 7w from occurring in Basalt 8u, 20w Arthurs Seat 27u, 29u 174 2-3w from a mountain in ● land 26u/z 175 21-22w is composed of very minute crystals of White Hornblende 176 4w mountain leather 12w Hornblende 30u 177 30w from Pistachio - green 32u "green" 178 33u 180 22u 181 4w Lapis Lazuli. App. II P.317.- 10w from Andalusia in Spain 182 6-7w might perhaps used as a substitute for Emery from Saussure. 18-21w Case 3rd of the Museum begins here.- 183 wt * Spinel occurs by far most beautifully near Equator 9w * Spinel Ruby 12a, 24u/w Colouring matter 32a/w The most beautiful specimens *wb* (many gems are composed of Alumina) *wb* * The most beautiful specimens was in possession of Josephine O 184 27u, 32w is highly crystallized Alumina 185 9u, 27u, 33-34w must be distinguished from the Spinel is an uncrystallized Sapphire 186 3w Chiefly composed of Alumina 10-12w may be supposed to connect Emery & Sapphire 188 wt I think it not impossible that some time Diamond will be found to be a vegetable secretion 2u, 3u, 6u 189 15*/*wb* * Said by some to have been the universal solvent 190 ↑11*/*wb* * when polishing on the wheel it flies into pieces which the true Emerald does not 191 29-30m/30u 192 10*/*wb* * Beryl is well described by Pliny 193 3-9w is an old Saxon word expressing the disagreeable sound caused by the friction of two pieces of Quartz 194 14*, 17-18z, *wb* * It is Silica coloured with Iron Manganese 195 11w in its upper part 15-19z, 33-34w very rare in

Secondary & Tertiary rocks *wb* * in Specimens from Dauphigny have one very large acuminate plane the 5 others being almost evanescent 196 wt sometimes encrusted & interspersed with Chlorite 8u, 10w are distinguished from Topaz by inferior Sp. Grav. & Hardness 12*, 18w never occurs crystallized 26w Silica coloured by Manganese *wb* * When put in dry places, exposed to the light loses in a few years loses its colour 197 wt X The massive variety is easily distinguished from all other minerals by its superior hardness 4-5w A flexible variety occurs in Arthurs Seat 21w from its light green colour.- 198 ↑11*/*wb* * Common Quartz impregnated with Iron 200 2w wood petrified with Hornstone *wb* (The Tick tree in Calcutta has been known to form a strong Mineral. like Woodstone) 201 8u/w owing to Bituminous matter 12w is often traversed by veins of white Quartz 17*, 18w That variety which is free from veins is used for touchstone *wb* * by comparing the streak of the pure gold, with that of the specimen assaying 202 wt is of rare occurrence in Scotland owing to the scarceness of Chalk 10-13w The base of pudding of stone in quartz; the concretions flint 13w from Calcedon in Asia Minor 16x, 18u/18-21w where blue is called Sapphirine by the Jewellers *wb* x The dendritic variety is called Mocha Stone from a place in India or from a German word signifying moss, this appearance is owing to Iron & Manganese 203 1x/wt x is mentioned by Pliny as a different mineral 4u/w owing to Nickel 27w from its colour 204 14u/14-16w The green colour is owing to Green earth 25w origin of name disputed 29u*/*wb* * mentioned by Dr Clarke as occurring near Cairo in great plenty 206 2x/wt x Clay long exposed to heat 14-15w is Quartz combined with Alumina ↑4x/z_b/*wb* x some varieties are called Eye-Stones 207 *wb* (All these Rhomboidal quartz when heated & thrown into water, splits in direction of its cleavage) 208 31w is daily forming 210 6w (minute portions have been found in Scotland 30-31w has lately been found in Mexico & Faroe Islands 212 23-26w distinguished from Jasper by superior lustre 213 10w in New-Holland 18w from Menil, a hill near Paris 214 23-24w from Obsidian a Roman 215 5-8m/w Colouring matter & Carbonaceous matter 16w often imbedded portions of Pearl-stone 25w from its resinous appearance 25x/*wb* x black colour owing to Carbonaceous matter 216 3w in Arran 218 7w the crystals resemble the head of an axe

219 26u, 33*/wb * Is Chrysolite in a less perfect form. 220 wt Meteoric Iron often contains a mineral like Chrysolite or Olivine - 12w near Edinburgh - Arthur Seat 13w Borate of Megnesia 29m, 36w always 221 15u/w Bubulite wb (Boracic Acid is found in Salisbury Craigs) 222 11w occasionally contains a little Boracic Acid 18w from a village in Saxony. 224 27w signifying a Gooseberry 225 19w from μέλας niger 226 2*/wt * From the different colours it undergoes under the blowpipe 227 wt Many of the Carbuncles of the ancients are garnets: the origin of the name signifying its shining in the dark is erroneous, this word sometimes refers to the Quartz & Sapphire 228 6-7w from its beautiful red colour 18u, 25w is called the Bohemian Garnet. 232 25*/wb * not unlike Hyacinth distinguishes from yielding to the knife 234 9w from oxide of Titanium 236 22w Oxide of Copper 238 30w Oxide of Tin 240 wb Distinguished from Tin Ore by its stump being of reddish brown colour; Tin ore having a yellow grey colour 243 1*/wt Streaks yellowish 33w (Streaks a distinguishing character) wb Occurs in Magnesian rocks. such as Talc & Serpentine.- 244 5-6u, 10u/9-10w The magnetic property only occurs in rocks near the surface.- 31w when pure, affords 70 per cent of Iron 245 10w in Salisbury Craigs 14-15u, 28u, 32u 246 wt (The Magnetic Iron Ore occurs in greater plenty in the North. The Specular in the South) 17-19w occurs in plates in the crevices of Volcanic Rocks. as. Vesuvius 19*/wb * distinguished from Mica by the rigidity of the Plates 250 18w Hydrate of Iron 18*/wb * Makes better Steell than the two former varieties 254 7*/wb * Is well adapted for making cast Iron 8w is daily forming in boggy places 263 28w Occurs in newer formations than the last.- 266 wt formed of crystals; in this mineral. by cubes 2u, 13w because when struck gives out sparkes 19w Arsenuent of Nickel 273 2x/wt x decays more rapidly than the other varieties 274 18u 275 wt does not afford sparks with steel 10u 280 2w x continues to be formed by aqueous means 289 24u 294 36w associated with Native Arsenic 295 29w along with compact Gypsum 296 wt Every time volcano emits sulphur mostly in form of Vapour.- 298 wt (all the insects inclosed in amber are extinct.) & different from those now alive 299 22w Pitchford & Coal-Brook, Dale 300 wt The walls of Babylon were cemented by melted Mineral potash 6u, 19w Mineral Caoutchouck 301 18w the remains of

ancient trees.- 302 10w but must be mixed with some connecting matter 303 31w common Coal 304 5w the most common variety wb Is of older formation than the Browne.- (was formed before Mammalia Aves Amphibia but there existed fishes & shells) 305 8-9u, 29x/wb x little Bituminous matter 307 wb The Browne coals when burnt emit a very bad smell The Glance Coals never contain vegetables were formed before vegetables existed 317 14-19w Iron Pyrites is often disseminated in it is then mistaken for gold 23w * Lapis Lazulis has been met with in Vesuvius wb Origin disputed. whether formed. or merely broken fragments.- 333 6-7z 337 22u/w not homogeneous 338 34-37z, wb a basis including crystals 339 5-8z, 9-11w a basis containing cavities or other foreign substances of an amygdaloidal form 29-30w vid: the secondary rocks of Arthur Seat 32-35z, wb * the grains joined without basis or cement. 340 10-12z, 13-15w A Slaty B Granular 17-21z, 19-20u, 25w of rarer occurrence 26u/w Base granular 31u/w Base slaty 341 2-5z, 11w of frequent occurrence in the Carlton Hill zb 342 35*/zb 344 wb (Hydrogen & Nitrogen are emitted in greater quantities in some Volcanic countries) 346 16-25z/25w Hornblende 26w Felspar Syenite wb (Felspar is distinguished from Quartz by its inferior hardness, yielding to knife) 361 15w These four rocks generally occur in the order here placed minute scales of Mica 365 25w according to the formation or is this state of crystallization 369 28w so called from its resemblance to the colouring of Serpents- 370 wt a mixture of Marble with Serpentine is called Verde Antique.- wb Magnesia occurs in the greatest quantity in the newer Primitive Rocks as Serpentine 371 29-30w perhaps ought to be considered a variety of pormilica Greenstone 377 5w is clayslate with imbedded fragments 6-10z 382 wb 1 Old Red Sandstone 2 Mountain Limestone 3 Bed Conglomerate 4 Magnesia Limestone 5 New Red Sandstone 6 Shell Limestone 7 3rd Sandstone formation 8 Oolite 9 (Sand Clay Marl.) Chalk Marl 10 Chalk formation 383 10w 1 384 wb It is disputed that this rock is of the primitive series 385 33u 386 4u, 17*/wb * Sometimes contains Iron Pyrites, which from its decomposing entirely unfits for building 387 wt x The Trap in this formation is composed of Augite & Felspar 10u/x 392 29w 7 394 1w 9 15w 3 396 13w 7 398 5w 9 35w 10 399 13w 11 405 3w an earthy greenstone 410 wb

JAMESON, MINERALOGY

(These rocks generally occur in the old Red Sandstone also in Mountain Sandstone sometimes in still newer rocks) 411 17w Tertiary Rocks 412 24w also contains Pudding stone & Browne Coal 413 9w * The London Clay is of this formation 10[...], wb * Iron Pyrites, Sulphate of Lime & Iron occurs in this mineral. also sometimes Amber & Browne clay also various seeds of tropical plants. also Crocodiles & c & c & Cocoa Nuts fishes.. 415 11w of considerable importance in the arts for making millstones 26u 418 24*/wb * The only Human Fossil Skeleton known was found in this rock 420 3-12w Beds of this mineral occur in the Meadows & Coates Crescent in Edinburgh 28-29w differs from Potters Clay in containing Sand 421 19z, 25m/w now disputed 423 10*/wb * Occurs only the more Northern countries never being found in the Tropics 424 15w their variability being diminished 29m/w 6 425 28w swims on Water 426 18-20z, 21-23w the order of their position 28*/wb * has often been mistaken for red Pumice Stone 34x/wb x formed by the attrition of different minerals 428 4-5w appears to have been sublimed 440 wb The lead mines in Flintshire Shropshire are situated chiefly in Mountain Limestone 444 16-17w are mentioned by many of the older writers viz Herodotus observed them in Aegypt also Ovid remarks them. 445 2-3w Quadrumana none have yet been found- 446 2x, wb Bears are of rare occurrence in alluvial strata 447 25-26w Another species has been found Europe simultaneous with the Elephant Tapir Rhinoceros 452 1-5w this is the animal that the Indians belief that the Gods destroyed to prevent the destruction of the Human race. wb 6 distinguished from the Mammoth by tubercular teeth- 455 wt The Owl & Buzzard 22-23w one have these generally found in the tertiary formations of Paris 456 7w in the Isle of Sheppey 458 wb The teeth of Sharks are found in great plenty in the Limestones of Malta 460 11x/wb x Nearly all insects which are found in this mineral are now extinct, except as some say the common Ant 20-21w Mr Witham has in his collection a specimen of Amber containing a small skeleton probably a reptile.- 25-26w In one collection in France there is 3560 specimens and nearly 5000 have been described.- 461 wt All the fossil shells are now extinct.- 466 wb Fossil organic remains are those included in any formation sometimes they are scarcely altered but generally a portion of the animal matter is extracted often the

whole substance is removed & merely a cast remains sometimes it percolated with some Fossil matter & then it is named petrified.. 504 7-11m, zb 505 whole page.z 506 whole page.z

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NB p.87, 90, 110, 115, 116; 191, 192 freckles; 216 grey eye formerly more common
32 13c 33 15a 87 28-33m 90 15-20m 91 16-18m 110 20-24m 115 20-24m 116 10-14m 190 32-36m 191 1-4m, 24-27m 192 28-32m 216 10-19m

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NB O/

JENYNS, Leonard *Memoir of the Rev. John Stevens Henslow* London; John Van Voorst; 1862 [Down, I]

53 23m/]][... 54 4...]/w B 5-17[...], 18m/[... 55 7w B 7-9[...]

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JENYNS, Leonard *Observations in natural history* London; John Van Voorst; 1846 [CUL, I]

beh, em, ex, gd, h, mn, no, oo, tm, v, wd, y

SB1 ♦

Introduction good writing

Squirrel eating little galls

Variation ♦

Like your remarks on givens - on statistics p.162 Martins (1)

210 ♦ Cy♦ & some Carabus

p313 Mem breaking leg

p315 Planaria (land species)

Barometer Brit. Assoc. ⚡

(over) 38; 51 to 60; 76; 100; 108 &c; 114; 131; 137; 147; 150; 162; 168; 188; 210; 221; 216; 266; 278; 290 Arachnidae do not undergo any such metamorphosis; 318; 321; 324

SB2 38 Birds using NQ material at hand & adapting nest to situation

54 One cat rejoicing in Bat, another indifferent to it Ch.6.

Polecat devouring Eels p.55 some parallel facts. Rooks p.150 feeding on Fish p147 on Eggs

78 Rabbits with incisors grown very long – Monstrosities Ch 5

100 Pheasant betraying place of roost Q by screaming (mistake of instinct) ♦ Hen Clucking on Egg

107 On destruction of Rooks & Sparrows & yet no diminution Ch.5

114 Destruction does not fall on very young Birds Ch.5

137 Abnormal NQ nest of long-tailed tit.

162 Caged Birds carrying bits of thread & stick in Beak Q ♦

168 Increase of turtle Doves since 1823.

212 Abnormal Gold Fishes

278 Flies hatched in gentlemen's intestines.

318 On sudden great increase in Water Shells. Ch.5

321 Ransome case of cistern with molluscs

324 On difference in habits in closely allied Pisidiums.

38 31–32m/32u "Bolton's Harmonia" 51 18–23m 54 9–11m, 26–27m 55 19–21m 56 29m 60 1–3m/2u "rare" 64 18–19m 76 18–20m 100 9–11m 107 17–21m 108 1–12m, 16–19m 109 3–8m, 13–23m, 24–25m, 26–31m (Wagner) 110 29–32m 114 26–30m 115 5–18m, 23–27m, 28–30→ 116 8–13m 117 2–3m, 6–7m 131 3–5m/w V. p.134 134 7–9m, 19–20m 137 15–18m/w unusual? 147 14–17m, 23–27m 150 10–12m 162 2–9m/Q 163 7–19m 168 6–12m 187 19–26m 210 24–26m 211 11–12m, 15–19m, 32m 212 1–8m 213 1–9m, 17–22m, 30–32m 216 16–19m 217 24–25m 221 3–7m 266 12–15m 267 15–16m 278 15–16m 279 25–27m 290 21–23m 318 8–12m 319 9–11m, 21–22m 321 13–17m 324 4–7m

(p. 329 ff., markings presumed not by CD)

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beh, cc, fg, gd, geo, is, mg, mm, oo, sp, ta, tm, wd

SB □β, ♀

Jones' Bermuda

ix Sea-Birds tame on discovery of Isd

x Hogs run wild & swarmed p.1. 3 mice

p12 At discovery 1609 no rats & mice

12 to 16 to On migrations of Bats – occasional (like Birds)

27 to 84 Migrations of Birds (p174 Blank season)

30 European Lark killed in Bermuda! p45 Land-Rail do

43 variation in tail-feathers in Snipes

67 case of wanderers of same species as resident

70 case of enormous migrations 72 do

76 probable rate of flight in Plover during migrations 30–35 miles per hour

98 Scincus no Batrachians

115 Honey-bee perhaps *Apis caffra*

121 Only 3 nocturnal Lepidoptera

133 Antigua Orange-trees all destroyed by coccus p.117 Ants very destructive to Rabbit Poultry

172 Imported poultry all die

190 *Sapindus saponaria* not growing in foreign Gardens, raised from sea-drifted seeds. – Gulf Stream occasionally wanders from course & brings timbers to Bermuda

191 At Azores trees torn up by roots & 2 dead were washed ashore (See Bate)

SB2 ♦ ♀

ix; x in 1609; 11,2 Bats; 12; 27 to 38; Read to 66♦ to end; p190

☞ No peculiar Birds; good

☞ Audubon's flight across Bays cutting off distance explains case.–

vii 4–6m ix 23–26m x 4–7m 11 ♀ 5u "exception | domestic"/5–7m 12 11–14m, 19–22m, 26u±, 27–31m 13 9–13m, 17–18m, 26–31m 15 4–6m, 12–15m, 18–21m, 28–30m 16 20–22m 27 4–8m, 24–27m 28 25–30m 29 3–9m, 8–11m 30 10–15m 33 17–20m, 23–26m 34 10–28m 35 14–18m 36 22–26m 41 22–25m, 27–29m 42 9–13m 43 4–5m, 12–15m/w S. Brobsini○ 44 1–4m, 7–10m, 19–26m 45 7–14m, 19–22m 46 29–31m 62 27–30m 65 5–7m 66 28–31m 67 2–7m, 10–14m, 17–20m/18w imitation 22u "flock"/?, 25–29m/26x♂ 68 14–16m, 19–20m, 24–26m 69 4–7m, 24–28m 70 3–6m 72 5–8m, 15–19m 73 4–9m 74 27–31m 75 22–25m, 29–31m 76 15–16m, 30–31m/31u "moderate | thirty" 77 8–9m 80 17–21m 81 22–

JONES

23m/w go to Jamaica 82 30-31m 84 12-17m
98 6-8m, 25-26m 115 1-4m 117 7-10m 121
20-21m 133 20-26m 172 16-28m 174 2-8m
190 4-6m, 9u "pine timber", 11u "mahogany",
29-31m 191 4-8m

JOURNAL OF A HORTICULTURAL TOUR
through some parts of Flanders, Holland and the
north of France in the autumn of 1817
Edinburgh; Bell & Bradfute; 1823; London;
Longman, Hurst, Rees, Orme & Brown
[CUL]

ch, fg, he, hy, spo, ta, v

NB 25,48,84; 67,8; 107; 134-; 178; 185;
193,5; 205; 293,5; 308; 328; 331; 363; 419;
423; 459; 470,72; 495,6; 538 Don on Elms
SB □β

107 Purple Beech Hereditary
185 out of 1000 seedlings 1/2 dozen good
Hyacinths & Tulips is reckoned good
196 on the rearing of Tulips, certain whole
classes have come a certain Breeder, I may
say even in most sportive plants, more
hereditariness than generally supposed
293 Brussels Sprout has been true for 400
years 295 a sub-var rendered true
459 Paradise & Doucin original dwarf vars of
Apples
495 The varin Lilac Hybrid between common
& Persian

25 7-13m 48 12-16m 67 3-7m/wt Weeping
Cherry mentioned before 68 13-16m 84 13-
15m 107 9-6m 134 15-10m 178 5-3m 185
15-13m 193 16m/1u "J.B. Sickler" 195 2-4m/
u±, 12m/1u "A|explained" 196 1-3m, 8-13m,
15-17u±, 18-21m, 11-5m 205 10-15m 293
12-11m 295 15-13m, 4-1m/14u "only|
most" 308 11-10m 309 5-10m, 15-12m/13-
12u "proving|bad" 328 6-4m/16u "P.|
Corsica" 331 10m/wb will here probably treat
of change of seed 363 1-2m 419 12-2m/
12u "Salix|revolutis" 423 1-3m, 6-8m 459
6-3m, 12-1m 470 12-1m 472 4-5m, 14-15m,
17-6m/1u "seventy", 12-1m 473 6m/1u "130",
17m/1u "forty" 495 12-1m 496 10-12m 538 10-
17m

JOUVENCEL, Paul de Genèse selon la science.
La Vie Paris; Garnier Frères; 1859 [CUL]
he, hl, hy

NB 99 highness & lowness; p283 - see
Isidore Polydactylism Two cases of mules
given with polydactyl Hoof - can this be
reversion?

Isidore Geoffroy 1/691 gives several cases
● in pure Horse - so facts nothing
99 20-23m 283 20-27m

JUAN Y SANTACILLA, Jorge and ULLOA,
Antonio de *A voyage to South America* trans.
John Adams, 4th edn; London; John
Stockdale &c.; 1806 [CUL, vol. 1 only, on B,
I by FitzRoy]
beh, gd, oo

NB 9-20

◇ Journal 17.1826

⟨untranscribed w apparently not CD⟩

iii 11u "is|remain" vi wbee 21 7m 24 6-7m
25 2m 26 17m, 27m 27 23m, 35m 28
25-33w 29 4m, 12-13m, 15-16m, 31m 30 6-
6m 31 9m 32 4-5m 33 20m 35 6-
7m, 17-18m 36 6m, 13-14m, 17-18m 39 9-
9m, 27m 40 23-26m 44 5-17w 52 17-21m,
31-32m 53 14-16m 54 14-18m 55 6-8m, 9-
11m, 17-18m 56 1-2m 57 16-33w 58 35-36m
59 1-23m 60 31-36m 61 1-5m, 14-29m/w
snakes in Jamaica 62 1-21m 63 1-6m, 9-18m
64 23-25w Jigger Chigoe 65 24m, wb
exaggeration of pain caused by insect sting
in Carthage 66 14-24w 67 24-37m 68 10-
24m 69 19m 71 5-9m, wb Thinks mistake
They have only one crop in year 72 11m,
26w Pineapple 74 4m, 7-30m, wb Some
description as to planting and mode of
gathering is necessary 77 13-18m 92 26-
27m/w, 28u "The|irregular", 30-32w 97 17w
123 27m, 28-30m 132 19w ● 255 wtee 277 29-
39m 278 2-34m, 26-27m

JUDD, John Wesley *Volcanoes* London; C.
Kegan Paul; 1881 [Down, I]
se, ve

NB Volcanoes along coasts, greatest
pressure Fissures due to general elevation

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geological survey of Newfoundland London,
1843 [CUL.1900] [I]
geo

NB p.130 cleavage

143 Boulders

145 rest on clay &c

130 16-2m 143 10-14m 145 5-9m

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geology Edinburgh; Adam & Charles Black;
1857 [CUL]
fo, gd, geo, hl, ir, sp, t, ti, tm

NB p160 to 165

SB □✕

p160 to 165 on interruptions to Deposition

177 on length of time of Deposit

254 good remark on Denudation

275 Denudation - some very ancient

antiquity world

317 *Littorina* bright colours in Tropics dark in north

321 – generic areas inexplicable

387 on breaks in resurgence of fossils & formations

388 foundations not strictly contemporaneous before & c

389 law of succession same at all times 390

391 imperfection of record

393 Higher groups as well as species more limited in time

395 – one fossil in extreme Arctic Regions

399 do x → (to 388)

♦ 489 to 503; 565

489 breaks in 3 stages of Purbeck

503 Breaks in succession → (to 399)

565 on antiquity of world

160 23–27m 161 18–21m 162 35–40m (Emmon)

163 8–13m, 23–25m 164 19–23m, 26–29m,

27–39m, 30–39m, 10–39w This is strongly

supported p167, 168 by small area of most

beds 165 11–14m, 27–32m 177 30–35m 254

13–24m 275 16–24m 317 26–38m 321 21–25m

387 1–4m, 15–20m 388 36–45m 389 26–30m

390 31–35m 391 23–26m, 37–40m (Owen) 393

10–19m 395 31–38m 399 4–12m 489 29–34m

503 1–10m 565 8–18m, 21–30m

JUKES, Joseph Beete *The student's manual of geology* Edinburgh; Adam & Charles Black; 1862 [Down, I]

NB 414; 402

Begin & read at p425

414 22–29m, 29–31m 415 40–44m (Owen) 416

14–29m 444 fig.w Crust Plant Pol

JUKES, Joseph Beete, DE LA BECHE, Henry, SMITH, Warrington W. and HUNT, Robert *Record of the School of Mines* vol. 1, part 2; London; Longman, Brown, Green & Longmans; 1853 [Down, I by Jukes] ♂

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NB p2, p20 laws of variation

p42 ♂ – On slips & other situations; Alpine plants long hold their places of lower land

p52 ♂ – species which are swamp plants on the plains, not so higher up p139 feeding of Alpine plants Q

vii 4–8m, 19–22m viii 7–15m ix 18–24m 2 11–18m, 19–27m 20 17–22m 42 21–31m/5–30w On slips & c alpine plants hold their place – occupancy 52 11–12m, 23–29m/13–32w are swamp plants on plains & not so on mountains.– 139 5–10m

KERNER, Anton Joseph *Flowers and their unbidden guests* trans. W. Ogle, with a prefatory letter by Charles Darwin; London; C. Kegan Paul & Co.; 1878 [CUL, S] ad, che, phy

NB Use of every Part – 6

p.136 Oxalate of Lime discharged from edges of leaves

p141 ♣ adaptation never a direct one

SB □β

* / How can this be reconciled with the facts as they stand in the case of polygonum amphibiani?

6 11–21m 7 20–26m 129 21x, wb pollen flower 136 1–5m 141 19–25m

♂

KEY, Axel, and RETZIUS, Gustaf *Studien in der Anatomie des Nervensystems und des Bindegewes* 2 vols.; Stockholm; Central-Tryckeriet; 1875–1876 [Down, I by Retzius]

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KIDD

NB p10

SB □β 18 Prize canaries have black wings & tails only till 1st month

10 20-23m 12 14-18m 13 31m 14 7-9m 18 8-15m/11-12Q/16-18Q 19-22m, 23-25Q 25-27m/25u "A|birds"

DAS KIND: *Tagebuch eines Vaters* 2nd edn; Leipzig; H. Hartung & Sohn; 1876 [CUL, I] beh, y

NB 7 knowing; 121 blushing; 147 one year old; 68,9 6 months

7 2-3m 89 10m 121 26-27m/27u "Sie|roth"

KIRBY, William *Monographia apum angliae* 2 vols.; Ipswich; J. Raw; 1802 [CUL, pre-B] beh, oo, sp, sx, v

vol. 1 NB Q p.47 has been stung by Ichneumon; p200 males & females of Bees; p.4; p.204; p.40 palpi ♣ differing in one genus

40 13-16m 47 3-5m 200 21-30m/24u "females"/25u "neuters" 204 22-27m

vol. 2, 387 15m/w read 388 7-8m plates z

KIRBY, William and SPENCE, William *An introduction to entomology* 3rd edn, vol. 1 (1818); 2nd edn, vol. 2 (1818); 1st edn, vols 3 & 4 (1826); London; Longman, Hurst, Rees, Orme & Brown [CUL, pre-B]

ad, beh, br, cc, che, fg, he, hl, ig, in, mg, mhp, no, oo, phy, rd, sl, sp, sx, t, ta, tm, ud, v, y

vol. 1 NB1 Reaumur's work ought to be read

Are there any instances serving the parent itself which come into play, after period of propagation, connected with death, making a place to die in - such as cats going into holes, because these cannot be acquired by habits & then transmitted, they must be consequences of some previous habit - wasps killing their young in autumn at first appear so, but then perhaps some of the old murderous wasps survive.- As neuters are sometimes converted into Queens & then breed my argument ♣ against instinct arising from habit, is not perfect.- are neuters of ants ever converted? The instincts of neuters, probably same with those of females of same species anciently

NB2 136; 148; 153; 166; 171; 176; 179; 192, 194, 199, 201, 203♦, 4, 9; 230; 270; 272; 293 to 98 insect impregn; 322; 332; 336; 357; 361; 371 to 4; 76 to 82; 386; 390; 399; 402; 435; 442; 448; 459; 472; 474; 476; 78; 492; 98; 500; 505

NB3 496 on manner in which Bees form their cells

p293 Capital references about all Plants which catch insects

SB1 □β

165 There are in Hives Bees called corsairs idlers Q

179 Seed of Clover Crops almost destroyed by Apions.

192 Cucumbers not injured by insects in England but much in America

203, 230 on artificial substances - p386 - 390; Cases of foreign fruits in England & America injured by insects, so changes in Habit

203 - Nectarine destroyed by insects in America & not Peach - selection wd act on a trifle Ch. 6.

357 Q good relation Ichneumon with long ovipositor laying eggs in larvae in fir-cone

371 Q Female ant first takes charge of nest (but I presume is never soldier &c)

274 Q Mother wasps, several in nest take charge of young

380 Q Humble Bees

382 Case of reason in Bees Q

391 Q When insect has fed on one sort of plant will die rather than change Q

435 Q Ant-Lion & Fly making same sort of trap for catching prey.

459, 461 Q Q Remarkable instincts 474

478 NQ Caterpillars social in early stages remarkable fact

492. Musc & wax making Bees - former do secrete little Honey - (ant which secretes sweet juice in Westwood

to 504 Q Bees. Nothing particular for me in Instincts

SB2 □β Vol I

p382 ♦ Bees supporting comb till pillars built

♦ W. White about snail pulling them at L' (<ie at right-angles>) to extract themselves

♦ p391 about changes of food Q

♦ p435 Ant-Lion & Fly same sort of trap Cuckoo & Molothus

459-461 Tineae cutting leaves to Pattern

♦ Sentence about comb each part depending on what has gone before

380 Workers destroying eggs of Queen Humbles, Spider

136 25-26m, wb We can thus see how Oestrus acquired instinct of depositing eggs to be licked up. 148 9-11m, 10-13m/w What use is to Coleopters? 153 20-22m 165 3-5m 166 29-31m 171 26-28m, 29-31m/30u↔ 176 26-28m 179 6-17m/7u▲/9u. "purple"/13u▲/14u

"Dutch|clover" 192 27-28m 194 4-6m/m 196 19-21m 199 2-11m/3u "some|Germany"/10-11u "fortunately|us"/6w Why 201 12-13m/13u "1787", 21-22u "to|street" 202 14-16m/14-15u "are|empire" 203 wt change of instincts 4-5u "which|fruit"/3-8w curious considering not aboriginal fruits 11-14m/14u "fruit|unripe", 17-22m, 30-32m/w yet only varieties 204 22-28m/23u "date|the" 209 14-15m 230 1-6m, 7-10m 255 10-18m 270 12-18m, 22-27m 272 3-7m 293 14-18m (Barton), 22-30m, 31-33m 294 18-20m, 25-32m/27u "rich|soil" 295 1-7m, 28-30m 296 15-27m 297 4-23m 298 9-10m, 30-33m 299 9-12m, 26m, 28-31m/29u "Mordellae" 321 22u "perennial|knawel", 23u "in|country" 332 1-3m, 27m, 29-30m 333 3-13m, 32m (Humboldt & Bonpland) 336 1-3m 337 6-10m 357 12-20m 361 4-6m, 14-16m 371 27-29m 372 9-10m 374 14-16m 376 19-22m, 20-21m 378 14m 379 7x, 8u "drones|workers", 16x 380 1-4m, 8-11m, 9-15m/9-10u "may|bounds", 15-17w useless instinct *wb* ♦ This instinct coming into play, only 382 6-9m, 12-13m, 19-23m, 22-24m 386 16-17m, 18w V. p.390 390 2u "the|purpose", 1-3!, 1-6m (Réaumur), 5-6m, 23m, 25m 391 6-9m/"..."/7cæ, 18-19m 399 18-19m/w useless 402 11-16m 435 2-4m/2-11w very singular not inherited from same parent stock 442 15-19m 448 25-32m 452 10-17m/16-17u↔, 27-31m 453 10-15m, 21-23m 454 30-31m 455 15-19m, 21u "flowers", 22-25m/24u "flowers" 456 9-11m, 10-16m/10u "A. Pini" 459 20-27m/21-22w V 464 461 1-4m 472 8-13m 474 6-9m 476 3-5m, 7-24m 478 13-14m/12-17w This is remarkable contrast with parents instincts 485 4-6m 486 1-2m 487 6-8m 491 5-6m, 10-11m 492 10-11X/11-16m, *wb* ♦ X The Humbles who make pillars of wax shows adaptation of instinct to circumstances 493 2-4m/w gradation *Q*↔, *wb* It is analogous to difference accompanying age or sex - attached to something unknown - being produced contemporaneously is novelty 494 15-16X/4-28w Humbles all secrete a viscid fluid to unite various substances 495 19m, 22-25m/24u↔ 496 *wt*/1-8w Ants work by hollowing clay & wood out, same principle V. ante 3-9m, 10-17m, 20-22m 497 2-8m, 29-31m 498 16-22m, 23-24m, 24-27m/24u "but|successive", 25m, 28-30m 499 11-16m, 20-24m 29w Habit 30-32m 500 18-23m, 27-32m 501 25-32m 502 2-4m 503 12-14m 504 21-23m/22u "thin|purpose", 31u "irregular|placed" 505 1-2u "connected|wax", 3u "pale|bodies", 7u "oral|might", 15-16u "flattened|dimensions", 20-21m/20u "the|cells"/21u "female", 26-31m, 28u "goblet-like", 29-31m, 30u

"chiefly", 32m 506 3-4m, 5-6m 507 10u "hexagonal" 508 7u "but|convex", 26-29m 510 1-3m 512 25-26m, 29m

vol. 2 NB1 I think Kirby considers Bees converting ♀ Neuters into female & Ants taking prisoners, as the most wonderful instincts

NB2 p.119 Bees boring holes, p.523 references on ditto

Linn Trans Vol VI p222 Huber says he has seen large Humble bees try to enter "fêves" & failing bite hole in corolla, whilst smaller Humbles entered the corolla - He has seen them bite the tubes of "l'ancolie" The seed ♀ pods of the fêves were not injured.-

NB3 p395 Beetle Pneum

SB1 Kirby. Vol 2-

12; 22; 30 to 5; 51, 58; 68 to 100; 108 to 119; 125 to 216; 220 to 241; 267; 288; 302; 421; 459; 468 to end of Vol

SB2 □β

12 Q Emigrating insects not usually social - makes case odder

31 Bees, Wasps & Ants, one female lays foundation. How in Termites p35 they seem never to work Q (Full account of Societies of Ants & Bees & c

35 Termites contend for the females

74 Q Each ant seemed to know its own fellow of nest - p.80 Slave ants Bees Q

231 Beetle living in Hot-bed & standing Boiling water.

234 Beetles shamming death Q

420 Showers of insects falling

471 Q Definition of instinct - 473 Q good remark on

476 NQ Substitution of one material for another

481 Q Instincts of same species different at two Seasons

492 Q instinct 496 good remarks on not reason - 507 good

511 wonderful Q

514 Reason Q

♦ A fertile worker is throwing Back.-

♦ My metaphor of hereditary piano-forte, ought to have been 1st hereditary spinet, simple & grand piano-forte player. What wd good player do if in concert note stuck. If hereditary playing failed in tune, new tune wd be formed if new tune did imply several notes altered contemporary.

♦ Read all. with idea that originally many queens & no workers - then few queens with workers & lastly one queen.- & that instincts in neuters retain traces of old instinct when made Queens

KIRBY & SPENCE

(over) There is antagonism between an habitual action & reason – a person knitting meets some accident & reason comes into play – it is no argument that not reason because a person did not intend a perfect repair

SB2 ☐☒

Female spiders destroy Male

Vol 2. Kirby

12 Emigrating insects not social congregating like some Birds – & some birds congregate without emigrating –

35 workers of Termites ● Queen.–

◆ 74 Each ant knows its own nest & males Do not go out till Workers Slaves are ready

◆ 77 Slave makers are not allowed to go abroad till others have neuter pupae

◆ 86 The Slave feed the Slave making Neuters – Do the Negros in their own nest feed Males or Queen ??

(over) 2

p55 workers usually found to come back

◆ 119 Hive Bees begging Honey from Humble. Means of new Instinct 207 Corsairs

◆ 148, 155 – Neuters keeping Queens prisoners – (may say endless strong instincts & then allude generally –♣ Ch. 8 & no passage known few other Bees Known.–

161 Confused & mistaken instincts in Hive Bees

◆ 194 Ventilating Hive

◆ 234 shamming Death

◆ X 470 young Bees making comb perfectly

◆ 471 good definition of Instinct

◆ (p.92. Migrations)

◆ 473 Spiders Nets pitt-falls insects beat higher animals

◆ 476 case of sensible adaptation of instinct of insects (Door of intelligence) 487/495/

◆ (481 Marked variation at 2 times of year

◆ 496 argues not reason

◆ 513, 511 Perhaps old instinct retained

(Von Baer about organisation of Bee

◆ 516 Really reason

◆ 519 Ants in hot place not moving Pupae X

◆ 525 Communication of Knowledge in Ants

◆ 529 Swarm successive years

(over; ◆) 3

208–210 Astounding manoeuvre once in life

227 Variation in making Cocoons or home

277 Making exit for moth & thread to guide it

287 jaws given for this purpose to be used once

4 p31 Sedentary Spider turned Hunter

2/495 cells longer on one side of comb opposed to Waterhouse.–

2/187 Knight on artificial Propolis –

12 16–19m/18u "swallows" 13 1–2m 22 24–31m, 25–29m 30 30–32m 31 10–13m, 17m/17–18u "ants|lays" 32 17–18m/17u▲ 33 17–18m, 21–22m, 28–29m/28–29u↔ 34 2m/u "four|female", 6–9m, 29–32m (Huber) 35 2–3u "al|get", 3–5m, 6–9m|"...", 10–14m, 20–23m, 29m 51 wt Probably nascent female never practices the work of a soldier ant – not has it same structure? any structure which profits its work in early days wd be selected. Ask F. Smith V. F. Smiths work on Ants 1m, 3–8w The jaws of soldiers must have been made by selection 4–6m, 26–28m/Q/27u "toujours"/28–29u↔ 53 1–3m/2u "females|birds" 55 wt xx I can understand a neuter having any instinct which the female could have had, but no others cd have been acquired by habit 3u↔/1–4m/2–5w origin of most instincts in neuters xx 7m, 13–14u "prudent|instinct"/13–18w Neuters do not breed! How instinct acquired. 19–21m, 19–22m/20u "workers", 24–25u "who|out", 29–30m/u "some|common"/w/wb So one female may wish to determine others! 58 2–6m (Huber and Gould) 68 16–17m/u "besides|bag"/12–29w Many insects have reacting glands of anus for bad smells &c & we here see, used either as sting, or poured into wound. 27–30m 69 5–7m 70 7–13m 74 19–23m 75 5–6w Slaves 10–12m 76 21–24w Latreille confirms 27–31m (F. Smith) 77 7–10m, 14m, 15m/u↔, 24–25m, 30–31m/u "link|Myrmica" 78 15–16m/15u "composed|neuters" 79 21–22m 80 28–29x/28–32w only fighting neuters 34–38m/w◆ they have no neuters then? or many soldiers?? 35–38m (Latreille), wb like Cuckoos with their eggs in other birds Nests 81 1u▲, 7m/u "others|purpose", 29u▲ 83 6m 85 1–2w x Smith sold Myrmica 3xx, 13–14u "Active|field"/13–17w so these are neuters 17–18u "Sol|they", 21u "will|suffer"/xx/X/w impossible to explain 29x 86 22–26m 87 7–8x, 16u "the|helpless"/w gradation 18m, 29m, 30–32m 88 5m, 9–12m, 15–16u "It|character"/12–16w for the Negroes dread the Robbers 27–28m 89 25m/26u "alternately", 30m/u "that|cows" 90 3–5m, 10m 91 3m, 5–9m, 10x/u "with|pays", 20–21m, 21x 92 9–11m, 12–14m 93 18m◆ 100 18–21m 108 15m, 16–20m, 27m 109 23m, 31m 110 1–2m, 9u "male", 9u "than|female", 18–19m, 26–27m, 29–30m 114 16u "the|females"/14–16w Ask F. Smith 20m/u "in|resemble", 23m, 29–31m 115 24–30m 116 9–11m/9u "honey|pollen"/10u "males|females"/11u "pure honey", 12m, 20m 117 2m "between|workers", 5–7m, 8–10m, 11–12m 118 10–11m, 13–15m, 24–25m 119 1–5m, 6–7m, 8–27m/11–27w How new instincts cd arise 30m,

32m 125 4u "Two females", 10-11u↔, 11-14m, 12u "are|occurrence", 35u "shorter"/w Queen 126 1-2m/u↔, 3u "straighter maxillae", 4u "not|theirs", 12-13m/Q/u↔ 127 1m 128 1m, 2-3m, 4m, 5-8m 129 31-32m 131 10-12m/10-11u↔, 14m "differently|mandibles", 17-18Q 20m, 21u "curve|sting", 22u "wax-pockets" 132 25m 136 13-21m 137 24-28m 139 12m, 14u "those|four", 17m 140 14-23m, 21-24w acquired to injurious self 24-26m/w♦ false instinct injurious 142 12-13Q 15m 145 6a "the" worker 22-23u "for|fortiori" 147 12m 148 9-15u±, 20u "of|her", wb it is difficult to believe the workers could have acquired these instincts when they were gender before their neutrality was gained. 151 15m, 16-24w Maternal aversion !! how accustomed we are to maternal affection= 26-30m/30w p.148 152 7-11m/9w p.148 153 13-14m 155 6-10m/7-27w X 148 in state of females, they could never have learnt so to respect & value a female; this implies there being few females & hence the neuters having their femality cd not acquire it. 11m/12-17m/13-19w XX this might arise from mere social affection originally 20u "pregnant state", 26-27m/27u "enable", 29-31m/30u "twenty|day", 32m 156 3-5m/3u "sometimes", 8u "at|to" 157 24-25m 158 1-4m 161 wt What are males fed on 1m/u "laying|worker", 2u "male cells", 5-6m, 6-7u "male|ones", 7-9m, 8-11"..."/10-11u "male|jelly"/11m, 12m, 13-14m 162 26-31m 166 3-4m/w X p.148 168 3-5m, 8-10m 169 12m/u "Here|defective", 15m 171 12m 172 16m, 23u "male|royal" 173 4-5m, 13-16m/14-15u "result|drone" 177 3m/u "both|young" 179 22m 180 5-7m, 17-19m 182 8-11m (Aristotle) 183 24-28m 184 30-31m 187 10-12m, 32u "Philos.|1807" 191 20-30m/28-29u/21-27w shows not individual Knowledge 192 4-5m/w like Humbles X 194 6-7m 195 5u "workers", 10-11m, 14u "in files", 18u "twenty", 24u "retinas" 198 6-8m 207 17-19m 208 8-10m 215 26-31m 216 7-9m 220 5-8m, 21-23m 223 18-24m 231 3-5m, 16-17m, 20u "hot dung"/20-21m/w not by nature 24-25!/ 25u "native station" 233 6u "orange|thorax", 8-9m, 12-14m 234 15-17m/16u "by|death", 19u "which|dead" 235 8-9m, 18m, 19u "simulation|death", 22m, 23-24"... " 241 5-9m 267 10-32m 288 26-29m 302 4-9m/4u "pupa" 303 6-10m 358 25-28m 384 1-10m 385 14-18m 387 15-19m 391 1-8m, 3u♣, 20-21u↔, 24u "base|elytra", 27u "would|their" 395 1-4m, 18-20m 396 19-25m 399 3-6m 401 5-10m, 16-22m 407 3-13m 411 8-10m/9u "though|light" 412 27-28m 413 1u "is winged", 20-21m 415 18-22m 420 8-18m 421 wt A, How

gradually acquired? 7-12m/7w A 424 20-28m 459 16-20m 468 11-16m (Lamarck), 20-21m/?, 28m/u "ii.325"/? 470 8-11m, 13-22m 471 13u "faculties", 14-16u "independent|view", 16a "without"/w necessarily or even generally 17-19m, 20-21u "which|ignorance" 472 9-14m, 30-33m (Germar) 473 12-19m, 14m/23m/u "All"/14-16w Migrations Hatching eggs Bears Houses○ 25-32m/28u "regular cities" "nets|artfully", 32u "sheep|labour" "pit-fall" 474 8u, 27u "never attempts", 27? 475 21u "variation|accommodation", 22u "among|numerous", 29-32m/29u "cow|horse", 31-32u 476 1m, 5-9m/5u "bark"/6u "pieces|paper", 29-31m/x/31u "span|web", wb X These seem to show that they do know end in view or rather what they work for 477 7-8m 479 2-6m, 12-24m, 29-30u "requiring|only" 480 25-31m/31u "Bonnet" 481 1-16m/w See to this it wd appear as if the latter brood had acquired this instinct 32u "Oeuvres, ix.370" 483 1-4m, 27-30m/28u "lids|ordinary" 484 5-11m, 13-17m 485 30-32m 486 19u "glass" 487 3-6m, 10-12m/11w good 26-30m 488 9-12m/10u "propolis|mixture" 492 15-16m, wb compare them to bricklayer born with consummate art - & provided with actual instruments 493 18-20m/19u "would|less", 20-27m 495 11-32m/20u "the former"/21u "the|latter"/14-15w Knitting wb The difficulty is just as great if we look at instinct as innate power 496 26u "Variations|instincts", 28-30m, wb It comes to this because reason goes so far & no further, it is not reason. An Australian cd not do Principia.- 29u "always"/wb How do we know this 497 3-4m, 22-23m, 23-27w Knight on use of grafting○ Mixture 28-31m 498 5-10m, 27-30m 499 19u "manifold", 20-21m 500 1u "not mean", 2-4m, 18-20m/20u "another", 26-27m, 29m, 31m 501 6-8m, 27-30m 502 4-7m 503 2-4m, 8-10m 504 5-10m/8u "A third", 11-14m 505 2-5m 506 22-29m 507 1-3m, 5-7m, 8m, 16-18m, 18-20m 508 6-8m, 16m, 17-18m, 30-31m 510 5-7m, 6-25m, 23-28m 511 4-11m, 25-30m/25-26w old instinct retained 512 30-31u "fed|maturity", wb is this given ordinarily to all queen larvae 513 7-12m, 23-26m/w (a) wb (a) One may suppose that originally many queens were ordinarily thus reared & a few workers & the instinct is thus retained 514 22-25m 515 21-28m 516 8-13m, 17-20m, 25-29m 517 23-30m 519 10-13m, 15-20m, 21-22Q 24-28m/24-32w like Robin which built on Steam Engine 520 1-3m, 19-26m 521 4-7m 522 5-9m, 12-15m 523 16-19m 524 5u "all", 11u♣/w not indigenous 525 4-7m, 19-30m 527 14-17m 529 3-27m 530 5-11m

KIRBY & SPENCE

vol. 3 NB 89; 95 & 96; 101; 162; 202; 210; 221; 227; 257; 261; 276; 287; 305; 330; 338; 466; 474; 593; 594; 605; 632; 645; 654

SB □β

Marshall 284

89 Number of eggs various insects

96 adaptation of eggs like seeds of ♣ plants
208-210 Q Astounding manoeuvre performed once in life.

227 Q very important variation in Habit - Perhaps Instinct rather

261 var. in ♣ colouring of crysalises

277 NQ larvae preparing exit for imago & even providing guide to find trap-door.-

287 Q jaws given for this sole purpose (under selection Ch. 6) to be used only once!

474. Good sentence about no new organs being produced without transition Q

594, 605 Rudimentary organs for symmetry

632 In Hymenoptera the progress of neuration of wings can be traced

645 Scales, as on Butterfly appear in some Diptera

665 Number of legs vary in luli &c.-

89 1-7m/w Proof that numbers here depend on means of prosecution 8-24m/10u♣/11-20w We only know by experience that every species can increase if not checked 12u "30,000", 14-15u "40,000|more", 16u "200,000", 22u "211,449,600" 95 22-25m 96 1-3m, 14-22m/14-17w adaptation as in seeds 101 8-14m 162 5-11m 202 9-14m/10-11w adaptation 208 10-31m 210 1-29m/10-14w wonderful 211 19-25m/20u "now"/21u "silken"/22u "horizontal", 29-31m 212 1-2m, 3-7m, 12-21m, 13-31m 213 2-9m, 17-28m 221 19-25m 227 1-5m 256 15u "pupae", 21-25m 257 8-10m, 17-22m 261 9-12m 276 28-32m/28u "previously|pupa" 277 1-10m, 28-30m 278 1-4m 287 1-10m/4-6u↔ 299 27-28m 300 1-4m/3-5w€, 6-9m 301 26-29m/28u♣/29u "female|rubra" 302 1u "red", 4u "elytre", 23u "testaceous|black"/w Lepidopt 24-26m/26u♣/w male 28u♣, wb Aperture Iris emperor 23u♣/wb = Polommatus aegon 303 1u♣, 2u "orange|upper", 3u♦ 305 21-25m, 28-31m 306 7-8m/7u "tibia|bearded" 309 14-19m 313 4-7m, 11-17m, 21-26m, 27m 314 28-30m/Q 315 16-17m/17u "female|male" 323 1-5m 327 3-7m 329 17-26m/19u "pectoral"/21u "weevil" 330 19-21m, 23-25m, 26-27m 331 30-31m 332 1-18m 333 16u "incrassated|male", 23u "the|erroneously"/w incrassated not always sexual 336 6-9m 337 18-27m/Q 338 1-4m/Q 340 2u "Pneumonia" 342 26-30m 344 5u "of|Coleoptera", 11-12m 345 15-18m 346 26-29m

466 20-22m 474 wt If all Mammalia which have ever existed were preserved, probably as many traces of abortive organs wd be found as in insects in nearly all of which they are present. 2-10m, 19-25m/Q/21u "but|organs" 593 1m/u "represented|the", 18-19m 594 22-29m, 25-26m 595 1-3m 605 17-18m, 18-23m/21u "appearance|elytre" 632 14-26m 645 29-31m 654 13-18m 655 (erroneously 665), 5-11m

vol. 4 SB1 Vol IV

p.31; p.357; 358; 373; 397; 405, 6, 8, 411 to 15 wretched trash; 478; 484; 486 to 508

SB2 □β

31 Crippled Spider from Sedentary became Hunter See. J. Banks. Ch. 8 Q

373 on use of larva in classification

478 On number of individuals in different orders, without relation to number of species

488 Calasoma poor in species & individuals, very wide ranging genus.

500 Battles of Lethrus (a vegetable feeder)

156 stings & ovipositors described.-

31 4-7m, 8-10m 156 8-9m/? 258 wt Calcaria 259 10m, 12m 261 3m, 16m, 19m, 27m 263 27m 264 11m, 27m 267 5m, 27m 268 17m, 19m, 20m 270 12m 271 18-21m 272 19m, 28m 273 12m, 18m 274 21m, 28m, 31m 277 20m 278 3m, 27m 279 1m, 8m, 16m 280 1m, 3m, 7m, 13m, 21m, 24m 281 27m 282 1m, 4m, 7m, 15m 288 21m 293 6m 294 17w Margin 20-21m, 23m, 25m 295 3m, 17m, 25m 297 30m/μ "Spurious suture" 302 18-22m, 27-29m 303 5-6m, 9-11m, 17-20m 320 27m 321 14m, 17m 322 18m 325 7m 327 19-20m 334 10m, 15m 357 7-11m 358 7-13m, 15-17m, 30-33m (Linnaeus) 359 5-6u, 19-20m, 26-29m 373 22-27m 397 4-13m/6-7u "especially|distinct", 14-19m/15-16u↔/18-19u↔ 405 1-2m, 16-21m, 16-19m, 20-25m, 30m 406 26-30m 408 1-17m, 19-20m, 29-30m 409 4-7m 411 18-21m 413 16-19m 415 21-27m 421 zb 478 9-15m/8-12w Think over this 484 18-21m 486 11-16m/13-14u↔ 487 8-10m, 20-22m, 29-32m (Latreille) 488 20-21m, 23-28m, 27-28m, wb This is opposed to my notion of formation of genera. Think over this Extension in this case must depend on adaptation to some peculiar food & not to any general superiority over congeners.- 489 1-11m, 17-18m, 23-32m, wb My notions require that number of individuals & species & genera shd in some degree accord which is doubtful.- NB Comparison can be instituted only when there is struggle. Diptera & Coleoptera cannot be compared 490 1-6m, 22-25m 492 3-7m 494 1-2m, 9-11m (MacLeay), 12-16m

496 22-27m 497 1-5m, 21-22m, 25-28m 498
4-7m 500 3-6m/4-5u↔ 508 19-25m 512 25-
27m

KIRCHHOF, F. *Das Ganze der Landwirtschaft*
Leipzig & Torgau; 1835 [CUL]

beh, br, f, fg, he, mn, sp, sx, sy, tm, v, wd, y

NB A very poor book with wretched
classification.—

♦ 1 to 56; 79; 88,90 Geese — large in
Pomerania small in Poland; 104 Duck lays
30-36 eggs; 111-114

April 1857 Nothing except above Ducks
good to quote in Ch. 4

6 Polish swine broad stripe down back
related to young wild swine being striped

3 11-12w swine with undivided hoofs 26u
"6|Junge"/w wild swine 4 wb Breeds differ in
size short feet bowed back power of
fattening 5 12-17w great difference in size of
wild swine 19w Races 24u "10|Junge", 26u
"seine|Glieder"/26-27w fine hair on joints 32u
"kurz|Körper", 33u "Ohren", 32-35w short
round bodies, long ears, woolly bristles 6 1-
3w broad stripe along the back 31u "ist|9",
32u↔, 35u "vielen|sein"/w must be provided
with many teats 8 19-20m↔, 21-25w Do wild
breed twice a year? 53 1-2m/w The leg on
which roost generally stronger than other! 54
25m, 32w pointed head 34u "kleinen
Federbusche", 37u/wbt 55 1w crested 7-10w
cannot find way when crest wet with rain
10u "brabantische"/w Gold spangled 13u
"silberfarbige Hahn", 16u "zart|Eier"/w
punctured eggs 17u "Der|Hahn", 18u "rothe|
Schmabels"/w 2 red warts on side of beak 26w
Tail-less 33-36w Frill-like Fowls collar almost
like Jacobin!? 56 1-8m/w can hardly fly 5-7w
Bantams 11u/wt, 10u "Hamburgische"/10-23w
Cock & Hen have legs clothed like velvet —
cock sharp beak: yellow circle & band of
yellow feathers round eyes with tuft of black
ornamenting ears 22-24m, 24-25w Frizzled
Fowl 26u "Kamm|schwarz", 33u "einen|
Farbe", 35-36?/u "hat|Kehllippchen" 57 wt
Hen spurs like Cocks 6m/w Dorking 79 wb
this tuft cd have been mistaken for
monstrosity 88 26-31m/w Geese in
Pomerania very large. small in Poland 90
15-20m 104 24-26m/24u "sie|legt" 105 14-
17m 111 28-29m/29u "aber|bringt", 30u/wt,
33u "fast|bringt", 35u/wt 112 wt | shd think
this man knows very little or nothing of
subject) 2u "Schnabel|dick", 3u "Schneppe",
3w Trumpeter 5u "oft|zeit", 11u "ihr|fehlt",
22-25m/w Pouters some vars males &
females different males being spotted. |

wonder whether true? wb vast number of
coloured vars. of Pouters 113 2w Carrier 3-
4m/|u "Da|entfernen" 114 1-2!/1u "einen|
Schwann", 29-32m/w Carmelite

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beh, cc, cs, dic, f, fg, gd, he, hy, ig, in, mhp,
mn, no, oo, pat, phy, sp, spo, sx, sy, t, ta, v,
wd, y

NB1 ♦ Read Muller in Berlin Trans

NB2 ↷ Oct/55/Everything — this Volume fully
abstracted & abstracts distributed.—

NB3 ♦

What good experiments might be made by
mixing pollen together of several kinds.—
p.12 Male & Female organs in Hybrid
unequally affected.

According to Gaertner (p.273.) when several
varieties of the same species are crossed
with another species, offspring closely alike;
but when several close, but true species, are
crossed with another species offspring very
unlike. This must be tested in this work,
specially in 3 races of Nicotiana.— In the
Nova Acta he experimented on plenty of
vars of *Mirabilis* ♣ *Jaleppa*. but I fear that
vars differed only in colour. But Dic
Classique remarks that *Mirabilis* *Jalep* differs
only in colour of flowers

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Part 1, 9 22u "4863"/w pollen ♣ in flower 25u "dreyssig"/27-28u "fünzig|sechzig"/25-30w 30 seeds from 50 or 60 pollen grains 10 21-26m/w less than 10 pollen grains did not fructify 11 1-5m/w in cold weather more pollen is required 9-14w in very late & cold season no quantity of pollen suffices 12 wt when all but ♣ one stigma cut off, yet all capsules with seeds 1-4m 15 5cæ, 11u "noch|geschlossener", 13u "Gräser", 1-22w Know nothing dichogamous plants.- 29u♣/31u♣/26-31m/w/wb Grasses & these are all flowers, which are impregnated, without aid, by contact, & even in the yet unopened flowers!! 17 wt pollen of some Mono & dioic plants fully & others spored on all sides.- 13-15m, 25-31m, wb plants with stigma right under anthers. 18 19-23m/w In rue stamens move over stigma 19 7-14w stamens move to stigma quicker or slower according to weather. 20-23w stamens move when anther removed. 21 26u♣, 26-30w Malvaceae impregnate only by insects 28u "allein"/28-31m/wb I was astonished good sentence to translate 22 1u/wt, 1-9m, 5-9m 29 28-31m, wb ♣ juice, sought by Bees secreted from stigma of Iris 36 4-13w Scrophularia & Antirrhinum lay their anthers on the stigma but are also aided by insects 43 6w V p.10 next Chapt- fertile= when this season experiment succeeded. 8-10m/8-15w inverse experiment produced infertile seeds but rather larger 10-22m, 17-30w/wb those wh. appear in an unpregnated capsule 20-24m/w in many plants 44 wb seems to think, pollen of foreign & own can together act & produce a tinge of Bastardism this seems possible as 20 grains of pollen are in some cases requisite for any fructification, but not proven.- 47 18-24m, wb What Crown Imperial not much frequented by ♣ Humble - secretes honey from opening to withering of flower

Part 2, 10 23a "Nachricht" p.43 26-29m 11 wt produced another year 24 ♣ capsules p.23 4w 8 petals 9-13m/w absolutely undistinguished from reverse experiment 12 4-7m/w infertile on male side but fertile on female 13 27-29m, 29-30u "einige|weniger" 14 10-11m/9-12w in some parts more than in others rather like to Rust. 16-17m/w some plants more good seeds than others 18-22m, 24-28m/w plants from same capsule differed in fertility 15 1-3m/w differed from all parents 17 20-21m, 23-26m/25u "Fruchtbarkeit", 27u "unterschieden" 18 1-6m/w most of them are more infertile than the hybrid parent 7-9m/w

as if tendency to miscarry was given 11-13m/u↔, 16-21m, 15-19w some seeds, however, produced plants. 13x/wb X All these results are confirmed by (p.20 other, different experiments → & by an analogous experiment p87) (& by same p.91→) of next Part; but one of them quite sterile 19 12-14m/w varied 19-23m 20 11-12m/w did not take at all after perenne 22 1-4m/w fertility much increased 14-21m/w concludes probably that hybrids with some pollen change into maternal form. 23-25w p.55 of 3d Part one plant came much nearer to Rust. 26cæ, 29a "einen"/wb genugen 23 20u "Missgeburten"/19-23w = Miscarry? or monster? 22-23w another instance p54 of 3d Part in another cross 24 wt In Hybrids from Rust & Panic, male or reverse the hybrids have no good pollen but female principle yet acts on both A. 12u "gänzlich", 11-13m/w ganzlich means very & tolerably wb A. How unintelligible is this, as this hybrid fructified itself p.21 prop. pulv. consperso 25 wt♦ X odd this not taking at all after perenne 4u↔/x, 5-12m, 8-22m, 9w two pollens 21u↔ 26 10u↔, 12-16m/w 3 pollens mingled together & not hybrids 29 5-8m/1-8w exactly intermed 9-11m, 26-32m/w hybrid more flowers plants higher & taller 1-23w X this shows that hybrids are well suited in soil &c &c 30 11-13m/7-13w absolutely sterile 31 wt/1-2w or seven-hill tobacco 3m/w var of Mag. ♣ vulg. 17-24m/5-24w Difference from last hybrid ♣ correspond to differs. of 2 varieties 32 wt A gave smaller capsules & fewer seeds, than when this hybrid was impreg. with pure N. Rust. or Pan 5m/15-18w var of N. Maj vulg. 21-24m/22w A 3-5m/→ 33 16-19w & this is a second cross 9-10m/9-15w These two hybrids differed greatly. 36 14c/17c "male" female/9-25w exactly intermediate between male & female 38 6-24m/23u↔/2-24w Pollen quite worthless Capsule began to swell, with other pollen.- 25-31w/wb I suspect, pollen fails in hybrids, easier than female principle 39 5-25w These & other hybrids tend to throw up strong stems in autumn 41 19u "Mit|Worte"/19-22w finally very like male parent 42 4m/1-6w (quote this) as different as Cat & Lion 43 22-24w V. same experm p119 next Part: 25c "carthus."/x/w barbatus wb Sweet-William 44 wt Yes Does Gaertner mention this? 3-6w seed affected 5-7m, 8-30→, 27-29m/w A 30-31m, wb I shd think female principle more defective than male.- ?? V. p. 117. 45 wt I see in Loudon this is Hibiscum vesicarius = African Irionum = Bladder Kelmia ↪ these are all right → 3w↪

Cavanilles & Decandolle make this 2 species, but they are evidently very close both from Africa. 4w Kippist thought it very doubtful whether real species 5w reverse 5w Mongrels 5-10m/10u "Hibiscus", 10u "blosse Varietäten"/8-10w Probably 2d Edition of Linnaeus 14-15u "beyden | Seiten", 19-21m/17-21w Like each other in reverse exp differed from each other 24-27w Repeated with same results p.128 next Fort 28w Cheiranthus p51 ↑1u "Leucojen", wb stock-gilliflower ↑1u "Lack"/wb Wallflower (Dictionary) 46 7-9m/5-11w difference in period of flowering in the reverse experiment 16u "einfach", 16u "gefüllt"/12-16w The mongrels were single, the pure-bred were double? 17xx, 23u "anders | ganz"/17-25w X cannot make out in Loudon what species they are wb XX p.128 second Fort raised intermediate & quite fertile hybrids; hence considers only varieties 47 8-9m/5-11w quite sterile p.124 3d Fort quite fertile 50 1-16w refers to individual plants 7-29m 54 1-13w reiterates greater infertility of male side 55 10-27m 58 23-24m/24u↔/21-30w Generally speaks of ♣ mongrel having possibly lost some fertility, sometimes. 60 wt/1-14w cannot account for varying degree of infertility in foregoing hybrids; even in one case increased infertility though plant became more like mother. 12-14m, 15-16w fruitful on female, but sterile on male side 61 1-31m/1-18w♦ only some exception to characters of hybrids being intermediate & chiefly in X 12-20m/20u "als | Bastarden" 63 2-4m/4u "Vater | der" 64 wt Experiments which did not bring offspring, interesting as showing gradation in effect 19-20m/w reverse failed 65 7-8m/w reverse failed 13-14m/u "Die | Grösse", 16-18m/w seed appeared good 23-24u "Die | natürlichen" 66 12-13m, 12u "Beym umgekehrten", 26-27m, wb capsule fell of when half ripe 67 6-7m/u "einige | sitzen"/6-10w Do some remained on ♣ 13-22w gave offspring p58 Fort 2 next year → 25-30m/w seeds did not appear quite perfect 68 wb see p.45 to see what species 69 wt/↓w Impregnation ☞ Hibiscus impregnated by pencil & by insects, during many days was done almost as well by the insects, though they lost some days during rain 11-12m/11u "310", 13-15m/13u "10886"/14u "11237"/15u "351", 24-28m 71 wt/1-25w Pollen of mistletoe expelled into flower before open, & several flies are attracted by the sweet juice on both male & female flower & &c impregnate it 20X, 22u "Stacheln", 23u "unter | zusammenhängt", 28-30m, 29u "Gat-

tungen Fliegen", wb X pollen covered with points & sticks together 72 8-11m/w not by wind 17-25m/w remarks that depending on insects & Birds

Fort. 2 Part 3, 8 6u "Häufig"/5-9w Canaries & Linnet hybrids of fertile. 11u "absteigenden | erstreckt"/x, wb X This near crossed again by Canary bird twice over.- 9 5w S. Europe 11-14m/13u "Sulz | Neckar"/w experiment tryed at Sulz Neckar 17-20w Britain & Italy/L 10 wt p.1-46 in 3d Fortsetz all about Verbascum. 2w England 5w England 10-26w Mem. Mr Herberts letter to me 20-24m/22-23u "grossen | Blume", 25u "ringste | Befruchtung", wb Found on many flowers on the 3 plants on two successive summers, that the female of phoenicena, cd not be impregnated by its own pollen, showed no sign of fructification, but yielded seed to 4 other species growing in same country!! 11 wt There were 3 plants of this phoeniceum. 9-10w same on another plant 13-14m/w cannot explain. wb The female or phoeniceums were garden seedlings & p.41 3d Fort not grow here wild 16 19-30w exactly intermediate 17 1-25w every point exactly intermediate 18 5z 21 7-9m/7-18w colours rather different in different plants & petals of same, not similarly coloured. 23 16-21w intermediate 24 12-13z 27 25-28m/w flowers varied a little in colour 30 12-19w intermediate 35 20-27w intermediate 39 11-19w anthers held little 24-31w power of growth vigorous, for they flowered sooner than natural 30-31m/wb quite infertile even with pollen of parents 40 1-6w but a half fructified for germen swelled 11u↔/12-15m/11-18w colours of the autumnal flowers became darker & more like female 41 1-18w intermediate (even in such points as smell which the parent & the other has not at all.- 44 wt only one plant raised 3-6m/w quite sterile 8-28w I observe most of the plants in this Fortsetzung either raised on Hotbeds or planted in boxes in open air, & transplanted into pots 45 1m, 13-15m/13-19w fertility in same degree as in former V appendix 46 12w pot 50 1-4w♦ nearly intermediate 14-18m/12-17w later flowers became darker 22-23w♦ not quite intermediate wb N.B in former experiments, where no mark characters are intermediate 52 1-11w not intermediate, but does not say after which parent. 53 21u♠/20-22w differs in leaves, stem flowers shape of wb p.19 N. perenne seems distinct in shape of leaves & small sharp capsule of fruit, & shape of flowers 54 7-8u♠, 17-29m/19-20w plenty of differences

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26-28w Habits different Leaves move in evening to stem. *wb* Certainly these vars. most distinct & only the last said to have been found wild in Tobago 55 1-25w crossed 5 as he believes, varieties of tobacco & found offspring intermediate & quite fertile 24-27m/26-30w were intermediate in every respect between parents. 56 1-15w♦ Hyb fruct. more successful Offspring quite unfertile (I think) more fertile than (*Nicot. mai.*) or vice versa I ♣ believe but cannot make out which V. p.60 (this Fort:) 11-12m/w varieties of same as shown p55 14-15m/w♦ a very little fertile 18u "*Hauptsache*", 23-25m/20-26w differed only as much as the 2 vars differed 28u "*geringen Grad*", *wb* X thinks some little of own pollen may have got mixed!? ♣ ? (No according to Gaertner) 57 19-24m/x 58 16-21m/w These failed the year before 16-21w Reverse experiment of last offspring as like to them as egg to egg 60 *wt* (a) This is very important (though only belief) well grounded/: has shown that *N. perenne*, *N. major* var fl. alb.○ N ● are all varieties by perfect fertility (& not mentioned as species by Loudon), or yet *N. perenne* seem rather more fertile with *N. glutinosa*, than other vars. & is 1) Major fl. alb.○ 2) Major vulg 3) Transylvan. 8-11u "*sol Varietäten*" /m/w (a) 13-28m/w XX shows that little of own pollen prevents quantity of foreign pollen having any effect. 61 1-11m, 11-27m 62 16-23m/10-23w very little being used, hybrid was produced 73 1-29w In all respects A more approaches male, except in particular p.77 further on 12-17w A on p78 on sterility male quite sterile, female side more fertile than ♣ 74 2m 77 1-14w this refers to the parent A except in some respects differed from all parents, as in dwarf growth & shape of leaves 78 *wt* All this refers to parent hybrids marked by an A *wt*/1-16m/w Essential difference, ♣ (though male side quite sterile), female more fertile (when impregnated with pure pollen) producing 100 seeds, instead of as in parent hybrid only 20-30 seeds 2-13m/10u↔ 79 1-25w These hybrids (in the 3 generation) all (many) closely resembled each other & the Pan. & were nearly with few exceptions quite as fertile as it. 80 14m/*wt*/1-14w The infertile few, partly sterile probably both on male & female sides. 81 2-31w Proved their fertility by all kinds of crosses & so found they very nearly equate in fertility to Pan: 82 3m 84 27w/*wb* two of the three quite unfertile 86 1-29w some fertile, some unfertile, though some of the latter came nearest to Rust., in

which respect apparently some variability 89 14-23w The hairiness & smallness of leaves not common in this degree of descent X in hybrids 29-31m/w Results of these confirmed 90 10-13m/w plants differed ♣ 2 from other & in fertility 4 of other sex raised 10-12m/10-11u "*einige|weniger*", 27-28m, *wb* pretty good pollen & left to self produced very good seeds. 97 12-14m/12-24w differs a good deal one from another especially in colour & substance of leaves *wb* seedlings described at p59 next Fort. 98 28-31x/*wb* fresh proof of variation in second descent, when crossed with either parent.- 99 7-8w *barbatus*? see p.112 23-27m 100 1-18w in all respects analogous to last experiment. 26-31w all pretty fertile except one plant *wb* The fact of one species by crossing with another assuming such infinitely various new characters is an argument in favour of possible variation 101 2-4m/w some variation in different plants. 10-11w reverse of Exprmt p.96. 13c "*carthus.*" *barbatus* 14-28w does not bear so many seeds as pure *Chinensis*, but more than some experiments hence the hybrid male has more confined fertility as a female, than as male. *wb* N.B I think this requires more testing 102 7-11m/9w variation 103 14-19m/14-19u± 104 9u/w one of the plants 16-18m/10-21u± 105 5-11w on the whole fertility increased with some exceptions 106 1-6w p.166 3d Fort another experiment described 5m/w *barbat* 12-15m/w partially fertile, like hybrid-parent in character 8-19w In my Abstract (p18) of experiments: I see there is *D. Carthus* & *barbatus*.- 20m/w Italian = *barbatus* 107 19-21m/19-20w very like *Hortensis* 23-26w in *Hortensis* pure, pollen often not matured 28-31w less fertile than hybrid mother 108 17m/w Be sure to see to Reverse p.66 next Fort. 19-20m/w of very difficult impregnation 17-20w experiments with different varieties of both ♣, 24-29u±, *wb* B Does this case occur elsewhere of difficult impregnation, & yet hybrids so raised, being fertile rather? Has reverse been tryed? 109 3-6w p65 next Fort prop. *pulv consperso* 15-18u±/w Hybrids 23m, *wb*♦ B These four differ, as they are separately described. but they appear to have come from different varieties of *Hortensis* 110 1-17w in some points after one parent in some after another, in some intermediate Mostly after male. 30-31w/*wb* Male parent or *Hortensis*, double. 111 3-11w flowers double so that monstrosity can be transmitted to other species. 30-31m/w/*wb* important, because takes most after ♣ the

male an artificial variety; Not because the female is also a variety. 112 11m/w a variety of 12m/3-12w a wild plant on poor rocky ground. 115 20-23m/w pollen partly good 116 *wb* appears upon the whole to have taken most after the wild male. certainly not intermediate as so generally happens. 117 22-28w female side, was fertile with pollen of other species wd not self fructify *wb* This seems to show the want of intermediary due to cultivation. 118 *wt* Vide former Fortsetz p.43 119 2-5m/w some little variation in the hybrids 120 *wt* 4fold or 20 1u "meisten"/2-4w most not all 121 14-19w empty. smell bad pollen in some of growing wild - 17c/u "plumar"/*wb* p.69 ought to be *D. superbus* ↑ → 122 7u "vervielfältigen Kupfernelke"/w & M 11u▲/11-14w & in others Botanic garden 19-20u↔, 25-29w & in other wild plant 28u▲, 28w & in *wb* compares this to blight of Oats & suspect it due to weather. so be cautious 124 18-19w see 3d. Fortsetz p114 28-29m/w offspring did not flower owing to cold summer 125 10m/wt See Gaertner p273 on Distinctness 11m/w England Smith says(?) Loudon says aboriginally S. America 12m/10w N. America 11-14m/18u↔/11-21w all like each other & quite fertile & so varieties contrary to Linnaeus *wb* I see Gaertner gives the reciprocal experiments only i.(a) 126 7-1m/w quite agreed with each other 8-9w Read vars. 23-26m 128 7w Stocks

Fortsetzung 3, 1 wt Experiments carried on ♣ from p.1 of last Fortsetzung 12x, *wb* Crossed many *Verbasca* of that country, & found them fertile, to his surprise, as he thought that plants of same country did not readily yield hybrids. 2 5w No 6w S. Europe 7w Brit 14-15u "Scherben", 21u▲/4-9w Never seen ♣ *Thapsus* & *Phlom.* growing in same spot though in same country 23w & *Thaps.* 4 19-24w intermediate 5 16-17w quite infertile 20-21w Reverse p.12 2d Fort: 20w Britain 21w S. Europe 23-24w exactly like 6 14w England 15w Britain x *wb* x p35 when crossed with flav. var. colour of hybrid-flower rather darker.- 7 9m 9 11-20w intermediate 26w sterile 10 2-4w some Mountain flowers 17m/w Britain 17-26w exactly similar to last. reverse of last- 11 3-4m/w Britain 15 13-24w sterile: those in pots, produced larger empty capsules (a) perhaps from pollen of neighbouring plants.- p.20 same fact 24-26m/w Reverse of last *wb* (a) N.B. In almost every experiment plants saved in hot-bed, & transplanted into open ground & pots; so Wiegmann wrong. 16 1-11w like last, or

reverse, except in leaves, being shorter & with little wing-like projections, as in female 14w Britain 15w S. Europe 24-26m/24-25u↔/26u "strohgelbe", 27-28m/w except in some colour. 17 3-4m/w Britain 19 14-25w intermediate 20 *wt*/1-4w This shows a negative potential power, & ignores my argument from cucubulus. Thus several cases where one species has not an organ, (as in this case one species hair & the other has not hairs with knobs) the hybrid has it in less degree.- 4-8w p.24 an analogous fact in stalks of leaves 24-25m/w/*wb* those in pots near other plants half fructified, but no seeds - (same fact p26 onwards) 21 3-4m/w Reverse of last quite like. 23 17-19m/u "beyl davon" 24 14w see opposite page 15-25w intermediate 16-19m/w V. ante a X 19u/wt 25 9-12m/w a X do 25-27m/w a X do 29-31m/w sterile 26 8-9m/w Reverse of last 21u "wesentlicher"/22u "nur schienen"/w no great differe 27-28u "sondern\muss" 28 15-22w intermediate 29 18-22m/19w sterile 31 14-26m/w intermediate 32 18-21m/15-21w intermediate 33 22-25m♦, *wb*♦ It is evident, from the great similarity between these hybrids & the foregoing ones, that *Phlonrides* & *Tha* 34 3-4m/w infertile 7-8m/w reverse of last 20-22m/14-26w quite like last, except in colouring of some of the flowers N.B. One parent is a var 27u "vier", 28-30m/w intermediate in colour - p307 Positively contradicted by Gaertner *wb* quite fertile 35 *wt* Even Babington allows that there are two such. vars. 1u/wtτ, 5-7w wild Natural variety (a) 8wτ, 10u "beträchtlichen Anzahl", 12u "nicht Art", 15-16m/w case of var. *wb* (a) It is biennial - grows wild close together, yet during 4 years found they came true; in some districts, only white vars.- Why do they not cross naturally? very strange. Like Hollyock case. 36 12-14m/1-14w corollas of many of these hybrids fell off the unopened flowers. 17u "fünf\Gattungen", 16-18w only native species 37 20-22w self formed hybrid 39 *wt* insects visit all *Mulleins*, but no hybrids, because own pollen strongest effect 1x/2u "zur\beytragen"/w especially assist 27-30m, *wb* says he has shown by certain experiments that species will take only own pollen, if two blends put on together.- 41 *wt* V. *phoenicum*, which grows in Lower Saxony & Silesia near Kalw, is sterile on the male side with itself (as said at p.20, 2d Fortz) 4-8m/x, 9-10u "von\selbst"/w♦ & yet it seems it had pollen. 11-15m/10-21w 2 always fertile in one plant 15-22m/15-18u±/19-20u±/ 21-22u±, 23-25u± 42 1-4w self-formed Hybrids.

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6x/7u/wt 44 wt all hybrids of Verbasc. sterile (yet easily male C.D.) 2-6m, 13-17w sort of half fructification 21x, wb wd appear as if quicker growth, longer flowering & c was property of ♣ all hybrids.— especially of those that properly flower the second year or die 45 wt hard to explain strong vegetation before flowering: the permanence of flowers explicable by their sterility 2-4x, 4-7m/x 46 18-22w 1. 2. 3. V. p.53 24u "sieben"/w z 25u "noch höhern"/25-27w yet higher fertility wb z These do not seem to sport. 47 2-6w 1. 2. 3. 4 8u "zehen"/w z 13-15m/w some few bad pollen-grains in autumn 23w no offspring 48 1-9m/w did not differ from hybrids between Pan & Rust 23-29w sterile. 2 of the plants differed from a third wb NB in bringing back a hybrid to either parent, does not appear favourable to sporting 49 14w 1 16w♦ 2 17w Spring from self sown seed wb This & following appear extra fertile; is there any difference between first cross of Pan & Rust, & reverse? 50 2-7w some with more seeds and some with less 51 9-15w 1-1/2; 2-1/4; 3-1/8; 4-1/16; 5 16-17m, 25-26u "durch | Merkmal" 52 13-19m/x/wb probably some plants may be changed in more or fewer generations — x probably this facility is in proportion to the fertility of the hybrids. 53 10-16m/xx/19-20u "aus | Kräften", wb xx important; the gran-children, of themselves, without crossing come nearer to Pan (as if crossed again with Pan. as in XX) 54 4-8m/w now more resembled each other 14-16m/w not very fertile 56 5-7m/u "denen | Unterschied", 15-20m/w these hybrids came into flower sooner than either parent 28-30m, wb Hybrid pinks often arise naturally in gardens & cross much 57 20-21m/w (a) 23-25m, 28-30u "da | erstreckt"/w Pinks!! wb (a) This unnatural case of pollen not being mature in time often happens with native pinks when planted in gardens 58 16x/12-16w p.99 2d Fort same as Dia. carthus. 59 wt (a) These hybrids self sown. become ♣ partly more sterilized or partly more fertile in seeding themselves, but offspring sterile & tend of themselves to return to ♣ side of Barbatus 5-8m/w (a) 25u "Fortis. | unter", 28-30m, wb become very like mother-plant & assumed fertility by self action 60 7-11w supported by reverse 61 2-4w less fertility 62 17-19m/x, wb — hardly differed from Hort. & was double, so that these varieties produced full effect on a compound hybrid.— 63 19-23m/w differed & double on double calyx 64 8-14w intermediate 17-22w vary in colour 66 1u "Ansehen | Samen", 14m, 21-28m/23u

"vielen"/24u "einige"/25u "einen | etliche"/21-27w very few capsels with very few good seeds 67 7u "einfach"/9u "gefüllte"/8-11w varied much 2 double 18-19m/22-24m/19-26w resembled one in reverse experiment & greatly resembled the reverse cases wb♦ Does the homogenousness of reverse experiments hold in varieties, as well as species? 68 18-21w varied in colour all single 26-30m/x/wb xx took much after Hortensis: thinks in 3 or 4 generation wd be undistinguishable— 69 13-15m/xx 70 2-3u↔/1-16w D. chinensis two varieties can be impregnated with D. superbus (a native) as ♣ surely & fully as with own pollen. 72 1-17m/↔w wonderful how intermediate in every point, even the colour (wh varies) these hybrids are; yet we kn. one a wild species, other cultivated varieties. wb (a) Pollen of these Hybrids partly good partly bad, yet impregnation of parents sure as in pure D. Chinen 73 2w (a) 3-5u↔, 10-11u↔/9-21w inherited doubleness strongly more or less inherited Yet wild male & inclined to be hose in hose — colour darkens in Autumn 25u "in | sich", wb Could never self impregnate them; but produced when begotten by other species & by seeds 74 wt/1-12w duration of flowers & power of vegetation shows their hybrid origin, as in other instances. 25-27m/wb Doubleness hereditary from female as well as male side 75 29u "durchgehends", wb On male side quite sterile, on female with other pollen produced some seeds. 76 15w p108 16-23w intermediate 77 13-18w self infertile but fertile with pollen of superbus 78 7-12w intermediate 16-23w self-infertile but fertile with Hortensis 79 1-4w Both these & reverse of difficult impregnation. Reverse of last 5-15w intermediate & like last 19w variety 20w wild growing wb barbatus is Sweet William 81 12-18w intermediate 82 1-7w quite sterile 9w variety 10w wild plant 83 5-26w I cannot tell whether intermediate in colour seems to take after chinensis — sterile 84 16-24m/4-28w Varied greatly in colour — doubleness strongly hereditary 85 wt Though species & simple varieties, take intermediate colour, when crossed, yet those which have been much cultivated, sport greatly 1-23w has carefully self-impregnated some much altered Varieties & finds offspring sport much 5-29w So that this analogy has not escaped him— 13-17m, 15-16u "nicht | Sorten", 19-26m/x/wb & thinks long-continued changes of conditions tends to destroy the balance ♣ preserved in ordinary generation, in form colour & c &

everything as in hybrids of the first ascending or descending degree 86 17m, 18m/w double 19m/w wild species 27u "zehn", 28w 10 hybrids 87 1-31w X|| strictly intermediate, even in colour, but also the flowers double, so showing strength of double hereditariness!! 88 25-26m/25u "kein | einfachen"/26-27u "vervielfältigten | gefüllten"/ 23-26w Not one simple 89 1-4w quite sterile on female side. 92 wt/1-10w intermediate - in some few points apparently less like male or chinensis Q 15-16m/Q 17-20m/w considerable fertility on both male & female side 21-22u "wenn | Saamenstaube", 24-25u "zwanzig | ziemlich", 31u "nach | von" 93 1-10w about 1/3 of natural seed & next to [63] the most fertile hybrid he has raised 13m/w Loudon makes distinct 13-16w thinks a var: of *D. deltoides* a wild species 24-26m/24-30w form of petals a little different in *D. glaucus* from *D. deltoides* 94 wt (a) sowed seeds of wild *D. glaucus* & sometime a red flowered plant came up like *D. deltoides* * Both British & considered by Loudon as distinct 5Q 8m/w (a) 96 1-3w intermediate 6-7w quite sterile 16-26w supported strong vegetation = theory of all hybrids whether quite sterile or partly fertile 97 wt/1-5w B. This experiment produced much good seed; which surprised him, as this hybrid impregnated with *D. Hortensis* gave none. NB is perhaps explained by great fertility of *D. plum* sib with *D. chinensis* (p.43) So that a third species is more fertile with the hybrid, than one of the parents 6-8m/w B 9-12w ought to be repeated to be trusted. 98 12-16w intermediate 99 5-8w offspring differed considerably in every respect from same capsules 100 12-17m/w sterile except in one, some good seeds. 101 12-13w Another example 13a "der"/w 1st 14u "S.32" 102 2-18w The two hybrid plants differed in colour & in some other respects *wb* confirms remark, that hybrids in second generation with other hybrids not so constant, as in the first cross 103 6-8w fertility of some increased 15-16m/15-26w wild species yet does not seem to induce its form in this cross with any particular force. 104 25-28m/w fertile with self by self 105 11m, 19-26m, 26u "zwergartige"/w dwarf *wb* 3 plants differed in colour ♣ two approached nearer to *D. barbatus* & one to *D. chinensis*.- 106 1-19w similar hybrids from 2 reverse experiments sported & two leaned to *D. barbatus* 24-31w seems no rule in the variation of such hybrids 107 1-3m/w tendency to be dwarf 109 wt seems to ♣ say, that, as in a hybrid,

the male or female side is most fertile, so will its offspring take after that side. 7-12m 112 ↑2-1m/wb 2 differed ♣ 3 hybrid generation 113 24-31m/12-29w repetition of old experiments 114 17u♣/18u♣/1-24w intermediate & quite sterile♦ fertile: & hence varieties Loudon makes out diff. shrubs & plants China & E. Indies 25-26m, *wb* Hooker looked to these Hibisci for me; those now thus named are very distinct & really very distinct in appearance & male even into 2 genera: case cannot be trusted 116 wt A) Hooker found for me, that *Mat. incan* & *annua* are thought vars. by R. Brown & Bentham says *M. glabia* is also only a var. So case fails 4-6m/1-6w thinks infertility shows these distinct species 18-20m/w Make a list with reference to X Hunt out these vars 18w = *Mathiola* in Loudon A. 23u "Winter | zu", 24-29w/wb Gaertner has not tried this, Note given in K. to reciprocal cases of *M. annua* & *glabia* p.7061○ 27w so that 3 reported species are distinct *wb* x Resembled each other in inverse *incana* is Purple stock. annua ten-week stock. 117 19-20m/w as fertile as two parents 26-29m, *wb* Must be considered as varieties, though flowering at different times duration of flower & other differences. 118 wt Impossible to make anything out in *Steudel* Mem. species not in Loudon 1-2w *Sida* Not experimented on by Gartner 10-15m/7-10w fertile hence varieties intermediate 19-21w cannot be traced in *Sageret* 22-26w♦ Compare with *Sageret*. 119 wt Hooker allows these two *Aquilegias* probably distinct 5-6w intermediate & fertile 8w varieties 17m/15w *Columbine* 22w double 24u "einfach"/w single *wb* I see Gaertner p365 experimented much on *Aquilegia* & nearly all (i.g.) (but no Ks.) with many species: ♦ Now Hooker thinks all one species; has he published? 120 14-15u "stark verveifältigen"/w V very double 122 1-15w Greatly varied ♣ in colour & doubleness. 18-27w as in inverse & varied as in do 123 wt Attributes the great variation to the cultivated state of the garden *Columbine*: supports statements at p.85. 10-11m/x/u "und | Fruchtbarkeit"/w not small ♣ fertility x 9-14m♣, *wb*/17-31w Some might think these hybrids p49 might be self-propagated for perpetuity; he does not believe, as seeds somewhat less, or doubleness only right number in parents. also from the tendency in many cases to return to either parent form 124 22w *Hyosciamus* 23w p46 125 8m 127 19-27m/10-31w I have not well made out following

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pages. *wb* In Syngenious plants, the pistils head down & touch pollen ♣ C. Sprengel I shd think did not know this 130 22-24m 131 9m 134 1-6m/1-15w wonders at the movement, as he thinks impregnation ♣ happens by insects alone 136 27-31m/w On Pollen 152 1-18w pollen in water, when swelled, does not burst in many genera

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NB 55

55 4w●

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SB ∞

147 The older pari- & impari-digitata have collar bones much more alike than they have now – gradual divergence

147 thinks changes very stow (*ie slow*)

153 thinks reduction of 4-toed to 2 or 1 toed wd be grt saving, for reduced blood-vessels &c

183 much about adaptive & unadaptive changes.

⇒ What I do not understand

137 25m 145 13m 147 *wt* The older forms of the paridigitata & imparidigitata have collar bones much more alike than at present day – gradual divergence.– 2-16m, 35-41m 148 8-9m 149 23-26m/25u "*Choeropotamus*" 151 27m 153 11-21m, 37-40m 154 6m 161 35m

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title page *wt* Febr

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ad, beh, che, fg, gd, mhp, mn, no, oo

NB *w* ∅

SA (pp. 28-29) □β

Jan. 19 1861 Abstract of whole Book

He asserts that Cruciferae are unfrequented before flower opens (Kurr)

(over) ⇨

Jan. 13th/61/Nectar an excretion – as seen in Legum. & Laurel – see also Kurr for other cases.– In Bracteen & flowers later produce only when sun shines – sugar is highly oxidised, & is not oxygen exhaled when sun shines.– Nectar is sought eagerly by various insects – C.C. Sprengel, finds case that it is excretion in various parts & organs within flowers & its very general presence in highly organised plants (see Kurr) was of special use to plant by attracting insects.– He erred in supposing that these visits were for self-fertilisation; though in many cases necessary for self-fertilisation (a) & for various of the Dioicous plants. The real object as shown by many general considerations is to ensure occasional cross.– But true as it in those flowers, as Papaver &

(over) & Verbascum (Kurr) no nectar, yet these genera naturally cross – I suspect pollen-searchers do the job – But there are some as grasses, conifers, on pollen of which insects do not seem to feed – here wind both unites dioicous & crosses the hermaphrodites – Often have feathered pistil without pollen in adundance – dangling anthers – open petal flower &c &c.– & no nectar (except *Poa aquatica* probably) Think of number of Insects which feed chief on Nectar!

(a) A hermaphr plant not self fertilising itself & thus requiring insect agency is in fact for same object of crossing

SB2 □β

Nectary p.129 p133 V tricolor Delphinium
(over) Abstract of Kurr on Nectary Jan 14
1861 1

p.17 Cyperaceae & Gramineae Junceae no
nectar Arum none (false) – p34 Rumex,
Atriplex none Rheum has 36 Plantago none
25 Calyx of certain Iris secrete Nectar

29. Lip of Butterfly orchis secretes before
flower opens || throws light on secretions
in Listera &c

28* Bracteen of certain orchids secretes
honey

29 Cyripedium no nectar!

– 79 Polygala vulgaris none; yet I have
seen Hive-Bees smelling shows how rarely
secretion happens So Viola same facts

39 Small flower with nectar Veronicas (44
Myosotis) 54 Galium 2 spe. & Asperula/64
Epilobium hirsutum & Montanum) 79
Stellaria & Sagina procumbens/83 Draba
verna/

40 Verbascum none (yet cross naturally) –
Solanum tuberosum & parent none

42 Syringa vulgaris none? whether in own
country?

80 The fruitful flowers of Viola have no
corolla or nectary – (probably self-fertilisers)

85 In Cruciferae generally fertilisation in
compound flowers.– & Honey after
fertilisation = some error =

86 Papaveraceae (they have the guiding
mark of C.C. Sprengel) no nectar

95. Amentaceae (except Salix known to
be visited by Bees.) no nectar. Or Coniferae
Good as showing use of nectar in several
cases as Graminae Cyperaceae. &
Coniferae when we see structure & pollen
strong that wind is agent No nectar

(over) 99. List of plants without nectar

102 Nectar rarely secreted before pollen
shed but last afterwards

115 cases of nectar secreted outside of
flower (does not know of many cases)

124 cases of Orchids which get no seed
when spurs cut off.– but opposite cases
given in note

126. Viola tricolor bore seed when spur cut
off probably bees do not see & are guided
by flower – so with Corydalis later

129 general conclusion from 441
experiments barely lessened seed.–

131. some orchids bore fruit when corolla
cut off

133 V. tricolor bore fruit 135 General

conclusion that cutting off corolla did not
prevent flower producing fruit!

138 to 142 General conclusion of whole
Book on use of Nectaries – All spoilt by not
knowing of use of Crosses.

12 wb KruDtz 17 3m/w Arum must have
Honey 11w none ↑15–10w none Poa
aquatica must have – one Moth frequents 19
4w none 22 15m/u "beiden untern" 25 ↑14–
12m 28 5–10m/w No Honey look at night–
↑7–4m/↑6u "Bracteen" 29 2–5m/w lip of
Butterfly orchis before flower opens 18m 32
7–15m/x/w Proteaceae with nect on one
side 34 "Rumex".x, "Chenopodeae".x 36
"Plantago".x, "Primula".x 38 1–10w Bees wd
not go where the nectar accumulates.– ie in
Nectar pollen ↑9–8m 39 5–15w Veronicas,
though so small secrete Honey 40
"Verbascum".m/w X Yet cross so readily!
Naturally moveable○ by pollen-searchers
"Solanum".m/w none 42 "Syringa".m/w none
44 "Myosotis".m/w small flower 45 ↑8u↔ 49
"Apocynum".m 50 ↑18–14m/↑17–16u "welche |
Saftmal"/w receptacle 51 "Pyrola".m 52 1–2m/
wt shows secretion of pollen relates to
opening of flower 3–8m 54 "Galium".m/u, ↑3–
1m 57 1–4m/4u "untere | Hälfte", 16u "der |
umgibt", 19u "ihn | umfasst" 64 "Epilobium".m
65 "Potentilla".m 66 "25".m 67 5–6m/6u
"Saftabsonderung | dem" 71 "Melianthus".m/w
latent 74 ↑4–1m 75 1–2m/1u "ist einseitig" 79
"Cerastium" "Spergula".m/u, "11".m, "12".m,
"13".m, ↑11–9m, ↑10u "keine Honig"/w
Bees frequent 80 ↑10–1m/↑2u "einigemal |
wurzelständigen" 83 "9".m 85 "Cheiranthus".m/
! /u± 86 "Papaver".m/w Yet cross naturally 88
"Anemone".m/u 95 "1"–"4".m, "7".m, ↑4–1m
96 3–5m 97 "27".m, "44".m 99 wt Poppies
have mark at base of petals to guide Bees
6–7w Eliz has plants/u, ↓w Anemone
remarkable exception cover up Anemone 100
3–5m 101 ↑14–8m/w good for looking to Pistil
102 9u "höchst selten", 22u "gleich häufig", ↓w
Nectar very rarely secreted before pollen
shed but sometimes lasts after fertilisation.
Present in dioicous plants 103 ↑18u/wt,
↑16u/wt, ↑14–10m/w Nectaries become
regular in double flowers 104 12–16m/15u
"Orchis | maculata"/17u "sehr | absondern"/w
Nectar receptacles present where no
honey!?! These, I suspect, are cases of
secretion at odd times. 21–24m/w doubts
whether they serve as guides to insects. 115
↑6u "heisser", ↑12–6m/↓w Secretion of
sugar by other parts of Plants 119 7–10m,
14–17m, 20–22m 120 1–12m, ↑12?/u
"Viehweiden", ↑10u/wt 121 2–6m (Sprengel)/w

KURR

(a) *wt* (a) First who saw use of nectar to tempt insects 124 5-7m/w O. conopsea bore no fruit 8u "15", 9u "nur|an"/8-9m, ↑16-1m/w contrary result 126 *wt* Nectarys cut off 11-12m/u "alle|reife"/w It is clear Bees do not perceive when nectary cut off.- 127 8-9m 128 "27"m, "30"m 129 14a "Versuchen" with nectary cut off ↓w before the whole cutting off nectary hardly lessened Seed. 130 *wt* Orchids Cutting off flower ↑11u "keine|trug", ↑7u "Blumen|Kelch" 131 *wt* corolla cut off 4u "sind gereift", 8-9u "aber|Frucht", 18u "eine Frucht", 21u "Hälfte" 133 5-6m, 11m "Blumen|Früchte", "Viola".m/m/w (a) *wb* (a) Could he have artificially fertilised these flowers? 134 "69"m/!u "sie|Saamen" 135 "76"m, "77"m/u "Fruchtbildung", "II"m 138 7-10m/*wt* says as he cut off corolla &c & yet plant bore seeds yet cannot argue that these parts useless so he says with Nectarys ↑4-1m, *wb* argues against Sprengel, because in most honey-secreters no help is wanted (does not think about crossing) he has proved in many cases no help wanted. Because many are fertilised in bud, as Campanula!! 139 2-6m/w no help wanted 7-9m, 10-12m/w Nectar fails in many dioicous plants. 16-17w B 19u "so|habe", ↑17-1m/↑10-8y±, *wb* B Believes insects necessary for some dioicous plants, but cannot believe so important an office left to chance! 140 1-4m 141 5-9m 142 ↑8-2m, *wb* Secretion of nectar, he concludes, relieves flowers, like menstruation, before seeds are got.-

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NB 242

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gd, sy, tm

vol. 1 NF Have

<untranscribed w are page-number references; ∞>

vol. 2, 17 2w, 13w, 17w, 24w, 25w 18 1w, 2w, 3w, 6w, 8w Order Polypes Tubiferes 405 415 22 8w, 14w 71 zt 90 8-12m, 9-23c/15w (a) *wb* (a) Flustra is stony & entirely membranous 91 17w, 18w, 19w, 20w, 21w, 22w, 23w, 24w, 25w 105 11w, 12w, 17w, 22w 123 15-17m 449 6w, 7w 457 2w, 19w 458 7w, 15w 504 9-10m 527 2w, 9w 528 1w 530 14-18m

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Hymenoptera 38; Neuroptera 179; Orthopteras 229; Coleoptera 266; Dom. 272; Frim. 275; Tetrar. 283; Heterom. 366; Pentam. 437; fil. 439; clav. 532; Lamell. 564 42 25w 43 3w, 12w, 18w, 24w, 28w, 32w 123 10w, 14w, 18w, 22w, 25w 185 19w 227 31-32m 234 8w 240 *wb* caught a specimen 370 miles from coast of Africa where it must have come from 248 15-18m 272 10w, 11w, 12w, 13w, 16w 284 14w, 21w, 25w 285 2w, 4w, 6w 358 23-26m 367 20w, 27w, 30w 368 2w 397 5w 399 1w 439 1w, 4w, 7w 440 14w, 18w, 20w, 24w, 27w, 29w 492 27w, 28w 493 3w, 13w, 14w, 15w, 16w, 20w, 22w, 25w, 30w, 31w 494 3w, 4w, 6w, 8w, 9w, 13w, 14w, 19w, 20w, 21w, 25w, 28w, 31w, 32w, 33w 532 ↑1w 533 2w, 6w, 9w 566 8w, 9w, 11w, 14w, 18w, 19w, 23w, 30w, 31w, 32w 567 2w, 5w, 9w, 10w, 11w, 13w, 19w, 22w, 23w, 24w, 26w

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ad, af, is, mhp, t, ud

vol. 1 NB1 It is doubtful whether Lamarck has done more good by awakening subject, or harm by writing so much with so few facts.-

This volume no facts, wild metaphysical speculations - very poor

vol. 7 - Land-Snails on Islds

Nothing else in whole work March 1857

NB2 March 1857 Nothing

111; 112; 114 to 116; 126; 132; 134; 151; 152; 153 to 165; 197; 249

287 On analogies

111 27-28m/28u↔ 112 10-11m, 12-14m 113 28-33m, *wb* Owen gives Rept (Rept Brit Assos) as strongest case of wide range of perfection 114 30-35m 115 19-23m 116 29-31!/30u "*perfectionnement*" 126 34-36m 132 2-18m, 23-25m 134 12-14m, 18-20m, 28-33m, *wb* Milne Edwards 135 22-25m!!! 151 20-24m 152 1-12m/w evidently has no notion 9-14m 155 18-23m, 19-20w♦ 156 1-16m, 4-7w only proofs 157 1m/u "*loi|observation*"!!!/wt Because use improves an organ, wishing for it, or its use, produces it!!! oh - 158 5-6m, 24-25m, 26-27m, 30-31m 159 3m, 4u "*habitudes|prises*", 5-12m/w this is nonsense applied to Plants, What makes them acquire a habit 13-18m/15-16w Base of theory 20-23m/21w oh 163 14-16m 165 7-19m/11u "*peu|plus*", 31-36m/→ 166 33-35m 197 32-36m 249 1-5m 287 1-3m, 4-11m/9w 288 17-18m 288 7-12m, 16m

vol. 5, 646 33-36m, *wb* V. Thompson Zoolog. Researches No 3 p69 651 22-28m 652 18-21m/18u/wæ

LAMARCK, Jean Baptiste de *Philosophie zoologique* 1st edn.; Paris; Duminil-Lesueur; 1809 [vol. 1 only; CUL, pre-B, cover is that of 1830 edn.]

ad, beh, cc, ch, che, cr, cs, dg, ds, dv, ex, fg, fo, gd, geo, h, he, hl, hy, is, mhp, mi, no, oo, phy, sh, sl, sp, sy, t, ti, tm, ts, v

NB p261 On effects of intermarriage in preventing multiplication of species

SB ☐☒

44 It is odd that in animals organs for conservation of life important, in plants organs of reproduction - But a flower is more than organ.

58 good remark how arbitrary the distinction race & species is.

62 alludes to conditions. [In Preface ask

whether from earliest ♣ age there can have been revolution of climate corresponding to the many changes in organisms on earths face.]

Very poor & useless Book

21 19-25m 22 14-18m, 19-21m 25 23-27m 26 8-12m/9w Why? 10-21m, 21-22m/u "*ou|existe*", *wb* Fallacy common to Swainson & Macleay 31 *wt* X Here seems to think existing series perfect 12-14m, 21-26m/x 32 18-21m 33 26-28m, 27-28m, *wb* V. p31 38 *wb* In this Chapter argues that all divisions or gaps are artificial or that the series is either now perfect or has been so - Fallacy - 39 9-12m/11u "*parenté*" 44 10-13m/w why so strong a division? 50 24-28m/? 51 1-12m 52 *wb* On the importance of relations 55 11-25m 56 14-25m 57 22-25m, *wb* Lower animals where many species 58 1-9m, 18-28m 59 16-17m/16u "*forment|rameuse*", 18-24m 62 21-28m/?, *wb* Is there any marked difference between races produced in same or different countries, with respect to propagation? 63 1-5m♦/? 64 22-26m/23-24m, *wb* ♣ a want of Proof 68 *wt*/1-12w The case of acquired hereditary instincts, shows that instincts can be acquired. 3-4m, 10a "*tout*"/→/8u "*sublime Auteur*", 21u "*nature*" 70 21-27m, 24-28m, *wb* & not isolated pair 71 1-4m/??, 13-15m/14-15m/w Well-said 18-21m, 20-28m, *wb* Like Lyell in Geology 75 1-7m, 10-14m, 13-27m, *wb* not well stated 76 1-25m, 10-23m/14w Poor 13u "*à détruire*"/→/wb S. Africa 78 1-26w The similarity of type on old Continents & in oldest seas - does it point to first Creation?? *wb* Lamarck argues, species of shells, not killed by man, no apparent cause of death; but causes of change are present ∴ therefore fossil same species with modern.- 79 13-15m, 24-29m/w ∴ rate of change not uniform in world, except on great scale *wb* Geologists judge of time by change of species, these changes effect of physical changes (dynamical changes). these we can only judge of by present day - Therefore measure of past ages is reduced to observation of changes at present day - 80 *wb* Therefore every fossil species direct father of existing analogies & no extinction except through man!- [Hence cause of innumerable errors in Lamarck] 81 *wb* On species - argues against permanence, when conditions changing - series branching now or once perfect - no genera - conditions change species & these changes by time become fixed - assumes some more species made by (p.64) by hybridity & fixed

LAMARCK, PHIL. ZOOLOG.

by time – wants produce habitudes, the source of actions, faculties & instincts – argues against Egypt case & asks what is 2000 to 3000 years? –/definition of species 75 /doubts any extinct animals! (hence theory must be false XX *wb* There is nothing about types as Geograph. Grouping 83 9–15m/10–11u "n'offrant parfait" /?, *wb* nearly all compound animals being fixed, analogy with vegetables, – caused probably by ♣ imperfect transmission of will preventing voluntary & coinstantaneous movements. 84 1–4m/? 86 1–4m 89 16–22m/? 93 1–5m 101 *wb* Speculations 105 11–14m, 21–25m 106 17–27m 107 15–27m/17u "quelle" 108 13–22m 109 9–16m 110 24–28m 127 15–23m 129 *wb* – Classification – p.105. few animals at the limits of classes – animals in series & not ramified p.109 (quite different from my view) – organs vary in developement & not in same ratio, as the developement of the class to which it belongs 134 27m 135 1–3m 136 1–6m 140 1–27w There appears to me to be some confusion in these ideas of degradation. What makes perfection, except that towards the end wanted. Look at House of Crustacea *wb* Scale (of many kinds) of complication = on exists. 144 1–3m 145 6–14m, 13–27w Here is the difference between Lamarck & Me 146 5–8m/? 147 1–2m 148 3–8m, *wb* The economy of world would have gone on without Bats or Ostriches. – It can only be following out some great principle It is clear Birds made preeminent for air. yet if no birds: Mammalia would best take place 149 *wb* (continuation of p. 148) There limit to this Adaptation. Fish could hardly have lived out of water. Though Crabs – Spiders under water. – 150 *wt*/1–5m/?/w This is rather false; Simply to differ from highest animal, does not prove degradation. Who can doubt superiority of some organs & therefore senses in lower animals 15–28m/w How curiously different from Swainson 16u "palmipèdes"/w Why? 18u "sortant marcher" 151 6–10m/w as bad as Swainson 155 13–15m/w no links with high classes 156 15–16m, 16–28m, *wb* ♦ according to his class of argument. This not degradation because mere effect of in 157 5–10m, *wb* NB Snakes perform the parts of fish, & fish of snakes. – 158 7u "odorant"/→/wb On this scheme of organization lower down it would not be expected to find organs ♦ smell more perfect. But in others as articulates it is much more perfect 217 *wb* This chapter must be looked over again: L. distinguishes between degraded or abortive organs, such as

extremities of Cetacea, & less developed forms –: discussion on this point fills much of this Chapt. *wb* The want of progression in the vegetable world serious fact Lamarck has rather overlooked – Though no doubt vegetable world should rather be considered as one family (not so large as insects) in the scheme of organic beings. 221 23–27m 223 14–21m/w Therefore not same theory to plants & animals 229 24–28m/28u "formées pays" /? 235 16–18m/17–22w are there any facts? I doubt 241 3–8m, 13–16w Australia honey-sucking marsupial. 242 1–6m/w Mem. Tucotucu *wb* Coleoptera wings beneath soldered cases 244 8–13m/9? 246 5–13m 261 22–28m 262 1–7m 266 7–14m, 10–28m, *wb* Does not pursue this into Geographical Distribution 267 7–16m, 18–27m 268 *wb* Explains how animals & plants change. Lamarck's theory differs for plants & animals – It is absurd this way, he assumes the want of habit causes animals annihilation of organ and vice versa – ||Explains how crossing presents innumerable varieties of man – & supposes if no distance between men, there would not be many races of man – does not extend this view 376 1–3m/1–13w This shows connection of life with laws of Attraction– 16–28w If food in stomach is vitalized one need not wonder at the power of the womb 378 10–18m/12–13w crystal 379 19–25m/21–22m 380 1–7m/3? 381 *wt* Have not crystals certain properties common to the whole & not to part? 1–3m, 1–10m, 4–14m 382 20–21u "toujours accidentale"/w crystal 25–28m, *wb* Endosmos & Exosmos purely Physical action 384 1–28w The interruption of ordinary laws of classical attraction most striking character of life 13–26m/wb Other final cause 388 13–26m/ 24–25m 392 6–9m 393 16–27m

LAMARCK, Jean Baptiste de *Philosophie zoologique* new edn, revised and introduced by Charles Martin, 2 vols.; Paris; F. Savy; 1873 [Down, I by Martin] §

LAMBERT, Charles *L'Immortalité selon le Christ* Paris; Michel Lévy Frères; 1865 [Down, I]

§

231 14–18m 233 11m, 14m 256 24–26m 275 12–16m 279 22m

§

LAMBERT, Charles *Le système du monde moral* Paris; Michel Lévy Frères; 1862 [Down]

LAMBERTYE, Léonce *Le Fraisier* Paris; Auguste Goin; 1864 [CUL]
hy, sp, tm, v

NB \emptyset All used 1865

p.14 M. Gay \emptyset ; p.24 no runner; 37 5-leaved curious; 50,51 to p.63; 76
History 125; 127; 137; 221 \bullet ; 230; 244 5 leaved; Belle Bordelaise not a Hybrid
14 6-11m/w Hautbois 24 25-27m 37 17-20m 50 17-20m, 25-31m 52 19-23m 53 24-25m/w Scarlet 57 11-22m (Hooker) 59 1-2m/1u "c'est l subalpine", 27-31m 61 4-7m, 16-21m 62 25-30m, 31-32m 76 19-24m 77 35m, wb not hybrid 125 14w 1683 127 28w 1746 29u "cités"/29-31m 137 11u "Fressant"/4-14w 1766 all specs known 5 vars with some subvars of *F. vesca* 173 23-29m 221 24m, 28-33m 230 13-19m, 21u "Belle Bordelaise", 28-33m 244 31-34m 245 1-3m, 4-7m 379 23m

LAMONT, James *Seasons with the sea-horses* London; Hurst & Blackett; 1861 [Down, I]
beh, gd

NB 89 Drift wood on Spitzbergen from W. Indies & some N. country
141 Walrus fighting manner of
89 7-18m 141 1-3m 143 9m, 25m

LAMOUREUX, Jean Vincent Félix *Exposition méthodique des genres de l'ordre des Polypiers* Paris; Veuve Agasse; 1821 [CUL, pre-B, S]

facing viii table.w $\emptyset\emptyset$ 5b 32-33m 11a 20-22m 107a 20m 107b 19m 108 21m, table 31.w Pavonia table 57.w Modespora table 64.w Cillepora, 12-16 F, 17 18 22 Cill table 65.wt Cilla - table 65.wb Tert \bullet

LANCIANO, Raffaele *L'Universo, l'artro e l'individuo* Napoli; Tipografia Italiana; 1872 [Down, I] \emptyset

LANESSAN, Jean Louis *La Lutte pour l'existence et l'association pour la lutte* Paris; Octave Doin; 1881 [Down]

LANESSAN, Jean Louis *Du protoplasma végétal* Paris; A. Parent; 1876 [Down] \emptyset

LANKESTER, Edwin Ray *Degeneration. A chapter in Darwinism* London; Macmillan; 1880 [CUL]
ci, dg, sx

NB male cirripedes the shorter cirripedes the primitive cirripedes
reason for Mites being degenerated Spiders Anclasma lbla

LANKESTER, Edwin Ray *On comparative longevity in man and the lower animals* London; Macmillan; 1870 [CUL, I]
beh, ct, fg, h, he, in, oo, pat, sl, sx, ta, y

NB1 Bears on Natural Selection

p.75 Rate of Reproduction

I think I had better only say after discussing how long the series of changing cells goes on (perhaps for even senile diseases) that longevity is a more difficult subject & refer to this book.-

NB2 Who has \clubsuit discussed this obscure subject more fully than 2 other recent authors

Pangenesis 31, 36

Longevity & Individuation \clubsuit

45 longevity $\checkmark\emptyset$

do 71 $\checkmark\emptyset$

76 $\checkmark\emptyset$

Pang - 77, 108 \diamond \diamond Death-rate of married men

$\checkmark\emptyset$ 79 $\checkmark\emptyset$

Summary on Longevity $\rightarrow\emptyset$ 87 Summary; 119

\diamond 91 Struggle for existence between societies

\diamond savages perish in old age from starvation - 117

\diamond 120 Destruction by Intemperance; Table p.114

\diamond 122 - The struggle for existence includes rearing children

\diamond average mortality has increased - 126

\diamond 128 on Fraser's article

31 16-24m, 28-29m (Darwin) 32 12-20w no, they multiply 33 zt OOOOOOOO wt the last will consume all gemmules in repair wt How many stages of metamorphosis 1-6w I suppose after a time, same cell reproduced 8-14m/w Gemmules? used up in repair 36 1-11m/w If any gemmule had but limited power of increase all wd be clearer 45 1-4m/w Parrots Tortoise? 71 21-28m 75 28-30m, 28m/w ? Herbivores 31m 76 17-23m/18u \emptyset "generative expenditure"/9-21w greatly opposed to his belief 77 13u "castrated animals"/12-15m/w They ought to be for they retain gemmules \clubsuit , 23-29m 79 8-12m 87 13-25m/17-22u \pm 91 6-11m 108 27-28m 117 5-8m 119 6-8m 120 28-29m 122 17-19m/15-20w that not starved to Death, to marry & rear children 126 7-9m 127 9-13m 128 20-24m, 26-28m/26u "social virtues" 129 19-21m, 30m, 31-33m/?, wb No some differ in constitution same disease not twice
catalogue \emptyset

LARDNER, Dionysius (ed.) *The cabinet cyclopaedia; outlines of history* London; Longman, Rees, Orme, Brown & Green; 1830 [Down, I Charles Darwin 1839]

LATHAM, Robert Gordon *Man and his migrations* London; John Van Voorst; 1851 [CUL]

af, beh, cc, ds, ex, gd, h, ig, mg, no, oo, sy, tm, v

NB 49 Man & Monkey compared by summary, only numerical on Resemblances SB1 □ \mathcal{R}

p.47, 49 (If we cd we shd class Man by Descent, I think) p.74

p.62; 70

97 - ♦ Perhaps a decrease or unfavourable conditions might destroy the intermediate vars, or the increase of a new & better variety or species. when formed overtakes the intermediate vars.

123; 135; 156

SB2 □ β

♦ Latham Man & His Migrations - refer to & read these passages.

48. Quotes Owen with approval, teeth offering more valuable character because not surrounded by muscles.-

69 & 70 good remarks on contrast of sudden removal and the natural slow movements of spreading species or man.-

97. Excellent remark (quote in Ch. 6?) on how during incroachment, one var. will 123 do obliterate intermediate forms: I do not see force of Displacement .- If one form gains an advantage over the other independent of climate, it will overwhelm the graduated intermediate forms

74 Excellent remarks on classification by descent & resemblance

135 Clever remark on different climates which man inhabitants of Cape of G. Hope & of S. America must have passed through.-
over

(over) p.156 contrasts the primary diffusion of man, with that of subsequent diffusion, when man is opposed by man - N.B the wide & rapid spreading of introduced plant is something like this - its progress are not yet developed

47 24-27m 49 3-11m 70 1-4m 74 6-17m, 26-27m 75 11-12m, 15-16m/16a "same" descent 24u "Ethnology", 28m 76 2-7m 97 21-23m 123 26-28m 135 19-27m 145 wb ♦ 205 156 wt But in quite open country man wd increase more rapidly 5-13m 181 8m/u "Comorin"/w Matapari? 191 6-9m

LATREILLE, Pierre André *Histoire naturelle des fourmis* Paris; Théophile Barrois père; 1802 [CUL, pre-B]

beh

NB Abstract of Oct/58/

71 Winged ants ♣ carried low in nest when it is disturbed

73 Workers try to keep in winged individuals in nest.

title page wt Latreille died 6 July 1833 71 1-2m 73 3-6m 140 18w B 143 1w B 150 4w B 151 1w B 156 5w B 159 1w B 166 7w B 168 8w B 195 2w B 246 7w B 251 6w B 255 1w B 257 1w B 259 1w B 345 17w 8 (number of eyes) 347 4m 349 9-10m, 12u "Huit", 26m

LAUGEL, Auguste *Les Problèmes de la nature* Paris; Germer Baillièrre; 1864 [Down, I]

LAUGEL, Auguste *Science et philosophie* Paris; Mallet-Bachelier; 1863 [Down, I]

272 7-11m

LAVATER, Jean-Gaspard *L'Art de connaître les hommes par la physionomie* new edn by M. Moreau de la Sarthe, 10 vols.; Paris; Depélafole; 1820 [CUL, pre-B]

beh, pat, phy, ss

vol. 1, Avis 19u "en 1807" 209 27u "ce | 1806"

vol. 3, 139 1w Read to p.162

vol. 4 NB All read

♦ p.15 Camper Book; 17 Sexual Selection; 48; 52; 54; 120 sexual selection; 123 do

♦ 194; p.205 to end

Abstracted

p.194, 217 Plate of Muscles

15 19-20m 17 15-17m 48 19-21m 52 7-10m/7w Buffon 54 4-14m (Maupeituis) 120 22-29m 121 13-15m 123 10m, 11-13w all soft parts 205 4-8m/5-7u "c'est | musculaire", 17u "celui | respiration", 18-20!!/20u "d'une | épisodique", 21u "parole à", 29-30 → 206 7-9m, 10-12m 209 22-25m/w/30m/wb can it have been of service like language voluntary use to express ideas thus coming into aid of natural beginning → 210 1-4m, 14-15m, 27-30m 211 1-4m/2u "suivant Haller" 221 18-22m 222 2-4m 223 23-25m/w same as corrugator 27-29m/w different from Duchenne 224 14-18m/1-18w/wt in opposition to the muscles which depress eyebrows in grief & concentrated thought 228 24-26"...", 26a "concentrées"/wb He then adds that these muscles from their attachment & position are fitted ♣ 229 1-2m, 1-2u "principale | physiognomique", 3u

"sentiments sombres", 3-12"... ♦ 230 12-14m
231 25-29m 237 2-3m, 12-15m 244 12-16m
263 3-10m, 18-20m 264 23-24m 274 20-23m
282 14u "noir|sang", 15u "le|artériel" 293 9-
11m/15-22m/8-23w is most delicate abounds
with nerve & tissues hence perhaps no other
part could bleed so easily, & specially liable
to be affected by cutaneous eruptions 300
16-18m, 26-29m, 29m 301 3-9m, 17-26m 302
18-27m 303 1u "beauté|ébène", 13-17m, 19-
28m/19u "par|front", 30m 304 2-7m 305 10-
14m, 19-21m

vol. 6, 27 zt

vol. 8, 274 18-22z

vol. 9 NB whole volume skimmed; 116 &
they hear excellently Pampas; 266 Hope;
273; 278; 289; 293; 295; 299; 300
116 8-13m 266 4-5m, 24-25m 267 27-29m 268
12-13m 273 13-15m 277 fig. 11.w fear 278 5-
6m 279 7u "les|même"/w drawing back 10u
"prunelle|paraître", 25-26u "le|autre"/".../w
frowning & astonishment together 280 8u
"voulant respirer"/1-8m/w If I want to show
what rubbish has been written a translation
of this will do.- 13..." 289 fig. 19/20.w sorrow
fig. 21/22/23.w excessive pain fig. 24.w joy
293 fig. 25.w laughter fig. 26.w angry fig. 28.w
passion 4a "fermés" ie brought down at each
end 3-8u±, 8-11m 294 4u "les|enflées" 295 3u
"les|enflammés", 6-7u "narines|élargies", 8-
10m, 11u "grinces", 13-15u "veines|hérissés"
299 19-21u±, 300 16-18m, 23-25m, 28-30m

LAWRENCE, John *The horse in all his
varieties and uses* London; Longman, Rees,
Orme, Brown & Green; 1829 [CUL, on B]
ch, he, pat, rd, v

NB p.5; p.9; p.30; p.230,234; 265; 283

SB □β

30 Hereditary diseases of Horses

230 Changes in Fox Hounds Q↗

p.14 Tushes variable in Mare - Variable
Rudiment

5 25-26m 9 28-29m/Q 14 28-32m 30 17-22m,
24-29m 230 9-16m/7-8Q 231 20-24m, 27-33m
234 1-7m 235 23-25z 265 4-10m, 24-25Q 26-
32m 266 8-10m 267 1-3m 283 19-28m 285
25m

LAWRENCE, William *Lectures on physiology,
zoology, and the natural history of man*
London; Benbow; 1822 [CUL, pre-B]
beh, cc, ch, gd, phy, rd, sl, ss, sx, sy, tm,
wd, y h, sx, tm, v

NB ↻ p484 ♦ 243 Blushing

172 ♦ position Heart - & other organs,

clearly by form of thorax & attitude

Appendix vermiformis 191 ♦

Expression - Tears vented by various
animals - 205

Sexual selection ♦ 272 274 276 Beard

♦ 393 Arabians beautified - Persian Chardin
397 Selection not applied to man (↻ by
other men it shd be added)

Ure → 484 Ure's Q ↻ sense organs.

♦ 437 Pallas on changes of coats of
domestic & wild animals in winter &
summer.-

452 ♦ Eyes of Negros at Birth

317, 319 ♦ exaggerate form of Head

337 ♦ flatten nose

354 Ears

♦ 356 Tattoo females

♦ 357 Lips

♦ 366 Hottentot women

♦ 368 Baboons ↻ steatopyga

vb 3-9m via 21-24m, 40-55m vib 17m, 57m
viia 17-23m viib 1-7m, 22-30m, 24m, 59-61m
viia 10-13m, 20-25m viiib 1-7m ixa 12-16m
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34m xb 3-22m, 38-60m 172 1-6m/6w± 173
12-18m 191 9-13m/11w Ateles 204 26-36m
205 7-11m 243 16m/u (Forster) "Observations|
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274 9-11m, 18-21m 278 5-10m 317 25-31m
319 19-33m 337 30-32m 354 8-26m 355 1u
"the|South"/1-4m 356 30-32m/32u "of|the"
357 1u "female sex", 19-21m, 24-25u↔ 366
23-26m 368 31-34m 393 3-14m/7-11m/10-11w
found 20-28m, 31m/u "even|sprung", wb
Chardin ↑5".../wb Chardin says 394 1u "on|
countries", 8-14m/10..." /w poor 397 15-17m
404 21-27m 405 wb In all parts of the world
confined to one stock wb Pallas 437 24-32m,
31u "Siberian roe"/wb Capreoli Sibirici
subcaudata 30-33u± 438 32-33m/w &
Gligium ordine 1778 451 30-34m, ↑6-1m 452
1-2m, 5-12m

LAWSON, Peter and son *Lists of seeds and
plants* Edinburgh; Peter Lawson & Son; 1851
[CUL, I by W.J. Hooker]

v

NB Oct 1857 O/

p.65 Hollyocks; p.67; 87; 179; Nuts, Currants
& Gooseberries described 206 Synonyms of
fruit; p.20 Grasses

12a 10-11w↗ 16 vars 13b 19-20w↗ vars 21
65 35-37m 67 11w How many 87 1w How
many vars. 2w 3-5 feet 4u "constant" 179
23-29m, 35-42m

LAWSON, Peter and son *Treatise on the cultivated grasses and other herbage and forage plants* (bound with previous item)

20 8-14m, 21-29m, 21m 23 3-7m 27 22-23m

LE BRUN, Charles *The conference of Monsieur Le Brun, chief painter to the French King, chancellor and director of the Academy of painting and sculpture* London; John Smith; 1701 [Down, pre-B]

LE COUTEUR, John *On the varieties of wheat* Jersey-London; H. Payn & H. Wright; n.d. [CUL, I to C Darwin Octob 1841]

ad, cc, cs, dg, fg, he, mhp, no, oo, phy, sl, spo, v

NB Introduction & p.1 to 79; p17

SB vi variability of common wheat. adaptation to different soils

p.6 150 vars

12 chance origin of some vars X

15,16 careful selection of separate ears of corn in Columella's time & Virgil

52 disbelieves necessity of change of some seeds but then he studiously varies the manure

55 1/10 of seed perishes even with greatest care Q

59 on one variety soon predominating over (good) another in wheat & hence called degenerating (He has shown how every little trifle is hereditary) without destruction Q

65 an incorrigible tendency to sport in some vars. Q

66 Talavera does not cross because flowers earlier Q

70 Wheat seems affected by climate whence derived (Evidently believes in crossing)

23 Habit of growth differs

proportion of gluten

64 flower at different periods

79 quality of straw

vi 6-8m/4-12w Henslow corroborates the degree of variation in wheat vii 22-24m 2 2-5m, 28m 3 11-13m 5 10-12m, 11-13m/12u "perfect oats", 19-20m 6 4-6m, 24-25m 8 15-18m 11 15-17m 12 1-4m, 5-6m, 26-27m 13 8m, 17-20m 14 15-20m/19x 15 10-12m 16 3-5"...", 5-6m, 9-10m 17 4-5m/4u "similar appearance", 9-15m/10u "to\sorts" 22 17-18m 24 1-2m, 5-7m, 17-18m 26 22m/u "is\ tall" 35 3m/u, 15-16m 38 8m, 13m, 16-17m 41 16-19m/17u "fourteen"/19u "forty-two" 47 1-3m 52 8m/u "is\idea", 23-24m 53 4u "grown\ land", 5u "becomes\with" 54 5-6m/5u "brick\ all" 55 14m/u "one-tenth", 27-28m/27u "seven

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LE COUTEUR, John *On the varieties, properties, and classification of wheat* 2nd edn; London; W.J. Johnson; 1872 [Down, I]

LECOQ, Henri *Études sur la géographie botanique de l'Europe et en particulier sur la végétation du plateau central de la France* 9 vols.; Paris; J.-B. Baillière; 1854 [CUL]

af, cc, ch, cs, dic, ex, f, fg, gd, hl, hy, ig, in, is, mhp, no, oo, pat, phy, sp, sx, t, tm, ts, ud, v

vol. 1 NB Index at end of Vol 9-

SA (pp. xv-1; 10 sheets) □β except that referring to vol. 2

↳

Lecoq. Vol. I (Put in at end of Vol 9)

8. Number of species & number of individuals not correlated in Coniferae

Red mark cross pollination & Dimorphism

56. Alpine plants often do not mature seed.

80 Saline plants in Puy de Dome !

139 Ref. to Catalogue of Plants of central France with rarity marked.

⇒ A good deal about Tyme-like flowers 2 forms

144 Terminal flowers often different from others

159 Natural Hybrids

162 Hybrid Primulas fertile ✓

165 Isid. Geoffroy on close representative species.

170. good remarks on resemblance of American & European plants & on Arctic plants varying much, explained.

182. Increase of Branchiae from use & of Lungs from disuse in Proteus submerged.

194 Alpine plants bud at fixed time when transplanted

197. Vars. of Solidago flowering at different times

207. Von Buch on small genera in Islands ♣ Believe in mutation of species & so Lecoq

209 Land Mollusca of distinct species seen

in copulation

250. Lecoq believes in Transmutation

☞ Feb. 7 1877 I have copied all I want for quotation ○

☞ Vol 2.

◆ 162 plants standing very different climates – Lapland & Greece

199 Atlas & New Grenada plants in comm.

205 Alpine Plants good

283 Forms which have wandered from Tropics

289 do. – Isolated Tropical forms

331 species ranging from high to low on Mountains

404 Alpine plants

406 do

410 alpine plants; their varieties

412 do

414 do – Middle heights have most peculiar forms

419 Alpine vars & intermediate vars.

◆ 430 duration sign of Highness he remarks 162 Plants ranging from Lapland to S. Granada; 32 in number. –

☞ Vol 3

71. thinks annuals highest forms!

72 Only one annual dioicous ✓☞

75 few monoecious.

76 on proportion of Trees with separated sexes ✓☞

79 on separation of sexes all good & curious ✓☞

80 Extraordinary cases of separation of sexes under different latitudes, like Ivy case. Imperfection of Nature

94 Imperfect flowers of Violet

102 On diversity in same species in flowering

161 different periods of flowering of same species on X☞(◆☞) plain & mountain – a day for 90 ft

182 flowers which open at night

211. Replacement of one group by another

214 Changes◆ in plants in pastures

222 Parasitic plants generally on very different plants – gradation in degree

257 Northern Trees unarmed. by thorns

287 villosity character of plants in warm countries X☞(◆☞) & not of mountains –

291. dryness most effect

X☞(◆☞) 405, 7 Piebald flower for crossing, like Gallsio

410. do striped flowers

☞ see Back

☞ Vol. 4.

4 White flowers steadily increase from S. to N.

11 In Arctic few bright

14 So on mountains

27 On smell of flowers Dichogamy

57 On social plants – to 68 on do

73 do

80 definition of sum of life

86 association distinct from social

207 Association parallel in different regions

233 representative species or vars. –

237 parallel species in different soils

239 do

272 On absence of certain forms in Islands

304 on struggle between allied Plants

407 Some sp. of Clematis polygamous D.

425 Some with aborted female fl. 431

470 Shady var. of Ranunculus no petals

482 Ranunculus sceleratus, or Dichogam.

488 Caltha polygamous D

497 Helleborn, probably by insects. D

514 Aconitum a Dichogam

(not CD; ☞) Vol. V. (u☞, CD) D. means Dichogamy

p.6 & 15 crosses wd be difficult

p.22 & 26 Fumaria self impregnated

p.157 Cistus clouds of pollen in early morning.

p.180 ✓☞ (CD) Viola imperfect flowers alone seed

p.196 Drosera flowers open only in sunshine

p.200 Parnassia D.

p 227 D. p.241 D.

p 242 Silene five stamens often aborted

p 246 D 250◆ 249 D

p 252 a Diochous Silene

p 257 Lychnis

p.273 Arenaria with viscid glands.

p.288 Holostium flowers very sensitive to light

– 295 Stellaria D

– 305 & 309 Cerastium stamens move to pistil

– 317 Linum catharticum stamens move to pistil ✓☞ (CD)

– 331 – 332, 336, 338. (CD) Malvatiae D

(over)

367 Acer eminently polygamous

371 Vine pollen of carried by air American Dioicous.

377, 379, 380. Geranium D. fertilized after petals fall

397 Erodium D ?

384, 387, 391. Geranium D.

397 Erodium D ?

401 Impatiens dimorphic

411 Ruta fert. by second set of stamens.

416 Erconymus. the upper flower often has 5 parts like Ruta the other flowers having 4

✓☞ (CD)

418 Paliurus one of the Rhamnic D.

LECOQ, GÉOG. BOT.

420 Rhamnus Catharticus male & female trees have different kinds of leaves – is dioicous & hermaphrodite ✓ (CD)

422 R. infectorius dioicous. R. alpinus ditto

☞ (CD) Vol 5. continued

☞ (not CD)

424 R. frangula. flowers for the most part hermaphrodite

426 R. alituruus. dioicous

468 Ononis. dimorphic

481 Medicago – its fruit twisted either to the left or right, whilst in most species the twisting is from left to right. ✓ (CD)

513 Trifolium subterraneum buries its fruit.

☞ (CD)

Lecoq. Vol. 6 1

15. Spiraea fertilised when flower opens

40 F. Elatior Dioicous

88 Potentium – monoicous & yet dioicous in function

118 Epilopium some dichogam some not so. 121, 125, 126, 128

133 Cricaea do?

156 – Lythrum – species.

160, 166 Byonia, Portulacea Tropical forms

200 Sedum, some species dichogamous

209 Sedum with 2 kinds of flowers differing in number of petals & stamens

214 Sempervivum curious case of Dichogamy. showing slow regular movement of stamen not to impregnate – as in Berberis.–

224 Ribes ♣ sexes separated

262 Sanicula polyg – female dichogam. Umbelli=

266 Eryngium dichogam =ferae

273 do. 275 do, 277, 283,, 289, 310, 318, 323

367 (not all Umbelliferae marked)

310 Foeniculum central ♣ umbels sterile.

335, 344.

335 Imperfection of structure

371. Hedera dichogam

(second sheet)

Vol 6

376 Cornus – in fact monoecious

386 Adoxa 2 kinds of flowers

402 Lonicera periclymenum fertilised in bud.

420 Rutia (Rutiacea) nocturnal

425 Galium tricorne polygamous

429 Galium anglicum do – day flower

473 Knautia (Dipsacea) strongly polygamous.–

477 Scabiosa ♣ succisa do –

☞ Vol 7.

357 Pyrola minor apparently dimorphic

369 Holly dioicous, sexes unequally separated

391 Menyanthes dimorphic

400 Gentians Dichogam, 401, 403, 406, 407

449 Echium vulgare dimorphic

452 Pulmonaria angustifolia do

504 Gratiola (Personata) dichogam ✓ (Scroph.

526 Erinus (do) fertilised in bud

538 Veronica spicata dichogam

573 Lathrae fertilised in bud –

☞ Vol. 8

6 Lavandula fecundation in bud

9 Mentha syrhaustus dimorphic peculiar | ☞

26 Origanum vulgare dioicous by abortion | ☞ ✓ ☞

29 Thymus from Vaudan dimorphic | ☞

32 Satureia dioicous | ☞ occurs

37 Calamintha dimorphic. do. | ☞ when flowers

44 Hyssopus do | ☞ almost

48 Nepeta do ☞ – same as Glychoma | ☞ regular

74 Stachys dichogam –

146 Hottonia dimorphic

150 Cyclamen Dichogam. ✓ ☞

157 Globularia female Dichogam

241 Polygonum flower different in Water & out.

254 Stellera, fertilisation of

324 Celtis a true dichogam & polygamous

326 Ulmus – do – do

535 Crocus fecundation in bud

557 Asparagus dioicous

✓ ☞

☞ Vol. 9

393, 431 Lecoq believes in Modification by conditions of life

395 changes in kinds of trees in Denmark

411 on single species of group with immense ranges

414 when species numerous, range restricted

423 In Compositae the feather separate from seed!!

128 Juan Fernandez proportion of endemic plants

435 relation of Madeira to America

438 More disjoined species in N. than in Tropics & we can see cause in Glacial

445 Cyperus & Pteris by Hot Springs of Ischia old Tropical plants left there, says

455. All this Alpine plants common to Finland & New Grenada make stage of Alps(?)

482 passage for my Orchid Book on Diversity of Orchids.

(I began reading this volume at only p.386 –

8 23–29m 56 16–22m 80 2–6m 139 24–31m

144 21–23m 159 12–23m 162 8–14m 165 1–

16m 170 7-17m, 26-31m 171 8-10m, 11-16m, 25-27m 182 25-29m (Schreibers) 183 31m 194 17-32m 197 5-8m/5u "alpestris" 204 18-26m, 32u↔/w/wb Do my tables show more or less vary. in Monocoty!?? 205 1-5m, 7-11m, 13-14m, 32→ 206 7-12m, 13-14m (Goethe), 30-32m/31-32u↔ 207 15-23m 209 25-30m 229 23-32m 250 wt/1-3w From certain other passages, it is here difficult to know how far he extends his belief in the modification of organic beings 4-12m 287 20-28m

vol. 2 ♂

162 32-34m 199 28-32m 205 20-21m, 23-24m, 25-27m 29-31m/→ 206 2-8m, 26-29m 207 3-9m, 10-12m, 18-23m/19u, 32→ 208 8-10m 283 2-6m/4w which 4-5u "80"/6-10w ask Hooker are these large genera? 7-20m/ 10-11u↔, 22-27m 289 5-9m, 10-15m, 22-30m 331 21-25m, 25-27w ie plant How little climate has to do with Heather 30m 332 "plupart | espèces"/16u "cette catégorie"/12-17m/w ie plant growing at various heights between 6000 ft 24-25m♦ 402 8-10m 404 10-12m 405 30m 406 5-10m 410 21-30m 411 6u "par | Heer", 16w var. 16-17w all Mountain vars. 412 wt cor-responding varieties & corresponding species 12w, 14w, 16w, 17w, 18w, 19w, 21w, 22w, 23w, 24w, 26w, 27w species 414 7-14m/9-12w would there be more struggle then? 17-21m 415 1-2m/3w Mntains 419 4-6m, 8-9m, 11-14m 430 8-16m

vol. 3, 71 22-27m 73 26-29m/29u "dioïque" 75 1a/u "monoïques"/wt or annuals 11-13m, 18u "1:35"/w 1:12 in polycarpus 76 10-11m, 25-29m/wçç, 28-29m, wb ie more than a 1/3 of polycarp plants with separate sexes are trees 77 1-2m/2u "monoëcie"/3u "dioëcie", 25-30m 78 9-12m, 27-29m 79 7-8u "particulière | dioïquement", 11-13m, 14-20m, 14-15w imperfection 23-27m 80 1-5m 94 26-32m/28u "intéressant mémoire" 95 5-7m/6m/u "colorées | Hortensia"/w = Hydrangea same as 96 27-30m 102 17-23m/w imported ? by nuts? 161 20-24m/w bears on crossing 31-32→ 162 16-18m, 20m, 21u "vernales" 182 15-19m, 26-32m/32u▲ 183 2-7m/3-4u "oenithères | épilobes" 185 20-30m 211 19a "gordura" →1 6u▲, 16-19m/18u "graminée"/w replacement of one group by another 21-29m, 25-26m 214 17-25m 215 25m 216 6-10m 222 22-24m 223 22-32m 257 4-7m 287 4-7m 288 10-13m 291 22-26m 405 12u "une | couleurs", 20-32m/20-25u±/w piebald 406 wt (results of the crossing of 3 varieties of colours), 3-4u↔, 29-32m/w perhaps from a cross 407 1-3m, 16-19m/17-18u "qu'une | panachures", 21-25m 410 4-11m 411 14-18m

vol. 4, 4 26-31m 5 1-4m 11 7-10w Mem Bates on insects 13 23-30m 14 26-28m/31-32m/25-32w Partly cold in both cases 26 24m, 24-27w white flowers sweetest 27 14-16m 57 8-9m 58 1u "orchis", 3u "seconds", 14-16m, 22-24m, 23-25m, 32m/u "augmenter" 59 1-2m, 32m 60 11-12m, 17-19m 61 1-4m, 32m 62 29-32m 67 10-12m (Humboldt), 22m, 25-29m, 31m 68 12-16m 73 1-7m/1-15w I have seen Heath at ● isolated shows that they can live separate - bad term "social".- false term 80 25-28m 86 21-25m, 27-30m 207 12-24m, 26m 209 11-14m, 15-21m, 21-25m 233 30-32m 234 1-5m, 18-32m 237 7-10m, 14-17m 239 12-30m 272 1-9m, 11-18m 273 6-7w♦/6u "Coprosma", 13-18m 293 22-27m 304 11-16m, 19-32m 407 11-16m 425 28u "Quelques fleurs"/28-31m/w It is not second distinct plant 431 22-26m 466 11-14m, 21-27m 470 21-26m 482 10-19m 488 12-18m 497 25-30m 514 18-23m

vol. 5 NB Vaucher's Book p.142

SB 6-15 makes crossing difficult; 22; 26; 157; 180; 196; 200; 227; 241; 243-246; 249; 252; 257; 273; 288 flowering sensitive to light; 295; 305; 309; 317; 325 Linum; 331; 332; 336; 338; 367; 372; 377; 379; 380; 384; 387; 391; 397; 401; 404; 411; 416; 418; 420 to 426; 430; 469; 481; 513; Abstracted 6 10-16m 15 10-13m 22 12-15m 26 6-11m 157 4-10m 180 4-13m/7a/u "fleurs"/w cleistogam 196 15-20m 200 3-4u "ses | glanduleux"/w any movement? 6-9m 227 14-19m 241 9-17m 242 23-26m/24u "il | étamines" 243 17-21m 246 18-27m 249 24-29m 252 6-8m 257 29-32m/w but will they fertilise 273 30-31m 274 4-8m 288 2-6m 295 2-7m 305 10-12m 309 7-12m 317 1-4m 325 7-14m, 10-12m 331 22-24m 332 26-28m 333 29-30m 336 1-4m 338 21-25m 367 26-30m 368 2-28m 372 6-14m 377 17-21m 379 13-14m 380 23-27m, 27-28m 384 7-14m 387 1-3m 391 26-29m 397 7-12m 401 6-10m 404 19-22m 411 1-6m, 14-20m 416 16-19m 418 26-29m 420 25-29m/w Mem R. Lanceolatus 422 6-8m 423 5-6m 424 12-13m/12u "hermaphrodites" 426 8-11m 430 1-4m 469 1-4m, 29-30m 481 3-8m/5-6u "plupart des" 513 2-15m

vol. 6, 15 25-30m 40 19-22m 88 15-27m 118 7-11m 121 17-20m 125 2-4m 126 15-18m 128 7-9m 133 24-27m 156 2-30m/20-22w p.158 158 20-25m/20u "déploient | fin" (between p. 158 and p. 159, tiny fragment of a letter)

160 1-7m/5u "il | stérile", 26-28m/w Balsanus another case 162 28-32m 166 2-7m 200 18-27w 210 206 p204 not so some other

LECOQ, GÉO. BOT.

species 23-29m 204 10-14m/12w 206 206 26-30m 209 10-14m, 32→ 210 18-23m 214 21-28m 224 13-19m 262 20-23m 266 26-30m 273 18-22m 275 25-28m 277 1-3m, 35m 283 10-13m/13u "cela|Ombellifères" 289 16-19m 310 12-17m, 12u "petits|souvent", 15u "que|stigmates" 313 21-26m 318 20-26m 323 15-17m/17u "avance|stigmates" 333 21-24m 335 15-24m/22-23u "Il|semences"/24u "ne|placer", 27-29m 344 23-28m 367 1-5m 371 3-6m 376 1-7m 386 7-14m/w 2 kinds of flowers 15-18m 402 1-6m 420 23-26m/23u "Elle|celles" 421 23-25m 425 5-10m 429 9-12m/11u "s'ouvrent|soirée" 473 3-9m, 4-6u↔, 6-9w fertility because so strongly protandrous. 477 28-31m

vol. 7, 357 23-25m/24u "inclus|saillant" 369 17-23m 391 12-14u "dans|cilié" 398 16-20m/17u "toutes"/w no! 400 10-13m 401 26-28m 403 11-13m 406 15-17m/15u "tard, seulement" 407 22-25m 449 29-31m 452 18-21m 504 19-22m 526 11-17m/w other cases of assertions not always marked 538 14-19m/14u "indirecte" 573 9-21m

vol. 8 SA (pp. 144-5: fragment of an abstract) are tied together by a few weak elastic threads

6 11-13m 9 24-28m 26 17-22m 29 10-13m/12u "La|mâle", 14-16w good cases of gradation 16-18m/17u "toujours|avorté", 20-28m, 29-32m 32 16-22m 33 21-29m 37 1-7m 38 15-26m 40 23-29m 44 20-23m 48 3-5m 74 3-9m 129 13z 141 wb & in Europaeo-arctic contrast ○ ● some not differ ● from Keeling & P 142 1-3m 143 6u "moyenne|australe", 9u "40", 10u "50" 146 7-13m 150 18-21m 157 4-8m 241 1-9m 254 17-21m 324 1-3m, 14-21m 326 15-17m 535 26-29m 557 10-14m

vol. 9 ♂

395 10-14m, 17-24m 397 25-27m 411 5-10m 414 11-17m 423 14-18m 428 27-30m 431 6-14m 435 1-28m 438 19-26m (de Candolle) 445 13u "Tenore", 14-15m, 21-26m 455 30-32m 482 7-9m, 26-31m

LECOQ, Henri De la fécondation naturelle et artificielle des végétaux et de l'hybridation Paris; Audot; 1845 [CUL]

fg, mhp, mn, sp, spo, tm

NB ♦ p5 p6 Books Appendix ordered title page 17-18u↔ xv 1-3m/1u "ébranler" 4 6-25w contrivances & movements of anthers & pistil 5 16-21m/w pollen shed first before flower but contact afterwards 28-34w In Veronica impregnation when corolla falls with pollen at its base 6 3-4w so in Iris 16-19w

Use of Hairs on corolla 9 1-4m/w flower under water & secretes air 16 11-12u "quand|étamines", 14u "position|organes", 17-20m, 20-23m/21u "une infinité", 25-26u "à|indirecte" 18 13-18m 21 1-3m/1u "habitude"/2a "acquise", 21-23m/22-23u "surtout|nouvelles" 22 11-25w At Maer Gardens new case of Polyanthus seedlings all sports of Primrose 30-33m/32u "primevères"/33u "primevère"/w Ch. 4 wb shows the primrose can cross 34 14-20m/w pull petals off double flowers 39 14-23m/17w oh 33-34m (Vaucher) 43 17-22m 44 1-3m/1u "directe|indirecte" 52 30-32m/30u "monoiquement" 53 24-25m, 26u "doit|indirecte" 61 13-15m 70 1-4m/2-3Q 27-28m/27u "à|défloraison" 71 1-2m, 6-7m 72 16-17u "stigmaté|étamines", 17-19m 73 7-8m 75 2-5m, 15-18m 77 17-21m, 27-29m 80 7-11m, 25-29m 81 15-17m 85 3-9m, 19-21m 87 4-7m 92 10-13m 95 3-5w are these Trees 9-11m, 26-27m 97 2-4m/w↔ How false 29-30m/30u "légèrement|époque" 99 1-2m, 25-28m 101 14-16m, 18-20m 102 9-12m, 33u "entouré|poils" 103 1-5m, 5-9m 105 6-7m 115 8-12m, 13-18m 119 9-12m, 19-21m, wb♦ Good to contrast flowers & fruit. 124 15-19m 128 1-7m, 7-14m 129 6-7m 131 5m 142 16-19m 176 5-10m 179 8-12m 195 6-9m, 10-13m, 23-28m 196 2-7m 197 7-9m 203 10-12m♦/11u "les poirées"/12u "leurs feuilles", 15w 2 species 208 5-8m 218 30-31u "On|autres" 219 1-4m/2-3u "quoique|indirecte" 234 20-24m/21-22? 238 30-33m 239 19-25m/22u "M. de Bure", 30-32m, wb Look in Pritzel 240 11-13m 243 1-3m 253 20-22m 268 29-32m 269 26-28m 270 23-29m 272 19-23m/20u "plus|variétés", 25-27m/25u "Seringe|Philippas" 273 9-12m

LECOQ, Henri De la fécondation naturelle et artificielle des végétaux et de l'hybridation 2nd edn; Paris; Librairie agricole de la Maison rustique; 1862 [CUL]

cs, dic, f, fg, he, hy, mhp, mn, ta, tm, v

NB 76♦ Orchis sterile like Scotts case X 79♦

81 Nectar aids fecundation

92, 94; 126

220 Natural Hybrids

233♦ Flower of circumference more often double in Compositae X

303♦ Mirabilis crosses of X =panachures=

308♦; 311; 315♦; 325; 335; 338

Get a Stapelia

368♦ - Parentage of Gladiolus gandavensis

393♦ Seeding & growth antagonists

404; 411

SB □✕ ↔

p 81 (not CD) Nectar aids fertilization
 p.404
 p.93, 95 on Trollius, open flower, crossing
 spont.
 126 Reseda dichogam
 220 spont. Hybrids of Sedum
 311 Hybrids from 2 sp. of Mirabilis sporting
 so much as to be very different
 315 on Hybridisation causing type to break
 ⇒ or vary
 325. reversion in Hybrids p.237
 Hybrids becoming more fertile with age &
 very fertile
 335 Cannabis & Morus clouds of pollen
 338 Fertilisation of Ficus
 411 in some Graminae stamens short &
 remain enclosed in florets.-
 ⇒ Lecoqs. Fertilation

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 what

LEES, William *Elements of acoustics, light and
 heat* London & Glasgow; William Collins &
 Sons; 1877 [Down]

LE HON, Henri *L'Homme fossile en Europe*
 Bruxelles; C. Muquardt; 1867 [Down]

NB O/
 vii 14m ix 9m

LEIDY, Joseph *The ancient fauna of Nebraska*
 Washington-New York; G.P. Putnam & Co.;
 1853 [CUL]
 fo, gd, geo, ig, sp, ti

NB 8 List of Tertiary Mammals; 17; 24; 29;
 57 Nebraska Mammals very close; 67 good
 name; 78; 79; 95

SB □β; ↔

8 List of all fossil mammals

17 paridigitata & Imparidigitata
 24 Intermediate forms 29 do
 57 relations of European & N. American
 fossil mammals 67 do. 78 do.
 79 & 80 Rhinoceros apparently older in N
 America than in Europe
 95 Machairodus in N. America.-

8 1-6m, 41m 17 27-29m 24 27-28m 57 19-
 23m 67 2u "Imparidigitata"/w Paridigitata
 22m/w European genus 78 24-27m/25a
 "Titanotherium" close to Palaeotherium 79 2-
 6m, 12u "two species", 16a "Rhinoceros" What
 age? 17-18m/15-20w I think none so old in
 Europe as Eocene or older Miocene 80 30-
 33m 95 18m (Owen)

LEIDY, Joseph *Contributions to the extinct
 vertebrate fauna of the Western Territories* vol.
 1 *Fossil vertebrates* Washington; Govern ment
 Printing Office; 1873 [Down]

vol. 1, 154 2-5m 155 18-19m 160 37-41m

LEIGHTON, William Allport *Lichen-flora*
 Shrewsbury; printed for the author; 1872
 [Down, I]

LE MAOUT, Emmanuel and DECAISNE,
 Joseph *Traité général de botanique* Paris;
 Firmin Didot frères; 1868 [Botany School,
 FD]

LEMOINE, Albert *De la physionomie et de la
 parole* Paris; Germer Baillièrre; 1865 [CUL, S]
 beh, h, he, pat, phy, t, ti, tm, y

NB 19; 28; 30; 32; 41 to 135; 181
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19 4-10m 28 4-5m/"..." 30 8-10m 32 21-25m
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 22w Bell 58 1m, 10-12m 59 8-12m 60 4-6m
 62 17-25m 65 5-8m 69 19-25m 70 1-15w
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 all asserted 21-23m (C. Bernard)/w sur les
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 7m 83 6-22w He objects no proof, but one
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 emotions hard to define 19u "mépris" 91 17-
 19m 92 wt Child may be attentive to any
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 howling. 1-2m, 3u "front|sourcil"/w grief? 5u
 "pensées", †w/wb If one thinks ever so
 attentively on pleasant subject, no

LEMOINE

contraction of brow, but if an puzzle or difficulty occurs, though not actually unpleasant, brow contracts, every ♣ difficulty during early infancy accompanied by this movement. ♣ Perhaps aided by vision in primordial times.— But why not corners of mouth?? With infant first beginning is the frown.— 93 5m, 19–20m/!/?/20u "sphincter|iris" 94 21u/21–25w/wb Does iris contract under emotion – well shown to do so in Brain affection? Bowman, How in paroxysm of mania? 95 15–18m 99 19–22m 101 1–7"..."/m/w Sir C.B whose merit has been fully appreciated by late French writer 103 13–14m, 15w Instinct 16–19m/17w doubtful 104 wt/1–8w argues from difference of observers & writers that there can be no innate knowledge – but we can tell family likeness 16–20m 105 12–16m/w taught by exper 107 2–10m, 16–21m/19–20u "baisse|tête"/w not to be seen or hide faces 109 7–10m, 20–25m, wb Children cry for aid, voluntary 110 5–8m 118 2–4m/wt/1–3u "que|poussé"/w animals do 125 7–10m 126 2–5m, 9–11m/ 10u "souriant|effraye" 130 13–18m 135 4–6m, 8–10m 181 9–12m/1–10w Bowman.— Person born blind blushes?? for shame 16–25w do they look downwards? or cast their eyes down.— wb whether blush as much or at all? not redden for anger.— 185 1–3m/w Tylor shows they do invent 190 7–10m/7u "parole" 191 4–10m, wb a stone first instrument of man & monkey 197 1–6m/3–4w laws of mind

LEMOINE, Victor *Recherches sur les oiseaux fossiles des terrains tertiaires inférieurs des environs de Reims* Reims; F. Keller; 1878 [Down, I]

LEPELLETIER de la Sarthe, Alme *Traité complet de physiognomie* Paris; Victor Masson & Fils; 1864 [Down]

NB O/
Rubbish !
ø

LESSON, René-Primevère *Manuel de mammalogie* Paris; Roret; 1827 [Down, pre-B]

29 19–22w F. ascribes to Cuvier 39 5–8w L. Hunt 42 6–7m, 8–9w ? Smith 38w ⚡ onett 43 9–15w Pig ⚡ 45 9m, 15u⚡ "lubricité" 46 5–6m 47 13w No

LESSON, René-Primevère *Manuel d'ornithologie* 2 vols.; Paris; Roret; 1828 [Down, pre-B]

LETOURNEAU, Charles *Physiologie des passions* Paris; Germer Baillière; 1868 [Down]

NB1 95♦; O/
NB2 O/

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LEWES, George Henry *The physical basis of mind* London; Trübner & Co.; 1877 [CUL, I] ad, beh, cc, ds, oo, t, ud

NB 43; "External conditions of existence" – 45; 71, 2 On use & Disuse → 104, 7; 110 definitions of Struggle & Adaptation; 120 Organisms descended from several primordial forms; 124; 126; 377 Expression (other notes, by FD)

43 2–5m/3u "external|existence", 30–35m 45 20–24m, 27–30m, 32–35m, 36m 71 22–30m, 35–36m 72 29–36m 73 18–21m 104 18–35m 105 32–38m 106 1–14m 107 1–2m, 24–27m (Darwin and Spencer) 108 7–13m 109 20–23m, 31–34m 110 12–16m/w they do in some way, or are the result of some cause 111 3–8m 120 29–38m 124 33–38m (Pasteur) 125 30–39m 126 20–28m 127 20–26m 377 33–36m 480 zb

LEWES, George Henry *The physiology of common life* 2 vols.; Edinburgh & London; William Blackwood; 1860 [Down, vol. 2 only]

287 5–6m, 6–7m

LEYBOLD, Federico *Excursion a las Pampas Argentinas* Santiago; Imprenta Nacional; 1873 [Down, I]

LIEBIG, Justus von *Organic chemistry in its applications to agriculture and physiology* ed. Lyon Playfair; London; Taylor & Walton; 1840 [CUL, S Charles Darwin 1841] h, phy

NB 46; 49; 85; 109; 110; 139; 152; 157; 287; 352; 369 (w, not CD)

SB □β

369 The blood of a man with fair complexion has different odour from dark man

49 1–3m 85 26–30m 109 15–18m 110 4–8m, 11–15m 139 26–30m 140 1–7m, 4–8m, 15–24m, 29m 141 9–11m 152 9–14m, 27–31m 157 5–12m 183 10w 3 287 7–10m 352 17–27m 369 26–30m

LINDEMUTH, Hugo *Vegetative Bastard-erzeugung durch Impfung* Berlin; Wiegandt, Hempel & Parey; 1878 [Down, S]

LINDLEY, John *A natural system of botany* 2nd edn; London; Longman, Rees, Orme, Brown, Green & Longman; 1836 [CUL, I Charles Darwin 1840]
af, no, phy, sp, sy

NF Does not Lindley use Diagrams to represent affinities, like the maps of Strickland?

Have any of the great Divisions, the Alliances, only one or two species?

Orders with few species rarer in Vertebrates & insects

NB 163 ♦ 308 Grafts of Olive & Ash Q

163 9-11m/10u "flowers|none" 238 1-4m 242 8-10m 308 4u "Von Martius", 7-13m/8u▲/9u▲/10u▲/11-12m

LINDLEY, John *An outline of the first principles of Botany* London; Longmans; 1830 [CUL, S]
fg, phy, sl

77 ↑8u "pistillum", wb The pistillum being a modified leaf 78 "421"m/u "Hazel-nut" 79 wt Fruit & stone of Plum, Peaches, Cherry not essentially different - kernel in the seed "424"m/w (a) "425"m/u "pericarpium"/a "ovarium" i.e. formed of lamina of leaf "427"u "Peach"/w ∴ also plum cherry wb probably seeds rarely selected for themselves No Peas.- 84 "452"u "Strawberry", "453"m

LINDLEY, John *School botany and vegetable physiology* new edn; London; Bradbury & Evans; 1856 [Down]

(markings presumed to be by FD)

LINK, Heinrich Friedrich *Die Urwelt und das Alterthum, erläutert durch die Naturkunde* Part 1; Berlin; Ferdinand Dümmler; 1821 [CUL, pre-B]
cc, gd, is

NB p.96 cases of plants apparently brought by Sea

p.do Osbeck saw on Ascencion only 4 plants 102 speculates on change of climate connecting N & S. alpine plants

181 African cattle

(All skimmed)

Inhalt 5w Read 12m 96 9-23m, 31m/u "Sah|Arten" 102 9-21m 181 15-19m, 21m

LINNAEUS, Carl *Philosophia botanica* 2nd edn; Vienna; Johan Thomas de Tratter; 1783 [CUL, pre-B]
cc, fg, mn, sp, tm, v

NB p.80 Double flowers natural orders of some which are never double

Maris fundus p87 seeds

Not much satisfactory too brief =

p79 Flowers apetalous from cold

245 Variation in colour of seed

79 ↑1→ 95 33-39m 98 30-31m 245 33-40m

LINNAEUS, Carl *Systema naturae* Lund; 1735 [Botany School, pre-B]

LINNAEUS, Carl *Systema naturae* 13th edn, ed. J.F. Gmelin, 10 vols.; Lund; 1789-96 [Down, vol. 1 missing?]

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(markings presumed to be not by CD)

LOCARD, Arnould *Études sur les variations malacologiques ... du bassin du Rhône* 2 vols.; Lyon; Henri Georg; 1881 [Down, I] ♂

LOCKE, John *An essay concerning human understanding* 2 vols.; London; 1726 [CUL.1900]

vol. 1 contents "ch. xxi.37/38".X♦ 27 "26"x 172 9w♦ Zeno 272 ↑3u "Times"/wb tormos○ 282 "4"X 283 "5"X♦, "6"X 286 ↑17x 288 ↑5x 290 1-3x 294 10x 306 ↑6-3x 329 "12"X♦ 330 8-10X♦ 331 ↑4-3X♦ 333 ↑16-15X♦ 334 21-24m♦ 339 11-13x, ↑5-4x 341 7-8x 344 ↑6-5x 345 ↑16-13x 346 13-14x 347 ↑10-8x 348 22x 349 15x 350 20x 351 20x 352 ↑9-6x 354 ↑7-5x

vol. 2, 145 ↑4-3x 257 17w♦ Word

LOISELEUR-DESLONGCHAMPS, Jean Louis Auguste *Considérations sur les céréales, et principalement sur les froments* Pairs; Bouchard-Huzard; 1842 [CUL]

cc, dg, fg, he, hy, mhp, oo, sl, sp, t, ta, tm, v, wd

LOISELEUR

NB Part I

♣ p.12; 32 to 49; 70 - 78; 83 to 107, 8
 ♣ II: 165; 181; 183; 199; 200 to 205;
 208,210; 217-219; 224; 234

SB1 ♦

35 Wheat less attended to & modified than garden vegetables - contrast with Dahlia - certainly not a conspicuous variation.

37 Wheat must have been nearly what it was when first cultivated. Q

45 M. Dalbret has cultivated 30 years 150-160 vars, & all keep true, except in seed itself-

49. Wild Oat of Australia, Journal Agricult Soc. Vol 2. Part 2.

70 322 vars.

78 Botanists disagree what to call species

80, 83 thinks wheat impregnated with closed flowers

81. has never seen Hybrids, between his 100-200 vars. sown near each other.

84. Aegyptian vars. differ from French

89 Vilmorin on carrot. *✎

94. Argues if wheat changed by culture, so ought all weeds ♣ quite ignores selection

97 grains from Aegypt as good var & no ●

107. Had it not been for innumerable vars. he wd have thought that what was at first as now

108 contrast variability of wheat & seigle○

SB2 □

Part II.

179, 183 gain of weight in grains when cultivated in France - certain effect of climate. Q

200 Tessier on no good from change of seed.

202 disproved by his own experiment & observation explain Tessier by great care of cultivation Change of seed usual practice in France

bad seeds producing equally good plants with good p.216 - rather opposed to principles of selection ✓✎

224 Effect of climate on habit of wheat Q p.29 Mongolian Wheat

12 23-28m 43 6-10m, 15-18m, 30m 14 6-9m, 11-14m, 24-26m 29 14-20m 32 9-14m, 20-24m 35 24-26m 36 25-31m 37 19-20m, 26-28m 39 7-13m 44 4-13m 45 4u "trente ans", 7u "cent|soixante", 17-19m 46 19-22m/19u "depuis|ans" 47 1-2m 49 18-20m 69 21-22m 70 4-7m 71 3-4m/w & 1 or 2 others 77 22-27m 78 5-7m, 8-12m 80 1-8m, 18-19w Quo 19-22m/20u "à leur", 24-29m/w pollen partly shed. wb R. Brown says the hairs in stigma cannot admit pollen tubes 81 1-3m, 14-19m,

20u "semées|autres" 82 10-11m/10u "nombre|tardifs", 21m 83 9-12m 84 wt/1-5w In a mass of interlaced roots different nourishment or position be acquired Manure. 7-10m/9u "trop simple"/6-11w they have not to struggle with other species: sowed in different soil 13-14w Climate & c ↑10-6m 85 5-10m, 15-17m 93 17-19m 94 10-18m, 29-30m, wb Knows nothing about selection 95 2-6m 96 1-3m/wt again does not consider culture 97 10-22m 98 9-21m/10-18w the actual grains quite similar to wheat 100 14-18m, 20-22m 102 14-17m 107 20-30m 108 1-15m

Part 2, 165 4-10m, 12-15m 181 4-8m 183 1-3m 199 23-27m 200 18-21m, 30m 201 23-26m 202 5-11m, 14-17m 203 24-29m, wb I have no doubt that degeneration is a wrong idea.- 205 6-11m 208 3-6m, 8-10m, 13-27m, 28-30m/29-30u "produit|grains" 209 1-3m, 22-27m 210 4-7m/w opposed to selection 211 28-31m 216 wt/1-7w Would be opposed to Principles of Selection, if vars with all bad seeds were chosen. wt The size of grain differs much according to what part of ear it comes from.- ← (from) 217 wt It wd seem that the grains vary extremely without affecting the race: but a new race might be selected - a good race though it may have some poor seeds, yet the quality of the race is inherent in such seed.- 2-3m/→ 218 28-31m 219 12-14m/w Peas & Beans! 224 8-13m/Q 234 8-10m/9u "huit|deux", 23-30m

LOMBARDINI, Luigi *Ricerche sui Cammelli* Pisa; T. Nistri; 1879 [Down, I] ♂

LOUDON, John Claudius (ed.) *An encyclopaedia of plants* London; Longman, Orme, Brown, Green & Longmans; 1841 [CUL]

f, mhp, sp

NB

♦ White Yellow White Bengal quick Bank; Quercus olivaeformis (mossy cup) heavy loam V Vol 13 of Gardeners Mag for some trees

more of Dentzia scabra & corymba; Bignonia radicans; Tropaeolum 302,1184; Tendrils 516

6 "19".x 12 ↑1m/u "In|evergreen" 16 "258".x 18 "51".w 1146 "318"m/w viscosissima sessilis asculeus 20 "319"m/w purpurea "321"m/w plantago 36 "83".x 42 "105".w 1150 44 "115".w p. 1150 54 "953".x 68 "206".w 1 sp. Decand 70 "1233/1235/1236".w sp. a. D.C. ↑40-35m, ↑32-27m 71 "1233/1235/1236".m 94 "1620".x 102 "305".x 106 ↑4-1m/

w The yellow berry Holly came true from seed 120 "1916".x 126 "350".w 1156 "2031".m, "2041".m 127 ↑23-15m, ↑22u "the crossing", ↑6m 132 "369".w 1156 134 "2146/2149".m 136 "382".w p.1158 "2206".w end of Nic. 138 "383".x, "2224/2240".m 140 "2260/2266".m, "387".x 142 "388".x 144 "402".w 1162 146 "413".x 152 "439".x 154 "440".x 156 "450".x 156 "2517".m/w Tomato 158 "2530".x, "2534".m 162 "463".w 1164 /166 "464".x, "2713/2719".m 167 "2713/2715".m 170 "474".x/w 1164 "2789".w Mr Henfrey 174 "501".x 176 "504".x 178 "507".x 180 "515".x 184 "3018".m/w fulva 193 ↑4-1m 194 "574".x 208 "615".w 1170 232 "3916/3918/3922/3929/3937".m 254 "4286".x/m 270 "4597".m, ↑7-1m 282 "815".x/m, "4862".x/m 290 "843".x 298 "868".x 302 "875/876".x 306 "5180".m 318 "901".w p.1184 "5449/5450/5461/5463".m 320 "904".w p.1186 324 "916".x 326 "5586"- "5590".x 328 "923/924".x 358 "1014".w 1190 362 "1019".w 1194 362 "1027".x 380 "1051"- "1052".x 394 "1082".x 396 "1086".x 410 "Order 3".u 411 "1148".x 420 "1128".m 422 "1129".w damson & cherry "7056".m 424 "1132".w 1204 426 "7093/7099/7101".m, (text:) 1-3m/w increase 428 "1139".w 1208 442 "7464/7467/7473/7477".m, ↑4u "centifolia, damascena. 443 ↑3m/u "300 varieties" 444 "7480/7486/7493".m 446 "7497/7495".m 448 "7500/7502/7509/7510/7512".m, "7512".w Droptaea 450 "7515/7518/7521".m 454 "7630/7633".m 472 "1203".x 474 "1206".x 479 10-12m/w probably in first generation!!! 480 "1219".x 482 "1227".x 508 "8395/8399".m 509 "8395/8399".m 514 "1294".x, "8538".m, "1297".w p.1226 515 "8538".m 516 "1299".x 518 "1308".x 520 "1322.w 1228 522 "1328".x 526 "8765".x/m, "8771".m, "8772".md, "8793".m 527 "8771".m, "8793".m 530 "1355".w 1078- 554 "9245"- "9247".m/w (a) capitata Blistered A. Decandolle thinks all the same. 564 "1459".x 572 "9523".m, "9540".m 574 "9546/9565/9568/9575".m 576 "9633".m 582 "9711/9731/9732/9733/9731/9764".m, "9733".w sterile 583 "9731".m 584 "9766/9768".m 586 "9835/9846".m 588 4-8m, 6u "herbaceum", 9u "cultivated", 10u "nankeen-coloured" 590 "9897"- "9921".m/w Genus Abutilon see p.1236 592 "1496".w 1238 600 "9970"- "9973".x 602 "1511".x 604 "1513"- "1519".x, "1521".x, "10030".m/w open fl "10031".m/w open flower 606 "1522".x, "1524".x, ↓w & Cytisus & Rotinia ● 11 genera true with prop. flowers 614 "10247"- "10248".m 615 "10231/10235".m 621 ↑6-4m/w Yet the open flowered is specific character 624 "10435/

10449".m 626 "10460"- "10462".m 630 "10554"- "10558".m/w D Desmodium 631 ↑2-1m/x 632 "10560"- "10563".m/w D "10566"- "10580".m/w D "10600".m/w D "10577".m/w ●, (text:) 5u "during|night" 633 "10569".m/u "stem climbing" 640 "10787".m 642 "10802".m, "10811".m, "10836".m 656 "10998".m 688 "1683".x 690 "1686".x, "1696".x 692 "11625".x, "11626".x 712 "1741"(not CD) 766 "1934".x 774 "1944".x 786 "13287"- "13289".x 796 "13415/13417/13419/13420".m 798 "13433"- "13434".m/x, (text:) 8-11m/9u "vary|soil"/9u "scarcely|tree" 800 "13462".m 802 wt P. macrocarpa quick grower "2011".w 1270 "13504".m/w quickest grower of all 804 "2013".w 1274 806 wt Juniperus 848 808 "13560/13563/13565/13566".m/w ● 809 ↑12-10m 810 "13573/13577/13578/13579/13590".m 814 "2039".x 834 "2066".x 836 "2080".x 838 "2083".x 844 "2114".w 1278 854 "2123"- "2125".m, "14104".m 855 "14101"- "14104".m/u ± 864 "2143".w 1278 "14279/14280/14285/14286/14289".m 865 "14280/14285".m 1166 "2543".x, "17012/17013".x 1226 "17592".m 1228 "17633".w 1302 1272 "18056"- "18057".m/w Sir John very handsome 1288 "3118".m 1300 "3652"- "3654".m 1301 "357".m/u "Joseph Plant|Staffordshire" 1307 "Anagallis".m

LOVÉN, Sven Ludvig *Études sur les échinoides* Stockholm; P.A. Norsted & Söner; 1875 [Down, I]

LOW, David *On the domesticated animals of the British islands* London; Longman, Brown, Green & Longmans; 1845 [CUL]
ad, beh, br, cc, ch, cs, f, gd, he, no, sl, sp, sx, ta, tm, v, wd, y

NB Questions for Mr Low; Introduction; p.36
SB □β

LXIII. Supposes the longer any quality in breed comes truer - Believes in ill effect of interbreeding

LXIX States roundly that vars. of sheep & Dogs will keep distinct p671

p.5 & 8 Species of Ixer

12. Syrian Goat same character for 2000 years (no authority) - Horns absent sometimes in one or both sexes (do (ie no authority)) p.14 in India

24 Horns in Female wild sheep often wanting or small

91 Black-faced sheep will not amalgamate by crossing with other Breeds

159 Rye-land sheep will not do.-

188 Remarks how soon a breed in any

LOW

county changes with no record of it S
239 On various Park cattle of England with
coloured vars p.241 p.301

242♦

242 Crouching instincts of young lost
immediately – no doubt lost in Chickens, not
in Turkeys through tameness of Parents

258 Crosses with Indian Cattle said to be
fertile inter se

297 Zetland cattle receive male earlier than
any other Breed Q

309 Kerry Cattle white ridge along spine

316 Modern Aberdeenshire Breed hardly
true as yet

351 Sheeted colour common to several
breeds & strongly inheritable

370 Long-horn with difficulty amalgamated
Colling & Bakewell r name Ellman for sheep

387 Short-horn communicate character very
easily & yet is an imposed modern Breed

402 Male Boar tends to destroy young to
prevent too great increase – so some Rams
attack pregnant females!!!

409 Wild not gregarious? (Bechstein) tame
are. & even when feral in S. America

411 Tame pigs 3 incisors in each jaw &
number not constant

415 Vauban calculation of increase of Pigs
(Ch 3)

428 Sus Papuensis – young striped along
back

646 Canis anthus of Arabia very like Dogs
sculptured on Pyramids Q

650 Half-bred Dingos wd attack Poultry –
Low kept them

717 Some of Dholes of India like
Greyhounds – Pointers Mute Q

721 Pedigrees of Greyhound attended to like
Races

a Poor Book – not to be trusted.

v 14–18m vi 15–18m, 27–29m vii 21–27m viii
15–16m lii 33–36m liii 5–12m, 14–16m liv 4–
9m, 27–29m, 31–35m lv 26–33m lvi 34–35m,
wb This I think, must be a specific character
& not direct effect of temperature lvii 7–22m,
27–28m, 32–33m lviii 19–24m, 28–34m lx 16–
21m lxi 8–9m, 13–15m lxii 25–27m, 34–36m
lxiii 1–7m, 8u "characters|supposed", 9–16m,
20–23m, 32–36m lxiv 11–14m lxv 20–24m, 30–
34m lxvi 17–22m lxviii 26–28m lxix 12–16m,
13–14m, 16–18m, 16–17m, 28–30m, 31–34m,
35–36m lxx 1–10m lxxi 33–35m lxxii 19m/u
"13|18" lxxiii 20–21m/21u "one|are" lxxiv
19–21m/20u "were|young" xcvi 1–7m, 16–
19m, 20–23m c 24–26m ci 2m ciii 7–10m, 7–
9m cvii 18–21m cxi 25–28m cxii 16–20m cxiv
17–20m, 34–36m cxv 1m 1 5–6m 2 31–36m 3

2–4m, 6–8m, 12–17m 8 19–23m 11 17–28m,
35–36m 12 3–7m, 19–20m 14 10–11u
"sometimes|ears" 15 4–6m, 31–33m 24 15u
"horns|small" 25 8–10m, 12u "in|often", 24–
27m 27 1–5m, 5–6m, 13–16m 32 27–28m, 29–
30m 33 30–32m/27–34w There must be 100s
of species caught, not probable for trouble
wb We know how apt savage natures are
strike on same plans & therefore
domestication wd probably take place to
great extent – taming wild animals & birds
common t Dt 34 4–7m, 31–33m 35 28–31m,
33–34m, 35–36m 36 7–8m, 17–18m/18u
"character", 26–27m, 28u "hair", 32–34m 37
16–18m, 26–28m, 35–36m 38 18–22m 39 3–5m,
10–13m, 18–19m 40 28–31m, 35–36m 58 28–
30m 59 27–28m 60 4–5m 62 22–23m 63 22–
24m 65 5–7m, 25–29m, 31–36m 66 8–11m 68
1–2m, 10–11m, 13m 69 wb comparable to the
trifling characters distinguishing geographical
representation 73 19–22m, 26–27m, 28–29m
75 22–25m 81 10–11m 82 3–5m, 24–26m 83 6–
7m, 14–17m 84 30–33m 85 27–29m, 32–35m 86
1–4m, 14–18m 87 1–3m, 22–23m 91 17–18m 93
31–32m 94 1–3m, 16–17m/u "Their|quarter",
31m, 34m 113 17–18m, 27–28m 114 31–32m
115 34–36m 116 6–7m 117 27–35m 118 17–
20m, 23–26m, 31–32m 120 5–7m/5u "outline
of" 121 12–13m, 35–36m 123 6–8m, 33–36m
124 30–33m 125 9–11m 126 5m/u "4000", 10–
11m 133 29–33m 134 12–14m, 24–26m 136 1–
6m, 10–12m, 22–23m, 27–28m, 34–35m 137
12–13m 138 31–32u "The|Sheep", 32–35m/32–
33u "know|are" 141 26–31m 143 20–23m, 25–
28m 145 15–20m 147 32–36m 148 13–16m 150
4–6m 151 27–30m 155 13–16m, 32–33m 158
15–19m 159 2–5m 163 13–21m, 28–31m 164
13–14m 170 7–9m, 11–14m 173 8–12m 174 4–
9m, 18u "50|lb."/18–24w Does not P King
say 65?!!! at first in Australia 175 1–5m/w
must be due to external agents 177 2–6m,
19–21m 179 11–12m 181 13–16m, 29–30m 184
12–14m, 24–26m 185 wt Crossing evidently
produces rapid effects & has done much
more than selection.– 4–6m/x 188 18–21m
192 2–4m 193 1–2m, 11–13m, 29–30m 194 25–
30m 195 31–35m 196 1–6m 197 27–36m 198
2–4m 199 31–36m 209 22m 217 35–36m 231
7–8m, 28–32m/30w (a) wb (a) No such great
change has been effected in reclaiming the
common Ox of Europe V. further on.– 233
33–41m 234 34–36m 236 3–5m 238 6–9m, 12–
14m, 15–27w Compared to Falklands! 30–31m
239 1–2u "existed|immemorial", 3–4m, 13–
17m, 31–36m 241 18–19w like Pigeons 19–
22m, 23–26m 242 wt/1–7w instinct by young
animal lost, & it must be lost by change in
instincts in old animal. by the old ones not

depositing their young. 3-7m/4-5u↔, 8-12m
 256 6-8m, 25-30m 257 2-5m 258 14-16m 259
 3-5m 261 19-22m 264 28-30m 265 9-11m, 24-
 28m, 29-33m 266 9-11m, 20-22m, 23-25m 296
 28-30m, 30-31m 297 11-12m/12u
 "Scandinavian", 13m, 21-24m 299 25-27m, 29-
 36m 300 15-18m, 29-31m 301 7-10m, 30-31m
 304 3-4m, 32-33m 306 16-18m 307 3-6m/Q
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LOWNE, Benjamin Thompson *The anatomy and physiology of the blow-fly* London; John Van Voorst; 1870 [CUL, I]
 beh

NB p.18 Flight of insects a form of crawling
 14 10-15m, 17u "thirty times", 23-27m 15 1-
 7m 18 27-30m 34 5-6m

LOWNE, Benjamin Thompson *Descriptive catalogue of the teratological series in the Museum of the Royal College of Surgeons of England* London; R. Hardwicke; 1872 [CUL, I]

ct, ds, em, h, rd, v, t

NB Rudiments & Law of Variation; xii Rudiments; xiv Doubling of embryo in single Blastoderm; xvii "soi pour soi"; xviii; Nothing for Descent of Man

xii 16-20m, 36-37m xiii 24-26m xiv 24-27m (Milne-Edwards) xv 20-22m xvii 3-6m 18 17-22m

LOWNE, Benjamin Thompson *The philosophy of evolution* London; John Van Voorst; 1873 [CUL, I]

beh, cs, ds, h, he, ig, in, rd, t, tm

LOWNE

NB1 All concerning Descent of Man
 ☉ 119 No Bird or Reptile comes between Amphibian & Mammals – good

☉ 141 Flies know plaintive cry of captured fly

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accounts for good from crossing by giving plasticity. – 44

55; 57; 58 Rudiment; Pangenesis 62 or 65

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41 17–21m/w if of use to the individual 27m
 42 10–12m/11w Yes 43 2–6m, 25–28m 44 10–15m
 55 8–15m 57 1–8m, 20–28m 58 17–23m/w
 No in rudiment of pistil 62 5–8m, 8–14m 63
 15–19m 65 14–17m/w because they must collect the earliest stage
 72 21–27m/21–23w Sir J. Paget 75 3–6m 76 11–18m/!!/!w It is incredible to me so fine a balance. If so American ought not to be more naked than European – Brain not so much developed
 104 17–28m 105 7–15m, 19–22m 115 21–28m
 118 22–27m 119 22–28m (Parker) 120 12–18m
 123 8–13m/9u "homoplastic" 141 23–27m 144 23–28m (Bain)

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NB O/

☉

LUBBOCK, John *The origin of civilisation and the primitive condition of man* London; Longmans, Green & Co.; 1870 [CUL]
 beh, h, t, y

NB p355 Savages & Men cry or weep only slight occasionally copiously – Q Puzzled savage frowning
 p277 signs of affirmation.

42 7–10m, 31–32m 48 19–22m 50 17–20m/w & so forth 52 23–29m 55 13–16m 60 16–19m, 20u "almost", 25–27m/25–26u "communal marriage" 64 8–11m, 14–18m/1–18w It is very

odd that children shd not know their mother. or rather conversely. 66 28–31m 67 wt (a) other explanation of closer connection of child to mother 11a "M'Lennan" & Morgan O (a) 11–17m/w says so, but am not convinced 69 11–16m, 24–26m 70 7–9m, 12–14m, 23–28m 72 11–14m, 19–21m 76 20u "Malay" 77 1–2m 79 28u "Fijians", 30–31m 86 1–5m 87 8–11m 88 19–27m/6–26w This all looks like communal marriage 93 27–31m 94 1–2m/wt/1–4w What is the evidence 5–7m 99 17–20m/w or rather of many ● places 100 8–9m, 10–11m, 28–32m 101 29–32m 104 3m, 13–18w because tribe of utmost importance 105 2–5m 108 24–28m 119 9–22m 128 10–24m 171 25–30m 221 30–34m 259 2u "friends"/4u "words | justice"/2–4w but reality 260 28–31m 261 26–29m 263 2–6m, 26–28m 265 30–32m 273 34m 274 wb I think I need only refer to L on wickedness of savages & Primitives wb Moral sense citing the term – the latest acquisition is that which impels a Man to certain actions each or wholly or in part not counting to his own ♣ advantage, or plans, & which reports O have under the term (rest O) 277 3–8m 278 14–27m 321 7–8u "Among Saxons", 11–15m/Q 21c/wæ 355 4–7m/6u "knit | brows", 19–38m/29–31m

LUBBOCK, John *On the origin and metamorphoses of insects* London; Macmillan & Co.; 1874 [CUL]

ad, ds, em, ig, sy, tm, ts

NB ♦ Modern Classification 20 (Error) Termes – F. Müller; 66; 73; 81

SB ☉

p66 – Similarity & dissimilarity of Larvae, relating to mature state – Medusae the most wonderful case.

p73 on difficulty of believing that a suctorial mouth cd be developed into a mandibulate one, & vice versa; both descended from intermediate form.

p82 summary on metamorphoses "adap-tional & nonadaptational"

66 3–25m 73 12–25m 81 3–5m 86 11–20m

LUBBOCK, John *On the ova and pseudova of insects* (extract); 1858 [Down]

LUBBOCK, John *Prehistoric times* London; Williams & Norgate; 1865 [CUL, I]
 beh

NB (not CD)

337 14–22m, 28–30m 354 18–20m (Crawfurd) 451 18–24m 473 9–12m/w Rengger 25m 474 1–3m, 29–32m 475 16–21m 476 14–18m, 20–

29m 477 23-30m/w Castes of India 478 1-5m
479 13-19m 480 20-26m (Wallace)

LUBBOCK, John *Prehistoric times* 2nd edn;
London; Williams & Norgate; 1869 [CUL, I,
S]

beh, gd, h, tm, y

NB 417 Advance in Savages

562, 563 → 437 Power of counting by
Savages No abstract terms

- ◆ 471 females noses flattened
 - ◆ 508 size of underlip standard of beauty (?)
 - ◆ 507 Amers. shape of Head very deformed
- 539; 543; 545 independent inventions
showing ● property of Savages
552 Kissing not general
553, 554 - odd mores & fashion
558 - Mental development of Child, near like
563 - 564- Religion
569 - Witchcraft
- 571 - Cloud of evil hangs over savages
animals using weapons - 572
574 - State of Race when they first spread
over Earth

399 1-3m 402 14-16m 405 5-7m, 11-13m 417
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26m 563 7-9m, 16-20m 565 1-11m 569 17-
20m 571 *wt* one must consider their evidence
or their dread fully to appreciate the
important benefit of knowledge & science. 4-
6m/5w (a) 572 10-14m 574 *wt* when they
spread over the earth 2-6m/2u "ignorant |
pottery", 5u "They | arrows", 7u "boats" / 8u
"possible character", 1-19w●, 15-25w●, 18-
20"...", 30-32"..."/m/w He adds 21..."/w &
Fire But he admits that from why ● 575 13-
20m/17u, 26-34m

LUBBOCK, John *Scientific lectures* London;
Macmillan & Co.; 1879 [Down, I]

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Fuchs-Affe und das Faulthier* Frankfurt am
Main; Mahlau & Waldschmidt; 1882 [Down]
ø

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Mechanik der Quadrupeden* Frankfurt am
Main; Mahlau & Waldschmidt; 1881 [Down]

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physiologique de l'hérédité naturelle* 2 vols.;
Paris; J.B. Baillière; 1847 [CUL]

beh, br, cc, che, cs, ct, ds, em, f, fg, gd, he,
hy, ig, in, mn, no, or, pat, phy, sl, sp, spo,
sx, sy, t, ta, ti, tm, ud, v, wd, y

vol. 1 NB ♣ ♦ ☉

Prof. Piorry Not ancient, probably Medical
work; I think French. on Hereditary diseases.
Enquire prior.-

title page ↑8m (Piorry), *wbce* xxiii 10-16m
114 14-20m 127 3-11m 129 17m/1u "neuvième |
naissance", 32m 130 3u "enfants d'Edward"
149 4-7m (Gall) 175 18-32w period of
variation different according to different
authors. Cause & time of appearance
may be very different 176 17-20m/17-32w
variation of hybrids inter se wd make one
believe in this distinction of parent acting on
germ.- 177 8-13m 179 18-24m 180 12-16m
181 13-20m/w inheritance cannot be cause
of variation has nothing to do with it.- 183 3-
12m/4?/10-11? 184 27-29m/29u "un | spontané"
185 4-9m, 19-22m/19-32w/wb Difference of
twins looks against every theory. specially of
germs. Action of parent different on germs
Twins in Plants Extra uterin & inter uter Why
one take more after grandfather than other
Entire mystery, can say only a law 187 20-
22m, 25-26m/26u "spontanéité" 195 2-5m/! 196
3-5m, ↑3m/wb What. Not cited before I have
looked all 198 5-11m, 16-19m 199 3-4m 203
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not mixing 215 14-17w 216 couple 205 true
11 false 217 6-8m/w species not good to
give one particular. 18-20m 221 22-25m/25u
"moindres", 27-28m 222 19-21m, 32m 223 10-
13m/11u "soixante ans"/13u "trente ans" 244
17-19w constitutional inherited peculiarities
20-22m 245 *wt* These are necessarily
inherited at same time 1-4m, 5-7m/5u
"précocité", 8u "développement tardif", 10u
"puberté" 291 23-27m 305 13-15m 313 2-6m
314 4-8m/5-17w my selection view not
applicable to all melanism. By variation & by
crossing in Birds & squirrels 325 18m 326 3-
4m, 13-23w 1 2 3 4/8 4 2/6 of children 16-
22w How very hereditary these six fingers
26-28m/27u "du | immémoriale" 327 1-3m/2x
333 18-27m 337 1-11m 380 ↑1m/wb Hybrid
Rhododendrons 388 1-7m 392 8-10m 393 18-
26m, 27-28m 395 27m 396 14-17m 399 20-
21m/w same age 22→, ↑6→ 400 2-6m, 18-
19u "trente | fille", 19-20u "dix-neuf | ans", 22-
23m/w Earlier 26u "treize", 27u "onzième
année" 401 3u "onze ans" 428 1-14m 429 7-
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(Maupertuis) 625 19m 626 21-22m

vol. 2 NB ∞ On sexes p 159 - 163

SB1

393; 399; 400; 428 deaf Cats; 430; 463;
577; 584 Music; 598; 600; 602; 605 good

(over) Tom 1

p. 114; 127; 129; 149; 175, 180-5 used;
187; 195; 196; 203; 211, 12; 221; 244; 291;
305; 313, 14; 326 - many fingers; 333; 337;
380; 388

I must order Piorry

◆ Probably offspring never absolutely like
parent, in mind or body. at least in Man.-
Whatever causes this difference is
exaggerated in varieties. if we look at
similarity as the powerfulness of
generation

Allude to the many opinions

◆ p.175 I shd allude to uncertainty of period,
as complicating our ignorance of causes of
variation.

Think of difference in Twins. p.185 Good

(over)

◆ In inheritance the only point which
concerns us New structures being inherited
or not.

One might fancy that in Ass crossed with
Horse there is a greater potency of race, &
that this potency is transmitted more by male
in this case than in others. Niata cow
transmits with more force than Bull - Pouter
Cock & Hen equally.

SB2 $\square\beta$

Tom I H Means Inheritance

114 Twins with circulation in common very
different dispositions

129 Lambert, horny excreces given to
children H

149 Difference in young pure wolves of
same litter \clubsuit in disposition

175-185 on period at which variation caused
(I believe Q)

195 ancient law of the beautiful marrying -
in Crete

196 on likenesses in children coming on at
corresponding age to parent (H)

211 Colours not mixing in species (μ) &
varieties X Q

222 Hereditary Hernia not at same age H

244 corresponding periods of inheritance
H; \clubsuit connected with periods of life
dentition, puberty.

305 Adams thought deformations by arrest
were not hereditary H

326 Polydactylism very hereditary - my
view everything very hereditary, but not

rendered latent H

333, 337 On Double monsters, whether
really double X

388 Taste for Barley changed by
domestication in Pig. Sir F. ● wild Pigs wd
not eat swill

H Curious case of Hereditariness in eye in
Lens moving & causing blindness (Ch. 8)

399 same age blindness supervening H
577 in Cretins comes on in infants - calls it
exceptional H

428 Blind ♦ Deaf Cats & White - Adams in
Cyclop of Practical Medicin Vol 2. p.418

463 Blending instincts by crossing vars &
species

584 Musician hereditary H

598 In Hybrid Wolves & Dogs, likeness to
wolf in all the males and conversely H S

600 Hereditary sleeping on back & crossing
legs H

605 Good summing sentence about
Hereditariness.- H

SB3 $\square\alpha$

439; 445; 455, 7; 471, 2, 5, 8; 483, 4; 501;

567; 571; 574, 7; 580; 592, 5; 605; 611; 627

678 same age → summary on this head.;

691 do; 700 do; 702 do; 713 do; 715 do;

748 do; 759 do; 849 age; 850 age; 852-

age

858; 891; 892 very important on crossing
obliterating individual character; 896; 904 2

129; 135, 7 - 140 - 145; 156

157 on latent characters, in respect to
reversion

158 - 165 - good.

172-5

180 comparison of Hybrid & Mongrels
"Race-Hybrids" - "Species-Hybrids"

185; 190 - Books important; 192

198, 212 to 218 Crosses of Zebra & Ass.

229; 240; 253; 296; 299; 301; 307; 310; 315;
334; 347; 382, 4

I must express things diffuse & with \clubsuit a
most wearisome pretence to formulas.

(over)

2 children have some peculiarity which no \clubsuit
ancestor had -

◆ So Porcupine & Echidna Orchis & Asclepias
Explanation same, in some degree similar
constitution acted on same causes, but in
latter case selection comes into play very
importantly - Both, however, derived from
modified pair - Turned up snouts in
Crocodile, Goldfish & Bull-dogs.

But now in bars on Pigeons & Asses legs &
Horse back no selection. It comes to this
can we believe external agencies cd

produce the bars; I do not –
 That there is real & not mere external
 potency of race; Gaertner I think shows by
 rapidity of conversion into another form.–
 (over) Tom 2
See Back of Page
 p.4; p8; 33
 40 The most inexplicable case wd be an
 additional finger reappearing a tendency to
 form it somehow checked.– p48 Yes there
 are cases.– 45 So masking theory must be
 given up.
 54, 58 effect of ant-copulation
 75, 78 on action of Sexes, contradictory.
 82, 85, 86, (88 opposed to my theory of
 colour & constitution.)
 93, 94
 103–5 about which sex has greater influence
 109
 111, 12 Preponderance of race in different
 sexes & p120
 116 Book Huzard
 124
 SB4 □β (2 sheets)
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 8. Male giving certain parts p.75 Summary
 on do. 78 do. 82 (u)
 33 on similarity in children distinct from
 inheritance H
 40 Atavism, as in six-children: H
 Predisposition – may say latent; not
 marked., "Ruckschlag" (ie Rückschlag)
 58 Cases like Ld Moretons Q
 X 85 Colour & character going together 88
 93, 94 shows colour & constitution do not go
 together
 103 X Whether male or female parent
 preponderate in general in a cross, to p.105.
 Much diversity (u) of opinion
 109 X He thinks they have equal power –
 p.111. in some [instances] male most, in
 some females – p112 Q examples of
 preponderance of race 114 so with
 individuals 120 Potency of Race in one sex
 p 124 Sexuality in itself nothing (good
 summary)
 129 Differences in Monoicous & Dioicous
 flowers Ch. 6 Sexual selection (Probably
 much correlation of growth
 135 Sexuality goes for nothing in crosses
 137 Sexes transmit commonly to own sexes
 – 140 in many cases reversed H S
 158 Differences in sexes throughout animal
 Kingdom (look at under Ch. 6)
 165 Excellent case of same Peculiarities
 attached to either males or females S (is it
 due to sex tendency to transmit to own sex?
 H

171 Father of Polydactilism &c showing how
 does not go by sexes. H
 X 180 Q Comparison of Hybrids &
 Mongrels – Upset to Geoffroy Rules to 190 –
 192 Summary on. D Lucas firm believer in
 Species
 185 case of non-reciprocity in Mammals Q
 194 Subdivides resemblance with groups like
 Gaertner (Compare)
 198 Cases of parts taking after one parent
 (♦ Give case of tail taking after Male in
 Triple cross
 217, 218 accounts for all new Characters by
 Combination, forgets sports in birds – This is
 in fact same sort of theory, as that which
 accounts for all races by crossing
 229 Melange takes place only where parts
 are like.
 240 Hare & Rabbit good case of difficult
 union in close species. Buffalo & Cow Cow
 (?)
 253 His law of election & mixture &
 combination
 296 On animals, as Bull & Stallion, having
 much more choice than wd think. Ch 6 (S
 301 Q On Old Race preponderating in cross
 307 Hybrid of Fowl & Pheasant, fertile Q
 308 On "Reduction" Q of races; 310 Effects
 of Q climate on reduction p315 The rate of
 reduction as shown by Gaertner shows that
 there is real potency in 1/2 breeds
 355 on various combinations of colours
 347 Knox & Weber think both sexes present
 in embryo (Knox & Weber) Ch. 8 Opposed
 by gt authors p382
 445 Classification of variation with congenital
 – spontaneous & immediate; never alludes
 to effect of causes on ovules & spermatozoa
 483 Dumb Dogs learning to Bark in England
 484 ♦ Hereditary Handwriting Comptes
 Rendus H
 501 ♦ Effects of accidents hereditary H
 5♦
 (over)
 Tom 2
 567 Hereditariness at corresponding periods
 H
 571 Good Remarks on little distinction
 between inheritance of predisposition &
 disease itself H
 576 List of Hereditary diseases H
 580 Diseases appear, when inherited, under
 insufficient causes (Ch. 6 when showing how
 inheritance aids primary causes of variation)
 592 Disease to be inherited need not appear
 early, any more than character in imago H
 595 Inherited Disease not very rarely
 appears in infant H

LUCAS

605 Inheritance from parent after an abnormal state has appeared. H X

611 Doubts any great distinction of inheritance of acute & Chronic diseases

627 Veterinaries especially believe in hereditary diseases (short & quicker breeders) H

Hereditary cases at same age (or nearly) or rather young 678 good same disease at different age p. 691 700 702 (713 715) 748 759 H

◆ Hereditary cases at very different ages

848 Summary on Hereditariness at same age to 852 H

858 Local diseases inherited H

891 Noble Families endure barely 300 years

892 Owing to marriages, character of one single individual is soon lost H [Lateral characters on both sides different case for Crossing] C.D

904 Summary on ill effects of Breeding in & in. (

4 23-26m 7 15-16m ◆ 8 3-6m 33 7-10m/3-14w Bears on Reversion as Sir H. Holland.- What brings them, but something in common similarity acted on. 40 14-16m (Burdach), 15u "prédisposition" 45 1u "Ruckschlag", wt Reversion better than atavism throwing back 2-5m 48 33m 54 25u↔, 27-30m 58 1-10m (Van Helmont & Haller) 59 15-17m 75 4-10w great diversities in relation to action of Sexes 78 26-32m 79 26-29m 82 19-32m 83 24-26m 85 15m/u "Da Gama Machado", 20-33m/21u "coloration | caractère" 86 24-27m, 25-26u "transmission | couleur", 26-27u "du tempérament" 88 6-10m, 28-32m/w/wb My point is only whether generally.- & only relation of colour & diseases of hot countries That colour & withstanding climate are connected all organisms show - No it may be effect of light 93 15a "Le"/m/u↔/w Mental I think 94 2-6m, 28-29u "penchants | facultés" 95 18-22m 103 9-12m 104 13-16w diverse opinions 26-27m 105 13m, 23-24m 109 5-8m 111 30-32m 112 15-26m/17-18Q/18-23w preponderance of one race over another with a 3d race 113 wt Austrian face must, I shd think go with father.- 3-6m/w preponderance of race according to sex 13u "mongole"/13-19w preponderance when either sex - like Pouters & Fan-Tails. 114 5-11m/4-25w crosses of individuals like races & like species - Same conclusions as Gaertner - with the difference that the sex variously determines the preponderance 116 25-26m, 31-32m (Huzard) 120 12-16m/w case of potency of race in sex 124 16-21m/16-

19u±, 28-32m/31w a wb ie an individual, either male or female can preponderate, & so he thinks it is (I think) in species; but surely he must allow one species or race alone preponderates 125 2u "Cette | des", 16-18m, 16wt, 26-31u±/28w (a) wb◆ In fact every animal is bisexual 126 wb Sexual characters generally confounded with other characters 129 5-10w Differences in monoicous flowers 23-29w great differences in dioicous flowers 31-32m 130 28-31m 135 25-27m 136 9-11m 137 9-12m/w◆ was the 1st Pouter a male? 11-14u±, 22u "une | ces", 23u "métamorphose", 24u "épidermiques", 25u "polydactilie" 138 6-16m, 7u "chromatopseudopsie" 140 22-23m, 25u "dire | père"/w in many cases 145 7-10m/8w◆ in-version 12-14m, 15u↔ 156 20-24m, wb It is clear that characters sometimes go with sex - as sometimes polydactylism & c - Pouting & Wattle, & so if useful to one sex can be selected & returned - In fact both sexes have these characters but not displayed 157 wb The latent characters as shown in reversion to ancestors are illuminated by cases of females having them in potentiality 7-10m 158 wt Differences between males & females 4-29m◆ 159 2-9m/m, 5u "la Raie"/w Fish 9u "Chien | que"/w M 161 2m/u "la huppe", 3u "voile", 4-5m/5u "gutturaux", 8m/8-9u "épines | latérales", 15u "crête | Condor", 16u "aigrette | espèces", 17-21m/ 19-20u "barbe | Élan" 162 4-6m/4u "odorifères" 163 12-21m/13-18u±/13-15w, u Badger Otter & Lynx 12m/w, u Monkey 164 wb all the foregoing ◆ ie of male sexual character being transmitted to males alone is wrong, as shown by sterile females - but it is latent in female 165 wt Looking at everything which can be transmitted being transmitted, in a child What a number of latent principles, from parents & grandparents - there may be a latent tendency to produce long or very short tails, & by no means necessarily an intermediate tail 11-12u↔/?/11-15w Mem. Polydactylism sometimes goes in males & sometimes in females, I think. → 16-20m/ 18u "masculin | mâles", 21-23u↔, 29-31m, 30u "affecté | femmes"/22-33w hence, I shd think cannot be called an "annexed" character. or only accidentally annexed. 166 5-9m, 10-12m, 16-17u "exclusivement | auquel" 167 4u "occasion", 5u "elle | cause" 172 4-5w Table on Back 9m/u "intermittent"/? 173 1-4m 175 9-14m/ 10-11w I doubt this 176 25-27m◆ 180 5-8m/5u "rarement | moyenne"/6-7w just reverse 10u "d'autres règles", 15u "intermédiaire", 19-21m/

w just reverse 181 5-7m/w Hence preponderant 183 27-31m 184 2-4m, 7-16m, 19-21m/w ♦ ass prevails - one here 19-21m/w odd go back? domesticated ↑12-8m/↑11u "Chien | Boue"/wb This variability of hybrids is independent of domesticity 185 16-20m, ↑6u↔/w Q ↑7-5m/w Reference & c next Page wb case of non-reciprocity 186 30-31m 190 14-17m, 19-21u "la | produite", 28-29m, 32-34m 192 3-10m/3-4u "contrastantes" 194 9w Decided type 14-16w mixture of characters, or fusion 18-20w ♦ fusion of do 198 9-13w election of character agrees with Sturm 26-27m, 32m/w Good Book 199 1-4m/1u "Étalon | Anesse" 3u "semblable | père"/2-5w Election of character by sex 7-8m 200 7-8m/7u↔ 201 8-11m 202 27m, 28m/27-32w In Mus of Practical Geology 212 33-34m 215 2-3m/2u "combinaison | chimie", 3u "nouveau principe", 25-28m 216 9-13m 217 7-17w He explains all variation & even in same species to this fancied law of chemical combination. 218 6-20w He forgets sports, which upsets his theory of variation by chemical union of qualities of two parents 229 19u "similitude | caractères"/?, 21u "Mélange"/21-23w What does Gaertner say? 253 20-24m, 23u "mélange"/wb similarity 24u "combinaison"/wb affinity wb What rubbish 295 21-25m, 28-30m/w Cows 296 3-20m/9u "Chevaux"/w Individual choices 296-97 (paper fragment attached) 297 25-28m 299 18-19m 300 27-29m 301 wt as a mere matter of chance when anything has appeared in many generations, more likely to appear - Perhaps this is all 1-5m/? 307 23-24m/Q 28m/Qu "sa | génération", 32m 308 17u "septième génération" 310 6-18w Perhaps black-faced sheep - Anyhow I must be cautious about potency of race 315 2-5m, 8-11m (Burdach), 12-14m, 18-22m, 28m 316 13-17m 317 15-19m 334 26-32m 335 15-25m 347 14-16m 382 10-16m 384 10-18m 439 13u "Muller", 18-21m, 20-21u↔ 444 19u "médiates" 445 wt/1-9w Divides variations (♦ into spontaneous ?) ♦ & direct effect of external agencies on the parents & on the individuals after they have life, or when born. He seems to use congenial (ie congenital) when generated & not when born.- 10c "premier"/w spontaneous 12u "sans | externe"/?, 15-16u↔/14-21w never seems to think of action on ovules & sperms before conception wb He gives so much in following pages to external conditions that I know not what is left for spontaneity. 455 1-15m 457 1u "révoquent | caractères", 2-3u "qu'ils | développent"/w after born 459 wt My rabbit black when young. then turning grey - there

is no reason why this shd be so.- 1-3m/ w ♦ ? whether new characters 3a "âge"/2-10w ie whether the parents are young or old. Quite different question from mine. 471 8-11m/ 3-14w He puts all this down to climate without any reason, except that they do differ in different climates 30u "Prichard | 42" 472 13u "Vilmorin | ont", 31-32m 473 1-7w Puts all this down to climate & overlooks selection 475 3-6m, 14-15u "jusqu'au | gallinacés", 16-32m, ↑1u↔/wb see to this 478 1-6m 483 13-16m 484 12u "des | du"/11-19w How he does confound congenital variation with real habit 28-30m/w on writing see p.92. 493 1-4m, 10w coincidences 501 17-26m/w accident might have produced poor offspring 567 5-15m 571 wt/1-7w Differences of predisposition & disease chiefly being inheritable, blend together & not very great, & are both present though much discussed - good remarks all refer to 7-13m, 15-19m 574 7-10m/6-19w tendency to same disease clearly transmitted in species Man during many generations 576 15-18m 577 2-6m, 9u "Les | accord", 10u "predisposition" 580 29-32m/30u "avec | concours"/32u "l'excitation | insuffisantes", wb This enlarged on in following pages 592 7-12m, 15-30w To be hereditary, disease need no more appear at first, than that the imago shd not be hereditary, because not ♦ preceded by larva. 595 25-28m/w good many cases given, of non contagious cases 605 17-26m/w Grogner What is melanism 611 9-12m, 19-20u "c'est Piorry" 627 17-20m 678 17-19m, 19-21m, 20-21m/20u/21u, 24u, 25-27m/m/27u "enfance" 679 1-4m/2u "depuis | années", 5u "âgé | an", 14-29m/16-20w asthma strong cases of Hereditary 691 8-9m/u "cinquante | critique"/w not good 17-19m/19u "dès | ans" 700 8-11m/9-10u "père | croissante" 702 14-18m/ 15u "eux | ans"/w goodish 713 24w Clionea 25-28m/26u "au | âge" 714 29m/u "quinze" 715 5m/u "dans | l'enfance", 7-8m 748 11-18m/12u (ages), 14u "méningite tuberculeuse"/15-16u (ages)/11w apoplexy 759 12-14m/13u "quarante ans" 802 21-22m 803 8-10m 804 23-25m 805 14-18m 806 8-11m 809 22-25m 810 3-6m 813 25-27m 815 20-21m 818 22-24m 823 11-17m 848 8-11m/10u "d'élection", 12-15m/w This important to me 849 (u↔) 6-17m/7u "chorée"/11u "phthisie"/14u "goutte"/18u "apoplexie"/6-11w almost necessarily hereditary at same age 22-25m, 28-30m 850 3-13m/3-8u±, 15-16u↔ 851 32m/wb young age 852 1-3m, 4-7m 858 3-11m/4-5w Local diseases 891 18-23m/19u "on | filles"/ 21-22u "nominale"/w ie by male side

LUCAS

wb ♦ cc 892 8-13m/7-16w This crossing may be rather different from the obliteration of a variety by changes of conditions & selection 18-22w Crossing will even obliterate a specific character 25u "somme | caractères"/22-28w In crossing the character is not latent at all. 25u "individu"/ wb ie with constant crossing wb In very latent characters both parents have. it for all ages.- Hence it comes out in cross 893 1-7m/w Yet likenesses in families where peculiarities have never been fixed like specific characters. 894 4-9m/w characters produced in act of generation 23-29m 895 21-23m 896 25-30m 904 28-30m/wb ♦ attributes ill effect of 905 9-10m 906 13-24m 907 14-15m, 16-18m 914 22-26m 923 10-13m 924 6-9m, 26-29m 933 19m

LUERSSSEN, Christian *Handbuch der systematischen Botanik* 2 vols.; Leipzig; H. Haessel; 1879-82 [Botany School, FD]

LUNZE, Gustav *Die Hundezucht im Lichte der Darwin'sche Theorie* Berlin; Louis Gerschel; 1877 [Down]

NB not read only skimmed

LYELL, Charles *Elements of geology* London; Murray; 1838 [CUL, I]
geo, mi, t, ve

NB1 for Lyell

156 158 359 439 462 524

NB2 Myself

♦; ∞

p.27 38 76 88 119 171 173X 181 207 212
217 233 237 290 295,299 - Glen Roy 329
350 411 417 419 426 437 432 447 449 450
461 473 474 517

23 wt (no. of words on page counted) 27 ↑10-1m, wt C. of Good Hope 38 8-10m 76 11-16m, wt I must be cautious about Ascension 88 ↓m 119 fig.m 125 ↑8-3m 156 9-16m/w ?all infiltrated? 158 2-6m/4u "some | rocks" 161 ↑15x, ↑14x, ↑11u "Labrador-felspar", ↑8x, ↑7u "magnetic | olivine" 162 3u "Phonolite", 10u "trachyte | basalt"/3u/aε 163 14-15u±, 21u "basaltic | trachytic", 22u "Hornblende rock", ↑5u "syenite | granite", ↑4-3u "greenstone" 164 1u "Obsidian | lava", 2u "pitchstone", 9u "Pearlstone", 12u±, 16u "Pitchstone", 21u "basaltic dikes", 22u± ↑13u "of tuff", ↑12u "Pumice | trachyte", ↑11u "augitic porphyry", ↑9u "Scoriae", ↑2u "Syenitic greenstone" 165 (many lines.u) 171 fig 93.m/w ?reference? wb An argument against lateral injection, that

the origin of common dike is lateral tension which must be prolonged to surface & therefore no tendency 172 1-15m/w ♦ Argument for - curious - separation of matter. Mem St. Jago dike was amygdaloid??? 16-19w ♦ if so introduction note 173 fig.m/wt Is relative position faithful? of fragment & clear salband. fig.m/w is cleavage faithfully represented? ↓w ∞ The cryst threads of greenstone at Salisbury Craigs. caused by cavities, like veins - when hollow - quartz veins in quartz rocks.- cavities in lava.- (space yet pressure) ↑3-1m/w shows not altered great dike wb The stretching formed vacuum. & more fluid parts sucked in to walls or round fragment.- 181 ↓m, ↑2→, ↑1m, wb These cases appear to me most wonderful 182 1-5m/w or if stone was very fluid so as to communicate pressure 1u "if no"/m ♦/!! ♦ 207 ↑4-2m/?, wb cause? 212 6-10m/w Hornblend pumped out? 217 ↑17-8m/w poor 233 ↑8-3m 237 ↓m 266 (no. of words on page counted) 290 1-8m 295 1-10m 299 1-3m 329 1-5m/? 350 ↑6-1m 359 wt would be preserved on such coasts as are now muddy 1-2m/? 411 1-3m 417 13-19m 419 ↑6-1m/?, wb Sydney & C. of Good Hope.- 426 fig.m 432 1-6m/4u ↔ 437 3-6m/3u "existing genera"/5u "Cephalopoda"/6u "more widely 439 14-18m/? 447 ↓m, wb At ● all vertical 449 9-15m/w UspollataO 13?/u "clear" 450 ↑1m/?, wb Mem. Bartram.- ∞ See scrap of Paper pasted at end of Book A 458 7-14m 461 5-13m 462 1-2m/? 473 5u "opposite directions"/5-9m 474 ↑6-1m, ↑3?/u "olivine" 475 1-14m 517 wt Chalk highest bed - case analogous to Cordillera 2-12m 524 ↑9-6m, wb & Humboldt

LYELL, Charles *Elements of geology* 6th edn; John Murray; 1865 [Down, I]
ad, ex, fo, gd, geo, gr, ir, no, oo, sp, ta

SB □β, ∞

155; 168; 231 Dryopithecus; 265; 269; 299; 306; 311; 377 to 384 good case of imperfection with MammaliaO; 387; 230; 410; 414; 435; 451; 509; 510; 542; 552; 569; 576; 580; 583

SA (pp. 664-5, not CD) ∞

Lyell's *Elements of Geology* 1865.

p.155 Depths at which sea-shells can live 231 on Dryopithecus.

265 Myocene Flora richer in species than any existing

269 To West of Rocky Mountains extinct genera now formed to the east.

265 to p.273 on the supposed Atlantis

299 Footprints of mammals in great numbers in upper Eocene
 306 On the Eocene nummulitic rocks. forming parts of great mountain chains.
 310 On great break between chalk & Tertiary
 377 to 384 On Purbeck beds showing imperfection of record - 387 ditto
 410 On great breaks in oolite series. 414 ditto
 435 St Cassiew Beds. 1st appearance of some Paleozoic genera
 451 Hitchcock on Footprints in U. States
 509 On airbreathers in Coal period in U. States
 542 On lowers Devonian formation at C. Good Hope
 552 On oldest known fossil fish
 571 Table of Cambrian formations
 576 On some of the oldest fossils
 579 On the Laurentian formations
 580 Speaking generally Silurian deposits have a pelagic character
 583-585 Table of the first discovery of fossil vertebrates

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LYELL, Charles *The geological evidences of the antiquity of man* London; John Murray; 1863 [CUL, I]

cc, ch, ex, fo, gd, geo, gr, h, ig, in, ir, is, no, oo, or, r, sl, t, ta, ti, v

NB1 ♦

Torquay Head & shoulders
 Fuller description of Celts
 Alludes too much to Principles.-
 Imperfection of Geolog. Records very good.
 187
 p107 reduced
 p.111 fallen level

p.147 - square acres
 179 Sir Andrew Smith
 One sentence for S. Hemisphere & absence in Tropics New Zealand Celts.
 NB2 Man Chapt.; p 87. Variation of Australian skulls; 90; 91; 370; 375 378; 386; 493; 496; 495
 21; 22; 24; 143; 145; 146; 157; 191; 216; 236; 282,285; 288; 351; 365; 367; 375; 400; 427 - to end of Chapter; 433

SB □R, 4

p.145. Imperfection of Geolog. Record
 157 Glacial Mammals
 216 Contrast of Flora & Mammals of Norfolk (ie Norfolk) Drift (see 2d Edit)
 236 changes of climate in Greenland.
 282, 285, 288 wonderful complex changes during Glacial period
 351. Ice action on N. American continent
 365 Bending of isothermals Europe & N. America
 367 Depth of Baring St.
 400 Eocene mammals in stages older than formerly thought.-
 427 Davidson reduces Brachiopoda immensely.- gradation of forms
 429, 437, 439 well argued - gradation
 446 Argument that Bats & Seals have not produced on Islands new forms of life - Why not wingless Bats. there is no insectivorous apterous Bird ??
 over
 p449 Imperfection of Geological Record

x 37-38m xi 4m, 22-23m, 35-36m 9 17-19m
 16 13-16m 21 4-9m 22 30-31m/30u "swamp"
 23 29-33m 24 14-18m 25 11-24m 26 6-12m
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 145 19-26m 146 21-32m 147 7-8m/7u/c "square" 157 8-15m 187 18-26m 191 8-12m/w
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 236 22-29m 237 26-33m 243 12u "stones"/w striae 257 31-32m 282 2-29m, 1-13w
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 288 12-15m, 20-25m 294 1-2m 351 18-22m
 365 14-22m 366 5-10m 367 1-4m (Darwin and Hooker), 20-23m 370 4-24m/13-18w Progress
 28a "stone" polished? 374 10-11w S. Africa
 375 3-12m 378 1-4m 379 1-18m/2-4w wrong? Australians 386 5-8m/6-7w see reference 400
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 8-17m, 33m 428 23-31m 429 15-22m 430 27-33m 433 25-32m 436 5-15m 437 5-13m 439
 2-6m, 20-30m (Leidy) 442 23-32m (Hooker)
 443 13-16m 444 18-21m 445 1-7m, 23-27m

LYELL, ANTIQ. MAN, 1ST EDN

446 19-21m/21u 447 3m/1-14w | ♣ have added great ♣ means of change vast nos of individuals - in my discussion whether rapid change 27-32m 449 28-30m 450 10-15m, 21-22m/21u "macrurus" 457 5-8m 463 10-12m 464 3-4m 465 24-25m 467 17-18m 469 18-24m, 27-28m/u "become|probable" 493 24-29m (Agassiz) 495 20-22m (Quatrefages), 21w No 496 11-17m 497 wt Rengger says Monkeys are improvable 1-3m/2u "progressive|reason"/1-5w compared Dog or wolf or Jackall 9u "capable|improvement" 500 3-8m/? 503 17-21m 505 1-4m/4u "unprogressive" 5u "improvable reason"/2-3w oh 506 8-16m, 23-29m

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ig, tm

NB 486, 488 on the intermediate types, very good
486 1-9m 488 1-13m (Falconer)

LYELL, Charles *A manual of elementary geology* 3rd edn; London; John Murray; 1851 [CUL]
ch, co, fo, geo, gr, mi, se, sl, sp, tm, ve

SB CD 65; 66; 68; 95; 98; 103; 107; 139; 147; 150; 151; 152; 155; 174; 176; 188; 197; 200; 219; 231; 235; 265; 270; 273; 297; 298; 301; 306; 309; 324; 336; 340; 359; 360; Abstracted; V. Principles

<over> ♦

p217 coral-mud known to be transported
Spec growing by Ascencion ○

p221 S Amer Chalk

p220 p.235 p.282

Copper in Sea-water - absent in Volcanic regions

sucked out of rocks

facts not given

area of elevation - like a fan

36 33u "may", 34-37m/34u "artificial mixture", 41-42m/w on volcanic rocks 40 25-28m/? 55 12-19m 64 wt ee, 16-19m 65 27-33m 66 13u "running"/14u "marine current"/12-29w !Think of the 32,000 ft of strata - so much deposited; sea-chalk 68 3-13m/12-14u "at|another", 14-18m 81 33a "sun" earthquakes 36-37w shell-sand sand-dunes 84 17-18m♦/w ♦ only rising 85 6-8m/6u "In|cases" 95 3-

10m/4w so age 98 20-30m 103 35-40m 107 4-16m 113 23-34m 139 1-10m, 13-24m 147 31-37m (Owen, Meyer) 150 8-29m 151 19-27m♦ 152 27-29m 155 21-28m 166 42-43m/42u "Carentan" 174 20-23m, fig. 153.m 176 13-18m 177 ↑3-1m/x, wb/↓w singular how rarely little patches of half-a-mile of green left except outlyers. colour in large patches-? Silurian largest? V. Map of Europe? & World 188 3-9m, zb 197 1-8m 200 11-32w see what difference even within Eocene 21-34m (Brongniart) 219 42-44m 228 34m 231 15-24m, 23-26m 235 20-24m, 45-49m 265 29-36m/w Mem Purbeck animals changes 38m 266 1-11m, 38-44m 270 14-24m 273 1-3m 297 42-45m (Hitchcock)/43w 44 46-47→ 298 44-46m (Owen), 31-40m 299 22-24m, 38-43m (Dana) 301 10-11m, 14-18m 306 16-22m 309 19-22m 324 12-16m 336 30-37m 337 5-7m (H. von Meyer) 340 38-40m 359 1-5m 360 3-12m, 15-33m (E. Forbes) 468 2-6m, fig. 509.m 469 30-35m, 32-37z 472 4-12m 480 27-35w granite not flowed; grain in granite

LYELL, Charles *A manual of elementary geology* 4th edn; John Murray; 1852 [CUL]
t

NB p139

SB <errata-sheet> Please paste this in without delay

x fig.m xiv fig. 529.m, 25-34m xvi 27-33m xviii 12-31m, 29-33m, 41-45m xix 10-15m/13u "Cephalopoda", 24-26m, 31-41m (Owen) xx 8-9m/?, 13-18m, 23-27m, 28-32m, 39-40m, 41-44m, 45-47m xxi 11-13m, 15-16m, 18-19m, 29-32m, 42-47m/46a/u "embryonic" "perfect condition"/wb This is not an equivalent proposition xxii 9-17m, 28-32m 29 4-10m 30 15-17m, 30-34m 31 4u "carnivorous" 34 35-40z 138 41-42m, 41u "post-glacial deposits" 139 3-6m/w what evidence 13-39m

LYELL, Charles *A manual of elementary geology* 5th edn; 1855 [CUL, S]

ch, ex, fo, gd, geo, ig, is, no, oo, or, r, sl, sp, t, ti, tm, v, ve

NB ♦

Chapter on Veins absent in volcanic regions as shown by no veins on any volcanic islds
p.460 misprint

Amber beds L. talks more about Lower Limburg or Hampstead Beds

p.231 Hardly distinct age of Alps ?

It is shame you have never read my Abstract of S. Amer

p118 p.130 p.18 p.53. p.97 Principal For.

p.238 11 from top – Cambrian
 p.295 not clear whether 3 strata with
 gypsum?
 Wealden more historical
 p310 misprint
 p.339
 p406 very good
 504 Canary Isd. do.
 SB
 I begin at Chapt ♣ X.–
 p.114
 p140 important to end of Cha. Think of
 effect of the cold Permian current meeting
 the N. downward current.
 p154 to – p 435; p.447; p448 to 463
 Abstracted

114 7–9z, 38–49m 115 1–6m, 41–46m/w Plants
 probably long-lived 119 12–25m 120 21–28m,
 38–42m 140 20–23m, 34–37m, 38–42m/w see
 next page 47–49m 142 27–31m, 28–29m 143
 15–18m, 43m 144 27–32m/w How is this in
 Europe. 29–32w *Macrauchenia* in Patagonia
 40–49w In Chiloe recent shells occur in
 changed proportions. 145 38–41m, 46–47m
 146 1–5m/w Is it certain that *Elephas* &
Rhinoceros survived glacial Epoch.– 154 33u
 "variety called", 35u "some naturalists", 36–
 38m/33–47w Is there not great difference
 about fossil Boves. Have Nillsons writings
 been translated into German? 157 18–25m
 164 48–50m 183 1–5m, 32–35m/34u "seven
 species"/23–49w These numbers, as in Brazil
 cases, wd make one think successive Faunas
 merged.– 192 25–29m, fig.169.m 193 1–4m
 195 43–46m 197 33–49m/ 37–42w 3 Mamm
 Faunas besides recent 207 20–23m 212 26–
 30m 213 18–23m 217 19–29m 220 24–28m 227
 39–42m 230 40–46m 231 4–6m 232 24–29m/
 19–35w Yet continents must have existed
 nearly as now during later Tertiary periods.
 236 12–17m, 41–44m ♦ 237 8–16m, 19–25m,
 29–34m 238 11c/w ♦ € 251 24–26m/26u
 "perhaps Wealden" 255 21–28m, 30–32m 256
 26–27m/27u "ten other", 33–35m 257 1–6m 258
 26–39m/w so geographically; consider
 this.– same functions & purposes, slight
 differences; implies separation: hardly S. &
 N. species at ♣ Shows a coordinate change
 in several forms. 267 9–14m, 17–22m 268 4–
 7m 295 4–7m, 29m, 34–35m 296 14–20m 297
 7–9m 300 7–17m 301 6u "great | time"/2–6m/w
 Selection slow – change of species reacting.
 new introductions. 22–26m 308 33–35m/ 33u
 "of change" 309 1–2m 310 7–16m 311 17–20m
 313 32–38m/w Has not 4th species been
 discovered 316 17–22m 319 31–35m 321 zb
 324 1–2m 335 25–31m 337 21–26m (A.

Brongniart) 342 17–32m 343 43–46m (Owen)
 348 38–43m 349 40–41m (Owen) 350 40–44m
 351 9–12m 357 24–30m/w duration of plants
 358 32–37m (Murchison) 359 27–32m 360 25–
 28m 363 34–45w When we come here Plants
 have changed even more than animals 369
 35–36z 373 22–28m 380 40u "sixty-eight" 389
 4u "*Scarabaeus* family"/1–4m/w ancient &
 great classes of insects. 9–10m/Q~~9~~/9u
 "several | Termites" 400 35–37m, 40–42m/41u
 "no | than" 401 13–21m 404 33–36m 405 3–4m,
 15–16m, 20–22m (Owen), 31–32m, 36–39m 406
 5–15m 407 11–17m, 14–16m 408 3–8m/w
 Passage a difficulty. great one.– 20–22m 410
 30–35m/w This analogous to Goulds birds
 coloured in interior of continents. 411 7–10m
 416 fig. 536.m 417 7–12m, 15–19m 418 6–10m
 423 26–27m, 29–32m 424 11–14m 433 1w
 Read 435 33–35m 446 6–10m 447 3–10m, 24–
 28m, 31–32m 448 1–2m, 13–15m 449 27–31m,
 34–36m 450 39–42m 451 3–9m, 21–24m 453 1–
 4m, 17–21m, 30–31m (Murchison) 454 9–14m,
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 456 17–21m, 22–25m/22u "unconformably", 24–
 26m, 28–32m 457 17–20m, 20–21m, 24–26m,
 30–37m, 45–47m 458 8–13m, 17–21m, 24–28m
 459 3–5m, 17–19m, 42–46m 460 16a "1839" no
 Secondary Bird 38–40m/39a "1810 | C8"/w 7
 48–53m 461 15–18m, 35–41m, 44–50m, 47–49m
 462 6–12m, 12m, 15–19m 463 5–9m, 13–15m,
 17–24m 553 18–25m/ 22w 3° Lat 27w 4h 31w
 5h 516 ↑16–11z~~9~~

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 3 vols.; London; John Murray; 1830–33
 [CUL, on B, S]
 ch, f, geo, ti, ve

vol. 1, 308 11–23m 314 32u "forty-sixth"/w
 what Volcanos ? 315 11–16m/11–14m/? 325
 11–40m 346 1–24m 374 20–38m 440 11–19m
 468 ↓w We may more easily imagine the
 fluid stone injected (as occurs in every
 mountain chain) amongst damp strata.– wb
 at time of Earthquake Lava under great
 pressure, how could water penetrate to it
 would it not be driven back with violence?–
 470 28–38m 471 22–39m 476 1–19m 477 13–
 18w ♦ if there are hollows left what forces up
 the lava

vol. 2 NB p153 *Ulloa* ♣ on asses multiplying
 See this Book generally on this subject 201
 5–22m 248 1–7m 291 12?/u "*Otaheite*", 24–
 25w oval & irregular form? 294 13–18m/15w
Galapagos 19–34m 295 7–14m

⊕

vol. 3 NB1 6.– Sand as 1 & 2; 7. Large
 shingle or Rock

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NB2 cc

58 20u "synchronous"/20-23w if the rate of change is everywhere the same 114 10-15m/?/w Flat valleys & terraces 152 8-9w Estuary

Glossary, 61 30m, 32m 62 8m, 28m, 38m 63 6m, 7m, 10m, 17m, 28m, 34m, 38m 64 1m, 5m, 9m, 18m, 19m, 21m, 24m, 36m, 41m 65 1m, 6m, 10m, 15m, 18m, 19m, 42m 66 2m, 5m, 6m, 8m, 21m, 27m, 29m, 49m 67 18m, 29m, 33m, 37m, 43m 68 5m, 10m, 12m, 18m, 38m 69 3m, 4m, 13m, 15m, 29m, 35m, 40m 70 3m, 12m, 23m, 25m, 32m, 38m, 42m 71 5m, 16m, 21m, 37m 72 3m, 22m, 33m, 42m 73 10m, 21m, 26m, 29m, 32m 74 3m, 5m, 10m, 19m 75 11m, 15m, 35m 76 5m, 14m, 18m, 20m, 23m, 25m, 34m 77 3m, 20m, 32m, 34m 78 14m, 21m, 30m 79 3m, 23m, 27m, 30m, 31m, 32m, 34m, 42m 80 3m, 8m, 13m, 18m, 20m, 25m, 30m, 32m, 34m 81 3m, 7m, 18m, 19m, 20m, 24m, 30m, 33m, 34m, 40m, 42m 82 4m, 6m, 10m, 18m, 37m, 41m 83 1m, 6m, 12m, 15m, 23m

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vol. 1 NB ♦ 144; 146; 147; 153; 155; 161; 168; 187; 248; 270; 278; 285; 326; 350; 381 132 9-32m/"..." 144 1-20m/15-20w Mem Guanaco dying near water 146 14u "tropical plants"/14-17w C. of Good Hope 147 wt Jaguar in Lat 42° Puma - 53°? 1-3m, 16-20w Puma 10,000 ft high near snow 150 18-20m/w Guanacos at 70° 29-31m/w 69° 151 6-10m (Pallas) 153 12-14m, 18-22w Mem desert character of C. of Good Hope 155 17-24m, wb Mem. tropical vegetation. South America approach. limits of perpetual congelation. 161 wt Tree ferns appear not to like the light, most gloomy spots 14-23m 168 25u "Indian"/? 187 15-20m/16u "longer | sun" 248 7-19m 270 14-22m 278 17-27m 279 zt 284 zt 285 wt Lockhead on Guyana - Demerara river. Edinbg Transact Vol IV 15-21m 318 25-31m (Sedgwick) 326 6-15m, 16-30m/w Gypsum stalactites Ascension wb Little evidence of Volc action in many parts of Tropical coral forming seas 350 wt How can lime be precipitated? more water.- 1-17m/2-8m 381 wb great tides sometimes on very open coasts, Patagonia 434 16-17m

vol. 2 NF1 Mississippi, New Madrid, & Caraccas 46

Albite Volcanic Rock V. Buch p175

Necker on curves Mag. & Mountain chains p.326

♦ Exert. m

Exemplify the force of pebbles knocking together

Beach. is only cause of sediment on whole of Peru,- as far as granite so far same sediment

NF2 (drawing of mountain)

p.336 trees touching ground

p.217 Dolomen Calabria

NB1 (on p.442)

X Argument 2nd. Excellent argument sheep do not get big tails in Africa or cattle longhorn or cow bumps on back, or dogs like fox in Australia, or - or - or - yet whole breed being so. it must be effect of country, yet exciting or else Nature would have altered back XXX

XXX Now if in course of ages (having shown time is requisite) offspring differed as much from Indian Cattle & as Buffalo near long horned & as these do now from common stock. then would they perish.-

These irreversible changes may explain extinction they might act on some important organs & become hereditary like diseases Without reference to either, but simple change

The great difficulty appears, that though some animals long domesticated change not indefinite (Do we know this), but most domesticated animals are hereditary monsters. yet we should have expected some race which would have showed a slight repugnance to breed with our animals X 2d. The changes apparently being rapidly superinduced in domesticated animals. The very character of species is * character being hereditary, & as we know we can give forms not hereditary, some that are; we might expect gradation

NB3 ♦

p.215

187 Ask Captain about earth parting from solid Rock

Beechey is he authority of Concepcion? - No, Lesson? - no

Stokes, height of any land near Concepcion?

Sulphur passing from solfatara like veins, analogy

Abich bulletin of Geological Society of France Leucite in specks. Galapagos VII - 1835-1836

Von Buch. Canary Isld.-

NB4 12; 20; 27; 36; 41; 42; 46; 55; 149; 151; 185; 188; 192; 218; 221; 255; 256; 305;

351; 356; 403; 416

The two kinds of Elevation going on together
Error in Constant Prevost. p.154

<w♦●>
p323

12 wt The work of degradation goes on in inland bays.— St Joseph.— 2–8m (Pallas) 13 zt 20 5–13m/10–12w Peru 27 24–28w Mouth of St of Magellan 31w St.Helena 36 wb Pebbles beaches enormous manufactory for sediment draw back.— muddy water Calcaire 41 10–18m/13w No 42 8–29m (Humboldt) 46 1–8m, 20–26w Juan Fernandez 29–32w ancient trap rocks 55 7z, 8–16m 54 zt 149 2–8m 151 zt, fig.z, 18–22m/19u "dike" 154 27–29m 156 9–16m 158 1–17m 175 15–31m/17u "local earthquakes"/18u "conceded" 185 zt 186 wt/1–7m/w Connection○ of local earthquakes fig.z 188 23u "northward"/w South 190 1–4m/2u "one hundred" 192 11–17m, 21–23m 203 wtcc, 16–33m, wb New Madrid to coast of Caraccas 2040 miles 218 13–16m 221 15–20m 255 16–26m 256 16–21m, 22–25m, 22–28m 257 3–8z/4–5? 298 3–17m 301 26–32m, 30–33m 302 29–34m 304 wt How come stones not displaced? 1–8m 305 zt, 15–23m/z/18w Pampas zb 307 21–24m/w no wb Jamaica. Isd in Pacific Ocean 311 4–18m/7–14"..." 318 8–10m 326 5–13m 336 16–25m 351 32–34m/?, wb & water 356 16–23m 360 wt It is somewhere said Hippopotamus found in rivers of Asia — ?! This must be looked to 362 24–25u "progenitors", 25–27m (Geoffroy), 32u "ancestors" 364 3–5m/4u "still more" 365 wt When writing refer to this abridgment compare & see if true 6–13m 368 12–18m (Lamarck)/w isolation not considered 370 wt why if changes in circumstances rapid not changes in species.— It looks as if each peculiarity required to be firmly impressed XX 2–9m, 9–15w loss of tail a loss of organ 16–21w Double flowers assumption of organ wb XX hence plants long cultivated cannot be recognized! — Pyramids of Egypt 374 23–34m, wb Because there were localities fitted for simplest animals as well as the most complex. therefore some remained simple, if not created. The incidental good that one race performs to others proves adaptation in Universe. 375 1–7m, 28–32m 376 1u "progressive"/wt change of adaptation 17–34m, wb very diff from my view 377 22x, wb No more inexplicable than Bump in Indian Cow or change in Plants.— 381 1–3m 384 17–23m 386 1–8m, 13–34w In mammalia we must stick to one rule — let fertility be test.— wb Hogs varieties in animals but in plants species which are fertile? 387 21–26m, wb

Mem. find of Land Shells 391 7–11m♦ 392 16m, wb Varieties are made rapidly by man. Are there any cases of animals going back in one generation to parents stock 393 32–33m (Dureau de la Malle) 395 wt X I think this fact coupled with Egyptian shows change suddenly produced 1–33w Not time to form varieties in America & Australia — X Appeal to any breeder, whether if none imported, some breed would there be endemic wb Yet those animals in certain countries have been changed, but yet fresh ones now imported do not change Oxen do not get long horns now in S. Africa. 397 24–25u "three centuries" 398 wt see Boussingault Falkland Rabbit & Horse Study Azara. Mice of Cape de Verde 2u "The cattle"/1–5m/w Falconer Dobrzhoffer 14–34m/14–15w great difficult. X wb Have they? What is date of Cat of Persia Dog of Australia Sheep of Cape of Good Hope. 399 wt Llama of S. America 400 26–31m 401 5–10m, 31–32m (Smith, Knight), wb Study Horticultural Transactions 402 1–9m, 1–6m/1–17w parallel-Monsters in Animal Kingdom 403 6–15m (Henslow, Herbert) 17–26m 404 wb Wild dog of Australia, grand fact. It would be good experiment to find whether plants which transmit their varieties easily ♣ present any difficulties in crossing.— wb There appear two kinds of variations one persistent & other varying. Man offers instance of first — how is fact of crossing with them/— 406 wt A So they maybe be not very permanently ? Esquimaux dog on Indian Cattle could they. 1u "its", 28–34m 407 wt The idea of slowness, & of long intermarriage to make variety perfect & then when perfect it will rebranch off.— 1–5m/X, 7–19m/8–9w A 29–33w Yes until it is made species wb In those where change greatest we do not know what was aboriginal 408 21–22u "indefinite ages"/w adaptation wb The effects of time must be shown in effecting propagation. Wheat, & old vegetables most constant. yet we hear of new & strange variations produced in far countries 410 32m (Roulin) 412 17–27m, 32–33m (Jameson) 416 1–4m/1a "in"/wt parts of 417 13–17z/15–18w not to Man but beast 32–33m 419 5–34m, 4–7m/wb & when perpetuated, more might be gained like the intellect of civilized man.— 420 17–31m, 19–31m/w Strong argument 24m 421 wb If wolf & Fox same very different habits 423 21–26m (Buffon), 27–32m, 30–34m, wb Where 425 wt Tiger & Lion intermediate 3–30m (Hunter, Wiegmann, Prichard), 32m (Hunter) 426 6–34m 427 11–18m, 13–15m, 27–33m 428 12–32m 431 11–23m 432 6–21m 433

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13-22m ♦ 435 8-16m, 19u "species", *wb*
Centaurea hybrida 439 1-7m 441 28a "great"/
 26w or small 30-32m/w with 34a "offspring"/w
 with no tendency to go back *wb* respect to
 changes superinduced in short period 442
 10u "improvement or deterioration"/4-12m/w if
 this were true adios theory

vol. 3 NF1 p63 Vanessa migratory
 p93 AD1794 unparalleled for drought.
 Cape de Verde? Monkey peculiar?
 How far High land from the Radark Islds
 Insist very strongly on animal, resisting
 powers of breakers

NF2 z

NB1, 2 z

NB3 Lyell for Ch

♦ 7; 8; 10; 19; 31; 32; 50; 70
 109; 115; 121; 182; 227; 270; 272; 274; 380;
 434; 424; 440,41,42; 445
 128; 138; 182 ♦; 179; R Recent; 380

4 *wb* There is a resemblance analogy of
 animals of tropics like that of animal
 inhabiting Water or air - This is different
 from forms of Isd near continents 5 23-33m,
wb Consult R. Brown. Appendix 6 5-14m, 19-
 31m 7 4-10m/4-6w V. Lesson 8 16-22m/w
 Royle 9 27-34m/24-25? ♣ 10 7-11m/w
 authority? 14 32m (Brown) 19 *zt*, 19-27m,
 29m, *wb* ♦ In Jenner paper Royal Transact
 pidgeon cross daily England & Holland 20 *wt*
 The first origin of migration must be before
 countries had divided 30-34m 21 1-8m 23 3-
 27m (De Candolle), 6-23m 29 10-14m/11u
 "three | belonging"/w & c *wb* & subgroup.-
 Madagascar & c 30 *wt* Ask Lyell for authority
 1-4m, 33m (Temminck) 31 15-18w Barbarossa
 Marsupial animals 21-24m, 25-28m 32 1w
 Falklands 3-5m, 24w was taken by Cook to
 N. Zealand 33 *wt* Crocodile near the
 Navigators 1-5m 34 15-20m/17?/u "remote"/w
 10 miles 35 *wt* Elephant Borneo & c! 42
 3-33m, *wb* Not in the least applicable to big
 animals 43 1-29m 46 1-4m, 18-27m 48 4-18m
 (Spallanzani), *wbec* 50 25-28m, 25w ♦
 Ascension *wb* ♦ Frogs not on Volcanic Isd.
 Snakes Lizards first 51 *wt* How far from
 Mainland? 13x/13-25m 54 15-20m (Gmelin),
 33m 57 11-24m 58 1-19m (Lowe)/21-28m/*wb*
 the species of general diffusion are they like
 Lizards & Frogs, with *rsp* to eggs.- 62 1-
 23m, 7-9m/8u "sea-pens"/21-23m/7-23w Duck
 weed Caryophyllia Sponge 63 21-24m, 32-
 34m (Kirby & Spence) 64 22-32m (Kirby) 69
 28-33m 70 24-30m/26-27w No *wb* Falklands
 Bourbon Norfolk Isld Pitcairn? Mauritius
 Galapagos 71 13-29m, *wb* Dillons Voyage 78
 24-31m 79 1-4m 80 1-34m 81 6-33m, *wb* All

this agrees perfectly with my theory 85 21-
 33m 93 25-29m 99 *wb* (Most Philosophical
 Chapter) 109 5m/?/u "lizards" 112 3-12m/*wt*
 Journal 24-29m, 32-33m, *wb* Reference to
 quadrupeds native inhabitants 115 3w St
 of Magellan 117 21a "of"/19-20w intellectual 119
 16-29m, *wb* will the theory do, forms
 acquired but not unacquired ∴ change
 extermination 121 22m/?/u "mangrove" 128 1-
 8m/w capital 30u "shallow | the"/w where 133
 10-19m, *wb* authority? 134 *wt* Were separate
 sexes introduced in those orders most
 subject to variation? 135 20-33m 136 3-19m
 138 *wt* Besides difficulty of transportat in two
 directions, surely time required for such
 change of climate would produce fresh
 species. 139 *wt* Alpine forms ought to be
 varied, to be sure mountains generally near
 each other 1-5m, 13-23w x Yes but he
 accounts for the insects on top of mountains
 22-33m/x, *wb* Intermediate steps ♦ species,
 propagation on isld.- 140 3-19m/*wt*/1-15w
 Certainly not but the chesnuts & some of the
 Tropical forms must be altered into races
 18-33m 141 1-19m, *wb* Good 144 4-10m, 18-
 22m, *wb* & where whole continents have
 become colder then Mountains centre 146
 23-26m/w which reasons? *wb* Sudden
 appearance of animals quite done away by
 my theory. State what opposite theories
 have been driven to. 149 *zt* 152 *wb* Nothing
 beyond this with reference to Transmutation
 of Species 153 1-3z 154 22-34m ♦ 178 *wt*
 Worms turning up soil 1-10m (MacCulloch)
 179 *wt*/1-7w May this not be viewed merely
 that the peat plants cannot grow whilst under
 trees but conquer when blown down 8-15m
 182 10-19m, 19-31m/22-26w action of bog on
 red sand 217 *zb* 227 *wt* earthquake caused
 by subsidence 4u "subsidence | earthquakes"
 270 119-1m, *wb* Coral was on Stones Yet
 probably moved 274 *wt*/1-28w in one case
 dependent on the species, in other on no
 decomposition *zt*, 20-26m 275 3-6m/w only in
 some zoophytes 276 *fig.m*, *zb*, *wb* not
 characteristic 279 1u "land birds" 281 *zt*, 1-
 4m 282 *zt*, 3-8m, 21-26m, *wb* Only can be
 judged after subsidence artificial channels in
 Cocos soon filled up.- 283 *zt*, 14-20w
 Meandrinae ● 25u "we admit"/w No 286 1-
 22m/14w very good 288 *zt*, 10-21m, 16u
 "Otaheite"/w parallel lines 23-27m, 24u
 "corals" 289 15-19m 290 *zt*, 14-24m/w Mud
 292 18-29m/w very good 22-29m 293 *wt* I
 suspect reefs of diff strata in diff parts 1-3m
 294 1-2? 297 8-11m, 12-15m 298 *wb* where is
 the reef 600 miles long? 299 *wb* Why lime
 not all fastened near Equator 380 9-15m

424 *zt*, 14–28*m* (*Daubeny*)/*w* Galapagos Ascension 434 *zt*, 1–19*m/w* ought not this to have come sooner or never 440 1–13*m/w* follow it out 441 3–5*m/4u* "at|elevations", 24–34*m*, *wb* This would be the result if the periods of repose followed each other in a more○ accelerating 442 *wt* at first stage little more repose would destroy bit *z*, but how much longer to destroy *z*: *fig.m/w*, 7–13*m/w* X surely all valleys *wb* Origin of St. Cruz Valley *wb* Mouth of St. of Magellan 443 25–31*m/?*, *wb* Terraces; cliffs; on sides of valleys; Inclination of valleys 445 2–23*m/12–16w* Capital!

vol. 4 NF1 p.25 elevated hills Red Sea Good remark on Cleavage; and on cal. columns

The pureness of the Primary Limestones argument in favour of not sole metamorphic but separation

p.13 Geograph Journal Vol V Ca rises from the bottom with stones Thames & Angara is frequent.— it cannot be dribbled water merely freezing in large estuary.

p.224 Shows much inclination after elevation into dry land

NF2 Mem. Transportat of shells by sea weed

Falklands, no Boulders ∴ subsidence

↻ Baron Munchausen story of frozen horse Gold being found near surface of Granitic countries, same vapor pressing upwards Tension? does it express ✱ compression?—

NB1 ♦ Read Meyer Look to Humboldt Vol II p.213 Pata wron○ spelt — Lucanas?

Put Table of Chapters

Lucanas diocese Guamanga 25 or 30 SW of Guamang, Lat 12°50'.

150 miles from Sea Volcan so called in Chapt in Humboldt Map p40 N. sub▶ leads to coast

Index wron Mountain elevation of I.

NB2 ♦ date of earthquake Concepcion wrongly spelt

number of numbers wrong G.F.

What is proof of hills of Miocene, Scoriae

Lyell's index wrong ice Vol. I 269 icebergs 7; 9; 38; 80; 99; 107; 125; 141; 143; 161; 162; 201; 214; 224; 244; 252; 254; 258; 262; 264

Vol I p.257 24 If elevation eheu! date wrong 1752

Are the plates of shells worth their expense

Just mention M St Elias

282; 284; 292; 298; 308; 309; 311; 312; 324; 332; 350; 360; 363; 366; 372; 377; 378; 380; 381; 388; 386; 392

3 14–32*m/15–16w* G 18–25*z/w* G 7 *wt* ?Has not great force tendency to break things smoothly, mem pane of glass with bullet 8 8–15*m/11?*, 14–18*m/15u* "made|upwards" 9 1–14*m/3–5w* St Helena 10 1–5*m/3w* scoriae 16 8–17*m/10u* "chiefly"/11*u* "historical"/?, 14?/*w* no doubt generally 23–25?? 17 9*u* "Rimao"/*w* C. 16–23*m*, 26–32*m* 18 3–20*m/6u* "Pacific", 10–14*w* dip seaward 19 *zt* 20 30–34*m* (*Deshayes*) 23 9–25*m* 24 22–23*m*, *wb* What would Hopkins say to expansion without fissures?? 25 22–30*m/w* Ehrenbergh 28 21–26*m/11–26w* odd ● in tusk 38 *wt* Why not estuary? 47 2–5*m*, 3–9*m/?/!!* 63 17–20*m* 80 7–14*z/w* too much? 81 25–31*w* first origin? *wb* break? 83 *zt* 99 *zt*, 1–3*m/?* 107 *zt*, 23–32*m*, *wb* Azores? Melted lava Galapagos ✱ volcanic rocks 109 *zb* 117 *wt/8–15m/w* Black silicified wood/B. Blac red Clayed 16–18*m*, 18–19*w* X Patagonia 31–33? 124 *fig.z* 125 31–33*m*, *wb* This different from other section & like Patagonia 126 1–4*m* 141 10–29*m*, *wb* Ascension 143 *wt* a very admirable specimen of descriptive geology 161 *wt* excellent for beginners but elementary 1–19*m* 162 15–22*m/w* excellent 20–3*m* 163 1–10*m* 201 *wb* Leave out Mosaic flood? flood generally 214 10–33*w* Mem Ascension Migrants proves London moves○ from ● 224 ↓*w* How far from base of escarpment does gravel extend (of the S ought to be more marked)(then 3 to 4–) *wb* show ✱ inclination after elevation into dry land 225 *zt* 226 1–13*z*, 20–29*z* 227 *fig.w* very good 232 *fig.w* Diluvius tilted 244 *wt* Doing away anticlinal line hollow chalk continuous 2–25*w* transverse valleys = every crust part of linear valleys = 252 1–13*w* it appears owing to your dread of Elevation Craters 17–31*w* incomprehensible to me: 21–32*m*, 30*u* "whole mass", *wb* ridge of unstratified rock vera causa 253 5–9*m/?* 254 14–34*m*, *wb* Make analogy stronger pumping in, instead of out fluid rock 258 *fig.w* good 8–21*m* 259 1–10*m* 262 3–21*m* (*Mantell*)/*w* What do they say? 264 27–30*m* 282 *zt*, *wt* Is there not marine animal, case undistinguishable *fig.m* 284 *wt/1–28w* How wonderful that any character of vegetable earth remains — silicification 9–15*m*, 20–28*m* 292 3–19*m/w* All this comes rather flat after first admirable chapters *wb* do p.297 297 3–33*z* 298 1–10*m/w* Cordillera 308 9–15*m/2–16w* Coast of Brazil Just water & other formations 309 20–24*m/w* Pampas Delta *wb* Has Indian delta been examined — ● where can I read account? 310 8–31*m/w* very strong & very honest *wb* as long as Didelphys — x Monkey no progression *wb* Man strong fact on opposite side you lean

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311 *wt* I think it is an argument for precedence of certain ♣ classes at former times, the precedence of orders now.— as pachyderms in Tertiary — Deer now 11–12?/9–17*w* do not understand 15*m*, 25–32*m*, *wb* Galapagos plenty of reptiles *wb* Distribution of animals at present day evidently not owing to mere circumstances: ∴ great lizards not!— 312 8–17*m/w* T. del Fuego 324 1–11*m/w* Unfortunate 332 *wt/1–4w* if not correspond of my short parallel line 4–7*m/?* 333 *zt* 338 7–18*m*, *fig.w* Elevatory 18*u* "reader"/*w* beginners 339 *wt* Is it good paper? 1–5*m* 340 3–15*m/w* very remarkable 341 *fig.m/w* very good *wb* very common 350 *zt*, 1–12*m*, *wb* arrival of fresh peated matter 360 *wt* good abstract 1–4*m*, 5–31*m/w* Cordillera. Snow hence Metamorphic; not like basalt *zb* 361 33*m/w* wrong reference 362 5–9*m*, 10–17*m* ♦/11–12? 363 *wt* Does any one? 4–9*m/?* 366 3–12*m/5–6w* St Jago 14–24*m/w* wrong 21–33*m/!* 22*u* "600 | high" 367 *wt* fragments brought up much more altered 10–23*m* 370 *zt* 371 *wt* Wire has been known to crystallize & become brittle from frost ∴ arrangement of particles 372 1–9*m*, 11–26*m/w* ? would not percolation destroy symmetry? 373 *wt* permeation of solid coral rock by tides 5–8*m/6u* "sponges", 29–32*m* 374 1–7*m* 375 20–25*m* 377 *wt* is this theory or fact 8–13*m/10–11?* 378 29–32*m* 379 1–2*m* 380 *wt* Henslow Botany 5–11*m* 381 21–30*m/z* 385 *wt* contrast general lowness of Tertiary formations 1–12*m* 388 1–29*m*, 1–14*w* Elementary 389 13*u* "visible"/13–22*z/w* almost solely elevation because rests on very hypothesis 392 19–26*m/w* Who? 393 5–8*w* Sir J Herschel 7*u* "infinitesimal"/*w* HJS? 394 11–17*m/12–21w* Does it not always appear vice & versa 18–29*m* 395 25*m/wt* beneath coast of Chili 408.b *zt*, 1–13*m*

LYELL, Charles *Principles of geology* 6th edn, 3 vols; London; John Murray; 1840 [CUL, S] ad, beh, cc, ch, co, ds, ex, fo, gd, geo, gr, h, hy, ig, in, is, mg, mi, no, oo, or, se, sl, sp, spo, t, ti, tm, v, ve, y

vol. 1 NB1 Lyell

Account of Hutton very eloquent — not credit enough; Metamorph — not blame enough — 138 misprint; 155
190 Whole Chapter inimitably good
New Continent —
193 You yourself remark same form has never reappeared — hardly cautious enough.—

201 Cayman Isd

232; 240, 241 Excellent Chapt; 252; 260; 272; 279; 282,5,6; 295; 296; 317; 328; 330; 370; 372; Springs Chapt very ●; 395; 396
NB2 Self
Spec Theory; 134; 137; 154; 193; 209; 230,248 Chapt IX excellent summary against theory of progressive development; 249; 252
Lyell always considers that there is saltus between man & animals —
Chapt XI Showing chasms in Animate world not real — most striking passages pages p.284, 287, 295, 298, 301
392; 414; ♦ 415 Geology

xvi 22*m/m* 134 28–31*m* 137 15*m*, 15–16*u* "hippopotamus | only", 21–29*m* (Strickland)/24*u* "bear", 31–32*m* 138 20–21*m* 154 22–25*m* 155 *wt* some one says plants of six months growth 1–5*m* pl. f190 *wt* New continent 193 *wt* Facility of transport of seeds & not adaptation perhaps causes this 2–26*m*, 4–8*m*, 14–15?, 17*m*, 18*m*, 19–22*m/w* G?? 201 13–17*m/15w* no 209 19–32*m*, *wb* not sound as species of shells numerous at first commencement of Tertiary 210 1–33*m* 222 23–24*m/!*, 24–27*m* 230 4–28*m* 231 17–28*m* 240 28–31*m/w* not clear to me 241 15–25*m*, 26–34*m/34[...]/w* no 33*u/wb* not quite accurate: parts of continent 248 1–24*m* 249 5–27*m/w* All this applies only to man as cosmopolite, i.e. civilized 28–34*m/w/wb* not man, with such knowledge as he is born with 252 14–21*m/!*, 18–19*m*, 23–25*m/!*, 24–25*m* 260 *wb* I do not think you clearly enough state that there is no evidence of progressive development like metamorphic rocks that we know, species have successively appeared — but we know nothing of first peopling this planet, like its origin. The introduct of man, only greater change than any species ornithorhynchus 261 *wb* we know that species differ much from each other.— 272 3–16*w* ♦ Hereafter enormous area of S. America Tertiary desposits 1800 Tertiary deposits 279 27–28*m/?/27u* "persuading" 282 23–34*m*, *wb* again man as cosmopolite also p.285 283 2–8*m* 284 9–24*m/10u* "with | chasms" 285 15*u* "anterior | man"/*w* p.286 20–21*w* Peru 26–32*w* raised beaches with cotton thread *wb* What would you say even to American Geologist who said man did not exist, because no remains of Patagonian soil 286 10–12*m/!* 11*u* "at earth" 287 3–15*m/7–8w* Self 295 20–23*w* possibly many 24–34*m/29–30w* Self 296 1–7*w* & as nature of bottom changes different distribution 9–16*w* no known relation with respect to change 17–19*w* Scicily elevation

Lyell *wb* My theory goes to show that period is excessively long, during which species do not change, because no case of such change in any one structure can be shown 297 21-24m/w Self 298 14-18m/12-22w add. to this Europe exception & not rule - World simple 301 28-32m 317 12a "in" the breccia 328 25w rain & c & c 331 *wt* Tropical plains 1-2m/? 370 24X, *wb* Col Jackson describes much dirt & stones with Russian 392 20-24m/22u "with|the" 393 2-5m/2w ♦ ● 395 *wt* abundant in Cordillera 1-3m/w very 396 18-19m/19u "many parts"/w where 414 10-14m 415 23-28m

vol. 2 NB1 Lyell-; 266 isl N. of Ascension =; 278; 297; 372; 399
NB2 Self
Geology ♦ 106, 279, 447
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108 29-33m 120 14-16m 130 27-28x/24-28w incorrect layer 134 11-16m 266 15-16m 279 11u "attributes"/w stronger 297 23-24x, *wb* Most interesting feature omitted of volcanos already in action. 372 11-13w V. your Map ?? 399 1-2m/?d/u "hydrometer" 416 27-31m 447 7-11m

vol. 3 NB1 ♦
Where are Wiegmanns experiments on plants p.66 Amoenitat Acad * p.204 authority? * 300 *
Lyell p.116; p.127; 157; 200
295 Coral Chapt. Very satisfactory
Have a recapitulating character (*he means chapter*) on whole bearing of vols to explain present state of earth, which at first every one thinks formed by catastrophe
NB2 Self. Spec The.; 10; 34; 48; 67; 93 to 136; 204; 275; 300; 357
♦ 313 Geolog -

10 13-19m/15-17w extra claw 20-32m (Lamarck)/26-28w weak *wb* no new organs in whole classes 34 *wt* l. St. Hilaire 1-8m/4? *wb* G. St Hilaire 36 15-22m, *wb* ? 39 23-25m/?? 41 22-25m 42 16-20m/?, 20-21m/w no 44 25-28m/? 47 15-17m/? 48 *wt*/1-28w surely new Varieties sport, though individuals may be acclimatised in few years 4-6m, 10-34m, *wb* Think of all this when writing 49 1-21m, 28-31m (Cuvier, Dureau de la Malle) 51 26-28m, 27-29m, *wb* accustomed in early infancy 66 10-14m 67 29-31m (Wiegmann), *wb* Where 74 7-11m 90 4-7m 99 7-10m 100 24-29m 108 7-9m 116 25-29m/w ? Beale 118 *wt* XX My Patagonian case Weissenborn on Libellulia

Squirrels & ●?? *wb* (a) Why do men in fear herd together - 119 *wt* (a) Why does suffering make animals flock? *wt* Not always of same kind in insects XX 17-18m/x, 1-30w The useless ones cannot be for killing the animal, or they would have died from want *wb* 2 kinds of migration useful & useless are here confounded 121 4-6m 125 7-8x, *wb* X once connected with main by verdant continuous trails. 127 6-8m/!!/7u "pumas" 138 33m (Richardson) 139 23-26m (Gmelin), 27-32m, 33m 140 *wb* do any fish live on seeds? fish eaten by Herons- 146 10-14m 157 1u "Pitcairns"/w ● 161 9-17m, 21-24m 174 *wt*/1-26w The number of years some rare plants have occupied same spots - ? exact spot? argument against this - & the fact on opposite page antagonist principle. 20-26m, 30-34m (De Candolle) 175 *wb*/1-34w/*wt* XX would merely affect new countries & new devastations. (seeds in ground part of same class)- in short time struggle must come into play - occupancy can only hold to actual plant or tree, in first seedling struggle must commence - the surrounding land possibly more favourable because leaves of own kind best manure- 3u↔/? 197 33m 200 7-9m 201 4-9m, 17-31m 204 2-7m/w Please tell me authority 7w Thinks M F. Cuvier 221 15-24m 222 10-14m 224 1-11m/5-6? 227 5-32m 228 1-11m/5!!/wt/1-6w Let whole world get hotter or colder whole continent or whole islet 27-32m, *wb* =islands= Absurd - as we know in every country some new forms can be introduced 15a "marshes" 229 *wb* from lake in midst of Africa !!!! whence can come lacustrian plants *wb* Form islet, let this become Mountain, whence the Alpine plants?!! 276 1-3m 292 10-31m/22-24w V. p.297 *wb* Refer to Lunds theory & quote Lyell against it. 293 *wt*/1-2w The cause of this association of iron with limestone & corals - laws of organic forces?? 13-21m/15x 295 10-13m/??/wt What should empty it 297 1-8m 300 24-28m, *wb* p.303 do you believe contemporary? 303 1-13m 305 20-23m/23u "a|colour" 313 1-6m, *wb* as wood drifts by surface currents it may be transported to parts where no sediment is accum 357 6-8m 367 20-22m 370 26x/28-30w Dr Allan p77 372 24-26w at most 30 fathoms 377 23-25m, 30-32m 378 *wt* set of little rings 27w 49 384 3-5m/!4u "supposes" 388 6-8m/? 14-17w does not give as fragments 21-25w leeward side dead & not growing 391 11-13m/? 394 5-6? 395 1-20w border denuded & real growth of upsurge Corals denuded 396 24-25w no! 398 7-8? 399 24-29m 400 3c "be" is

LYELL, Charles *Principles of geology* 7th edn; London; John Murray; 1847 [CUL, I, S] geo, sp, t

SB *(list of changes from previous editions)*

NB1 Icebergs; 97; 101; 228

NB2 97 ice; Species Theory; 83; 105; 125; 134; 156; 177; 589; 591; 592 596; 600; 604; 605; 606; 608; 671; 697 of ♣ next Edition
83 20-26m 97 37-40m 101 fig. 2cc, 4-5m, 7-8m 105 29-39m (Hooker) 125 12-14m/14u "11 3" 134 1-40m 135 1-7m 156 25-37m 197 41-46m 231 2-7m 321 zb (drawing of mountain) 362 24-28w Such however is not the case 401 37w must? 44w or valley 46w valley 589 21-23m 591 31-49m/→ 592 5-10m, 8-12m, 13-15m, 27-29m, 31-37m 596 12-16m 600 5-9m, 37-43m 604 7-15m 605 11-22m, 25-45m 606 1-9m, 37-43m 608 8-23m 671 1-7m

LYELL, Charles *Principles of geology* 9th edn; London; John Murray; 1853 [Down]

LYELL, Charles *Principles of geology* 9th edn; John Murray; London; 1853 [CUL, I]

NB 697; 184; 343; 489; 753; 769; 795
162 39-44m 184 20-21m 238 zt 278 32-35m 279 24-29m 569 3-5m, 6-7m, 11-15m 572 2-6m 669 45w to p.680 670 16-17m, 47m, 48-49m 673 2-4m, 40-41m (Kirby) 675 10-11m, 27-28m 676 3-4m 677 38-43m 680 8-9m 685 38-39m/u "twenty thousand"/? 41u "eight thousand"

LYELL, Charles *Principles of geology* 10th edn, 2 vols.; London; John Murray; 1867-68 [Down]

LYELL, Charles *Principles of geology* 10th edn; London; John Murray; 1867-68 [CUL, I] ad, cc, ch, gd, geo, gr, hl, mg, oo, sp, t, tm

vol. 1 NB 146 on advance of organization
174 on changes of climate
393 Means of Distribution
209 9-10u "sandstone|shale", 14u "300|least", 15u "Vienna|Switzerland", 18u "several|feet", 19u "6,000 feet" 273 2-8m 393 13-24m, 26-29m, 31-33m, 34-36m 394 1-8m

vol. 2 NB Sp. work♦ Theory; 323; 338 to 345 G Distrib.; 355; 358; 366; 369 to 395; 406 to 431 very good
Errata♦ & Remarks; p.291; 307 corrections; 308; 317; 377; 421; why did you not contrast sea & Land-shells; 476; 478; 488; 489 I rejoice; 490 Ditto
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SB ⇨

1867.- Lyells Principles 10th Edit Vol I
p146 Discussion on advance of organisation.
174 Chapt. on causes of change of climate
393 Means of distribution - organisms in borings by Artesian wells - even living fish.
Vol. 2.
p.341 on Geographical Distribution p.341 Japan
p.345 Madagascar - good speculations
p.355 Means of Distribution, p.358 - 365 to p.395.-
p.406 persistence of same Flora in Madeira from Pliocene to present day, shows then separated.- to 431 - Admirable discussion on relations of Fauna & Flora of Madeira & P. Santo to each other & to Europe.-

246 20u "to|extent"/? (Geoffroy and Lamarck)
291 24u "germ cells"/w no 307 26-28m,/? 308 13-16m 309 33w short 317 3-8m 323 26-37m (Linnaeus) 324a 38-41m 338 12-39m 339 38-39m 341 27-35m (Wallace) 343 21-24w chance migration by sea 26-31m 345 28-37m 355 4-10m/11w Singapore 19-24m 358 3-5m 359 17-22m 365 1-3m 366 16-20m 369 17-23m 370a 40m 371 26-28m 377 22u "New Holland" 380 30-39m 387 32-35m 391 7-13m 395b 36-37m (Henslow) 406 7-11m (G. Hartung), 22-24m 408 11-15m 410 4-9m, 35-37m 414 30-33m 418 31-39m 419 10-21m (Hooker) 420 21-25m 421 10u♣ 422 28-34m 423 14-21m, 26-36m 426 7-17m 427 1-4m, 21-28m 428 1-5m, 22-29m 429 10-16m, 17-32m/w well stocked Birds of Galapagos; the case | give of shells & of true genera 430 25-31m 431 26-32m 469 27-30m 471 36-38m (Brace, Wallace) 473 29-35m 474 27-35m (Wallace) 476 27-30m/28u "to vary" 478a 38m/w Error 479 27-38m 481 24-29m 482 8-18m, 19-31m/28u "Gaudry's memoir" 483 31-34m 484 8-13m (Gaudry) 485 18-19m 487 33-36m 488 9-12m 489 14-17m, 20-24m 490 27-31m 491 7-12m/9u "higher|organisation"/w What is higher 21-29m

LYELL, Charles *Principles of geology* 11th edn, 2 vols.; London; John Murray; 1872 [CUL, I] af, geo, h, hl, t, v

vol. 1 NB 149; 159; 162; 212; 342

⌀

149 16-21m/16-17u "primordial|Barrande"/20u "Orthoceros", 27u "chambered|Orthocerata"
159b 33-40m (Owen) 162 14-21m 163 7-11m 212 31-37m 232 5-9z ⌀
342 4-6m (Jamieson)

⌀

vol. 2 NB Resemblance from similarity of exposure – p.295 in Dogs –
p.496 Difficulty of a higher grad from lower
Is not a very cleverer man a sight higher
than a dull man? Is not that power of a man
work of ● or power of Brain & wd not the
replication○ of the degree of cleverness
ultimately produce a great result?

∅

295 9–26m (*Flower and Wallace*)

∅ 396 11–13m (*Forbes*) 496 31–33m

LYELL, Charles *A second visit to the United States of America* 2 vols.; London; John Murray; 1849 [CUL]

ad, beh, ci, ex, fo, gd, geo, mg, sp

vol. 1 NB Read second time

p.29; p.303; p.330; p.348; p.351

SB 29 Lat 43° 6' S limit of Boulder Deposit

303 Many genera of Birds & Mammals with representative species on two sides of Rocky M

330 Birds & Squirrels having habit of burying acorns allude in my Staffordshire case as not applicable to it

348 No less than 3 species of Horse in N. America

29 28–31m 303 21–25m, 27–31m 304 1–12m,

15–25m 330 19–26m 348 18–22m 351 3–27m

366 14–17m

vol. 2 NB1 250 Rate of deposition of Delta.

NB2 293 ♦ Migration; 294 ♦

150 ♦ Cirripedes; 270; 312

Abstract

p.270 Dr D. Owen says newly introduced Plants, first overrun the country & then become scarcer (Ask A. Gray)

312 Footprints of Air-breathing Reptile in Carboniferous Rocks

250 9–12m 251 12–17m 270 19–23m 312 3–7m

313 25–29m

LYELL, Charles *The student's elements of geology* London; John Murray; 1871 [CUL, I]

ex, fo, gd, geo, ig, no, sp

NB 160 Mammals before & after glacial period

348 Muscle chalk absent in England

357 intermediate ♣ Caspian beds

361 Reptiles in Trias very rich

467 absence of Cephalopoda in Upper Cambrian

470 fossil of Longmynd Groups –

Read Ch VII p263

xii 5–6m, 14–16m xiii 38–39m xv 9–11m xvi

33–34m 160 1–11m 348 23–26m 356 11–16m

357 10–33m, 35–36m 358 20–27m 359 1–2m
361 1–4m (*Meyer*), 22–24m 467 33–41m
(*Barrande*) 470 21–27m

∅

LYELL, Charles *The student's elements of geology* 2nd edn; London; John Murray; 1874 [Down, I]

LYELL, Charles *Supplement to the fifth edition of A manual of elementary geology* 1st edn; London; John Murray; 1857 [CUL]

gd, geo, ti

1 15–17m, 18a "older" crag 2 40–43m 3 16–21m 5 33–38m/35u "Norwegian | Lemmus" /w Does Lemming inhabit Alps. Vide Waterhouse 6 17–21m, 25–28m (*Falconer*) 9 21–29m /w How blended Eocene & Miocene 11 10u / 7–10w What age of oldest Elephant 11–16m, 34–35m, 37u, 38u "Pliocene" 12 22–25m/23u "partly | period" /18–25w no one dreams sea acting all time 14 30–31u "no | marsupial", 32–38m 15 3u "Triconodon" /w Marsupial 40u "probably marsupial" 18a 45–49m 20 27–31m / 30u "range | marsupiala", 43–45m 22 21–23m (*Falconer*) 23 10–13m 23b 15–18m 24 8–11m, 15–17m, 17–21m, 23–28m 25 2–4m, 6–7! /7u "climatal", 13–24m/15–17?, 34u "St Cassian beds", 37–39m 28 26–28m, 29–31m, 35–38m 29 18–21m (*Lindley*), 44u "Palaeozoic" /wb not diphthong 30 5–8m, 17–19m/19u "27", 20–24m/20u "beds" /23–24m, 28–33m, 36–43m 32 29–42m 33 39–46m 34 17–25m

LYELL, Charles *Supplement to the fifth edition of A manual of elementary geology* 2nd edn; London; John Murray; 1857 [CUL]

ex, fo, geo, ig

NB ♦ p14 intermediate forms

p30 Old N American Mammal Trias or Permian

↳ Letter from Lyell – new proof that Dromotherium below ● – perhaps not actually Permian same discovery sinks the level of Hitchcocks Birds Tracks

14 9–11m (*Falconer*), 10–23m/16u "Rhinoceros | Anoplothera" 30 5–29m/10u "Chatham | Carolina" /19u ♣, 26–29m 33 25–28m 35 19–24w etc 37 35–39m 39 wt New edition

LYELL, Charles *Travels in North America* 2 vols.; London; John Murray; 1845 [CUL]

af, cc, ch, ex, fo, gd, geo, gr, h, no, se, sp, t, tm

vol. 1 NB1 138. any extinct Gnathodons?? or Fulgur??

LYELL, TRAVELS

Lyell says Cretaceous & Eocene quite conformable & similar substances, so that most difficult to separate.

(drawing of a continental shelf or bank of slow-moving river)

NB2 Species Theory ; p.5; p.7; p.9; 10; p.20; 52; 55; 67; 78; 87; 134; 137; 168; 173; 178; 198; 202

Geology S. America

Mastodon ♣ at Niagara ♣; p.164 Mastodon & Cursed Horse Tooth; 201 Man skeleton in Brazil

p.48. subsidence Glaciers-period.

SB □β

5. Daisy will not live in U. States

7 35 per cent of shells of Massachusetts identical, many representatives

10 On the curves of cold being same at Glacial Epoch as now

20 on certain shells having wide geograph & geotropical Range

52 on time since Niagara formed (since Glacial?) 67 Mastodon since Glacial

78 Of New Jersey Cretaceous shells only 4/60 identical, but many representatives.

Reptiles analogous – some of them identical have greatest vertical range

87 Devonian & Silurian Strata 4 1/2 miles thick

134 shells analogous to Suffolk Crag p.138. only 9 Miocene identical The shell Fauna then distinct of America & Europe (& in Chalk

178 Of Eocene shells 7/125 identical. Now I fancy in S. States very few identical or more but many representatives

202 Number of F.W. shells in U. States

5 21–24m 7 3–6m (Gould)/w now are these
70 Glacial 13–15m, 16–18m 9 1–3m, 6–8m/w
against seeds transported 10 14–19m 20 16–22m
48 3–10m/4"..." 52 3–19m 54 4m 55 2–4m
67 8–10m, 11–16m 78 7–9m, 26–27m 79 1–3m/
w V. proportion of living 8–9m, 20–24m, 27m/
→ 80 7–11m, 15–18m, 20–24m, 25–26m 81
10a/u "corals | insects" /5–14w Satularia very
like of V. Diemen's Land ??? 14m/u "arctic |
antarctic" /w ?!! no wb Dr Beck Margarita is
found in ♣ Antarctica, which is genus not
found in Tropics 87 22–25m/w = 4 1/2 miles
134 12–13m/12u "very | those" 136 23u "147"
137 4–5m/4u "close affinity", 26–27m 138 2–5m/
2u "mine" /5u "with | species", 7u ♣ /8–10m ♣ /
8u ♣, 14–17m, 18–21m 151 2–5m/3w Breath 9u
"absorbed" /m/?, 11–14w The absurdity of
arguing from one position 168 3–7m 172 14–27m
173 1–9m 178 21–23m, 25–27m/x, wb |
forget how many Miocene common to

Europe & America – see to this– 181 1m/?
185 18u "depressing | spirits" 198 19–22m 202
15–20m

vol. 2 NB Sp Theory p.19; p.30; 48; p.50;
p.52 54; 59; 131; 135; 152; 154; 158; 179;
187; 188; 190; 255

Geology; p.60 Mastodon & Elephant with
Recent shells

p.99 – Subsidence during ice-period

SB □β

19 Carboniferous shells some identical, &
most closely related

35 Proportion of Trees on Indian Mounds

Plants many identical, I think not surprising,
when land in fact continuous

2/3 identical of Coal Plants (See Below)

51. Silurian shells not many in common – so
with Russia. Exploded doctrine

52 Orthis still living in Mediterranean, but
very rare – 54 Causes of absence of land-
plants in Silurian – Good discussion –

152. Lat 44°.25' most S. Lat in which Arctic
shells have been found

155 Arctic shells have retreated 14 degrees
of Latitude

158 Lingula. still living, in oldest Silurian
Rocks

179 Carboniferous strata of N. Scotia 4–5
thick p187. Ten layers of upright trees

p187 37/48 Plants identical. Of 35/53 of Coal
plants of U. States, further S. are identical.

19 6–10m, 14–19m, 22–25m, 26–27m 20 5–8m,
13–15m, 17–21m (Brongniart) 21 8–16m/13u ♣,
18u "genera", 20–21m 30 6–10m 35 12–27m 37
20–21w No 48 19–27m, z/wb 50 22–26m 51 3–
10m, 13–20m (Murchison and De Verneuil),
21–25m 52 10–21m/w ie rare genus 53 17–
19m 54 5–6m/?, 11–13m, wb/↓w Old
formations are oceanic; because these have
the best chance of being thick & last brought
up; this rests on idea of movements being
widely extended & continuous, which is also
proved by continents. 55 1–9m/w There must
have been a considerable continent.– 12–
16m, 17–20m, 22–26m, 27→ 56 12–15m
(Murchison and De Verneuil) 57 1–3m 59 14–
17m 99 1–17m 131 1–8m, 10–15m, 20m 135
24–26m 152 3–5m 154 9–13m/w p.149 &
number of species of genus 155 1–2m/wt ie.
Arctic Climate has retreated at least 14
degrees of latitude – effects of changes of
Geography – not connected with central
Heat 158 3–7m, 179 24–27m/→w with vertical
trees 181 20–22m 187 8–14m, 24–25m/25u
"ten | levels" 188 11–15m/w important as
showing former communication 19–27m 189
1–6m 190 25–27m 255 1–27w Mainly ♣ 12

divisions judging from fossils corresponding to Upper & Lower Silurian formations *many lines in table marked; subdivisions 24-28 bracketed.w* Devonian

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NB O/

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NB O/

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title page *wb* By the Revd. William P. Lyon (near Norwich)

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f, gd, oo, no, sp, sy, t, tm, v

NB1 A Good many fish – semi-alpine 4–500 feet nevertheless no species similar to European – I believe – V. Synopsis Contrast with Hope's paper on insects → especial contrast with Water beetles, I believe,

Good contrast with Fish of Pacific & Indian Oceans –

How is this in N. America? –

NB2 The Commencement of this Book good to consider when treating Quinary System – It must be considered

229; 230; 232; 237; 266; 364; 385; 399; 458; 452

SB 230 Fishes bright to be caught

266 on domesticated Fishes of India varying so much – Ch 1 or 2

262 On Salmonidae in India – place filled by Cyprinidae

229 13–22m, 20–22m 230 6–13m/16w see p.229 19–23m/19–26w I must utterly deny this. – If this could be passed – farewell my thesis – 27m/w Nothing new spec 231 3–6m, 18–20m 232 1–3m 237 23–27m 266 12–13m/w V. p.313 26–28m/w p.268 268 4m 313 15–19m/17u "form" pl. 46 *wb* Perilampus perseus 365 23–28m 385 4–9m 399 13–15m 452 1–7m (Hügel, Heckel) 458 22–27m/w not so much destroyed & therefore not become so prolific 459 1–3m, 17–21m 469b 3m, 4m, 6m, 7m, 10m, 12–19m

MacCULLOCH, John *A geological classification of rocks, with descriptive synopses of the species and varieties comprising the elements of practical geology* London; Longman, Hurst, Rees, Orme & Brown; 1821 [CUL, S Chas. Darwin June 1837]
geo, is, mi

MACCULLOCH

NB 185 to 188; 199; 270; 332; 349; 351; 364; 376; 471; 475; 528; 531

Ap 21/57 (CD?)

Macculloch from p- to p will be worth looking at before writing Cleavage

185 22-24m 187 8-14m, 16-22m 188 8-13m, 15-20m 189 1-7m 199 14-21m/17-21m, wb ?ls quartz ever fluid from Heat even in granite 233 5-7m, 18-21m 244 9-14m 270 4-10m, 11m, 13-23m, wt & see p273 & 274 273 6-14m 274 11-18m 301 19-22m 332 12-20m/w like F. Islds. 349 18-24m 350 20-24m 351 13-18m 364 11-24m 365 4-6m 376 7-13m 471 2-4m 475 13-19m 528 13-20m 531 wt Make note to Obsidia paper say it is remarkable that no one has hereto stated the fact of separation 5-14m, 20-24z

McCLINTOCK, Francis Leopold *A narrative of the discovery of the fate of Sir John Franklin and his companions* London; John Murray; 1859 [Down, I by publisher to Mrs Darwin]

NB p16; p20; p102

16 11-20m 20 24-27m 102 22-25m

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af, beh, br, cc, ch, cs, ds, ex, gd, gr, hy, mg, no, oo, phy, rd, sy, t, ta, tm, v, wd, y

vol. 1 NB do show extinction not so easy extinct in England Capercailzie recently extinct, Bustard

p.5; For Pigeon - 25 - Skeleton; 90; 101; 119,20; 153; 162; 173; 192,7; 225; 249; 265,6; 270; 274,8 - Pigeons to 289; 331; 398; ♦ Read from 90 to 96 well; 423; 501; 505; 512; 529 to 534; 538; 569; 571; 604

269 Scutella; 231 Skeleton of Pigeon; 285 number of seeds in crop; skeleton♦; Black grouse 157 superorbital space becomes red in Breeding season

SB 90 - ostrich rudimentary tie

119 Disputes ring-neck pheasant being a Hybrid

153 variation in intestines in length of Black Grouse

162 Q Black & Red Grouse crossing

249 In Pigeons Head & Bill chief characters of Family

270 On Birds having Beak crusted with earth or mud

275 On ♣ House Pigeons taking to Rocks - taming Pigeons

285 on number of seeds in Crop of Pigeon

289 On C. oenas building in Rabbit holes

398 Cases of natural pairing of Green-Finch

& Gold Finch Q

422. Abnormal characters in Cross-Beak varying Q

501 On Faroe Raven (I believe quoted)

512 NQ Ravens build in cliffs in N., in trees in South p604 So starlings in Hebrides

538 Rook varying much in Beak.

569 Eggs of Magpie varying much shape, size & colour

570 Magpie getting 3 females - another case of size Q

157 supraocular carmine space brighter red during breeding season.-

5 18-22m/w nearer literal relationship 24 27-28m 25 11-12m, 16-17m 26 1u "sacral", 33-36m 27 fig.w (naming of parts of skeleton) 28 11u "manubrial", 22u "crest|ridge" 29 9a "is" clavicle 31 6u "ilium", 8u "pubes|latter" 34 20-34m 75 4-6m/4u "a large", 19u "accessory plumage", 26-28m/26-27u "to|length", 28u "in feather"/28-32m (Richardson, Audubon) 90 19-20m plates w (parts of skeleton) 101 4-6m/5u "second|quills", 22-24m, 26w Crows 106 7-11m 111 25u "twelve" 118 13u "Length|inches", 14u "tail 18", 14-17w say 18 to 21 tails 119 3u "26 inches"/4u "tail 11"/3-5w say ab 12 inch 8-10w analogue of P. torquatus 12-14m, 15-18m/17u "very|varieties" 121 10u "tail 20", 14-15m, 18-20m 122 15u, 19-22m, 31-32m/31u "Phasianus torquatus" 151 2-3m, 34-37m 152 28-31m 153 28m 154 32-37m 157 34-38m, 35-38m/37u "a deeper red" 158 3-7m, 7-14m, 21-26m 159 14-16m, 18-19m 161 28-30m 162 6-10m/Q 169 12-13u "breast|white", 16-17u "breast|barred" 172 23-24u "breast|chestnut" 173 3-7w proportions different 9wcc, 12m/wcc, 20-28m/23u "lighter red", 26u "lighter", 27u "but duller", 30u "is|brownish", 31w see over 174 2-3Q 5u "lower|are", 6u "spotted|barred", 11u "less|white", 21-25m/22u↔/24u "tips|feathers" 184 11-15m 185 25-26Q 187 14-19m 193 5-14m 197 20-27m 207 17-19m 216 32-35m 219 35-37z 225 3-5m 249 13-15m 251 22-24m, 25u "seven dorsal" 257 11-12m, 37-38z 265 7-10m 266 16-18m 269 3u↔, 11-16m/14u "the|fourteen" 270 34-36m/w seeds 274 36-38m 275 15-17m/x, 37-38m 276 8-18m 277 24u "James Barclay" 278 16-19m, 22-23m 279 15u "Mr Andrew Duncan", 16-18m/17u "tamed", 32-33m 281 9u "three|long" 282 24-27m 283 13-14m/14u "is|feet", 31-32m (J. Smith), 36-37m 284 5-8m 285 17-19m/18u "1000|odds"/19u "510" 289 31-35m 331 14-19m 352 21u "in|which" 370 14-18m 372 5-8m 373 17-19m, 21-24m 375 30-34m (Temminck) 398 9-11m, 12-13Q 20-23m 422 34-36m/Q 423 1-3m/Q 29-37m 428 1-4m 501

8-10m, 15-17m, 20u "Feroe Isles"/20-24w see in Travels which I have, what is said about this. 26-28m 505 36-38m 512 10-12m, 13-14m 529 14-15m, 17-20m/Q 532 4-5m, 30-31m 533 21-22m 534 1-4m, 11-13w This is good case of doubtful species 13-17m, 18-21m, 21-22m/21u "being|wilder"/22-23Q 24-26m, 25-27m 538 9-12m/9u "remarkable diversity" 569 1-8m 570 34-38m/35u/Q 571 10-11Q 11-14m/12-13u "saw|eggs" 572 32-34m 577 zb 599 10-14m 604 16-27m

vol. 2 NB1 451 Crested Tit female has crest smaller

417 Crested wren crest paler

NB2 Upon the whole little variation in Birds except rarely tendency of colour & size & proportions. No races

p.53; 84; 92; 91,6; 98; 102; 104 transportat of seeds; 113; 118; 125 - transport of seeds; 130; 138; 143; 172; 245; 302; 438; 446; 483; 484,5

185 Anthus breeding flight; 354 do better Q

52 Dipper; 83 T. merula; 100 P. torquatus

SB □β

92 Thrush & Blackbird pairing in Nature Q

96 Nestling Black-birds know cry of danger;

99 crowing like a Cock

104, 125 Disbelieves strongly that Birds disseminate for never but ♣ twice having f any. viz Mountain Ash

172 ♣ Eggs of Alauda arvensis varying greatly

438 Tomtit feed their young 475 times in day on caterpillars Q

483 ♣ Doubt about distribution of Motacilla alba & Yarrelli, after comparing French Birds

27 6-17m/7-9w Voice Muscles 29 17-24m, 22-24m 52 31-35m, 31-33m 53 3-8m, 22-25m 55 14-20m, 31-35m 84 1-4m 91 30-33m (Blyth) 92 13-18mQ 96 7-11m, 13-16m 97 24-28m 98 14-19m 99 10-12m 100 17-19m 102 26-28m 103 7-12m 104 14-20m/19-20u "which|intestine", 30-33m 113 5-12m/6wcc, 7-12w proportions vary 118 8-15m 125 9-17m/11u "sixty|various" 130 14-21m 138 31-32m 143 28-34m 172 4-10m 185 33-36m 188 16-21m♦/16u± 223 16-18m 245 14-15m 256 2-5m♦/3u "much|frequent" 302 7-9m 329 24-28m 354 11-16m 438 36-38m/Q 446 24-27m, 31-33m 451 27-28m 460 13-17m 461 18u "of|fable" 483 11-26m 484 29-34m 485 30-33m

vol. 3 NB1 548 on making preparations of Digestive organs.

NB2 11; 17; 36; 39; 59; 60; 113; 140; 187; 208; 215; 224; 250; 256; 299; 300 rate of flight; 329; 351; 376; 459; Owls prey on

shrew-480; 535; 560; 591; 599; 607; 625; 700; 713; 714; 717; 721; 730; 745,46

SB □β

17 Beak of wren variable; 36 Creeper do

140 American Cuckoo hatching young successfully Q

187 Scutella in Buzzard variable

215 Eagle carrying & dropping Pig alive

225 variation in wings of Tracheae & intestines in Sea Eagle p250 p329 in Caeca intestine p351

257 soles of Hawk crusted with mud

300 Peregrine Falcon does not much exceed a Pigeon ♀ in rate of flight

535 Waxwing - the wax-like terminations variable in number.- Abnormal variable Q

560 Swallow lateral tail-feathers more or less elongated do Q

Swallows entombing Sparrows Q

599 Disputes Swallow Q gluing materials together 625 Q present in Swift X♂

736 on Bird carrying Q egg from nest to prevent discovery

11 17u "Furnarius"/17-18w variable in species 17 16-19m 22 1-19m, 21-30m 23 9-11m (Weir) 24 7-8m 36 8-11m 39 20-23m (Audubon) 59 7-11m/8w differences 25-28m/25-26w diffs. 60 26-29m/w singular organ presenting differes 61 21-22m 79 5-7m 83 3-5m 84 23-26m/26u "till|sonorous" 85 5-8m/7-8u "feathers|crimson" 87 8-11m/9u "crown|crimson", 29-30m 88 8-18m, 24-30m, 25u "vibrates|tree" 89 30-34m, 32u "amatory performance" 94 4-7m 102 23-24u± 113 11-18m, 29-34m♦ 121 24-27u± 122 15-17m 124 20-23m, 28-37m, 33-37m 125 18-26m 126 21-27m 129 16-25m 133 18-26m 139 28-30m 140 3-6m 187 14-16m, 19-30m 208 30-34m 215 8-13m, 14-17m 224 23-34m 225 10m, 12u "scutella", 13-19m 250 27-35m 257 28-29m 299 1-20m 300 19-21m 329 1-10m 351 12-16m, 20m 376 31-37m 459 32-37m (Bonaparte) 480 3-5m 502 9-10u "head|black", 16-18u±/w female barred on parts inferior 535 13-14m, 19-21m/Q 560 21-22mQ 591 24-34m 599 2-3m/2u "no caeca", 35-38m 625 31-37m 626 8-12m 700 5-11m 713 2-4m 714 36-38m 715 1-3m, zb 717 15-17m 745 15-16u "neglected|stranger", 18-21Q 20-22m, 21u "being convinced", 27-29m/27u "The|larger" 746 2-3u "head|white", 5-9u±, 11u "coverts"/w parts of wing 14-16Q 16u "throat|the", 19u "The|white", 32-37m

vol. 4 NB ♦ 371 No difference in summer & winter Plum. of Snipe

SB1 □℞

xiii,iv,viii; 89; 155; 206; 309; 370; 422; 446;

MACGILLIVRAY

476; 572,3,4; 593; 606; 611,14,17; 627; 632; 665; 687

SB2 □β

p.89 Remarkable variation in Beak of Plover
p206 do in Tringa p370 Snipe

pxx ♦

155 do in Oyster catcher perhaps case of abnormal varying Q

422 several cases of American Bittern shot in England pxiii, xiv, xviii other American Birds.

446 Q Herons building in trees, on rocks, & on heathy ground

573 Geese & Ducks all blend together, might be left in one genus. Flamingo modified form 593 thinks Anser forms ancestor of domestic goose

655 variations in internal organs

687 var. in number of tail-feathers in Swans

xiii 25-26m xiv 9-10m/w 2 xviii 6-7m/w 3
23 33-38m (Temminck) 33 15u "some|
polygamous" 89 19-23m 103 4u "scarcely|
their" 109 3-4m/3u "males|females" 155 6-
15m/8-9Q 171 16u "Female|lighter", 17u
"more grey", 21u "the|land" 172 8-16m 173
28-30m 177 30-38m/35-36u "nature|birds"
178 17-20m 180 1-5m/4u "May|June", 6-9m,
30u "five|six", 31u "about|ounces" 181 6-8m,
10-13m, 15-23m, 21-22m 187 20m 206 14-
18m 309 24-27m 370 35-37m 371 3-8m, 34u
"zigzags along", 35u "zoo|zee" 372 4u "Air-
goat", 16-17u "amuse|more", 25-29m/25-26u
"Wel|has", 27u "by|only" 422 5-21m/9-12w
American Bird 446 12-14m, 33-37m 476 16-
20m/w wader very wide Rangers 537 27-
28m/27-28u "betaking|ease" 545 24m 550 35m,
36m 572 3-7m 573 18-29m 574 17-19m 576
13-15m 580 18-24m 587 25-27m 593 23-28m,
30-35m 606 27-30m 611 25-31m 614 24-27m
617 27-34m 627 27-29m 632 17-39m 639 18-
21m/19u "obtuse|knobs" 651 23-27m/Q 665
10-14m/Q 671 11-14m 678 38-39m 687 9u
"eighteen|feathers", 12-15m, 16u "twenty"

vol. 5 NB Lestris, Gulls & Terns, female like male, except generally smaller - very white Birds - Oceanic

p.226 Princeps tuft on Head & Raff in female rather smaller

228 Merganser crest do

Puffin, Razor-Bill, Cormorants, Uria, Gannet males = females

70 Double-Moult of Pintail within less than 2 months

223 Merganser Moults & makes an appr to female

(reckoned one of most extraordinary facts in Nature)

31-40 ♣ tooth-formed ♦ conical reversed teeth Merganser first Entry

SB1 36; 39; 69; 64; 58; 51; 38; 59; 114 wd fly to water & might be killed there.; 205; 247; 255; 272; 279; 500; 518, 546 vary same way in same genera; 550; 577; 596

SB2 □β

36 Wild Duck, thinks flight 100 miles per hour

69 Pintail Teal & Wild Duck (p38 seeds ♣ feed on p64 other Ducks p.114 p51/58/six species of Ducks p255 Even Grebe eat seeds. 272 do 278

89 Wigeon has bred with Pintail & Common Duck

247 Grebe, tail a mere tuft of down. How is Coccyx - see Brit. Mus.

518 variation with age & almost disappearance of hind Claw in Kittiwake

550 change in Stomach of Raven when kept on vegetable food, & so in Gull, as I understand in times of year, when it feeds on seeds.

577 colour of outer Primaries vary in same way in 2 species of Gulls & in allied Gavia p.596

34 6u "and|coloured", 10u "speculum|male", 23u "24th|May", 28u "23rd", 30-34m, 30u "6th|July", 34u "10th", 31-32w about 3 months 36 8u "Seeds|gramineae", 30-33m 37 1-6m 38 31u "and|spawn" 39 22-26m 51 36u "seeds|grasses" 58 10u "aquatic|seeds" 64 4u "seeds|gramineae" 69 4u "seeds and" 70 2u "by|August", 8u "of|September" 71 8-11m 73 34-38m 89 14-17m 112 20-27m 114 29-32m (Temminck)/30u± 129 10-16m/12u "with orange"/13u "bluish-white patch", 17u "plumage|blue", 20-21u "plumage|black" 134 13u "unguis", 14u "sides|orange", 15u "upper|yellow" 140 13u "upper|yellow" 199 13-16m/14-15u "conical|backwards", 28-31m 205 26-30w It might be worth examining note 30-33m, wb Goosander: ♣ M. serrator Dundiver: M. castor or M. Merganser 207 18u "head|black" 208 5u "bill|duller", 6u "reddish-brown", 8u "upper|grey", 10u↔ 210 31u "scapulars|long" 211 22-25m/25u "scapulars" 213 20-22m/20-21u↔ 214 27-33m 223 17-21m 247 31m/w How are Coccyx 255 35-36m 266 31-33m 272 10-11m/10u "seeds" 279 7m 326 9-10u "a|white" 327 7Q 11-13w see Grebe p.107 13-16m, 24-27m/24-26u "Eye|half" 328 2-5m/Q 329 10-11m, 12Q 14-16m (Yarrell), 19-20m 330 22-24m/Q 331 12u "prevailing|white", 17-19m/18u "plumage|on", 19-22m 436 34-39m/35u "body|pale" 500 34-39m 508 17u± 509 1u "Young|at", 2u

"plumage|brownish" 515 18u "black|grey", 20-21u "except|grey", 22u "head|pure" 518 1-15m 525 19-25m 546 25-30m/27u "unless|quills" 550 19-22m 577 34-37m/36u "the|primaries" 584 15-18m 585 3w L 596 11-14m

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beh, dg, gd, is, oo, no

NB 176; 310; 387; 388; 412; 462; 468; 470; 474; 476; 480; 482; 487

SB □β

310 on massive mountains descend lower than on isolated mountains; & sometimes will be quite absent on such isolated mountains - Perhaps shows that a mass of same species necessary to keep up stock.

474 Deer swimming for isld 12 miles distant
476 Degeneracy of Deer owing to best Stags being killed

176 10-12m 310 19-32m 387 22-23m 388 29-31m 389 5-8m 412 11-14m/11u "var. scotica" 462 2-7m (Bonaparte) 468 7-15m, 18-21m 469 30-33m 470 6-9m 474 19-21m 476 16-20m, 28-36m 480 33-37m 481 14-17m 482 20-22m 487 29-35m

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vol. 1, NB 3

2 36-43m 3 1-5m, 11-15m, 20-25m, 27-32m
vol. 2 ϕ

MACKINTOSH, James *Dissertation on the progress of ethical philosophy* 2nd edn, preface by W. Whewell; Edinburgh; Adam & Charles Black; 1837 [CUL, S]

beh, h, he, t, v, y

NB Whewells Preface good Abstract

56 to 68; 97; 103; 113; 129; 151; 152; 164; 188?; 194; 196; 200 The remarks on Butler contain the cream of Sir J's opinions; 224; 231; 233; 234; 239; 240; 248; 251; 254; 255; 257; 261; 262; 265; 272; 326; 328; 333; 346; 348; 356; 359; 364; 368; 375

16 ought 231 Man Chapt
377; 380; 382; 397

16 3-6m 41 4-5m/!/5u "moral sense" "invariably", 11-14w but why the separate parts? 56 6-11m, 20-21m 57 3-4m, wb A pointer ought to stand 60 16-18m/? 62 8-12m 66 1-4m 97 1-2m 103 4-12m 113 1-11m 128

w∅ 129 15-20m/11-31w∅, wb even our true taste is pleasant ♣ according to habit 131 5-27w∅ 135 13-17w∅ 141 8-26w∅ 151 11-26m 152 1-8m, 12-13m, 17-20m, 26-30m 153 1-11m 164 22-26m 188 16-28m 194 1-7m/4-5?, 12-14"..."/m/w if so, my theory goes.- in child one sees pain & pleasure struggling 196 9-13m 198 11-15m, wb~~z~~ How can cowardice, or avarice or unfeelingness be said to be dispositions leading to action yet conscience rebukes a man, who allows another to drown without trying to save his life.- 199 24-27m/!/26u "desire", 26u "will"/27u "conscience", 29-30m 200 30u "with direct" 201 1-2m/?/1u "action|will" 224 9-18m (Hume) 231 11-14m, 15-17m 233 11-14m 234 2-12m/4-7w common to animals 240 1-7m, wb Try whole question with the breaking mere rule of etiquette 248 6-10m/w Try theory of place in brane 251 33-35m/w/wb See Brit Museum 254 21-24m (Hartley)/23u "perception and emotion" 255 6-15m, 16-25m, 26-31m (Lord Kames) 256 13-18m 257 18-29m/18-22w common to animals hence love of Place.- x wb x will not explain love of parent to child - except hereditary.- 261 22-29m/23-24w rather instinctive 262 26-30m 263 11-14m, 26-30m 265 17-21m/19u "almost instinctively" 267 5-12m 272 17-22m/17-19w with respect to life 17w music? 21-24m 326 7-13m 328 4-8m 333 12-26m/23u "impel the will"/22-28w can the instincts of bird building nest be said to impel will.- 25u "emotions"/wb yet emotions are results - are trains of thought long ♣ associated with action 346 25-28m 348 9-17m 349 25-29m/28u "is|remembrance" 350 1-6m/1-4w so in birds it is 353 7m/u "moral approbation", wb certainly independent of conscience which applies only to one self.- ?sympathy? yes because one feels the pleasure for others which one would have felt, if one had done it oneself 355 5-15m 356 8-24m 357 6-7u "beneficial tendency" 359 1-17m/3x, wb poor attempt to account for beneficial tendency being test of virtue 364 26-30m 368 7-19m 372 1-5m/1-2w assumed 10-30m/17-19w poor 373 11-13m/12-13u "resentment|our" 375 15-24m 377 wt Nonsense - similar association may be made with actions, involuntary as & etiquettes of society broken unconsciously.- 1-7m, 14-21m/?!! 378 wt All this applies to moral approbation but scarcely to conscience, which 1-13m 379 20-23m 380 21-27m/23-24u "contact|were"/w trash 27!!/u "mental contiguity", wb because the primary instinctive feeling tends to action like an emotion.- 381 8-10w here considered as

MACKINTOSH

unity *wb* Emotions having been formed by actions will always lead to them.— 382 1-7m/2u "beneficial tendency"/3-4u "that | sentiments", 12-30m/19-20w poor 383 2-19m/7-8w poor 385 zb 397 3-5m/?, 6u "perfectly", 7u "different spheres"

MACKINTOSH, James *The history of England* vol. 1, Lardner's *Cabinet cyclopaedia* London; Longman, Rees, Orme, Brown & Green; 1830 [CUL, on B, S]

NF *cc*

MACLAREN, James *A critical examination of some of the principal arguments for and against Darwinism* London; Edward Bumpus; 1876 [Down, I]

NB O/

MACLAREN, James *Natural theology in the nineteenth century* London; Edward Bumpus; 1878 [Down, I]

MACLAREN, James *Some chemical difficulties of evolution* London; Edward Bumpus; 1877 [Down, I]

12 3-5m ♦

MacLEAY, William Sharp *Horae entomologicae* London; S. Bagster; 1819 [CUL, pre-B]

32 31-32m 42 22-26m (Latreille) 289 4-10m/5-6m/6u 291 30-32m 321 4-20m 447 17-23"..."

McLENNAN, John Ferguson *Primitive marriage* Edinburgh; Adam & Charles Black; 1865 [CUL]

beh, ch, h, he, hl, no, sl, ss, sx, v, y

SB (3 sides, ♦)

M'Lennan *↔* All Used

22,30 It is clear that brides purchased, but man wd choose prettiest— except when bought mostly young.— It will depend on forms of inheritance common to Man, whether females alone or both sexes affected

31,40 —choice in woman— Fuegians Pages marked

74,76 *↔* choice— Betrothed does not keep woman

45 no choice *↔* when captured 50 No Bates

95 *↔* 122 intermarriage incestuous

118,120 *↔* Exogamy keeps distinct tribes similar opened to sexual selection.

166 165 — origin of infanticide to lessen number of Women. to 208 good summary on Polyandry ♦ & exogamy.

As yet idea ♦ of ♦ practice of avoiding incest not explained, probably arose in time of monkey-men

The scarcity of Women from infanticide of females leading to *↔* to promiscuous intercourse & polyandry, wd make the selection of women very difficult— ● had Men wd then be selected— p.176 (Promiscuousness a grt difficulty)

(*over*) *↔* There must have been a time judging from lower animals, when men did not forsee, when there was not infanticide & when sexes equal, & then sexual selection wd come in & only occasionally since, at least when general licentiousness or polyandry prescribed.—

⇒ p.288 I cannot help doubting whether lesser number of females owing to infanticide was so common as to make so many tribes exogamous.—? Extension of feeling for a cross — where close interbreeding in small tribes — passion — instinctive for foreign blood.

Effects of Habit for Explanation of Younger males — or instinct—

(*over*) Guiana kill most female children bring up about 1/2

& Abortion, which wd destroy both sexes

& Abipones

& many tribes

It does seem rare to kill females alone

24 4-5m/4u "bargain" 30 13-16m/13u "Kalmuchs | price" 31 17-29m 32 1-4m, 12-15m/13u "price" 40 9-13m 45 4-8m, 21m 46 6-10m 50 6-17w why not a father receive money for parting with his useful daughter? 57 4-14m 66 *wb* There is no evidence as yet that men might not marry in own tribe.— if they lost their wives they would steal others 74 14-16m 75 13-14m 76 5-6m/5u "celebrated | beauty", 19-21m 95 13-18m 99 10-15m 102 12-17m 103 2-4m 118 7-12m/w Keep tribe similar 120 3-8m 121 10-15m, 14-15m 122 9-11m 130 5-10m 134 6-11m 138 13-18m 139 5-13m, 21-23m 140 *wt*/1-3w but if all tribes killed their daughters how is this possible? 3-9m 146 4-7m 147 16-21m 148 1-4m 151 7-11m 159 1-4m/w Gorilla 162 3-5m 163 1-3m, 14-17m/?, 18u 165 6-14m, 7-13m, 10-13m 166 1-7w More Males killed in War 8-12m, 12-15m, 13-15m, 18-20m 167 2-5m, 6-8m, 9-11m/?, 12-14m 168 7-11m, 16-18m, 20-22m, *wb* Fuegians 170 1-7m, 7-9u "The existence", 7-9m/8u "assuming", 9-10m 171 7m/?/u "We | promiscuity", 13-15m, 16-21m, 17-21m 172 3-6m 173 3-7m, 5-9m 177 *↓w* There may

have been a stage with infanticide & other stages of almost promiscuousness 5-8m, ↑5-1m, wb Judging from the lower animals, I cannot persuade myself that at any early times powerful Men would not get more wives & ● 178 2-7m 179 11-14m 180 1-8m 181 8-14m 190 19-21m 193 18-20m 194 4-5m/3-16w Has there been so much infanticide??? See the Chapt. on infanticide.- 197 5-8m 204 5-7m 207 1-6m, 7-9m, 10-15m 208 wt can this account for races formerly modified & then being stationary: but now acting a little 1-10m, 6a "earlier" but not earliest 7-9u↔, ↑9u "artificially", ↑5-3u± 209 1-7m, 10-13m, 16-19m 210 2-7m/3u "practising polygunia", 7u "originally promiscuous"/?? 211 1-2m, 3-6m 212 1-7m 213 12-14m 223 8-18m 225 1-4m, 7-11m 228 14-19m 229 10-15m 230 7-10m, 12a "of" foreign 12a "stocks" within the group 233 1-4m 245 1-5m 251 2-7m 270 12-20m 288 5-14m/1-13w but it wd hold to female, with which each man was familiar 289 12-16m

McLENNAN, John Ferguson *Studies in ancient history, comprising a reprint of Primitive marriage* London; Bernard Quasitch; 1876 [CUL, I]
beh

NF (pp. 133-34 of *Nature*, 14 December 1876; review of this book)
133b 8-12m, 26-30m, 33-37m 134a wt I think McL always believes that Lubbock implies by marriage monogamy 3-10m]

MACQUART, Justin *Facultés intérieures des animaux invertébrés* Lille; L. Daniel; 1850 [CUL]

beh, em, h, he, ig, no, or, phy, sp, sx, tm

NB p2, p6, p10, p14, p95, p111, p112, p149, p210, 218, 230, 243, 264
a miserable Book

SB 2 Condillac on Instinct being only Habit
NQ

6 Duges definition of instinct, as Hunger & c-Reflex action; True instinct NQ

14 Flourens Reflexion distinction of man NQ

210 Instinct of larva of *Meloes* hard to account for by gradation NQ

218 Larva of *Hydrophilus* shams death, as does one species of *Zygaena* NQ

2 26-30m/29-30u "cependant | toujours"/wb Hereditary Habit. 4 11-12m 6 22-25m, 27-33m 7 7u "Dugès"/w What written? 15-20m/16w Reflex action 31-34m/w True instinct 10 12-13m 12 1-6m 14 5-6m 95 17u

"d'Hermaphrodites | Androgynes", 17w What difference? 111 19-31m/30-31m/wb They can do more, or as much, with fewer organs.- 112 8-13m/9u "sans | efforts" 149 1-2m 210 7-11m/w How did this instinct come? 13-18m/w Human cases show that larvae can survive & live 218 31-33m 230 26-30m 243 1-15m 264 4-11m

MAGNUS, Paul Wilhelm *Beiträge zur Kenntnis der Gattung Najas* L. Berlin; Georg Reimer; 1870 [Linnean Society of London, I]

9 zt 11 14m/c€ 33 16-18m 36 11€ 37 ↑20m, ↑15m, ↑10m 45 6-12m 61 10€ (CD?)

MALLERY, Garrick *A collection of gestures and signals of the North American Indians* Washington; Government printing office; 1880 [Down]

MALLERY, Garrick *Introduction to the study of sign language among the North American Indians* Washington; Government printing office; 1880 [Down]

MALLERY, Garrick *Sign language among American Indians, compared with that among other peoples and deaf-mutes* Washington; Government printing office; 1881 [Down, I]

MALM, August Wilhelm *Göteborgs och Bohusläns Fauna, Rygggradsdjuren* Göteborg; Göteborgs Handelstidnings Aktie-Bolags Tryckeri 1877 [Down, I] ø

MALTHUS, Thomas Robert *An essay on the principle of population* 2 vols., 6th edn; London; John Murray; 1826 [CUL, pre-B but S in vol. 1 C. Darwin April 1841]
beh, ex, f, h, no, oo, ta, y

vol. 1 NB In the *British Critic* or in the *Critical Review* for 1804 Review of Malthus by W. Taylor of Norwich
(Savages purchase wives - get arms & tools)

(Expelled natives with no stones near death)
5 Increase in U. States; 6 According to Euler
SB1 3; 29; 23; 41; 81; 343 Doubleday; 499; 517; 519

SB2

3 Malthus & Franklin saw the law of increase in animals & Plants clearly

23 Allows increase of some very population may be ♣ prevented by powerful & obvious checks.

343 Force of life in each country in inverse ratio to Fecundity (Doubleday)

MALTHUS

517 On Doubling in U. States in 25 years
(Also attached, a letter to the editor of the Times)

2 21-22Q 3 3-6m 5 12-16m, 21-25m 6 10-14m 23 30-32m 29 *wb* Even in savagest life some preventive check, for all savages do not marry quite young, have generally to purchase wife & prepare tools and implements.- 41 15-17m 81 12-18m 343 *wt/1-4w* This is much the same as to say well-fed are less fecund.- 7-9m/!, 22m/u "mosgt | countries", 27m/u "M. Muret", *wb* give note after Doubleday 344 4-6m, 15-17m, 22-23m 352 23-28m/24u "487|379", *wbee*, *wb* preventive checks come into play.- 353 9u "preventive check" 499 6-8m/w & animals 517 10-19m 519 14-18m, 22-24m 521 16-18m, 22-27m vol. 2 ☉

MALTHUS, Thomas Robert *An essay on the principle of population* 6th edn; London; John Murray; 1826 [vol. 2 only; Down, pre-B, ED]

(markings presumed to be by ED)

MANTEGAZZA, Paolo *Fisiologia del piacere* 5th edn; Milano; G. Bernardoni; 1870 [CUL] beh

NB Like dog not wagging tail when it gets food

119 1-14m 483 1-11m, 15-18m, 17-20m, 22-30m 484 7-9m, 15-16w illust.ion 26-34m 485 1-5m, 7-11m, 12-16m, 17-20m, 22-29m, 30-34m 486 1-34m 489 3m/w 6 491 28-34m 492 8-9m 497 3-8m 522 7-10m, 12-17m, 26-30m, 31-34m 565 17m 567 14m

MANTEGAZZA, Paolo *Fisionomia e mimica* Milano; Fratelli Dumolard; 1881 [Down, I] ☉

MANTEGAZZA, Paolo *Rio de la Plata e Tenerife* Milano; Gaetano Brigola; 1867 [CUL, I]

beh, h, sx, t, tm, v

NB ♦

[Seeing what a passion for ☉ it is strange that races of man not more altered.]

65 87 92

Q 162 163 166-67 186-87

320-325 334 352 389 391 453 457 458-9 463 465 525 to 546 615 624 676X

tembeta

American & Negro Beards

☉ 525 Exaggeration of what he has from nature.

(526 Beards)

529 teeth ☉

530 - & ☉

Nose in all parts of World

525-546 tattoos & ornaments

19 4-5m, 9-10m 20 2-10m 52 24-27m, 30-32m, 34-36m 57 13-14m, 24m 65 15-36m 66 1-35m 71 16-18m 87 30-36m 88 1-37m 92 26-34m 93 14-36m 94 16-35m 162 14-25m, 27-36m 163 18-24m 166 25-36m 167 1-22m 186 23-36m 187 1-4m, 5-15m 320 33-36m 321 1-36m 322 15-19m, 24-35m 323 1-4m, 6-16m, 18-36m 324 1-34m 325 1-21m 334 12-36m 335 1-5m, 8-36m 352 29-36m 353 1-10m 389 12-16m 391 21-36m 392 2-6m 453 34-36m 454 1-36m 455 1-4m, 5-10m, 13-17m, 21-36m 457 29-31m, 33-36m 458 1-36m 459 1-5m, 9-12m, 16-20m, 24-35m 463 5-7m, 10-14m, 21-36m 464 17-31m 465 6-11m, 16-35m 511 15-19m 525 21-30m/23-28w Man always exaggerates what he has 526 1-24m/7-9w Calmuks beardless 16-17m, 16-27w New Zealand No woman for Hairy man. *wb* As from T. del Fuego to Vancouver Isd (Sproat) ie Lat to Lat New Zealand the natives eradicate the beard - not likely to be merely handed down fashion or custom; but dependent on the general principle of man exaggerating natural characters. 527 4-21m☉ 528-546 (m☉ on every page except 542-544 inclusive) 528 1-20w deformation of Head (also Mentioned by old Classical writers) 529 15u/wt, 15-18m/w women 18u/wt, 24u "Alto Nilo", 25-26u↔ 530 8-10m/9u "aver|cani", 21-22m, 24w Nose 531 23w Lips 532 22-23m/u "donnel|inferiore"/w women 533 wt lower lip 4 inches in diameter 1-3m/x/3u "quattro|diametro", 24-31m, 24-31m/→/24u "tembeta"/30u "con|gioia"/wb curious account of man who sold his tembeta from lower lip & was ashamed of hole left & all laughed at him.- 534 2-5m/w women with upper lips perforated 19u "Zenzibar"/w Ears 27u "Negri|australi"/w Ears 535 6u "Bali"/w Earring 8u "Nepal"/8-9w Nepal earring 12u "Car-Nicobar"/w Ears 24-25w New Zealand Earring 536 wt It is curious that face far more operated on than rest of body - in same way as we think more of beauty of face than rest of body.- 15u "qualche|spalle"/14-18m/w Ears distended to touch the shoulders.! 28u "vanità", 29u↔, 27-34w Motive for tattooing- add sign of tribe & High birth 537 wt It is curious how in all parts of world, Men paint & tattoo themselves - & perforate their ears - In Africa & America both lips are perforated & distended - Every part of face in some part of world is

perforated— lips cheeks all parts of nose.— 5-6m/6-7m/5-9w old Jews tattooed & Ancient British 19u "Nuova Zelanda"/19-21w New Zealand & Pacific Isds 28-31m/30u "donne | tatuatoe", 30m/31w women less tattooed 32-33m/u FN 538 1-5m, 3u "Nuova Caledonia"/3-7m/w New Caledonia tattoo 6m, "Non-hiva", 10m/11u "donne | godono"/10-16w Tattoo but not women except partially 539 9u "Novao Goda"/11u "meno | faccia"/9-11m/w face not tattooed 26-27m/27u "Giapponesi"/w Japanese tattoo 32u ♦/30-32w women only powder themselves 540 wt Women of high birth in some cases allowed to tattoo most.— 1-3m/w Hindoos 6-8m/7u " | tatuano"/w Burmans 13-15m/w sometimes the women 23u "Etiopia"/24-25u "strappano | e"/24-26m/w tattoo & pull out eyebrows & paint lines 5m/wb Tembeta 541 wt (a) Africa tribe-marks also Royal marks (not ●) 1-9m, 11-12m/11u "donne | unghie"/11-16w colour nails & so in several parts of Africa 18-22m/w (a) 542 wt Women of Kattivar tattoo arms & chin & are thought ♣ irresistibly attractive.— Men. My case N. Zealand or Tahiti 2-3m/u "anne- viscono | labbra"/w paint? ♣ Eyelids 5-7m/6u "son | attrattiva"/w (a) 8u/wt, 18-19m/18u "In | hanno"/20u "Esquimesi"/w women & men 26m 543 1-36w They paint themselves in the most diversified manner with various colours — as is notorious.— 11u "vicini | o"/12u "sempre | agli"/10-16w S. America tattoo & paint thinks not for beauty but to look terrible 28u "è | livrea"/26-31w The slaves of same master paint in same way as Livery. 33m/u "tatuano" 544 1-2m/1u "invece | si", 9u "abipone", 11u "quando | nubili", 10-13w Women paint themselves when marriageable 19u "tatuaggio", 21u "la | donne", 20-22w virgins of women 26u ↔/25-28m/25-31w Chief of S. America much tattooed in face 545 4-22m/8u "quelle" 546 1-5m, 11-16m 588 25-26m 589 1-3m, 4-22m 594 29-33m 611 17-25m 615 7-8m, 11-16m 621 12-19m 623 23-28m, 31-36m 624 14-17m, 19-36m 625 1-18m 645-647 ♂, m/wt 676 7-32m

MANTEGAZZA, Paolo *Studii antropologici ed etnografici* Firenze; Tipografia dell'arte della stampa; 1877 [Down, I] ♂

MANTEGAZZA, Paolo *Il terzo molare nelle razze umane* Firenze; 1878 [Down, I] rd

NB Shows that the wisdom tooth is really being rudimentary

MARCHAND, Étienne *Voyage autour du monde* 5 vols., introduction by C.P. Claret Fleurieu; Paris; Imprimerie de la République; 1792 [Down, pre-B] ♂

MARSHALL, William *Minutes of agriculture made on a farm of 300 acres of various soils, New Croydon, Surrey* London; J. Dodsley; 1778 [CUL, pre-B, I]

MARSHALL, William *A review of the reports to the Board of Agriculture from the northern department of England* York; Thomas Wilson & Son; 1808 [CUL, pre-B, belonged to Josiah Wedgwood]

ch, cs, or, sl, t, ta, v

NB Please do not rub out these numbers Ch. Darwin

50; 73; 74; 78; 80; 95; 97; 99; 115; 153; 154; 196; 200; 202; 295; 303; 403; 404; 406; 480; 487; 489

SB □β

78 Oats — varieties very transient

192 Origin of Potato Oat in Potato Field

200 On the want of Uniformity of the unshepherded sheep in different parts of England, whereas those within fences, each have uniformity — owing to crossing

295 Great attention paid to changing sets of Potatoes

406 Speaking of sheep, on common of Yorkshire "as they are mostly in small lots they can never be improved"

50 14m 73 25-31m 74 30-31m 78 9-11m 80 12-18m, 26-29m 95 1m 97 37-38m 99 17-20m, 25-27m 100 5-7m 115 29-36m 153 26-27u "by | advantage", 27-28u "are | disadvantageous", 38m/u "preserve | old" 154 21-23m 177 14-15m 192 5-10m, 12-25m 196 30-31m, 34-37m 200 8-18m, 25-31m/25-26u "Sheep | in"/Q₂ 201 14-19m/15u "p.199"/w Selection 32-35m 202 14-16m/x/wb x But it does not follow that the aboriginal stock varied like present mixed unshepherded sheep 22-24m, 27-29m, 37-38m 262 12-13wcc 295 wt 1808 8-9m/7-12w seeds or false bulbs? 20-21x, 26-27m, wb X Lancashire great authority in Potato crops 296 1-6m 303 9-10m, 11u "curl", 19-22m, 37m 403 12-18m/12u "which | on"/14u "plow | discernable" 404 17-20m/17u "be suited"/18u "soils | climates" 405 2-4m/3u "be | two" 406 19-21m, 38-39m 480 32-34m 487 27-29m/27u "mixed | two" 489 27-32m

MARSHALL, William E. *A phrenologist amongst the Todas* London; Longmans, Green & Co.; 1873 [CUL, S]

beh, ex, h, no, sx, t

MARSHALL, TODAS

SB p100 Infanticide

110 do & cousins marrying.-

193^h infanticide Britons194^h infanticide extinct with Todas

196 good evidence

204 Polyandry ^h among the [♣] barbarians surrounding the Jews212 Todas girls can reject a Man [♣] they are in a very primitive condition & the damsel bought for Buffaloes

225 Natives promiscuous union was aboriginal

228 causes of Polyandry

232 polyandry & female infanticide always together or the latter has existed

as number of sexes differ in animals there must be some other causes than infanticide

xi 26-28w O/ xii 22-23m xiii 16-17m, 23m

xvi 14-16m 1 zb 2 13-16m, 22-25m 8 ↑17-9m

81 17-19m 83 26-29m 99 7-10m 100 5-10m/

9u "Suspected" 101 5-8m 110 6-10m, 34-35m

111 3-6m, 13-15m, 17-30[...], 24-33m 123 15-

23m 124 21-22m, 23-24m 125 1-3m 136 7-

13m 142 15-18m 145 ↑4-1m 154 27-32m 160

↑1m 166 1-3m 176 6-10m, 12-13m 180 4-5m,

11-13m 193 20-22m 194 23-31m 195 31-33m

196 4-10m 198 19-23m 204 14-18m/w

Semites polyandrous 25-28m 206 6-9m 212

1-4m 213 28-32m 215 1-4m 225 7-11m 228

12-19m 229 6-9m 232 15-22m 260 1-2m 263

29-30m

MARSHAM, Thomas *Coleoptera Britannica* 2 vols.; London; J. White; 1802 [CUL, vol. 1 only, pre-B, S]MARTIN, W.C.L. *The history of the dog* London; Charles Knight & Co.; 1845 [CUL] beh, br, cs, ds, gd, h, he, hy, oo, or, sx, sy, ta, tm, v

NB 1 to 21; 18 cross Rabbit & Hare 52; 61 to 71; 78; 84; 104; 107 & 8; 114 to end

SB □β

14 Dog in Zoolog. Garden Q learned to Bark 18 Proc. Zoolog. Soc. Hybrid Hare & Rabbit I see M. doubts parentage of Richardsons Dogs

p.31 admits only a cross with such

51 Dogs of antiquity Q

63 Remarks on instinct : barking do. acquired

67 Yarrell Zoolog. Soc. Proc. on Hairless Dog toothless Q

104 First Dog affects subsequent puppies

106 Classification of all Vars Q

116 Esquimaux Q taking Wolves to improve Breed

146 Rough Greyhound aboriginal form QN

154 In Greyhound females smaller

180 On a Dog liking to catch carp & trout & M. Jukes mentions another Dog in Lapland - ch. 6)

203 African Dogs in Tower never bred Q

title page *wb* 1845 5 12-13m 7 6-8m, 15-16m, 25-27m 9 11-12m, 17-21m 11 3-4m 12 29-32m 14 10-11m/Q 15 1-2m 18 2-4m, 9-13m, 18-19m 19 9-12m 21 26-27m 31 6-17m 45 10-12m 46 4-7m 47 27-28m 49 13-31m/16-17u↔/25u "old turnspit"/27-28u "most dog" 51 3w peculiar 52 27-32m 53 11m, 13-16m, 14-17m, 18-22m/22u "and extant" 54 9-11m 57 2-3m, 8-9m/u "to|ears", 17m, 28m 61 3-7m, 19-20m, 23-24m, 25-26m 62 4-5m, 11-14m 63 15-23m/18-21"... 64 10-11m/"...", 27-29m, 29-32m 65 4u "is an acquired", 5-8m, 23u "all|scent" 67 2-4m, 9m, 18-21m, 24-30m 70 1-2m, 11-13m 71 ↑14-6m 78 1-6m 84 10-15m 104 21-24m, 26-31m 106 10-35m 108 5-8m 114 27-31m 115 13u "great|true", 21-24m 116 11-15m/14-15u↔ 126 21-25m 128 14-22m 129 13-18m 131 29-32m 132 21-24m 134 26-32m 136 9-11m 137 16-18m/17u "All|were", 21-24m, *wb* H. Smith *wd* say from crossing 139 14-15m/14u "smooth|sprung" 143 4-9m 146 20-30m 147 1-4m 148 1-2m 152 2-6m 153 26-28m 154 23-26m 155 16-20m 170 3-10w St Bernard Dog 9-15m 173 19-22m, 21-23m 176 27-32m 180 29-32m 181 *wt* Jukes mentions dog in Newfoundland 1-4m, 21-23m/22u "abbreviated" 192 13-16m 202 22u "Central Africa" 203 7-9m/8u "wonder|bred"/Q 14-17m/15u "related|hound", 18u "old Spanish", 19u "vigorous|active" 204 27-29m/28u "which|quarter" 205 1-5m 212 6-10m 215 5-6m, 22-24m 216 5-8m

MARTIN, William Charles Linnaeus *The history of the horse* London; Charles Knight & Co.; 1845 [CUL]

beh, fg, fo, gd, geo, gr, hy, is, or, phy, ta, v, wd

NB 28 to 50; 86; 97; 129; 134; 155; 159; 167; 169; 171; 177; 190; 202; 205; 208; 211; 212; 220; 221 to end

SB □β

41 Tarpan scrape snow with feet Q^h

97 Red-Back Horses only asinine in colour Q

129 Period of gestation differs very much. Q^h

134 Dappling in black, Bay & Gray Breeds Q

206 Striped common ass & Mule 212

207 Ass more variable than generally supposed: 3 breeds in Syria
222 Zebra Mules Q

title page *wb* 1845 6 14-23m 8 13-19m 10 18-24m 12 3-12m/w Brazil cases 16-20w Beavers 24-38w There are no regular strata, young enough 21 17-21m 28 39-40m 30 23-26m 31 19-21m 34 1-6m/3-4Q, 15-19m, 31-33m, 38-39m 35 5-8m, 32-38m 36 1-4m 37 2-6m 40 15-20m/12-17w ie real wild Horse 41 2-4w S. wind Falklands 5-8m/7x, 37-40m 48 1-3m 50 8-13m 62 30-35m 63 1-4m 86 3-7m, 35-39m 87 12-15m, 27-33m, 34-36m, 38-40m, *wb* Are horses found ♣ in Peat Bogs? 88 3-8m 89 1-5m, 6-9m 97 24-29m/25-26Q 129 6-10m/9-10Q, 25-30m, 40m 130 23-27w like Roulin mules 26-33m 134 13-16m/15u "still circles", 18-20m/18-19m, 23-27m, 31-32m 155 19-21m 159 33-41m 160 1-4m 167 6-9m/9u "mouflon ranges", 10-12w insular quadrupeds 169 19-23m/22u "several ponies"/20-24w not all aboriginal 29-30u↔, 34-37m 171 36-40m 172 1-4m 177 7-9m, 27-33m 190 34-39m 202 5-10m 205 14-16Q 16-17u "clouded ground", 18u "dapple", 26u "dorsal bar", 35-40m/Q/40u "double cross" 206 1-4m, 9-13m/Q 17-22m/18-19m/u "small breed"/21u "Syrian ladies", 28-29m, 34-36m 207 7-13m, 22-24m/m/24u "Arab", 25u "saddle", 40m/u "is stout" 208 2-4m, 7-9m 209 27-29m 211 2-4m/3u "Genesis xxvi" 212 4-7m, fig.Q 218 23-26m 220 21-24m/Q 221 19-24m (Thomas Bell), 33-37m 222 4-9m, 35-37m 223 7-9m, 11u "was dun", 18u "drab dun"/Q 23u "more down"/24u "side fetlocks"/22-25m/w Burchells Zebra & Ass

MARTIN-SAINT-ANGE, Gaspard Joseph
Mémoire sur l'organisation des cirripèdes Paris; J.B. Baillière; 1835 [CUL]
beh, af, ci, phy, sx, sy, tm

2 19w 1806 7 22-24m 8 24-25m 9 26-28m 10 1-4m, 8-10m 11 8-9m, 21-22m/w does not mention inner tunic of sack 25-28m/w are these muscles in 6 bundles 13 15-16m/16-20w Does not perceive homology 22a/u "seconde"/w double 23-24m/w all right 23u "en même"/24u "les une"/26m/23-31w does not state that this is the conum for inside of ● 32u/32-33m/w pedicel not articulated 14 11-15m, 21-24m/X, ↑1x, *wb* ♦ Does not describe much of pedicel of body- 15 *wt* Cirri power of separating from each other & two rows from each other 1-2m, 4-5m, 6-12w does not mention much of dorsal articulation 14-15w or their attchm to 2d joint of pedicel 22-24m/16-24w knows nothing about

apodeme or homology 28-30u±/w !! 4 pair, right Considers palpi as Mandibles 30u "langue"/wb ? & p.23 16 5u "une ligue"/?, 6u "muscle constrictor", 10x, 12w does not moulting 14-16m/w quite right 26x, 33x, *wb* a single caecum!! 17 7u "d'une enfoncemens", 9-12m/w I always have found loose. 16-18m/16-33w is not aware of the distinctness of rectum shown by moulting, for he does not describe the two coats - or two coats of oesophagus. *wb* I believe it contracts itself, when separated by the cloche of rectum 18 10-12m, 13-14x, 14-16m, 17-19m, 20-29w ie what I have called - oviduct - There is hollow in middle of pedicel of body 19 17-25m/x/18u "filet salivaire"/24u ±, 30-33m/x/w thinks legs thoracic!! *wb* is this owing to basal joint being confluent?! probably 21 2-4m, 11u "la queue"/10-11m/w No 16-17x 22 7-8m, 9-17w Male organs differ considerably from those of a true Crab. 23 23-24m/w this must be when agitated by fear 26u "petite langue"/27u "deux dernières"/26-29m/? 24 15-18m, 24-30w is edge of oesophagus fixed to stomach? I think so *zb/wb* ant support Dorsal support muscle attached to end of spoon & opening valvular mouth 25 *wb* Look at stomach of *B. candidus* - 26 28-30m/w in Polliceps too hard to contract surely.- 27 1-3m/2u "sur repli", 6-9m 29 1-11w Body generally bent a good character Articulation oblate except 5. posterior abdominal segments. 26-30m 30 26-27m 36 25-27m/w wrong 37 1-3m/w No 6-9m/8u "branchires"/?, 12w Yes 14-15m/w Yes 20u "autre part"/19-23m/w No 22-23m/w No 26-27m, 29w Yes 33u "sac membraneux"/w No 38 1-3m 41 9-11m Plates (parts of animals named)

MARX, Karl *Das Kapital* vol. 1; Hamburg; Otto Meissner; 1873 [Down, I] ϕ

MASARYK, Thomas Garrigue *Der Selbstmord als sociale Massenerscheinung der modernen Civilisation* Wien; Carl Konegen; 1881 [Down] ϕ

MASKELYNE, Nevil *Tables requisite to be used with the Nautical ephemeris* 3rd edn; London; 1802 [CUL, pre-B, on B, S]

NF *wcc*

♦ When barometer stands higher than the neutral point the Capacity is to be added: when lower it is to be subtracted
The logs at end of this book to be used.

MASKELYNE

NB *(a drawing)*57 *w* p.1 These tables are explained at end
62 *wb* ~~ccc~~MASTERS, Maxwell Tylden *Vegetable teratology* London; The Ray Society; 1869 [CUL]

he, mhp, mn, sp, tm, v

NB 29; 90; 320 phyllotaxis; 204 ✓✎; 340; 373; 404 ✓✎ Cleistogam flowers; 410; 424; 467; 472; 478 ✓✎ Pang; 483; 485; 486; 488 SB

✎ *(not CD)* Masters on Teratology

29 Cohesion of stamens in exaggerated degree as in normal species

29 26-32m 90 21-26m, fig. 42.m 91 1-4m 131 30-32m 204 12-20m 251 7-9m 253 24-26m 320 18-28m 340 3-13m 373 7-8w other cases 10-16m 404 2-18m 410 1-6m 424 30-42m 467 13-34m 472 27-34m 478 6-14m 479 2-14m 481 1-3m (Bentham) 483 20-22m 485 11-19m 486 16-29m 488 15-23m 534 zb

MATTHES, Benno *Betrachtungen über Wirbelthiere* Dresden; 1861 [CUL.1900] ✎MATTHEW, Patrick *On naval timber and arboriculture* Edinburgh; Adam Black; 1831 [CUL, S C. Darwin Apr. 13th 1860]

h, oo, sl, sp, t, ta, tm, v

NB 32 Oaks 2 vars or species sessile & pediculated

107 on selection of Forest-trees why not flowered

302 Occupancy like Herberts view of plants not growing in soil best suited to them

307 on Selection good Man interferes with law & this causes variation.

357 Size of English & Scottish acorns & quicker growth of tree from English Acorns

364, 381 Law of Natural Selection published in G. Chronicle April 7th 1860

⟨CD?⟩ 364-5, 381-3, 106-7

32 8-17m 106 5[... 107 6-19m 108 ↑11...] 302 14-25m 303 1-6m 307 24-26m 308 2-17m 328 30-31m 357 22-27m 358 18-21m 365 8-9u "more|kind" 381 5[... 382 17-21m/w too near to ● 29u "nearly|living" 383 1-4m, 27-29m 388 10...]

MAUDSLEY, Henry *Body and mind* London; Macmillan & Co.; 1870 [CUL]

beh, h, he, mn, pat, sx, t, tm

NB1 ♦ p.48 Hand of idiots – thumb not used in

NB2 p51 Idiots smelling food see Scott Deaf

& Dumb – p86 ♦

p7,8,10 & all 1st Chapter

53 Savage snarl – Selection

p47-49,51 Reverse idiots Hair After Vogt & idiotcy

p.55 Brain weight

59,60 Moral Sense

62 ♦ Brain Wanting parts

All referred to proper places

p10 ♦ Savage snarl of Habitual Microceph○ Insane Reversion

p29,p85 Devotion

2 9m, zb 7 6-18m 8 3-7m/3-13".../8-13m 10 28-30m/"..." 11 7-11m, 14-18m 12 7-12m 13 1u "ganglionic nuclei", 2u "are|with" 28 29-30m 29 16-22m/19w devotion 30 5-9m 31 19-23m/23-25m/20-29w like other secondary sexual characters 41 3-7m 47 10-15m, 19-27m 48 23-24u "often|hands", 25-27m/27u "short|cheek", 30u "filthy" 49 16-22m/17-18u ↔ 50 29u "dirty in" 51 3-7m/3-4".../Q 24-29m, 29-30w smelling 30-32m, 32-33u "his|smell", 35-36m 53 1u "savage snarl"/1-3m/Q 55 10-16m (R. Wagner) 59 1-18m/7w H. Spenc 60 4-8m/5-7".../wt/1-7w sympathy & social affection deteriorated wd suffice 62 ↑3-1m/w○ wanting parts 67 zb 85 11-14m

MAUDSLEY, Henry *Body and mind* London; Macmillan & Co.; 1873 [Down, I] ✎MAUDSLEY, Henry *The physiology and pathology of mind* London; Macmillan & Co.; 1868 [CUL]

beh, h, pat, phy, sl, sx, tm

SB1 → Man

Maudesly on ♣ ⇒ Mental Phys; p.220 p.19 p311 imagination

54 Brain of Bushwoman

108 Language & Expression⇒

– Good

SB2 → Maudesly on Insanity; ♦ Expression; 103; 104; 109; 148; 158; 160; 193 (?)

SB3 □β

19 Man; 54 do; 72; 89; 103 Use increasing sensitivity of senses; 104 Instinct; ♦ 108 Origin – term of Natural Selection –; 109; 132♦ Man (good) Q; 148; 158 Expression; 160; 193; 220 Man (Imagination); 311; 199 Laura Bridgman The tongue grt organ of speech

Look over

✎ Slips all put in proper places

19 28-34m 54 9-20m 72 8-14m, 21-25m 89 25-30m/26w Drosera 103 12-20m 104 26-34m

105 34-39m 109 8-12m 125 28-37m 134 30-31u "of|places"/32u "senses|again"/29-33m/w looks as if man gaining more perfect smell 148 7-10m 149 19-21m/!/20-21u "self-expansion" 158 32-34m, 35-39m 159 13-17m 160 11-15m 193 31-39m 199 14-20m, 27-36m 220 ↑3-1m 311 18-24m (Coleridge)

MAUDSLEY, Henry *The physiology of mind* London; Macmillan & Co.; 1876 [Down, I by publisher]
beh

NB 384 Expression
270 19-20m 384 31-36m 385 5-6m

MAWE, John *Travels in the gold and diamond districts of Brazil* new edn; London; Longman, Hurst, Rees, Orme, Brown & Green; 1825 [CUL, pre-B, on B, S Chas. Darwin Octob: 1832 Buenos Ayres]

18 27u "fazenda"/w Brazilian

MAXWELL, James Clerk *Matter and motion* London; Society for promoting Christian knowledge; 1882 [Down, FD]

MAZAROTZ, Jean Paul *La Genèse des sociétés modernes* Paris; A. Lévy; 1877 [Down]

MEDLICOTT, Henry Benedict and BLANDFORD, William Thomas *A manual of the geology of India* 2 vols. and a vol. of maps; Calcutta; 1879 [Down, I]

MEEHAN, Thomas *The native flowers and ferns of the United States* 2 vols.; Boston; Prang & Co.; 1878 [Down] ☉

MEETKERKE, Cecilia Elizabeth *The guests of flowers* London; Griffith & Farran; 1881 [Down, I]

MEITZEN, Ernst *Bhawani* Leipzig; E.H. Manen; 1872 [Down]

MELIA, Pius *Hints and facts on the origin of man* London; Longmans, Green & Co.; 1872 [CUL]
beh, pat

NB p.47 can these statements be true? Deaf & dumb do not know what right & wrong is As dogs have social instincts it is incredible that deaf & dumb shd not – though I daresay they do not know what is called right or wrong

☞ But no doubt they may have social instincts & family affections which wd prompt them to right action.

47 18-23m

MENGOZZI, Giovanni Ettore *Della filosofia della medicina* vol. 1; Livorno; Scuola italiana; 1869 [Linnean Society of London, I]

MERRIAM, Clinton Hart *A review of the birds of Connecticut* New Haven; Tuttle, Morehouse & Taylor; 1877 [Down]
beh, ch

NB 52 Changes in Habit of Birds
52 23-34m

METZGER, Johann *Die Getreidearten und Wiesengräser* Heidelberg; C.F. Winter; 1841 [CUL]

ad, cc, ch, ds, gd, mhp, no, sl, sp, ta, tm, v, wd

NB N.B. The cases of grains changed from Summer to Winter wheats &c is rather a different course of variation from anything which I have hitherto considered; an self adaptive power

12; 24; 36; 47; 50; 54; 56; 63; 65; 66; 68; 88; 90; 96; 114; 116; 137; 185; 206 to 217

SB ☐☉

18 Summer & winter Barley differs only in constitution & easily goes back 54 Wheat do. – a self adaptive power, a habit –

24 Naked Barley changes into common

63 advocates change of seed in Germany

66 & 116 var varied at first, & then came more (20 years) constant being accustomed to climate 25 years This fact very important for shows yet accustomed to change.

69 a var. not injured by late frosts.

91 vars. variable in one climate not in others

116 so in different soils

114 a very constant var; many unconstant mentioned.

206 on Maize, difference in height & period of Vegetation; says American seed gives plants which become acclimatised & altered in form – Each land has its own form; form of seeds & number of rows differs.

208 Description of changes in Maize from American seed, 210 due to climate, so quick – Change in period of ripening. – Variation (p.212) comes on in Europe; & American vars. quickly take European Character.

217 very early Maize. [Believes all maize one species & gives reason for]

All used ☞

METZGER

title page wt 3 Herbaceous 4 oats 9 12w 1 12 1w 2 18 35-37m, wb no difference between summer & winter barley except time of sowing & ripening & will go back again (NB so it is in Mexico) 19 1-2m, 31-32u "eine|hat", wb might be quoted as constitutional difference with no external difference 24 4u "Wir|bemerkt", 6-10w changes in common Barley 32-36m/w naked seeds 27 1-2w 3 36 13-14m/u "weil|ausartet" 47 19-21w no Botanical difference 23-25m/23w changes 50 3-5m/4w changed wb to p.120 54 29-32m/31u "Aussaat|Frühling" 56 30-31u "Diese|Überzug", 31-35m 57 12-13m/12u "jedoch|sich", 27u "artet|Spielart", 28u "jetzt keine", 35→ 58 32-33u "ist|übergeht" 63 18-25m/w strong on advantages of change of seed 65 10-11m/10u "artet|und", 17u "Jahrhundert" 66 29-36m/w varied first year then became more constant 68 9-10m/u "grössere|Kälte" 69 14u "Spätere|Schaden" 88 27-28m/u "und|erscheint" 91 32-34m/35u "einen beständigen" → 92 1u "Charakter angenommen", 9u "wohl|beständigen", 17u "in|wechselnd", 18u "bald|länger" 96 21-24m 97 32-36m/w changes in colour of seed 114 17-18m/u "und beständig" 116 wt/1-16w we have seen that some varieties of wheat in a colder climate have been variable, so no relation to food 19u "günstigen", 20u "magerem Boden", 21-23m/21-24m/w variable for 25 years at last constant 35m, 38-43m, 38u "Seit|lang-jährigen"/41-42w variable 117 17-19m/18-19u↔/19m/wb I do not see that selection has anything to do with this 135 28w 1 137 wt many trifling cases of Variation not marked 8m/wt, 9-12m/w awns vary in presence ♣ 141 12w 2 145 1w 3 24w 4 185 13-14m/w 14 kinds of Rice 206 19u "dem|Jahrhundert", 24u/25u/27u/28u cc, 20-27w no plant more variable than Maize 29-32w vegetative periods 32-33m, 34u "selbst|Form", 35-38m, 39u "Da|besitzt", wb the longest-vegetation American kind sowed in our climate in gd year gives seeds which ♣ vegetate in shorter time & ripen seed, & the form & shape of seed alter & become like common German 207 13-15u "Reihe|Samen", 23m, 28u "eine Stammform"/24-35m/w thinks all maizes same species though some forms more persistent 208 <many m, u ♣> 6u♦/7u "Flach"/8u "kleinen Zahn"/8u♦/5-9m/w shape of seeds seems to vary greatly 10-11w 12 Unter-art. 13u "12 Fuss", 14u "oberen", 22-24m/22u "9|Fuss"/23-25m/21-26w some seed of 1st year seedlings departed from type 27-35u±, 28-36m/m 209 wt see Description

1-7m, 1-6m, 1-7u±, 8m/u "12|Samenreihen", 9u "länger|breit", 10u "Zahn", 16-18m/15-22u±/18-20m, 29-33m, 33-34w same variation as above wb two vars. returning into one.-) 210 3u "Engelmann"/wt good man 9-14u±/wt/1-18w [These are the most striking facts of effect of climate. 18-20m/18-22w no one wd really believe in such change 22u "Chicken corn", 23-24w a more constant form 26u "12"/25-28w rows of seeds differ 29u "ersten Jahre", 34u↔ 211 14-15m, 15-18u±, 24-25m/w long cultivation fixing forms 34u "starken|ausgehend"/32-35w seeds toothed 212 6-7u↔/w wet summer 8a/u/wt, 9u "Diese Spielart", 10u "zeigt|mehr", 18w (a) 20-22u±, 24u↔, 35u "rund|gewölbt", wb (a) Every variety seems to change in Europe 213 1-2m, 5-6m/5-11w thinks all the European Maizes descended from the two great varieties of America 15u±, 26m/u± 214 20-23m 215 10u "12-20", 15m/u "Stammt|Spanien", 20-30w 3 or 4 Spanish varieties 216 <u> 3u "unregelmässigen", 8u "die|beständig", 15u "verzweigten ästigen", 22u "Kolben|kurz", 23u "meist 12", 25u "Italien", 26u "Cinquantino"/26-27w Italian 217 9-10m/x, 14u "artet|aus"

MEYEN, Franz Julius Ferdinand *Beiträge zur Zoologie gesammelt auf einer Reise um die Erde* including

ERICHSOHN, Wilhelm Ferdinand and BURMEISTER, Carl Hermann Conrad *Beschreibungen und Abbildungen der von Herrn Meyen auf dieser Reise gesammelten Insekten* Breslau & Bonn; Verd. der Kaiserlichen Leopoldinisch-Carolinischen Akademie der Naturforscher; 1834 [CUL, S, on B]

gd

NB p.112 ♦

♢

62 24-26w ● middle Chile at most height & 63 4u "Insekten|Würmen", 6u "paarweise", 26u "Spiegel" 64 21-22m

♢

MEYEN, Franz Julius Ferdinand *Neues System der Pflanzen-Physiologie* 3 vols.; Berlin; Haude und Spenersche Buchhandlung; 1837-39 [Botany School, FD]

MEYEN, Franz Julius Ferdinand *Outlines of the geography of plants* London; The Ray Society; 1846 [CUL]

cc, gd, geo, gr, is, no, sp

NB Hooker says very poor & I quite agree <CD?> Meyens Travels Lichtenstein Martius Humboldt Treviranus Biologie Gaudichaud

SB1 3; 4; 40; 43; 69; 82; 93; 94; 95; 99 to end♦; 103; 187; 251; 253; 255; 256; 258; 261; 264; 270; 272; 323; 326

SB2 43 Trees *Cedrela* washed to Canary Isds from America viz *Cedrela*

103 Representatives of S. African Flora in Spain, according to Link

187 O/ 109 Genera in La Plata 70 Europe & 85 N. Hemisphere (& as few identical species there must be much representation, without these 85 genera are Mundane.

248 *Bejaria* in Florida in Lat 30° at level of Sea

255 very few genera confined to Alpine regions

256 Near Snow-line of Cordillera, the greater number of alpine plants are peculiar (very poor authority)

– Reinwardt says none of Java alpine plants identical with Europe (Hence at least vars)

257, 258 On American Alpine plants of Chile & some European forms

261 Fewness of plants on islands has been disputed by Schouw

3 24–26m 4 24–26m/? 40 19–22m 43 18–31m 69 15–18m 82 8–11m (*Humboldt*), 21–23m 83 6–7m, 26–28m 93 25–28m (*Schouw*) 94 30–33m 95 7–9m, 12–15m, 28–29m 99 11–13m, 21–23m 103 12–15m, 32–35m 119 2–4m 166 5–7m 187 33–35m 248 19–24m 251 13–14m, 22–23m 253 27–29m, 31–35m/? 255 17–20m, 23–24m, 25–26m, 27–29m, 29–33m 256 11–31m, 11–13m 257 15–24m 258 1–2m, 7–11m, 16–25m 259 5–8m 261 15–21m (*Alphonse De Candolle, Von Buch*) 262 21–26m, 28–31m 264 34–38m 265 1m 270 17–22m, 30–34m??/w V. Hooker 35w p.273 36–38m, *wb* i.e. under countries of similar climate, extant soil & height & inhabited by similar forms the proportions keep similar; this is curious.– 272 *wte*, 12–15m 273 26–38m, 36–38m 323 29–30m 326 11–28m

MEYER, Friedrich Albrecht Anton *Versuch einer vollständigen Naturgeschichte der Haustiere, im Grundrisse* Göttingen; Johann Christian Dieterich; 1792 [CUL, pre-B] tm, v

NB March 19th 1857; Nothing p.38; 98; 119; 125; 126

I have only skimmed after p150 for the whole a wretched compilation though it seems he is Entomologist

38 12–15m 93 7–12m/1–11w *Gmelin* skin on back *saccatus* 98 14–15m/w *Angora* Rabbits 119 18–19m 125 *wb* Molar teeth; 5 toes on hind feet; palmated feet; chief difference tailless 127 28–29m 128 14–15w *Pug*

MICHELL, John *Conjectures concerning the cause, and observations upon the phaenomena of earthquakes* London; 1760 [CUL, pre-B, S, I "the Author's Present", i.e. not to CD] geo, t

NB 16; 459♦; 70

10 vibration from same point; 16♦; 17 & 26 my argument used by Mihell; 46; 55; 58; 70♦

8 20–22m 9 1–2m 10 18–20m 11 13–16m 16 1–2m, 29m 17 1–19m 26 1–11m 35 5–14m 36 1–20m 38 28–33m 39 1–3m 46 1–10m 55 15–27m 58 4–19m 70 30–32m

MIERS, John *Travels in Chile and La Plata* 2 vols.; London; Baldwin, Cradock & Joy; 1826 [CUL, pre-B, S in both vols.]

vol. 1, vii 7m, 8m, 10m, 11m, 13m, 14m, 16m, 18m, 19m 383 21–32m 392 5w → → n 7–12z, 19–29m 393 1–7m 394 1–8m, 14–19m 395 1–2m, 6–7m
ø

MILLER, Hugh *Footprints of the creator* London; Johnton & Hunter; 1849 [Botany School] cr, em, geo, ig, sp, tm

9 1–2m 15 10–14m/12w Why not? 40 4–7m 46 3–8m 60 20–25m 68 6–9m!! 69 15–22m, *wb* What is embryonic Head of a Placoid or ganoid Fish 83 7–10m, 24–27m, 28–32m/*wb* This assumes no transition of such minute characters 84 1–8m 104 14–18m 105 4–7m/6w Devonian 107 1–4m 109 6–9m (*Murchison*) 133 13–14m 136 4–7m 144 15–18m, 27–30m 146 24–25m 147 25–27m 150 17–21m 154 1–5m 155 11–14m 161 9–15m/8–11w too few 162 28–32m/*w* good but too hasty.– 163 2a "early" p.161 1–5m/*w*t yet in Red Sandstone two kinds 166 20–23m 175 11–20m 179 21u "two"/*w* or three? 182 12u "*Brachiopods*"/*w* & Cephalopods 17–21m 193 19–24m 196 7–13m (*Lyell*), 14–17m 197 11–14m 200 16–25m 203 25–32m 204 1–4m 214 9–22m 215 3–7m 216 5–7m/*w* often cease earlier 7–10m, 10–16m/*w* decay when in sediment 13–16m 217 7–11m 219 22–23m 243 17–27m 280 19–20?

MILLER, Philip *The gardener's dictionary* 3rd edn, 3 vols.; London; for the author; 1748 [Down, vols. 1 and 3 only]

MILLER, William Allen *Elements of chemistry: Part 2, inorganic chemistry* 3rd edn; London; Longman, Green, Longman, Roberts & Green; 1864 [Down, FD]

MILLIGAN, Edward A. *Corn. Celsi medicinae libri octo* Edinburgh; Maclachlan & Stewart; 1826 [Down, S] ♂

MILNE EDWARDS, Henri *Histoire naturelle des crustacés* 3 vols and vol. of plates; Paris; 1834-40 [CUL]

af, ch, ci, cr, ds, dv, em, gd, gr, in, is, sp, sx, sy, t, tm, v

vol. 1 NB (on p. 468)

(Species Theory) p.6. p117. p.184,5

p191 – Hence Branchiae in the Podophthalm Crust. perhaps not so anomalous – not more a new organ than in Cirripedes.

196 p121; 227,8

SB □β

186 Newport says in Scolopendra mandibles first formed – Jaws formed before legs in Crustaceans

197 The changes which Crustaceans undergo when hatched are the "complement" of those within the egg

226-8 On 2 methods of classification; that of Cuvier impracticable (very good sentence)

title page u (author, title) 2 29-30m/30u "cinq|de" 3 1-2m/1u "sept paires"/2u "nommés antennes", 4u "coeur artériel", 6u "sont doubles" 6 2-5m, 30-32m 12 1-7m 14 25-27m 15 19-20m 16 4-6m/w V. ● 18 10-19m 19 2-3m, 6-9m, 13-16m/z/15u "généralement"/16u "ordinairement|dernier", 24-28m 21 6-8m 23 19m 27 7-9m, 16-20m 29 6-10m 30 28-32m 31 23-29m 40 15-16m 41 30-35m 42 21-22m 43 7-10m 44 1-2m, 5-8m, 14-29m 45 24-29m, 24-26m 47 2-5m, 3-4m 48 14-16m 50 16-18m 51 1-4m 55 14-16m, 26-29m, 30-32m 61 17-30m/19u "lame cornée" 62 1-4m, 6-8m, 15-17m, 19-20m 64 9-11m 72 25-30m 73 2-6m, 10-13m, 25-27m 74 4-6m, 11-13m 75 5u "Édriophthalmes", 6-9m, 28-29m 76 5-10m, 29m (Cuvier) 78 28-29m 79 12-14m 80 14-18m, 22-28m 81 12-13m/5-23w what difference in branchiae of Stomapods 82 29-32m 84 21-25m, 29-30m 97 15-18m 100 7-10m 104 17-20m, 22-23m 110 5-7m, 10-11m, 12-17m, 27-30m 114 23-25m/Q 115 8-10Q 11-18m/12w stemmate 116 1-2Q 5-7m/16-24m/w/w Larva of Lepas 10-13m 117 1-11m/w This must be case in Larva of Lepas 6-10m/7w Sp. Q 118 18-19m, 19-22Q 20-22m 119 1-2Q 5-8m, 20-22m 120 1-2Q 4-6m, 17-18m, 28-29m 121 1Q 15-19m/1-19w Species theory. 2 into 1 – into 2 into none 16-17w V. Daphnia 26-29m, 29-33m 123 12-15m/w the second pair are the exterior 128 31-32c/w 129 10-13m, 31-32m 131 21-23m 133 5-8m, 10-20w Cirripedes come near

Isopods 135 21u "nerfs"/→/28a "céphaliques", 29-33m 136 20-23m/21u "nerfs gastriques", 25-27m, 28m/u "forment|de" 138 9-11m/7-18w argues with ♣ cirripedes for 1st thora. goes to all pied machoirs &c &c. – Jaws &c 18-24m/w This is strongest possible argument that 1st cirrus is a pied mach 140 wb Pedunculated cirripedes in concentration about = to half way between Astacus & Palemon. 141 30-31m (Cuvier) 142 13-16m 143 8m 144 32-35m/34u "la Squilla" 153 1-8m 165 17-21m, 22-24m/w not in cirripedes 166 4-7m 168 25-28m 170 1-4m 184 21-23m/w mandible already formed 26m/23-26w ie 7 cephalic segment transformed 28-29m 185 wt Now irregular development does not proceed regularly from ant. to Post. end 4-5u/1-5m/w ie 1st thoracic segment X 24-27m, 31-32m 186 wt Brullé so far right. wt Newport tells me that in Scolopendra mandibles first formed. 3-5m, 4-6m 191 6-10m 196 25-29m 197 13-15m/15u "Complément" 198 9-12m 199 21-25m 200 2-5m 226 24-31m 227 1-4m, 7-28m, 8-10m, 33m 228 24-30m 231 24-28m 233 1-3m/1u "plusieurs séries" 234 9-11m, 12-17m 236 2w (1) 13w (2) 19w (3) wb (4) – Cirripedia 238 31-33m 239 1-3m, 11-13m 242 8-11m 253 10u "pates-mâchoires"

♂

vol. 2 SA (pp. 50-51)

p42; p50

♣♦ add 2 short-styled out of Orchard (over)

cc♦♣

♣ (Books of Rules)

♂

42 32-34m 50 17-20m, 27-28m 441 9-11m, 14m, 16m 444 4-6m, 5m, 6-7m, 8u "sept", 9m/u "conformés", 19-20m, 20-22m/20u "au|sept"/22u "le|de", 23-24m, 25-27m 445 4-6m/4u "Trois", 14-16m, 25-28m 446 2-3m, 10-14m 448 1m, 4-5m, 17-18m, 25-27m/w p471 46w p.489 449 6-7m/7u "Schiropodes" 450 1u "tous les", 3m, 10m, 17m 451 22-23m, 26-27m 455 29-32m/30u "soit|flancs" 465 5-8m/5u "aplati" 468 10-11m/10u "La|saillante", 14u "deux paires", 15u "paire de" 470 5-6m/5u "feuille", 24-25m 471 1m/u "dépourvues|palpiforme", 2m, 3-6m, 13u "sept|huit", 20-21m, 24m, 26-27m 473 7-9m, 9-10u "lamelleuses|apparentes", 15-24m, 20-24m, 25-32m, wb & 1st thoracic legs very small 474 6m/u "très-petites" 475 1u "ill rudimentaire", 3-4m, 10-11m, 12-13m♦ 480 25-27m/25-26u "pates|réduites" 486 22-23m 487 12-13m, 13-16w V. p.473 foliaceous 32-

34xx 488 7-10m/x/w Misprint 9-10m, 21-22m 510 20-22m

vol. 3 NB (on p. 638)

410 On Cirripedia

p412 Even in Copepods organ of generation in last thoracic segment

SB □β

555 Difference of Crust, in proportion to separation of area, other things being equal
561 only 2 or 1 Endemic Crustaceans at Canaries Isld

567 Individuals of same species are almost always continuous areas 571-

573 few cases of interrupted ranges

574 Crust individually numerous in Polar seas

5 13-16m 103 5-9m

∅

349 1w Entomostracous 391 350 16-18m 353 11-13m 354 14-18m 364 11-12m 372 11-13m, 12m 373 9-10m 374 3-13m/6-8w *probably not Copepods* 375 29-34m 376 12-18m 377 2-5m 391 6-7m/7u "rames", 19-21m 393 17-20m 410 *wb* Cirripedes allied to family of Daphnia only by dorsal anus, ovaria, inflected abdomen & shell - (differ widely in cirri & mouth) & in caeca at cardiac end of stoma - More allied to Stomapoda 412 4-7m, 17-18m 432 5-8m 433 29-31m 434 1-3m 437 26-28m 447 22-25m 448 12-15m 539 17-18m, 21u "yeux composés" 541 8-9u "on\paire"/w answers to 1st cirrus 17-18u "plutôt\paires" 542 14-18m 544 11-13m/12u "qui\avant", 17-18m, 25-27m 545 1-2m, 9-11m 555 *wf* How explains this, except by single creations 17-23m/1-24w without regard to anything else - Make a Barrier & you will have species different on opposite sides *wb* I do not think read with sufficient care 556 29-33m 557 4-20m 561 21-26m, 22-23m 564 11-12m 565 2-5m, 15-17m, 23-26m, 23m/u "Palémons" 566 32-3m 567 9-10m, 16-18m 568 1-9m, 11-14m, 31m 571 18-19m 573 3-12m, 6-7m/w Interrupted ranges 30-31m/w do 574 22-23m/19-24w Arctic Sea likes big lake 588 (u) 11u "versans\Atlantiques", 14-15m, 15u "Ptalycarcin", 17-18u "pas\Antilles", 20u "au Chili", 21m/u "au Chili", 23u "Callianasses", 24-25u↔, 29-30u "à\Hollande", 32-33u "Hippolytes" 593 11m/w Mouths 14m/w Mouths 597 10-39[...] 600 39w 2 601 4w 3 602 40w 3 603 15w 4 32w 5

MILNE-EDWARDS, Henri *Introduction à la zoologie générale* Paris; Victor Masson; 1851 [CUL]

ad, cc, ch, ci, co, ct, em, fo, geo, he, hl, ig, in, mn, or, phy, rd, sl, sy, t, tm, v

SF □β

7 Diversity of organisms first condition of nature (Ch 4)

9 Law of "economy of nature" "sober in innovations" - Q has not recourse to any new creation of organ. other strong expressions on do p.10 Q

13 nature varies degree of perfection Q 14 as embryonic development

31 On Highness & Lowness 25 to 34

35 Division of Labour Q p.57 do 60, 61x♦ Q

43 Beautiful gradation in stomach Q- 63 in Respiration Q; in annelid surface & body near legs.

x 61 Q Nature rarely introduces a new organ p.64, 65 In Squilla new organ introduced Q ♦ but cirripedes have shown how cautious one must be 118 do ♦ 121 do Q

68 Q Clearly admits that new organs are at last created. 118 do

96 On Embryological similarity p98 mistake of Branchial slits p102 not arrest p112 p114

111 Point in Classification.

124 Parallel series

126 on animals "borrowing" (instead of inheriting) structure from other class.

132 on different kinds of fusion or unison 137

132 Rudimentary organs tend to become separated from proper connexions!

138 absolute disappearance of organs

141 Law of Balancement of minor importance

148 Law of connexion 151,154

161 If one part is changed others are changed (so with varieties of & monstrosities of gross nature)

163 on various empirical connexions of structures

165 On subordination of characters i.e. character in connexion with other (Jussieu)

169, 166 doubts this pp171

172 on value of characters in classification

NB1 (refers to Catalogue attached to book) 18 Milne Edwards Books; 26 Decaisne Cours Floriculture et Potage- 7.6

NB2 ♦ 132-137 Jussieu primordial

iv 4-7m 7 at (page number), 13m 9 3-4m/3u "sobre d'innovations", 5-6Q/6u "autant\est"/7u↔, 10u "loi d'économie"/Q 28-30m, 30-31u "aucune\nouvelle" 10 6-7m/7u "rendent avare", 8-9Q 12u "quarante", 23-25m/24u "seule\physiologique" 11 1-5m, 13u "apus", 18u "Céphalopodes", 24u "Reptiles sauriens", 26u "Lépidoctée\Mississipi" 12 32m 13 13-16m

MILNE-EDWARDS, ZOOL. GÉN.

14 16-20m 16 17-22m 17 1-3m 21 9-17m/11u "puissance"/12u "perfection"/15u "quantité"/16u "qualité", 20-23m/22-23x, wb x Best way of putting superiority.- though each perfectly (?) (Can young be said to be perfectly?) adapted to conditions. 22 7-8u "il|vie", 18u "grandeur|résultats", 20u "masse|dont" 25 4-9m 26 2-5m/xx/wt Is true individual? Gigantic Saurians.- Cetacea - Pachydermata Devonian Sharks 17-18u "on|celles"/w Megatherium? 27 wt How value secreting, muscular & nervous ♣ organs. 2u "n'entraîne|nécessairement", 8-10m, 10m/x/u "la|dont" 29 wt So relation of size to warmth of Climate 1-4m/3u "cette nature"/4u "cel|seulement", 16-17m/17-18u "se répéter"/16-20w vegetation repetitive cellular division 30 1-5m, 9-12m 33 25-31m/27-28u "précision|actes" 35 13-15m 42 14-28m 43 6-20w beautiful gradation 57 1-3m 60 8-11m, 15-18m 61 9-11m, 15-17m, 25u "un|nouveau"/Q 63 23-32m/24-25Q 64 8-11m, 13-21m/14-15Q 65 1-13m/1-3u "d'organes|perfectionné"/Q/4-5u "déterminent|surface" 66 28-31m 68 12-16m, 24-25m/24-28u±, 31-32m 70 25-31m (Prévost and Dumas) 74 17-20m 80 30-32m 81 1-3m 85 5-11m 86 10-13m 94 28-32m/28u "Généralisant|vagues" 95 15-18m 97 20-24m (Tiedeman, Serres) 98 4-11m, 12-17m 102 18u "est|mouvant", 20-25m, 24-26m, 29-32m/30u↔ 103 9-13m 105 5-10m 107 9-14m 109 6-9m, 25-31m 111 6-8m, 23-29m 112 9-12m, 12-18m 113 12-14m 114 12-16m, 23-26m 115 7-8m, 11-12m 117 18u "besoin|variété"/w poor! 20u "tendance|économie"/w poor! 118 11-13m/12-13u "puis|instruments", wt/1-13w This very important: if proved upsets changes in species 119 8-10m♦, 27-32m/27-31m/29u "types fondamentaux"/31u "types secondaires" 120 12-13m 121 24-30m/24Q 26-28!!, 28-30u↔/?, 31-32→ 122 25-26u "un|exemple"/24-27w ? only functionally or physiologically new 123 11-16m, 9-13w natural enough by Selection 19-22m/21u "Dacgtylopère", 29-32m 124 14-17w Marsupial parallel 126 1-32w what metaphorical rubbish, how much simpler my view 127 1-4m, 9-12m 128 4-10m 130 5-9m 132 3-4m/3u "fusion primordiale"/4u "développement confus", 26-28m 137 15-16m/16u "un|confus", 19-22m, 23-25m/24-25u "la disparition", 26-32m/26u "jeune" 138 17-22m, 25m/u "la répétition", 30-32m 139 10-13m, 17-19m, 31-32m 140 3-4m, 10-14m 141 18u "vitales|pouvaient", 20-26m (Geoffroy St Hilaire)/22u "loi|balancement"/23u tenir compte/26u↔ 142 1u "ce chevalement", 16u "la carapace" 143 17u "texture|propriétés" 148 17-20m, 19u "con-

nexions anatomiques", 1-23w because even monstrosity could not invent-; manner of growth + hereditariness p151 20-24m, 25-27m (Geoffroy St Hilaire) 151 13-14m, 18-21m/w if can be moved by steps 152 4u "La|rapports", 5u "tendance" 153 15-18m 154 4-14m/wt/1-15w are not these parts last-formed in womb & so exposed to modifying circumstances? 28-29m/!/17-32w/wb one feels an early embryo more independent of outside world, but why? so less apt to vary - the late-formed parts exposed to sum of influences & to selection; selection cd not act on embryo 158 13-19m/13"... 161 24-25m 162 1-3m 163 9-11m, 15-16m, 18-23m, 28-32m 164 9-12m, 10-15m/10-11u "harmonies empiriques" 165 9-10u "principe|caractères" 166 18-20m, 26u "répondre affirmativement", 28-32m 168 9-12m 169 26-27m 170 25-29m 171 6-11m/8u "conséquences"/10u "effets" 172 2u "caractères prédominants", 8-16m, 17-19m, 20-22m/20u "système dentaire", 30-31u↔/? 173 1-7m, 7-15m, 21-32m Catalogue, 12 9-11m (Milne Edwards) 18 8-11m, 17m, 29-31m (Decaisne)

MITCHELL, Silas Weir *Researches upon the venom of the rattlesnake* Washington, The Smithsonian Institute; New York, Appleton & Co.; 1861 [CUL, S] beh, phy, sy, tm, v

SB ⚡

5 Powers of fascination

12 Relation of Poison to Venom glands

37 do

43 do

⇒ 66 classed

5 10-14m 12 41-42m 13 7-8m 37 32-35m, 42-45m 43 1-9m 66 39-44m/w so with Rabbits - So illustrates variability

⊗

MIVART, St George Jackson *On the appendicular skeleton of primates* (extract, pp. 299-429), communicated by T.H. Huxley; 1867 [CUL, I] h, v

SB 403 Variation; 410 & 412 Man; 424

403 29m/u "digit", 38-41m 410 31-33m, 35-37m, 38-40m 411 3-5m, 9-10m, 11m 412 3-6m 424 35-38m

MIVART, St George Jackson *On the genesis of species* London; Macmillan & Co.; 1871 [CUL, I]

ad, af, beh, cc, ch, ci, cr, ct, ds, dv, em, ex, fo, gd, geo, h, he, ig, mm, mn, oo, or, phy, r, rd, sl, sp, t, ta, tm, ts, ud, v, wd, y

NB1 ♦ Mivart; p15 I do not understand; 15; 35 false quotation; 54; 60x Not fair; You entirely ignore use - 67 Use entirely overlooked

NB2 Sp. Theory; p120; 145 Distribution Geographical; 155 Homologies Vol 3 p.327 of Cyclop of Anat & Phy. on Larynx of Kangaroo - Owen in Phil Trans p.182 Gascoyen

SB1 □β ♀ (by Emma)

Mivart Genesis of Species

p21 List of his objections

25 Giraffe, with MS notes

34 On variations in all directions MS notes

37 Flat fish.

39 Origin of limbs (CD, ⇔) do not consider

40 Whalebone

42 Larynx of young Kangaroo (CD, ⇔) (add after Whale)

(CD, ⇔) 44 Pedicellariae

46 Metamorphosis of flies.

47 Mammary glands (CD, ⇔) & p42 for Larynx

50 Cobra.

53 Rods of Corti

62 Objection demonstrably sufficient

72 The shoulder of pterodactyls.

75 & 77 ear & eye of cuttlefish v. MS notes

80 (CD, ⇔) Avicularia

81 Placentae of mammals & sharks.

82 Resemblance of mouse & marsupial.

85 Effects of conditions on butterflies from Wallace

97 Modification as great as between Hipparion & horse -

(over) Mivart Genesis

105 Abortion of finger in the Potto

107 believes wing of birds comp. suddenly developed -

107 On origin of tendrils (CD, ⇔) [see p47]

110 Macrauchenia a very generalised structure.

112 M.S. notes on suddenness of var. good -

130 Seems to believe that bat & pterodactyle suddenly developed.

139 Argues rate of change in progenitors before their divergence from the amount of difference in their descendants

145 The same fishes in distant continent

148 Plurodont lizards & certain insectivora in Madagascar -

153 & 158 Diff. from homologies of skull bones.

163. H. Spencer on ♣ serial homologies

164 Mivart thinks there is an internal force or tendency.

170 There is serial homology in Chitons

(over) Mivart Genesis

174 Correlation very slight between teeth & hair

176 Homology between limbs & fins.

178 M.S. notes on primitive homologies.

(CD, ⇔) p107 sudden change of Birds wing.-

SB2 ♀ Kangaroo Larynx; Strange arrangement 125 & Pottos forefinger

(CD, ⇔ hereafter) See to Mouth - Find "Brewster" on age of Cephalopods -

Placentae of Sharks & Mammals - like Fritz Mullers cases & Claparede -

Mr Mivart's book consist of all objection to nat. selection advanced by various authors & myself, expanded & admirably illustrated, with nothing said in favour, except in opening chapter

p147 Get Gunthers Catalogue

p196 Morals ⇔ over

(over)

(drawing of lens)

Evolution whether N. Selection is admitted is all important, as long as changes gradual, for then facts can be tested, for scientific purposes Mr Mivarts belief that sudden change, as Horse & Hipparion, & I suppose - Birds bats & Pterodactyles (otherwise his argument of intermediate not being found wd be valueless) seems to me no gain over the old belief of separate creation: Of course it may be true, but will be most difficult to prove

21 17-19m/18a "useful structures" and useless 20-24m 24 15-21m, 27-30m 25 17-18u "supposition | tended" /17-20w only tallest animals in each country 26 7-9m/w only dense forests 27 16-25w Variations not supposed - too large an animal for country 27-31m/29w (a) wb (a) If large antelope & giraffe can now exist or flourish under so much competition, so cd intermediate sizes 28 1-23w We do not know whether in all countries trees are as nutritive as Mimosa 23-26m, wb Escape other beasts of prey 29 4u "these | drought" /w No 34 7-13m/4-12[...]/ m/wt/1-13w I do not see.- no because only the most like some object wd be selected.- if exactly equal Variation they wd counter-balance each other.- wt M. on ● (there I do allow ♣ to the m○ of my doubts) 35 3u "mimic" /w Mock 12x 36 13-17m, 28-31m/w I do not see 37 8-10m/8[...]/8-10w see Portfolio

MIVART, GENESIS, 1ST EDN

on gradation *fig.w* Ask Gunther 15-22m/22[... 38 3-9m/5...], 19u "functionless"/w ♦ No no 39 wt we have no means of judging 7-14w idle objection 40 3-7m 41 wt (Straining or sieving action.) 7-15m/"...", 11-12w Ducks Beak 42 24-30m/[...] 43 1-2w Voice 3-6w ie about Kang & also all oth 44 32-34m/13-34w Cirripede Branchiae first nascent structure applied after to other uses. 24-27m/[...]/w (a) 45 1w He adds 2-7[...] 8-10w never useful structures 46 9-12m/9-14w Lowne explains intermediate conditions 47 17-21m/[...]/w p.53 22-26m/22u "mammary|breast", 22-27[...]/24u "sucking|scarcely"/w Mucus massage fails 28-34m, wb M doubting about sucking; but to this kno does not run 50 *fig.w* Mem snake devoured by Peacock in India to frighten enemies 51 5-11w M ● Linn Soc Fascination 30-34m/w not in native country 52 11-14m 53 25-28m 54 1-17m/4w No 10u "only|enjoyment"/11u "perfect|performances"/6-15w are used for some other purpose - Crustaceans 57 9u "escaped"/w No 60 1-12w not fair not to add 61 22-23m/23u "seems irresistible" 62 wt with mimicry init. resemblance ♣ more distant to one var. & in another to another var. 3-8m/6w (a) 15-17m/15u "demonstrably insufficient", wb I have never said demonstrated but in highest degree probable 67 8-10m/w so do I 21-24m 72 25-29m/wb Here add that Mr Mivart sees such strong improbability ○ I cannot see it.- Variation analogies do arise 75 11-15m/w he always omits the share of selection 76 33m 77 wt Remember what structure is necessary for vision Lens are found in Annulosa 4-6w I utterly deny 6-11m, 7-9m/7-8u "independent|variations"/w (a) 16-21m/w what does this mean? wb (a) you cd not make greyhound & pug - pouter or fantail thus - it is selection & survival of the fittest 81 19-27m 82 1-7m 84 23-27m 85 1-7m, 25-31m, 27-33m, wb Direct conditions 97 16-18u↔, 17-19m/19u "Hipparion|Equus" 98 1u "sphenoid" 102 22-27m/23-25w false quotation 105 11-16m/11w disuse 107 1-3m/w oh 5-7m/w see my paper. 109 9-12m/! 110 6-12m 112 2-7m, wb Says variation, of which we have evidence, & not exceptional cases were sudden changes & unnatural changes, such may sometimes have occurred. wb As dom. productions so much more variable, these variations probably greater, & the strongest partake of nature of Monstrosities.- In large genera, - very known in nature, including recent & fossil, the species are so close, that steps probably not great in line of death. 119 13-17m/13-21w we do not know causes of

variability 120 13-17m/w yet it varies in W.Indies. 21a "some" most 121 19-24m/19-30w I say so merely because other reasons make me believe in it. 123 wt Do I not give it as a mere possibility when arguing against this view? 2w(a) 6-11m 130 1-5w Does he believe that a Bat & Pterodactyle was suddenly produced - such facts tell against Evolution, as well as nat. selection.- so with Whale & Zeuglodon - 139 1-34w this seems false reasoning, he assumes amount of difference in progenitors from amount in existing divergent descendants. 145 22u "distant" 23-31m/27-28u "is|fresh" 146 5-13m (Günther), 31m 147 2u♣, 3u "China|Moreton", 4-6m, 10-12m/w ask Gunther 23-24m/22-28w Is this an aberrant & ancient form 148 1-11m, 15-17w Distinct genus 25-27m/w no remnants 151 20-24m 153 2-6m 157 17-19m 158 11-15m 159 1-3m (E.R. Lankester)/w I have called analogy 163 23-29m 164 16-18m/17u "is|tendency" 166 9-13m 170 16-20m, 20-22m 174 wt/1-12w So add, but the connection, if any, as Mr. Mivart provided not extremely vague.- some evolutionary tendency in both to vary together 13-15m 175 1-3m, 13-16m 176 6-12m, 16-18m/14-28w ask for Günther's view 177 12-13m/12u "tarsus|cartilaginous" 178 wt/1-11w Parts primordially similar wd be apt to vary in same way, but can be congruent to any extent - to moderate extent - Veronica.- How primordially similar, is an obscure subject.- repetition of past one of commonest forms of variation. 179 11-14m, 24-27m (I. Geoffroy) 182 10-13m/11u "Gascoyen", 20-22m 192 18-22m 196 1-17m, 26-29m/27w No 197 2-11m 198 15-20m 200 19-24m 204 7-14m 212 15-21m/wt/1-21w Not longer duration than gemmules of atavic structure such as stripes on Horse. 213 2-8m. 10-15w like pollen-grains within ovule 214 28-32m (Lewes) 215 6-8w gemmule & germs 10-14w absorbs organic matter & divides 19-20w true 21-25m 217 24-30m 221 12m, 24-26m 223 11-13w from conditions 225 5-7m 226 15-20m 227 21-23m 230 9-13m 231 6m 232 4-19w How great, see my remarks at end 20-21m/21u "greatly different" 239 27-30m, 31-34m, wb differs only in colour & size? 240 3-5m, 25-28m/27u 242 wb Urges any amount of sudden variation of which we have evidence, & not monsters (& not reversion) I will admit, but probably less than we see under Domestication.

MIVART, St George Jackson *On the genesis of species* 2nd edn; London & New York;

Macmillan & Co.; 1871 [Down, S]
48 17-22m
∅

MIVART, St George Jackson *Lessons in elementary anatomy* London; Macmillan & Co.; 1873 [CUL, S]
h, ig, rd, tm, v

NB1 ♦ Rudiment in Gorilla
Inguinal mammae in Lemuridae & 2 pairs in Galago → (to NB2, 489)
NB2 125 Hyoid Bone
♦ 396 Lobule of ears
489 Mammae
496 Difference of Man→
→tiny distance under an anatomical point of view

125 6-9m 396 19-22m, 27-29m, fig.m 489 42-44m 496 20-25m
∅

MIVART, St George Jackson *Man and apes* London; Robert Hardwicke; 1873 [Down, S]
NB O/

MOGGRIDGE, John Traherne *Harvesting ants and trap spiders with supplement*; London; L. Reeve & Co.; 1873 [CUL]
beh, che, fg, gd, oo, y

vol. 1 NB1 Very clearly ♣ described Wallace
NB2 p.36♦
p.128 Young spiders make web as perfect as old ones Q
The seeds stored in ants nests not germinating – these cutting off the radicals & bringing up damp seeds to dry are the most remarkable instincts
Trap door spiders very wonderful
Perhaps add to when I specify the wonder of ants

xi 3-5m 128 5-12m (Blackwall), 14-16m

Supplement, NB1 p.161; 164
174 acid on seeds
p.161 closely allied species in the same district have different habits
164 curious instinctive manner in which Cicendela seizes ants
174 acids & seeds

161 7-15m, 20-24m 164 1-23m 174 4-15m

MOHL, Hugo von *Principles of the anatomy and physiology of the vegetable cell* trans. A. Henfrey; London; John Van Voorst; 1852 [CUL, S]
ct, mhp, mn, no, phy, sp, tm

NB1 Drosera; Cells; 37 Protoplasm; 38 do; 79 do; 84; 87 nutrition; Drosera 99; 100 76 Sp. theory; 109 do; 133♣ On Grafting various forms number of pollen-grains in some plants.–

Chlorophyll not absorbed so purple♦ supuration from the purple fluid must be protoplasm

NB2 Orchis 133
147 Tendrils, 151 to 156 to end
143 Knight on gravity
146 Roots turn from light
158 Bot. Zeitung

25 13-16m 26 39-42m 28 8-12m 29 1-4m 37 38-47m, 44-46m 38 1-16m, 3-6m, 24-39w speaks as if nucleus necessary 39 20-24m, 40-43m, 45-49m 40 24-31m 41 16-20m, 47→ 42 2-7m, 34-37m, 37-40m 44 3-9m, 14-18m (Kützing) 75 28-32m 76 30-35m 79 22-26m, 34-36m 84 46-49m 87 44-48m (Bouchardat) 93 16-25m, 36-38m 95 14-25m (Brown) 99 25-32m (Schulz) 100 19-27m 109 36-43m 133 36-40m (Kölreuter)/39u "120,000 pollen", 40-45m 143 34-47m (Knight and Dutrochet) 146 40-46m 147 1-6m (Knight), 24-29m 148 47-50m 151 45-46m 154 22-27m (Dutrochet) 156 11-17m, 29-34m, 35-48m (Treviranus), 35w Phyllt 157 9-21m, 17-19m/18u "of which", 24-27m/?, 41-46m 158 3-9m (Dutrochet, Mohl) 14-19m

MOHL, Hugo von *Über den Bau und das Wenden der Ranken und Schlingpflanzen* Tübingen; Heinrich Laupp; 1827 [CUL, pre-B]

ig, mhp, no, phy, rd, sp, t, ta, tm, v, y

NB p.39 Lygodium; ♣ p.112 Species Theory non-climbing Plant – occasionally climbing; 125♦

SB1 □β ♣

1 Summary twiners

All objects same – twiners either way – glass – will clasp when young & grow – Palm.–

☞ America ● arboreal ● most highly organised tendrils

Dropping off or withering up of uncaught tendrils – these results useful special contraction after clasping or formation of links○–

Anyone who did not understand the ● of the movement of the t. would conclude that as the internodes revolve & carry the tendril, & as these at the same time are revolving, that the tendrils would necessarily twist in♦ advance♦ more quickly than the internodes & get in advance of them one♦ internode♦ instead of both moving harmoniously

MOHL, BAU UND WINDEN

together as is the case. But in fact the ♣ t. incurves to the ♣ upper internode of a twining plant when several are revolving,

♦ but is ♣ generally separated from it by a rigid petiole; & in the former part of the P. it was explained how ♣ several internodes revolve together by their whole length successively moving to all points of the compass. There is, however, this difference that in many cases the revolving t. is separated from the revolving stem by the rigid petiole; ♣ but this makes an important difference in the movement – There is another difference, ♣ namely that ♣ along the ♣ part from which the tendril ♣ arises, the terminal & motionless young shoot almost always projects; this ♣ generally projects on one side, so as to be cut of the way, ♣ of the tendril which at the time is revolving; but when it is not sufficiently not of the way we have seen in E) how well the t passes this obstacle in its path, by shifting & straighten slowly, & rising vertically upwards.–

(over) *(various plants listed, with rates and amounts of twining)*

SB2 Palm ♦ Mohl on Twiners ♦ Tendrils

p.4 Tamus elephantoides X⇒ – & Paullinia winding stems & tendrils it is one of Sapindaceae.

37 gradation of leaves with tendrils

39,50 Astragalus rudimentary tendrils No⇒

39 Lygodium leaf-climber

40 Cocculus Leaf-climber– ●– Ophioglossum leaf-climber

41 Uvularia like Gloriosa Nepenthes⇒ – Smilax stipulae

43 Fumaria claviculata tips of branches converted into tendrils

45 Maurandia scandens – flower peduncle irritable♦ – Sapindaceae – on Vines 47 Passiflora

49 Vanilla

52 on winding of tendrils spontaneously p78

57 tendrils increase rapidly in strength

59 on spontaneous winding with notes by self

63 Sensitiveness of t. touch does nothing!! look (too old) S.65

65 convex side not sensitive ⇒ in Cucurbit & Passiflora

70 Virginian creeper

77 Vine creeper point to N. & dark. other t. not affected by light

82 will wind on glass, tendrils

(over) Mohl on Twiners

103,108 twisting cause of revolving movement

111 no twisting of axis when plant twines!

round smooth support & old twisting disappears

112 a plant already twisted cannot twine!!

do. stems♦ sensitive♦

♦ 112 *Asclepias X⇒ vincetoxicum* twines only when it grows in most shady places

116 Experiments on odd ♣ supports, showing influence of light,

♦ 119 Twiners care little for light, especially Ipomaea

♦ 125 Abrus a right-hand winder

♦ 135 will not twine round very thick support

♦ 135 Hooks on certain twiners, specially Ipomaea muricata

♦ 149 has seen axial twisting vary in same plant

SB3 Palm

SB4 Bull. Soc. Bot. de France Tom V 1858. Dutrochet. Comptes Rendus. 1843. Tom. 17.

(over) Comptes Rendus 1844 Tom 19.

SB5 1864. Weights *(table of equivalents)*

(over) 1863 cc

2 8–9u "Bewegungen|werden"/8–10m (De Candolle), 16–21m/w Tendrils & winding plants totally different 4 5–8m/w Touch not mentioned 24–26m, 25–26u↔/x⇒, 30u "Paullina", wb Paullinia winding stem with cissus 5 9–10m/9u ♣/10u "in|auslaunen", 21–22x⇒/21u "Vicia tarba" 6 1–3m, 4c♣/w 214 5c♣, 6u⇒♣/m, 11c♣, 13w Sapindaceae 14w ♣, 15c♣, 16–20w All worked with Lindley 18w ♣, 22w ♣ 31 28–31m 33 10u "bei|Strephanthus"/10–12w ! Apocynaceae 13–14m/x⇒/13u "bleibt|Abfallen" 35 19–20m, 21–24m/w Oenius Gloriosa 37 24–25m/x⇒/26–29w gradation yet jump 38 25–26m/25u "äussern" 39 11–12m/11u "die|aufrechtem", 18–19m/19–20m/16–20w Rudimentary 22w Leaf climber 36m/x⇒ 40 ⇒ 3–5m, 23–24m/w Leaf climb 41 ⇒ 6m/u♣, 32–33m 42 1–2m, 8–18w none of these seem to catch 43 16–17m 45 4–5m⇒, 8x⇒/w all wound into a tendril 10–12m, 12u "die|Traube"/12–14w does not say whether catches 19–24m/20u "die|ist" 47 9u "zwei|tragenden", 23–25m/x⇒, 31–34m (Jussieu) 49 4–18m⇒/9–16m 50 4–7m/x⇒/w Mucro in Legumin 18m 51 31m 52 20–23m/x⇒ 57 12–13x⇒/11–13m/w t. grow strong & long 58 11u "dem|durchaus", 13u "Blattstiels", 31–32m/18–35w seems to think lateral movement consequent on twisting ♣ 59 11–14!!/12–13u "da|Bewegungsfähigkeit", 13–14m/u "die|Spirale", 18m, 21–22u "Fläche|Uhr"/20–24w Gloriosa winds up differently from ordinary tendrils. 22–34m/33u "Korkziehers"/w Smilax does not wind up. B. und not Vines do not? Cissus does when it catches 60 1–

10m/w does not at all understand reversed twisting of tendrils 10x^o/u "der|innen"/11-12w i.e. sensitive side 63 9u "eine|besitzt"/8-10m/w Tendril sensitive 13-14x^o/!!!/u "Einfache|Berührung", 16-23m/18-27w Touch does nothing were they too old?? I presume expected movement too soon 26x^o/!!!/u↔ 64 1m, 2-3x^o/u "gerade|Zusammenwinden"/w this looks as if he took too old- 13-15!!/15u "von 24 Stunden" 65 2-5m^o/x^o/w convex side not sensitive 3a/u "Passiflora"/w & Peas 21-22m/u±/x^o? 70 18-20m/w Virginian creeper 71 8-9u±/9-10x^o/7-10w swelling in all parts when touch 20-21x^o "Vollendung|Längewachsthums"/w Ament^o 75 13-14m/1-21w Astonishing that he did not see spont. movements.- I presume too old 77 5-6x^o/1-10m/w Grape tendrils point to north & to wall 13-20m/w not common to other tendrils of various plants kept in House 24-27m/w so with Pea 78 27-30m/x^o/28-29u "während|herabsteigt" 79 1-3m/x^o/2-3u "welche nothwendig" 82 wt Big. cap & cot wd not stick 6u/wt/4-6x^o/m 105 14x^o/11-15m/12-18w seems to consider twisting in axes cause of movement 26u "eine"/27u "drei|sechs"/22-26m/23-24x^o/w number of twists 29-32w end becomes spiral 30-34m/31-32x^o, wb (a) I presume from each lower part of internode ceasing to move or acting like a fulcrum- 106 1m, 6-7m 108 16-17x^o/13-19m/w accounts for movements by spiral twist 109 6u "mehrere mal"/6-8w passed mark many times in day. 110 wt He shows well how climbers get to their support. 4-5x^o 111 wt movement ceases when plant comes into contact with support!!! 4-7m/4u "hört"/6u "auf"/w (a) 13-14m, 15x^o/13-16w Vascular fibres^o do not become twisted when plant twines round stem? 19-28m/22x^o/21-26w When plant twines axes not twisted !! 112 4-6m/4u "Kreisbewegungen"/wt/1-4w This looks as if he knew tendrils performed a circle. 11-16m/16u "sich|schlingen"/8-13w a plant which is already twisted cannot climb!!! 21-25m/w twining plants have sensitive stems!! 33-34u▲/33-36m/w twines are not according to place of growth wb I must explain why tendril bearing plants do not twine - tip does not move in some - 116 12-13x^o/12-33w experiments on odd shaped support strong influence of light 119 2-4m/w do not so much incline to lighter 6-9m/8-9u "sich|richten", 14m/m, 16u▲/16-22w This plant cared particularly little for the light 29-32m 120 7-8m, 9-13w Yet light some influence on Ipomaea 20m, 22-34w Explain little effect of light by all sides turned to it - will not do 122

11-13m/12-13u "sie|Kreisbewegungen" 124 32-34m 125 1-4m/2u "Gattung|Familie", 22x^o/w Legumin. 126 29m 130 29-30u "bei|vorkommen" 134 3-4x^o, 4-12m/5-9w Every thread suffices to wind on 17m, 22u "von|Zoll", 31u "3|Zoll", 32u "9 Zoll" 135 1m, 3-19w will not wind round a very short stick.- I suppose movement not arrested till bent considerably & movement acts on opposite side 32-36m/35-36m/32w Hooks 139 5-7m/w spiral arrangement of vessels 140 4-6m 143 32m 147 5u "findet|desselbe"/4-6w Palms sole proof of identity 28-32m/!!!/29x^o/u "um|gedreht" 149 4-6m/w He disputes this 7x^o, 8-12m/w and says owing to Stutz not being smooth 15m/u "an|Internodien", 18u "beobachtete|ebenfalls", /15-20w he has seen twining in opposed directions 23-25m, 30-32w Disputes Cuscuta case 150 23-30m/w Palm did not discover irritability of Tendrils 151 2u "Rückwärtsbewegung", 9-11!!/m, 12x^o, 16-18m/16x^o/16-17u↔ 152 7-10m, 15-18m/15-16x^o/u↔

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vol. 2 NB 43 particular earth good for particular plants 43 7-34m

MOLESCHOTT, Jacob *Der Kreislauf des Lebens* vol. 1; Mainz; Victor von Zabern; 1877 [Down]

(markings presumed to be by FD)

MOLESCHOTT, Jacob and FUBINI, S. *Sull'influenza della luce mista e aromatica nell'esalazione di acido carbonico per l'organismo animale* Torino; G.B. Paravia; 1879 [Down] §

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vol. 1 NB1 369 Pace of Horse inherited Earthquakes

3-8♦

33 globe of fire

NB2 30; 36; 57; 62; 81; 95; 102; 105; 114

earthquakes

NB3 earthquakes

28 15-18m 30 15-28m 33 6-37m/29w Copiapò earthquake 36 18-32m 57 26-30m 58 1-5m, 6-8m, 17-18?, 19-23m/w Not to where I say no map of sea 59 1-7m 62 14-19m 63 5-15m 73 5m 76 25-27m/u↔ 81 28-30m 82 1-9m 95 15-29m 100 19-25m 106 1-11m, 13-24m 114 9-13m 223 22-26m 262 7-15m 268 1-16m 294 20-28m 301 25-30m 302 6-12m, 12-13u "ladran", 13-15m, 16-20m/13-20w do the early voyagers say anything about dogs in T. del Fuego 304 26-30m/w↔ V. p.330 330 21-23w V 304 331 7-8m, 10-28m 343 15-29m 368 3-5m 369 22-25m 370 9-13m 373 zb 376 20u "Los Pehuenches", 22-23u "cabrones especie"/Q 418 wb↔ Birds p. 257 Quadrupeds p.301

MONIEZ, Romain *Mémoires sur les cestodes* Part 1; Paris; Octavo Doin; 1881 [Down, I by Alfred Giard] §

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cc, ch, cs, f, gd, he, hy, or, phy, sl, sp, spo, t, ta, tm, v, wd

vol. 1 SB1 440 to 446; 450; 453; 458 & 457 ♦ In first origin cd not have been transported must have sported in nature & not grafted; 472; 478; 486

SB2 ♦ I think much must be attributed to selection of good sorts

♦ =He mingled his seedlings= p.215; 218; 221; 225; 230,1,3,4,7; 247,8

♦ Old cultivated kinds tend to vary loose the hereditary quality of goodness 254-6,8; 322; 373; 400; 406; 410; 415; 430,32,34; 437,39; 441; 446

(over)

successive generation. at short intervals, with selection, the key

113; 115 not fixed

160 162,4 Chief end of his system is to domesticate them, ie to give them the effects which richer soil & cultivation will give

172- 179- 180- 183- 184

This system chiefly illustrative of effects of external conditions on successive generations. & fixity of the characters ie goodness - not injured by seasons - taste & consistence ♣

Short period of renewing must be an element if he is true about earliness - yet not applicable to animals

187 to 209

SB4 □β

115 Cannot account why one stock increases size of part more than other (p113)

180 183 with his successive sowings there was selection; & it is valuable case that after last, he got great majority good p203 almost all good. Whence it is proverbial 204,206 that if you sow seeds of any ordinary good fruit very ♦ you get anything good. Law of character becoming fixed with selection by successive generations 247-472

186 215 Seed not ripe (probably to cause sterility in offspring; & from first fruit, weak

230 Great changes take place at first sowings??

400 "Variation est une chose insatiable." Elle entre dans un sentier sans issue et plus elle advance moins elle peut reculer"

406 Facts against pears crossing in adjoining trees

431 Cd tell by leaves or growth 800 or 900 Pear Trees

437 Has never got seedlings identical with parent

444 Wild seedlings like domestic apples &c - 446 Q↔

§

113 23-27m 115 6-10m

160 5w Origins 6-13m 162 2-6m, 15-21m 163 6-10m, 14-19m, 20-24m 164 17-22m, 22-25m

§

172 9-12m, 13-19m/13-14w like cabbages

179 3-6m, 27-30m, 32m 180 2-4m, 6-7m, 20-24m, 25-32m, 27-32u± 181 4-8m 183 27-31m

184 3-8m/w time only thus saved 185 4-6m

186 4-8m 187 1-5m, 4-7m, 13-21m/w crossing? 188 13-17m/23-28m/12-32w fruits & leaves do not go together 189 1-3m, 16-20m

190 7-12m, 25-26m 191 18-22m/!! 194 12-16m 195 6-10m 196 1-5m 197 1-5m/2w

curious 21-23m 198 29-32m 203 9-16m, 12-15m, 18-22m/? 204 17-22m 206 14-18m, 29-32m 208 30-32m 209 1-2m 215 12-17m 218 8-14m, 26w not roses 221 20-24m 225 7-12m 230 21-26m 231 28-29m 233 29-32m/30w tulips 234 16-20m, 24-27m 237 11-14m 247 7-12m 248 20-24m 254 16-20m 256 4-7m, 8-11m, 29-32m 258 21-25m 259 19-23m

∅

322 9-13m

∅

373 9-13m

∅

400 5-11m 406 21-30m 410 25-30m 415 wt Belgium good for Pears 1-7m (Duhamel) 430 4-32m 431 15-20m, 21-30m 432 16-18m, 22-26m 433 1-3m 434 14-26m 437 4-20m 439 30-32m 440 1-5m 441 6-10m 442 10-13m 444 13-22m, 27-31m 446 25-30m 450 14-17m/11-21w This makes me believe in other cases.- H. Watson no 452 26-32m 453 4-8m 457 19-22m 458 9-29m 472 6-12m 478 4-10m (Klinkhardt) 486 4-8m, 12-15m

∅

vol. 2, 10 3-6m 16 18-20m, 22-23m 24 2-4m/!

∅

81 27-32m 86 17-23m 108 19-23m/wt/1-22w some trees do a little - period of flowering too slow for selection; in animals, a non-constant is rejected 123 8-17m/10u "concevable | effet" 126 2-4m (Cabanis)/w doubt it 128 15-20m 131 23-29m, wb cases of some good ones springing up, only hypothetically doubted 132 19-27m/19-20m 144 3-8m 149 29-32m 158 3-5m 161 2-5m 170 28-32m 178 8-12m 181 11-16m (Sageret) 184 14-18m 197 3-6m, 1-23m 202 15-20m/w not seed 203 22-28m 205 30-32m 209 3-8m 225 3-13m, 23-32m 226 1-13m/4-9m 241 18-24m/w The experiments are related before 249 1-6m, 9-11m 250 4-22m/wt/1-26w important. not caused by season, for all trees in the same nursery not affected 24-27m, 30-32m 251 1-5m 252 28-32m 253 1-4m, 23-27m 254 11-16m 255 27-32m, wb Can the wild be too vigorous to be crossed by domesticated ones; but I think he tried the reverse 256 16-20m 258 11-16m 263 11-20m 264 25-32m 265 2-6m 271 6-11m/7-9w crossing? 286 1-8m 290 27-32m 291 1-7m, 2-3Q², 6u "séquestration | vigne" 293 12-20m 298 1-6m/w Grape 308 10-18m/w just contrary to Knight 312 20-27m 313 11-15m, 21-27m 314 5-10m

∅

385 9-16m 386 11-23m 388 22-30m 403 14-22m, 30-32m 404 1-5m, 5-8m, 14-19m, 22-27m 406 1-10m, 18-22m 413 8-12m 414 10-

15m, 20-24m, 30-32m 415 1-15m 416 8-22m/9u "prunier | pommier" 418 7-12m 421 4-10m, 29-32m 422 15-22m 424 7-16m 428 18-24m

∅

484 1-9m

∅

MOORE, David and MORE, Alexander Goodman Contributions towards a Cybele Hibernica Dublin; Hodges, Smith & Co.; 1866 [Down] cc, gd

NB p.xx, xxiii

xx 16-20m/16-17w Water plants 17m/w Doubts 18m, 20u "Atlantic"/19-22w doubts whether not naturalised xxiii 10-14m

∅

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NB 252 Nods; 341 ♦ Blackness & Fever 252 2-7m 341 20-29m, 36m

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NB1 266; 271; 285; 295; 300; 303; 305; 309; 322; 324; 326; 328; 329; 342; 345; 352; 354; 370; 385

N.B. I have not attended to variations with normal abortive parts

NB2 V. Back First for N.B.; 19; 20; 25; 29- How then are flowers in fern-leaved Beech Irish yew &c &c; 30; 37; 42; 44; 50; 53; 54; 56; 58; 60; 62; 65; 66; 68; 69; 73; 77; 79; 85; 91; 113; 114; 116; 121; 122; 124; 126 to 130; 132 to 146; 154 to 159; 163; 166 to 192; 197; 213; 214; 216; 219; 221; 225; 229; 235; 236; 252; 254

SB1 □²

30 varieties, i.e. slight modifications rarely congenital

42 Mountains destroying colour sometimes Q² to 58 a good deal about striped flowers

MOQUIN-TANDON

& fruit

61 effects of good soil on villosity, & low elevation Q

68 Atrophy of organ often causes villosity of Part

73 Fleshiness of leaves caused by proximity to sea Q

113 Monstrosity of axil almost always affects the parties appendiculaires Q

115 Monstrosities more common under cultivation than in state of nature.

116 Q Monstrosities are generally normal in some other species.

121,139 organs arrested & rudimentary at different ages of evolution & hence more or less rudimentary.

Q 124 organs often repeated are most variable in form Isidore G. St. Hilaire

126 in Maize a return to supposed primitive form.

128 comparison of rudiments of stamens to normal rudiments in other flowers

138,140,156,167 case of monstrosity analogous to other species- Q

✓ 173 good

156 Believes in Balancement; 158 Q

163 changes of form when organ becomes rudimentary

168 variation of "Piment annuel" see Vilmorin Catalogue

172 analogous variation in most distinct plants; crinkled leaves.

SB2 □

189 great tendency in irregular flower to become regular (or peloric) - this is return to ancestral structure? p191 hereditary - generally sterile. Why? - see further, for the peloric flowers retake their normal structure

212 Monstrosity analogous to other allied genus

221 in Malus apetala all stamens converted into pistils

225 Rudiments normal of parts.

248,266 on soldering of homologous parts Q

285 on trunk of tree with nuts & acorns in solid wood (& Birds nests - Loudon Journal.)

309 Displacement very rare monstrosity, as in animals

323 342 Q Monstrosity analogous to another genus in Family

327 Q Linnaeus on plants wh. lose corolla in Arctic regions

352 Return in stamens to normal number, even when rudiment not present

353 Remarkable hereditary Capsella bursa pastoris

385 Description of the St-Valery apple

ix 21m 19 4-6m, 19-23m 20 7-12m 25 16-17m
29 1-3m, 6-9m 30 5-6m, 10-11m, 14m/w V.
note 31 16-18m/!, 31-32m 37 29-30m 42 10-
14m, 16-19Q, 20-22m, 28-30m, 32m (Saint-
Simon) 44 9-10m 47 5-7m/w like Apples half
sour & sweet 8-10m, 13-15m (Knight), 19-
21m 50 16-17m, 22-24m 53 29-31m 54 27-
29m 56 9-14m, 22-24m (Sénébier) 57 16-18m
(De Candolle), 24-27m 58 1-4m 60 29-30m 61
7-8m 62 19-22m/20w Ch 7 26-27m 63 2-4m
65 3Q, 6-8m 66 6-9m, 28-30m 67 11-12m,
18-21m (De Candolle) 68 11-14m, 27-29m 69
1-5m 73 23-28m/w Q Good for Chapt. 7 77
3-4m, 9-10m 79 24-26m, 28-29m 85 6-11m,
14-16m, 19m/u "618", 21u "415", 23u
"moitié", 25u "qu'à station" 91 3-4m/4u
"généralement stériles", 5-7m, 6u "ses
dimensions"/8u "ses habituels", 13-16m/w Do
they seed 25-29m 113 22-23m/Q 114 7-9m,
28-29m 115 1-4m, 5-6m 116 1-2m, 3-5m/Q
120 14m 121 1m, 2-4m, 5-6m 122 9-18m/w I
suppose frequent 124 at (page no.), 7-8m/Q
125 5-6m, 16-18m/w naturally so, I suppose
126 4u "involucre calice"/4-9m/w known to be
true - good case 10-13m, 22-24m/w now
known 26-27m 127 wt wild Quince tree 1u/
wt, 3m, 6-7m, 11m, 27-28m 128 1-2m, 5-7m,
17-18m, 20-23m/21-26w actually compares
with normal cases 28-30m/28u "rudiments"
129 3-6m 130 2-5m, 20-23m, 25-28m 132 13-
15m, 16-19m 136 7-9m/5-12w example with
respect to the balancing of organs 137 6-8m/
7-26w also occur normally V. note but in
different families: Does this not bear on such
cases, as similarity in Orchis & Asclepias?
138 18-19u "Solanum Dulcamara", 20u "deux |
étamines", 22u↔, 23-24u "quelquefois |
extranormales", 29-33m/16-19Q 29u "une |
habituel", 32-33u "Solanum tridynamum"
139 6u "Anémones", 9u "les | Goëthe", 11u
"Diplotaxis", 10-14w are these same
families? (No) 15u "Cleome" 140 23u
"Seneçon", 28-29m/u "Barkhausia | Crepis"/w I
think same family 31-32m/w worth reading
146 9-10m/w is this not analogue of Turnip
154 10-13m 155 2w Quote generally 11-13m
156 wt ♦ Q 1-2m, 9-13m, 12-13m (De
Candolle, A.P.), 17-23m/17u▲/19m◊/22u▲/21-
22w same Family 25u "temps | pédoncules"/
26u↔/w Balancement 28-30Q/31-32m (De
Candolle, A.P.), 24u "Muscari"/wb I cannot
make out in Loudon whether this is Feather
Hyacinth 157 3-5m/w same Family 13-16m/
14w Balancement 22-28m/w Q cart before
horse 31u▲/32u "caractères | Carex"/31-33m
158 3-6m/w Right horse before cart 10-12m/u
"sexuels | habituel"/w Balancement 24-27m/w
Garden fruits & seeds 30m/w worth reading

159 9-10m/w Balancement 163 1m, 19-20m
 164 1-2m 166 6-12m/9u, 21-23m, 25m 167
 19-21m, 27-28m 168 5a "Podolepis".w● 7-8m,
 13m, 26-28m, 32m 169 1-2m, 16-18m 172
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 14u "Chou", 14u "Laitue"/14-15m, 16m/w
 Parsley? 28-30m 173 24-30m● 174 wt
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 16m, 18-20m 175 8m, 8-9u "ou|temps", 23m
 182 27-29m 184 9-12m, 19-21m/x● 185 17m
 186 11m, 13-14m, 15-16m, 18-19w 13
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 13w/15w/17w ♠ 7 genera 188 12-14w (10
 genera) 17-19m, 24u "Rhinanthus" 189 3u
 "Chelone", 15-19m, 19m 191 6-9m●, 15-16m,
 20-21m, 23-25m, 26-31w see only about 6
 stamen, too many 192 2m/6-10Q 11-13m, 20-
 22m/w so I saw in Laburnum 193 5-12m, 14-
 16m (De Candolle, A.P.) 197 3-5m/5u
 "habituelles", 7-8m 207 25-27m 213 1-10m/5u
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 19-21m 218 9m 219 1-2m, 3m, 30-31→ 220
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 7u "trouvelonglet", 14m, 27-30m 235 8-10m,
 11-16m 236 15-17m (Richard) 248 1-2Q 4-9m,
 20-24w● Leaves or their lobes 249 27-28u
 "Gleditsia"/28m, wb● 250 2u "Dracontium"
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 2m, 25u● "Étamines" 253 15u● "Pistils" 254
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 303 10-12m, 30m (Guillemin and Dumas) 304
 16-17m 309 2-4m (Geoffroy St Hilaire) 315 1-
 2m, 28-30m 319 28-31m 320 7-10m 322
 14-17m 323 5-6m, 15-17m/w which is
 Leguminous 23-24m 324 8-10m, 11-12m, 13-
 18m 325 9-12m, 21-25m/21-23m, 31-33m/32u
 "2,500", 33u "658" 326 25-26m, 25u
 "foule|causes", 26-27m, 26u "plupart", 27u
 "normalement" 327 1m, 4m, 5-6m, 8-10m/11-
 13m/8-13w● are there many arctic Plants,
 without corolla 328 5u♠, 5-6u "bois|
 disparition", 6-7m, 19-21m, 22-24m 329 6-8m,
 11-13m, 21-24m, 29m 330 1-3m, 4-6m 342
 20-28m/20-23m/Q/24-27m 343 1-2m, 14-19m,
 23-25m, 27-28m 344 5-6m/5w What is it 14-
 16m 345 8-9m, 21-22m 352 2-6w So in
 Azalea 18-20m, 24-26m, 25u "d'éléments
 nombreux"/27-30m/29-31m/29-30u↔/6-32w
 Here I suppose not even a rudiment present,
 but tending to produce perfect organ, or
 rudiment 353 9-12m, 24-27m, 33m 354 1-3m
 (A.P. De Candolle) 370 7-9m 385 26-33m 386
 10-12m, 31-33m, 31u "Mém.|Linn.", 33u
 "Seringe|117" 394a 39m, 41m

MORGAN, Lewis Henry *The American
 beaver and his works* Philadelphia; J.B.
 Lippincott; 1868 [CUL]
 beh, h, or, sx, v

NB1 Instinct

◆ 300 Castoreum not sexual Used
 p.44 ♣ variability
 89; 93; 95; 100; 102; 116; 133; 140; 158;
 165; 191; 222
 248, 250 to end Best observers admit
 intellect
 instinct 264 good
 289 variability

NB2 ◆

Mind of Man- poor- 252; 256; 258; 259; 272
 Blind Pelican fed
 Our pity is an instinct; Blyth; crows - Fowl

44 3-19m 83 17-33m/22-26m, wb over 84 7-
 11m 89 17u "and|bark"/17-19w instinct first
 arose accidentally? 93 1-3m 95 29-32m 99
 13-18m 100 26-33m 104 20-23m/22m 105 18-
 20m/19u "than|structure" 108 18-20m 116 16-
 22m/1-22w could a lodge have been
 originally found in centre of stream? 133 12-
 15m 140 25-29m 158 16-24m 165 21-27m 172
 28-30m 191 11-14m/11-12m 222 8-9m, 14u
 "much|members", 23-27m 248 12-28m 250
 10-14m, 27-32m 252 6-11m, 17-21m 256 26-
 30m 258 1-5m, 6-8m (Hamilton), 12-16m/14-
 16m 259 3-7m, 18-21m 262 8-12m 264 3-9m
 265 6-9m 266 9-11m/8-14w No - Chicken
 picking up grain - Sphynx Moth 18-19m/w
 Wasp-Ants 272 23-31m 273 15-29m 278 17-
 23m 289 19-24m

MORGAN, Lewis Henry *Systems of
 consanguinity and affinity of the human family*
 Washington; The Smithsonian Institute; 1871
 [Down, I] ♂

MORREN, Édouard *Actes du congrès de
 botanique horticole* Liège; Fédération des
 sociétés d'horticulture; 1877 [Down]

MORREN, Édouard *Principes élémentaires de
 physiologie végétale* Gand; C. Annoot-
 Braeckman; 1871 [Down]

MORRIS, John *A catalogue of British fossils*
 2nd edn; London; by the author; 1854
 [Down]
 geo, ti

NB 363 Hooker Eocene Temperate Plants
 ♂
 363 30-34m

MORTON, Samuel George *Types of mankind; with contributions by L. Agassiz, W. Usher, H.S. Patterson* ed. J.C. Nott and G.R. Gliddon; Philadelphia, Lippincott & Grambo; London, Trübner & Co.; 1854 [CUL]

ad, af, br, cc, cr, cs, dg, ds, ex, fo, gd, geo, h, hy, in, mn, or, sl, sp, sy, t, ta, tm, v, wd

NB ∇ Institute of Mankind 1200B.C. Sir W JD 800B.C. Wilson & ●

⇒ ♦ Prichard Last Edition

♦ ●

Jackinot, Considerations generales Voyage au Pole Sud Zoologie (Royal Soc-? must be studied.-

Rosellini Athenaeum Monumenti dell'Egitto &c

Champion

Morton Crania Aegyptiaca

Lipsium Denkmalen (read)

Mr Birch○ seems to have written illustrated Book

p.459 ♦ 724 Important Book. G. St. Hilaire

p.675 Chronology

688 -Aegyptian Dynasties.-

691,2; 696 Chinese; 701,2 Assyrian; 712;

715 Hindoo

Sir James Brooke○ says positively Dyaks○ ∇ no greyhound, only degenerate Chinese Dog. & Pig seems equally degenerate Chinese

SB1 xlv; liv; lx to end of Agassiz; 56; 54 to 66 to 75; 81-85

90 Have I read Edwards description of Races of Man

94; 141; 156; 169; 175; 179; 181; 186; 194; 212; 237; 256; 272; 275; 280; 305; 309; 322; 338; 340 to 403; 413,14; 425; 436; 439; 440; 449

As mere naturalist, excepting from blending of races to certain extent, independently of crossing, I shd look at races of man as deserving to be called distinct species, yet I consider as descended from common stock, so come back at common belief; only difference is name whether to be called species or variations.

What effect wd idea of beauty have on races and selection. it wd tend to add to each peculiarity. V. our aristocracy.

The question of Origin of our domestic animals from 1 or more stocks, as only of interest, as showing amount of variation & hybridity

(over) ♦ It will be quite necessary for me to state most strongly how impossible it is to

guess the steps by which even vars., as of human race (or of Pigeons) have attained their characteristics.-

It is of course no ways impossible that some of the dogs of the Monuments may have descended.-

I am beginning to conclude that it is more difficult to account for small variations, as of man, when there is no adaptation than greater differences, when adaptation.

Consider cases of Rabbits, mere laws of growth

So geese & Ducks

Nothing is more odd than similarity of Fuegian & Brazilian. Why Puma shd range continent unvaried & Monkeys differ in every province.- It is great hiatus in knowledge. I may contrast Man with Monkeys, for on my theory, the Monkeys have varied.-

xlx 25-28m liv 7-11m/8u "Monograph on hybridity" lx 8-11m, 17-20m/18?, 24-27m lxvi 31-38m/32-33?, 37-43m lxvii 42-43m/43u "A. Wagner" lxix 24-32m/w How false for how distinct S. America & North temperate America. lxx 6-14m, 28-32m/w what forced reasoning ! lxxi 12-14m/12-17w Cape of Good Hope Plants of ! so distinct. lxxii 12-18m/w Here single genus, instead of whole Fauna taken. lxxiv 7-11m/10-12m/1-17w But it will come in, what is meant by primordial, except that not descended from other form. 10a "Characteristics"/11-13m/9-16w nor does analogy cause doubt whether they may not have varied. 26-29m, 35u "as|the"/31-35w this not known 32u "primordial|forms"/31-34w primordial begs the question wb "organic forms now keeping distinct" wd be more correct - but in common acceptance, certainly origin comes into play: hence cowslip & primrose discarded. lxxv 11-13m lxxvi wb Plants used at beginning, ignored at Cape of Good Hope, & New Zealand - look at Madagascar - Look at same race in United States & S. America oh fish pudor Agassiz!.- 54 34-35m (Prichard)/34u "1847" 56 8-9m (Lepsius)/8w read 57 30-34m (Prichard), 46-48m 58 21-35m/26-32w well argued 40-47m 66 8-13m (Pickering) 68 26-33m 72 16-19m 74 35-40m 75 4-7m 76 43m 81 17-18m, 20-23m/19-27w These terms are objectionable because "allied" means also systematically allied. 85 8-11m 90 3-10m 94 1-13m, 22-26m 95 16-21m, 26-30m, wb depends on the individuals or race & not on law of proximity. 141 21-25m, wb can men portraits ♦ rude sculptures be trusted 146 "Memnon".m/wb Knox -Races of Mankind

says p.204 that Bust of young Memnon is that of a Jew (see next Page) 148 "Ramses II".m/wb Dr Birch says this is young Memnon of Knox 154 24u "Romeneen", 29-34m 156 33-35m 159 34-41m 160 23u "Japhetic", 25-30m 163 6u "Chinese"/8u "Tartar"/12u "Mongolian"/6-8m/w are Chinese & Tartars now alike 169 39-41m, 43→ 170 1-3m 173 11-13m/11-12u "variously explained", 19u "Israelitish|Hyksos", 19-23w shows that the races not so easily recognized 27u "Semitic", 39u "Hyksos" 174 12u "northern|origin", 26-29m/26u "Champollion|Greeks"/29u "Hyksos-family" 175 16u "Semitic", 19-26m 179 9-16m, 23-32m 181 23-27m, 36-38m 186 32-37m 190 26-32m (Prichard) 194 37-44m 212 9-10m 237 23-27m 256 37-41m 272 13-16m 274 wt To show how little we know how variations are produced mem. changes of colour in domestication; reduction of size & interbreeding - small & great forms rising in same country, as sheep & Bantams &c &c - why Yankees differ from English? 26-30w mem. an old-world form, mem. nose 31-34w similarity owing to character of first intruder 35-36w a group 40-43m/37-43w slight distances these are. 275 1-9m/wt like the Puma 43m 276 11u "infinitude of types", 13-18m, 36-40m 277 41-43m 280 34-42m/35u "without material" 305 22-26m, 35-37m/37u "peculiar|constitutions" 319 31-35m 322 20-28m 327 25u "Usher"/w unknown to Lyell 338 6m 339 43m (Cuvier) 340 32-34m (Buckland), 38-40m 341 2-3m, 9-10m/10w ancient 26-28m/w European Dog 35-38w Eocene age? 41-42m 342 1-2m, 32-34m (Serres), 37-38m, 41-42m/z 343 1m, 6-8?!!/m (W. Mantell) 347b 43m (Schmerling) 353 41m 357 1-2m 364 wt The age of Man very important, as most savage races have domestic animals (at least dogs), & hence is concerned with origins of Man. 368 13-20m/w Successive extinction 373 18m/w since contradicted 23w do. 25m, 27-28m 374 17-22m 375 wt Race-hybrids Species-hybrids 2-6m/4u "Charleston Medical Journal", 26-30w implying, I think, separately created 38-39m, 40-41m, 42u "turnspit"/wb (A Monster) 43-45m 377 1-4m, 26-28m, 32-33m, 34-35m 378 10-16m, 39-41m, 43-45m, 50-52m/w Col. Ham. Smith 379 13u "unprolific|se", 13u "without|coupled"/12-15m/w ? no precision 17u "victoriously|Morton"/19u "Charleston|Journal"/Q, 27w Buffon 30-31w See Chartsworth Journal 37m/w inter se 45-48m 380 19-21m/20u "Bolta|Layard", 28-44m/41-44m, 45-46w p.724 good references 47-50w not intended 382 12-15m/13u "among

themselves"/15u "wolf-dogs", 18-19m, 32-37m, 38-40m 383 4-7m/7u "continues|remarkable", 8-9m, 19w i.e. C. Lupus of many authors 34-40m/36-40m/36-37w Richardson 37-39m, 39-40m, 52-53m 384 1-3m, 8-9m, 10-12m, 21-29m, 42-45m, 46-49m, 47-49m 385 wt Think of the geographical distribution difficulty 12u "Tchudi"/12-13w most probably in Nat History 13-17m/13-14u "found|epoch"/14-15u "that|seldom", 23-25m, 45-48m 386 10w quoted from Lyell 26?/u "in|forms" 387 fig.235.w Pariah dog 16-18m, 43-50m 388 wt Rosellini fig.237.m, fig.240.m, 1-4m, 3a/u "3400", 16-18m/17a "dynasty" 2400-2100 BC 21w Lepsius 22w♦, 25u "a|hound", 28-30m/29u "IVth|dynasties"/30u "curled tail", fig.240.w How alike Jackall & supposed Greyhound 41-42u "the|BC" 389 fig.241.w Rosellini 7u "from|Roti", 9u "XIIth"/w 2400-2100 13u "gazelle", fig.242.w modern 29-30m, 31-33m, 42-45m, 51u "at|species", 52-55m/53u "small|peculiarities"/w Eyton 390 2-5m, fig.243.w What dog is this? so long in body. Lepsius Dankmalen Rosellini♦ ears not like 13u↔, 15-19m, 20u "Rossellini's", fig.244.w Lepsius short body - what a tail fig.245.w Rosellini big ears fig.247.w ears not like hound, long body 391 2-4!, 5u "common|of", 8u "433"/w Hoskins Ethiopian 12u "434"/13-19m/12-16w Bennett Tower menagerie has figured African Bloodhound (?) 29u "twenty|before", 35-37m 392 8-10m, 10-15m, fig.251.w Layard & Vaux 38-39m 393 6-7m, 14-18m, 27-33m 394 3-7m/4w, 10u "pugs|&c"/10-12w no sort of evidence 17-28m 395 1-10m/2-6w i.e. variation due to crossing 5w Pigeons 41-44m, 46-50m 396 10-17m 397 36m 398 37-40m 400 14-24m, 27-29m, 34-35m 401 3-5m/4u "but|hound", 10-11m, 21-23m, 24-25m, 32-36m, 41-44m 402 4-12m 403 3u "natural"/3-5m/w Giant Horse 12-14m 413 4-10m/7u "no|camels"/8u "no|fowls"/4w Gliddon 21u "may|BC", 24-26m, 27-30m, 44-47m, 48-53m 414 32-35m 415 1-3m (Crawfurd) 424 38-43m 436 28-36m 439 3-15m, 41-44m/43u "excessive" 440 1-4m, 3u "authentic documents", 4u "anomalous conformation", 13-21m/13-16m, 35-37m/37u "foetus" 449 24-28m 669 12-14m (Rosellini) 675 24m, 27m 688 1-4m/3u "pyramids|tombs"/4u "thirty-fifth" 689 8m, 10u "Pyramids|extant" 691 41-45m 692 20-25m/w ∴ Romans probably did not receive domestic Birds 693 35-37m 701 17-20m 702 14-18m 714 20m 715 11-13m, 37-39m 717b 35-39m 724a 51-52m (Ritter), 54-55m, 57m/59m/56-60w Camels hybrid wolves Pallas on wolves 724b 74-76m, wb St. Hilaire

MOSELEY, Henry Nottidge *Notes by a naturalist on the "Challenger"* London; Macmillan & Co.; 1879 [CUL, I]
ad, beh, cc, ch, gd, no, oo, rd, sx, tm

NB 123 Distrib; 125; 133; 154 Rudiments; 168; 265; 457-84 Expression 492; 337; 292; 305; 360; 386; 591
Geogr Distribution; 17; 24; 123; 135; 164; 281; 368; 386; 433

SB Moseley

125 changes of Habit
169 Plants in Antarctic growing on mounds - wind
292 Nesting of Edible swallow
305 Gill-cavity partly lung & partly store for air
386 1 male nutmeg to 50 female trees
586 Competition
591 Light & colour of animals at grt depths

17 25-26m 24 35-37m 35 4-6m 45 17-19m, 36-38m 123 7-10m 125 8u "under stones", 12u "totally new", 14-19m 133 14-25m, 29-33m 135 11-21m, 31-36m 142 17-21m 154 18-26m 164 4-11m 168 35-38m 169 1-7m 265 1-4m 281 1-8m 284 27-33m 285 8-17m 292 35-38m 305 27-37m 337 11-16m (Darwin) 360 12-16m 368 5-10m, 12-14m 386 8-12m, 23-25m, 27-38m 387 1-4m, 5-9m/6u "eject |hard", 12-16m 421 30-32m 432 23-26m/24u "70 |east" 433 15-22m, 32-33m, 35-37m 457 27-33m 492 29-35m 538 22-23m 540 13-14m 581 17-18m 586 17-34w Competition with other forms far more important than conditions 587 23-28m 591 17-35m (Wallich)

MOSELEY, Henry Nottidge *Oregon: its resources, climate, people and productions* London; Edward Stanford; 1878 [Down, S]

MOSELEY, Henry Nottidge *On the structure and development of Peripatus capensis* (extract); 1874 [Down, I]

MOSSO, Angelo *Kreislauf des Blutes im menschlichen Gehirn* Leipzig; Veit; 1881 [Down, I] ♂

MOUBRAY, B. *A practical treatise on breeding poultry, pigeons and rabbits* 7th edn; London; 1834 [CUL]
beh, br, f, he, no, wd

NF1 Recommended by Mr Brent

NF2 p.147

NB1 Hens, Domestic Hints p70

NB2 p13; 17 to 24; 30; 54; 87; 106; 130; 133; 152; 154; 156; 165; 168; 176; 185; 203

SB □β

13 Game Chickens very pugnacious. Q
Eggs very thin. Ch 6 Q♂

30 Some Hens much addicted to lay eggs in other nests

54 tapping on board with nail induced chicken to peck

107 colour of Ducks eggs going with plumage - Correlation (Memb. B. Ayles Duck)

133 Q♂ Hen Pheasant lays seldom more than 10 in confinement but 18 to 20 wild

170 London to Liege 4°34'AM 10°24'-5°50' said to be 45 miles per hour.

176 Some Cats Ratters & some Mousers Chapt 6 (Hereditary) & took to water & swimming

♂ Blyth on *Felis cilidigitata* aquatic kitten dabbling in water.-

185 Hare-Rabbit large eyes

13 14-17m/Q 18-19m, 25-26m/Q 17 23-25m 18 4-5m/4u "white tops", 12-13m, 23-25m 19 12-13u "exclusive |very", 16-17m 20 9-10m 22 11-12m 24 11-13m 30 19-23m 54 19-24m 55 16-21m 70 3-17m 87 3-12m (Buffon) 106 14-17m 107 2-8m 130 31-32m 133 28-31m 152 24-25m 154 17-22m 155 14-16m 156 28-32m 162 1-5m 165 1-3m 168 28-30m 170 28-32m 171 3-6m 176 4-6m, 20-21m 185 8-14m 203 2-6m

♂

MÜLLER, Ferdinand von *Fragmenta phytographiae australiae* vol. 7; Melbourne; J. Ferres; 1869-71 [Down, I]

NB O/

♂

MÜLLER, Friedrich *Allgemeine Ethnographie* Wien; Alfred Hölder; 1873 [Down, I] ♂

MÜLLER, Friedrich *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859: anthropologischer Theil* 3. Abtheilung, "Ethnographie"; Wien; Kaiserlich-Königlichen Hof- und Staatsdruckerei; 1868 [CUL]

beh, cc, h, mg, t, tm, v

SB1 p.127- He discusses & disputes whether the civilization of W. coast of S. America is due to immigration from Asia- I wd remark if so, the aborigines must have already been somewhat advanced, for while not nec with our inference, it is very unlikely that a few shipwrecked men from some less civilized nation cd have produced any permanent effect on savages.-

SB2 xi Remnants of Races

xii Beard no connection with Climate.-

xi 34-39m xiii 11-15m/w Beard correlation
19u "Australier stark" xiv 22m 127 21-22m

§

MÜLLER, Fritz *Facts and arguments for Darwin* London; John Murray; 1869 [CULR]
br, ch, ds, em, ig, sp, sx, t, ta, tm, ud

NB 80 Orchestia shown

79 sexual differing good development goes on

40 zigzag above

21 & 26 two such forms

Species Theory

83; 94; 98 to 109 embryology no fixed plan

110,119 Metamorphosis of Insects acquired

139 like Plant

80 means of transition from changes going on in the sexually mature males Case like the larvae of Batrachians breeding

14 30-33m 19 12w p.9 22-23m 20 1u "anterior antennae", 8u "Copepoda", 15-19m, 22-25m/23u "different", 28-30m 21 fig.m/c/w 25 fig.w Fig 1 11u "powerful chelae" 26 2u "by terms", figs.w Fig 2, 3 27 12-13u "females | species", figs.m, 24-26u "coxal | process" 40 20-26m (Milne-Edwards), 21u/a "inferior".w posterior 47 5-23m 72 23-26m/w this is specific difference 76 6-7u "structure | sexes" 78 1-7m/wt/1-3w acquired only during adult age 79 1-7m, 8-9m, 10-11m, 14-17m, 15-17m, 19-21m, 23-31m 80 1-13m, figs.m 83 19-25m 94 1-4m, figs.m, 6u "plus | the", 27-34m 95 9-18m 98 1-18m 100 29-30m 101 25-28m (Rudolf Wagner) 104 22-29m 105 1-6m 106 26-29m (Cuvier) 107 7-18m/16a "and the" Spider 108 1-6m 109 20-21a "us" ! 110 21-23m 111 4-12m, 7-13m, 19-25w But the Embryo of the intermediate progenitor will reveal this stage 114 14-18m 116 15-30m 117 23-30m 118 1-3m, 27-30m 119 1-6m, 8-40m (Gerstäcker) 120 40-42m/u "among | adult" 121 31-38m 127 11-15m 131 15-24m 137 11u/? "carina" 139 6-11m

MÜLLER, Fritz *Für Darwin* Leipzig; Wilhelm Engelmann; 1864 [CUL, I]
sx, tm

SF (4 sheets, not CD) □β €

13 figs. 3-6.w 2 forms of same male 17 figs. 8 and 9.w 2 forms of same male 19 3m, 14m 71 6-8m/6u "gleichem"

MÜLLER, Hermann *Alpenblumen* Leipzig; Wilhelm Engelmann; 1881 [Down, I]
f, v

169 20-21m 189 35-38m, 40-41m 205 26-29m/26u "Wohlgeruchs"/28u "Auszackung" 206 10-13m 267 5-16m 268 40-42m 269 41-43m 279 7-9m 287 1-3m, 6-8m 288 1-3m 289 1-4m 290 20-29m 297 25-29m, 35-41m 305 2-5m, 18-19m, 20-24m, 25-32m, 40-41m 352 10m 477 37-38m 478 1-2m, 37-38m 479 1-3m, 25-26m 481 fig.m 483 41-42m 484 29-30m 486 4-7m, 24m 487 5-7m, 35-38m 488 30-35m 492 37-40m 493 25-33m 495 2-4m, 7-18m 496 2-4m, 33-35m 497 10-21m/15-17m, 31-35m 498 7-10m, 21-22m, 36-39m 500 4-5m 502 12m 503 table.m 505 23-24m 506 8-10m, 35-40m, 41m 507 1-2m, 25-29m 508 fig.m 509 3-7m 511 17-20m/19-20u "da | dar bieten" 513 1-3m, 11-13m 514 21-25m 515 1-4m, 28-31m, 42-43m 521 17-21m, 34-38m 528 28-32m, 43-44m 529 1-2m, 9-10m 530 22-25m 531 19m, 33-35m 533 31-33m 536 32-34m 539 31-39m 540 31-32m 541 1-3m, 41-43m 543 31-34m 546 12-14m, 18-39m 547 1-5m 548 19-22m, 38-41m 549 38-42m 551 37-40m 552 23-26m, 42-44m 554 23-25m 555 16-24m, 28-36m 558 30-36m 559 9-16m 560 27-30m 561 24-29m 562 26-30m 564 18-23m 565 4-15m, 21-22m, 34-38m 566 19-21m 567 3-5m, 27-28m/27m, 35-36m, 39-40m

MÜLLER, Hermann *Befruchtung der Blumen durch Insekten* Leipzig; Wilhelm Engelmann; 1873 [CUL, I]

ad, beh, cc, f, fg, ig, mhp, no, oo, or, phy, sl, sp, sx, t, ta, tm, v, wd

NB (⊕, repeated ⊕)

extraordinary facts about the 2 forms of *Rhinanthus* & *Malva*- very important as showing new way of variation- Strange they do not blend- wd it not be worth while to cross and experimentise on with ⊕ them & publish separate paper-

⊕ p.369. *Scabiosa* case like *Thymus* - female flowers smaller.

p.37 *Orchids* ⊕ p73 ⊕ all have descriptions separate

430 for *Orchids*

⊕ 433 for *Orchids*

(⊕, overwritten ⊕) p444 of Mullers *Laws of Variation*

title page 2u (author), 10u (title) 3 14-18m 4 11-15m/[...]/13-15u "ohne | müsse"/5-23w have been blamed, but is ⊕ 18-21m, 23?/u "Sprengel | Erkenntnis", 41m 7 17m 13 6m/u "cleistogami" 17 7-38w It seems that Axell has shown that many flowers can be self-fertilised 18 ⊕ 22-25m/24u "Windblüthen" 19 26w ⊕ Why not you give on page 22 38m 27 20u "1868", 23m (Fritz Müller), 27m, 28m,

MÜLLER, H., BEFRUCHTUNG

28m 35 11u "zu fressen"/w Diptera 43-46m
 37 32-40m/36u "Rhingia | Rüssellänge"/33-36w
 Flies not stupid 39 9u "die Empisarten", 10u
 "Anbohren | befähigt" 46 14-22m 47 13-20m,
 16-22m 49 15-23m 58 wt p235/p333
 Erythraea 4a/u "Laburnum | Carum"/w 100 61
 35-37m/39u "sich | blühten" 75 34m/35m/
 31-34w Hildebrand on late pollen 39-44m/
 35-37w self-fert orch 49-53m/w self-sterile
 53-54m, wb Proc 76 35-36w 5 spec 81 21-
 22m 83 24-29m, 33u▲, 34u▲, 43u▲, 43u
 "Blüthen | mascula"/w 2 49u▲/w 3, 4 84 4u
 "32", 42-57m/w shows time right 85 17-20m,
 21-23w 1 ● 6 Bombus 2 other 87 27-31m,
 39-41m 88 13-21m 90 1-5m, 20-22ms 92
 37-40m (Sprengel) 97 wt Ensuring cross-
 fertilisation 20m/u "proterandrische Dich-
 ogamie" 99 34-40m 113 31-33m 115 43-
 47m/45-46u "Diese | ihrer" 122 8-12m, 23-26m,
 24w●, 29-32m, 41u▲, 42-43m, 42u
 "Ritterspornart" 127 15-27m (Fritz Müller),
 30-31u "und | Blüthenstaub" 131 39-43m 133
 1-4m, 4-7m 143 10-13m, 23-26m, 28u
 "Prosopisarten", 49-50m/49w no 145 3u
 "Sprengel", 3-4u "Hildebrand", 20-27m,
 23u▲, 26u▲, 31u "diese | bewirken",
 32u "kleine", 32u▲, 32-34m (Delpino),
 34u "Selbstbestäubung | tricolor" 146 21-30m
 147 13-23m, 45-47m 149 37-39m 151 10-
 11m/u "werden | aufgelockt" 153 42-48m/
 46u "von Dipteren und Hymenopteren" 154
 28-30m 165 34-37m 167 35u "fünf
 Honigtröpfchen", 45u "gleichzeitig", 46u "doch |
 statt" 168 18-20m, 23-26m, 27m/u "durch |
 70", 27-28m, 29-32m 169 19-21m, 23-25m
 173 27-47m, 35-36m, 38-39m (Kölreuter,
 Gaertner) 174 9-10m, 27-31m, 27-28u
 "zu | hindurch", 35-37u/m, wb Several
 other non-dimorph species 175 8m/u
 "Insektenbesuch beschränkten", 34u "41",
 fig.56.m/w How like dimorph (must be origin
 of 176 3-4u "proterandrischer Dichogamie"
 185 5-6u 188 20-22m (Axell) 193 6-7x/6u
 "langer", fig.m, 10-21w & different form &
 size. 12m, 13-15m, 13-26w Spike when
 cultivated plants as we shall see variation
 19m, 22-23m 195 1-2m 224 3-6m, 46-47m 232
 45m/u "monadelphisch" 235 15-17m 240 24u
 "honiglos", 24-26m, 32-33m/33u "Honigbiene"
 241 wt excellent observations compare mine
 9u "welche | oben", 15-17m/16-17u "aller |
 zwängen", 30u "die | Rücken", 31u "der
 plattenförmige", 35-41m/? 242 22-27w |
 cannot but think ● adaptation 33-35m/37-
 47m/37u/30-45w Saft-maal & no Honey yet
 he thinks Bees 42-46m, wb a juicy swelling
 near centre of Standard 243 8u "luteus" 249
 19u "Honig | Insekt", 15-26w Beautiful

adaptation 28w must be strong 30-32w
 Difficult flowers for endemic insect 36-39m/w
 Thinks not insects wd be stronger so
 fertilise better 48m/u "Viertelstunde", wb very
 few Bees visit them 250 3-9m, 38-41m (W.
 Ogle) 253 42-46m 258 2-7m/4u "coccinus", 8-
 37w distinct species conclude must be
 crossed - this the one Phaseolus which
 flowers at the same time distinct species 17-
 23m, 23u "vulgaris"/w wrong 46-49m 264
 3-6m, 7-17m/14-16m 265 9u "einen Theil",
 28-32m 267 29-34m/31u "ausgeprägte |
 Blüthen" 277 9-10m/10u "Blumenkrone", 12u
 "nigrum", 30u "Blüthen | Honigtröpfchen",
 32-33u "orange | und", 34u, 36u
 "überwiegend wahrscheinlich", 37u
 "Insektenbesuche | möglich", 46-49m, 47u
 "Saftmaal" 278 12-14w various insects
 35u "Thapsus" 279 40-41m, 42-46m/m
 282 29-33m/30u "Wespen" 284 1-2m, fig.100.w
 It is a dichogam 28 (Ogle & Spengel) 23-
 30m/17-30w Think self fertilisation of seed
 32-34m/33u "Bot. Z. 1865", zb 285 6-9m/w
 287 10-12m, 39-42m 289 wt The more
 conspicuous a flower is the more likely to be
 fertilised by foreign pollen & to be sterile if
 not visited 20-37m/28w (a) 292 41-46m 295
 8-11m, 42-43 296 22-29m 303 46-48m 306
 22-28m, 31-32m/31u "Bezug | Ogle" 311 21-
 26m 318 fig.116.w Polygonum dioicius 18-
 25m/23-24u "weiblicher | seltener" 319 20-22m/
 21u "Die kleinblumigen", 33-36m, 50u, wb
 greater fertility is real cause 325 20-22m, 28-
 29m 326 10-21m 328 5-9m/7u "proter-
 andrischer", 8u "kleinblumiger | Stöcke", 6-7w
 forms 14u 334 1-3m/2u "13"/w p113 341
 20u "Bot. | 67"/w many cases given 342 39-
 41m/28-42w fecundation wind & insects wb
 Begins by saying that D. describes 3 forms
 which note in passing owing to ●
 plants It 343 2u "sammelnde | Pollen"/2-3w
 on pollen from 4-6m, 43u "ausgeprägten
 proterogynischen" 345 1-3m, 5-9w 2 Grad-
 ations between Arumarten & Erbsenarten
 346 37-44m/40u "homomorphische | proter-
 andrische", 38-39w non-dimorphic 42u
 "striata", 43u "Ricea | longifolia" 347 21-25m/
 23u "Kelche | die"/21w 4 Hon 39w cases 40-
 44m 348 5-11m/7-8w 2 forms 349 18-
 19u, 28-30m/28-29u "Narbe | Staubgefäße"/
 30u "honiglosen" 350 7m/u "Den | der",
 fig.130.w between two & three as long 14u
 "0,011 | mm", 30-34m, 32-35m 351 1-3m, 6-
 18m/fig.m/6-8w chiefly Diptera 10u "103",
 fig.c

MÜLLER, Hermann Die Wechselbeziehungen
 zwischen Blumen und den ihre Kreuzung

vermittelnden Insekten Breslau; Trewendt; 1879 [Linnean Society of London]

1 *wt* From the Encyklopaedie der Naturwissenschaften Linnean Soc. presented by C. Darwin

MÜLLER, Johannes *Elements of physiology* trans. W. Baly, 2 vols & supplement; London; Taylor & Walton; 1838-42 [CUL]

ad, af, beh, br, cc, ch, che, cr, cs, dic, em, fg, geo, h, he, hl, hy, ig, in, ir, mhp, mn, oo, pat, phy, rd, sl, sp, sx, t, ta, tm, ud, v, wd, y

vol. 1 NB1 Owen says he can perceive not much difference between reflex action & effects of habits - (he conceives an habitual action takes place through special cord)

404 On division of Planariae

It seems to me most difficult to separate a really habitual (if such there be) & hereditary habit- from real mental willed actions, which the consciousness does not perceive from want of attention, in same manner as it does not perceive all coinstantaneous impressions on the senses -

Associations may become hereditary, which wd account for the alliance of instincts with times, places - V. Hartley on association??

NB2

How then can Geologists say, that animals were first created!!! a capital argument showing that we must not generalize from absence of organic remains
see p.46

9; 10; 16; 19; 20; 23; 26; 28; 30; 39; 41; 43; 47; 48; 54; 56; 72; 76; 89; 90; 144; 158; 165; 193; 194; 198; 203; 254; 225; 290; 298; 302; 320; 350; 352; 354; 364; 373; 394; 395; 399; 401; 402; 407; 431; 448; 460; 499; 500; 568; 570; 572; 624; 280; 686; 698; 713; 719; 720; 730; 735; 739 & following pages for association; 748; 762; 778; 786; 791; 793; 794; 818; 820; 822; 824; 836; 846

Expression; 350-354; 730; 740; 748; 762; 778; 818

p407 Nails Reproduced

721 Theory of reflex actions

SB □β

33 The more developed the parts, the more dependent on each other

54 All organs require occasional use to keep perfect

76 Young Dogs as long as blind generate less heat, born at earlier period

165 Branchial arches in higher animals - p302, 320

290 on same part attracting same

substances, as in Tumours (Pangenesis)

395 Peculiar teeth in ornithorhynchus, Ant-eater & Whale

399 On similarity of embryos of higher animals

403 On monstrosities in relation to division of genus - Double monsters Pang

499 In sucking objects to Cuviers idea of Dream for instinct NQ

686 On the insulation of the will to certain muscles in playing piano NQ

713 Reflex action compared by me with Habit.- 716 Reflex adaptive - 721 NQ

791 On atrophy of nerve of eye from lesions

468 Urea in blood & separated by glands

1 36u "Sodium" 4 28-34m 5 6-14m/? 9 40-43m, *wb* As if this whole function of life was first used in counteracting ordinary chemical laws- 10 3-6m/!4u "of organic", 12-17m/13-15w remarkable 16 *w* How is this to my theory (& parasitical insects) 3-8m, 6-8m, 10-16m/w like diseases proof of relation of man to other animals 24-26w great change 26-27m 17 4-13m, 24m 18 36-42m/w poor 19 *w*/1-41w NB in the growth & ground of reformation of those simple animals in which any part out of will make new individuals the ordinary growth must be nearly same as true reproduction. & the theory may probably be extended to all organisms 1-10m/5w poor 11w Yet a snail will reproduce its head!- 21-26w There must be some wider difference between ovum & bud.- *wb* There must be in the bisected parts organs sufficient to keep them alive & then any part may be reproduced.- 20 38a "adaptation"/c "end"/w/ (as the effect of) ♣ circumstances 23 12-15m/w well seen in Zoophyte buds 34-38m, 40-44m 24 *w* now in a bud we must suppose there is one old particle of old organized structure.- a filament of old nerve 1-22m/7-8w very good 38-42m/41u "anencephalous monsters" 25 3-5m, 6-8m/7u "by dream"/9w bad comparison?? *wb* The inherited structure of brain must cause instincts: this structure might as well be bred. as any other adapted structure.- 26 9-13m 27 38m 28 32-36m, *wb* Combustion, I shoud think, was strongest analogy to live.- instead of heat being produced by the action. life - ♣ 30 27-32m/30x/u "those life", *wb* X The vital principle produces the organs.- as the latter vary, so must the vital Principle. 31 5u "indispensable"/5-6w deep water sea-weeds! 33 26-28m, 30-32m/?, 35-40m/w I suspect false 34 10u/? "transferred" 39 23-25m/23u "organic\also" 41 20-22m, 32-

in (Note p.1661) German Translat. of Prichard
1661 Rudolphi Beitrage zur Anthropologie, treats of Species & Hybrids –
p.1671 List of good Books on Races of Man –

List of good Books

◆ 1144 frowning

NB2 870; 928; 931; 934 Book on Expression; 936 to 950; 965; 1038; 1071; 1086; 1090; 1110 to 1117 to 1125; 1144 & 1150 Expression; 1148; 1169; 1229 Appendix p8; 1233; 1236; 1245; 1262; 1311 Expression; 1315; 1318 Instinct; 1328 do; 1335; 1339; 1344; 1347 to 1364; 1384; 1399; 1400; 1405; 1407; 1421 to end

Best abstract against metamorphosis which I have seen

◆ 1335; 1339; 1347

Expression 933,34; 1311 See Passions, Index; 1328; 1351 animals & man's mind compared; 1399; 1144 frowning short sighted people close eyelid & frown

SB □β

928 Consensual movements – at birth in eyes

935 instinctive walking (Hereditary easy flow of nervous force to certain muscles) Q 939, 943 Q

946 Definition of instinct. 947 – 949 – 950 on importance of Coordination. Q

Müller Phys 2d vol

965 Rudiments of toe in Horse & Pig do not touch ground

1344 Instinct Q – 1347 innate ideas – 1361

1405 Argument that monsters not due to imagination of Mother. (good)

1407 on temperaments of the old writers shows rubbish.–

1425 A Polype is a multiple of all that is necessary for development of individual (Pangeneses)

1437 A good sentence in relation to reproduction in connexion with superfluity for own Life ♀ in relation to Doubleday

1453 Tape-worms either bend & fertilize themselves or two unite – shows how important crossing must be as pollen of later dichogamous flower wasted & so with Lymnaei

1454 Tendra is it Bryozoon? sexes distinct

1458 Rudolphi has enlarged on sexual difference in his Beitrage Pang

1478 Imperfect Spermatozoa of Hybrids

1569 Membrane of egg agrees with membrane of uterus (Mem Fish coming to have Placenta

1592 On how far true that all embryos

resemble each other.

1596 on embryo Torpedo increasing in weight in womb (a sort of Placenta ♀ 1597 (striking case of Passage)

1599 great difference in 2 species of Mustelus ♀ in placentation

1610 Relation of Vertebrae in Fish to embryos of higher animals

1622 Sharks have gills during early part alone of embryonic life

1661 Definition of Species

1662 On the two causes of Variation: innate & external

1663 characters fixed by long intermarrying (over) Passions

870 26–43m 928 wt N.B The summing up in this chapter good 3–15m, 16–19m, 41–42m/42u "be|habit" 929 4?/u "of birth"/w instinct 931 31–38m 932 8–17m/12–13u "any action" 933 wt what makes a passion? 6–15m, 25–29m 934 wt●, 2–8m, 2–3m, 4–5m, 5–8"...", 41–42m (Huschke) 935 24–39m, wb this bears on instinctive walking The nervous fluid flows into habitual channel 936 23–26m, 33–37m 937 3–9m/6–7u "There|mind"/8–9u↔, 34–36m 938 14–16m, 15–19m/15–16u "the production", 16–20m, 17–19m, 23–24m, 29–31m 939 25–32m/28–29"... 946 15–22m/"...", 36–38m 947 17–18m, 23–24m/u "the form"/23"...", 24–25u "unison|action"/25–28w yet upon some education 948 4–6m, 23–27m, 25–27m 949 20–22u↔, 20–22m, 23w (a) 31–32m, 35u "decapitated", 35u "were spasmodic", wb These are hereditary in Horses paces.– 950 18–21m/18u "the|movements" 965 43–44m 1046 6–7m 1071 9–11m 1086 3–35m 1088 wt Q to p.1162 1089 34–36m/36u "convex|crustacea" 1090 2–4m/3u "three modes" 23–28m, 25–27m, 29–31m 1091 19–21m 1092 1–2u "mosaic|instrument", 2u "concentrating|organ" 1099 1–3m 1110 6–7m, 28–30m, 38–42m 1111 7u "pupil|opening", 10m, 21–22m, 23–25m, 32–33m, 34m, 36m, 38–40m/38u "perception" 1112 4m 1113 4–5m, 9m/u "the cornea", 9u "in general", 15m, 21z, 23m, 27–28m, 33m 1114 6–8m (Milne-Edwards), 8u "Callianassa", 9u♣, 10–11u↔, 13–14u "the|cones", 17u♣, 23m, 24m, 28m, 33u♣, 36m, 39–41m/40u "namely|humour" 1115 1–2m, 7–9m/8u "man|generally", 19–20m, 22–24m, 25m, 28–29u "larvae|eyes", 36–37m 1116 3–4x, 7x/u "the|oblong", 9x, 37–39m/38u "more|body" 1117 11–12Q 12–14m, 24–26m, 37–38m, 42–44m/44u "rudimentary state" 1118 13–15m, 28–30m/w Have they lens for images 1119 29m, 36m/u "characteristic of" 1120 5–6m 1123 24Q 26–27m, 28–30m 1124 11–13m 1126 6m/u

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41m, 33m, *wb* Plants going to sleep without the stimulus of darkness strongly analogous to a voluntary action from a diffused nervous system. 43 8-10m 46 25-33m, 34-42m 47 *wt* Look at differences of variation propagated 2-5m/??, 9-27m 48 34-39m 51 20-23m 54 *wt* in savages no cause apparent. [an ourang more ear? 5-15m 56 4-22m, 11-12w curious 65 25-27Q 31m/u "torpedo", 38-39u↔, 40u "of|distributed", 41u "gymnotus and", 42m 66 6u "hundred|nerves", 9-10u "branches|superficially", 11u "without", 18u "nervous vagus", 20u "intercostal nerves" 72 13-43m 73 *wt* Vitality is to ternary compounds, what electricity is to binary - 3-9m/! 76 31-37m 89 26-27m 90 1-3m/?, 23-28m/25-26u "torpor|time", 34z 92 30-35m 107 20-22m 141 21-25m 144 37-43m 145 8-13m 158 *wt* it shows, I think, that ♣ same external form may be arrived at from two very different courses of generation 1-6w it is an extreme case of analogy 165 33-38m, *wb* Hence prototype aquatic 192 34-38m 193 12-16m 198 14-30m, *wb* therefore habit of general movement of body would act on the heart.- 203 18-21m 225 20-25m, 33-37m/35u "such|gallopavo" 290 26-30m/1-39w But it does not follow that any cancerous particles are in the blood to be attracted. 28-37w Transmission of varieties is answer enough. 38-44m/w Rose-gall &c &c *wb* It is less wondrous that each new structure should reproduce itself if cancer does 295 17u "tembrio"/w tenebrio? 298 3-6m/w impregnated? 302 23-30m (Rathke), 42-48m 303 22m 320 1-21w Hence greater complexity of structure in early than in later stages. 13-23m (Geoffroy) 350 12-15m, 20-25m/w what has pouting to do with respiration 351 9-25m, 20-23w crying imagination disgust 27-38m 352 1-4m, 11-33m/21-25w urine from fear! 353 26-27u "oblongata|nasal"/25-30m/w established by habit 32-35m/w analogous to tickling 37-39w not alae of nostril? 354 35-44w/wb in playing a tune are the fingers connected with brain? or cerebellum *wb* why more difficult than any instinctive movement. 364 22-23u "Nutrition|reproduction", 23-24m, 26-35m 365 29-30m, 30-34m 373 34-36m, 42-43m 374 1-15m 395 31-38m 399 1-10m/8u "but|while", 11-24m, 28-34m 400 40-42m 401 1-13m, 27-38m 402 1-30m 403 6-11m, 14-43m 404 4-11m (Dugès) 407 31-33m 410 28-30m/28u "it|transparent", 32-33u "affinity|surface" 412 37-39m 416 3-5m 431 25-30m/! 447 32-41m 448 30-37m 460 10-17m, 34-39m/39u "and|ornithorhynchus" 468 4-7m 469 13-33m 473 15-18m 486 27w€ 487 7-12m/? 489 3u/w€ 499 30-42m (Cuvier)

500 1-2m 513 32-33m 514 *wtee*, 4-6m/5u "1.14 to", 27w 484 515 34-35m 568 8-12m 570 36-41m 572 34-35m 624 1-5m/w♦ would a blind man have sensation of light 8-10w nerve aborted 680 23-27m 686 22-24m 698 1-6m, 23-33m, 38-40m 699 25-27u "radiation|cord", 27-33m, 34-37m 713 30-36m/w Infant winking see how old Willy was 33-36m€, *wb* Pretend to poke a man in the stomach, he will ward off. quite involuntary. Mr Wickham. Surely this must be custom 714 32-41m 715 *wt* Bell wrong 1-3m, 4-10m/6-11w 2 sets of nerves for same end 13-15m 716 4-9m/5-18w but why does it not excite ● instead of this misadapted movement 717 *wt* the eye would not work 5x, 18-24m/19x, *wb* x it has been said that respiration, also, subject to the will - Habitual movements show that any may become reflective 718 14-23m 719 37-42m/38-40u "there|action", *wb* the connection here is hypothetical why not custom? 720 1-2m, 12-24m, 14m/u "some|communication"/14-16w surely custom *wb* I think Dr. Holland has some remarks on the connection of instinctive♦ reflex & habitual.- 721 *wt* XX May not a movement be said to be instinctive, when it is become reflex, without connection with true sensation, at least accompanied by conscience 11-20m/14XX 724 26-34m 727 10u "warming agent"/w heat not light 730 26-32m/23-29w♦ Hence there is some such conclusion 30-37m, *wb* This makes my notion about effects of passion &c very hypothetical No 735 35-41m 739 19-34m 740 10-15m, 23-25m 747 39-43m 748 1-39m 762 28-30m, 39-44m/42u "tickling" 763 5u "reflection|brain" 778 38-41m, 39w Cockatoos *wb* expression of species of genus same? 786 19-23m 791 30-37m 793 23-36m 794 9-30m 818 19-44m 819 1-14m, 29-37m 820 15-24m 822 34-42m/34-36w/wb I suspect all this is not so certain from the obscurity of sensitive plants. 823 11-12x/u "it|matter"/wt ? when habit becomes hereditary?? 9-17m/11-12xx, 17-18m/!?, 20u "dreams"/20-21w memories ∴ ? dreams 24-42m, *wb* curious coincidence of thought with my notion of hinge of shell &c &c &c 824 5-44m 825 9-41m 836 23-26m, 23-31m, 31-41m 837 3-14m 846 31-39m/w in reference to tumbler 36-40m Catalogue 1 6-7m (M. Allen) 2 *wb€€*

vol. 2 NB1 None hardly worth buying see Coll of Surgeons p.1458 Reference to book on secondary male characters - p.1478 Wagner Physiologie on Hybrids - &

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"cornea|body" 1133 1-3m 1144 13-15m/w
 opposed to frowning theory 1145 24-26m
 1148 38u↔, 39-40m 1149 25-26m/u
 "voluntary|iris" 1150 6-9m 1159 13-14m,
 19m, 32m 1169 3-12m, *wb* The case of
 chickens shows how inappropriate the
 expression of dream is to this instinct - it is
 a habit. 1129 31-33m 1230 1-4m, 30-32m
 1233 24-29m 1236 15-16m 1245 22-27m 1252
 34-43m 1262 19-23m 1311 10-11m/11u☉ "the
 eyelids"/6-11w | shd say Habit, no in infant
 1315 8m/u "rudimentary|bone", 28-30m, 28-
 29m/29u "human|rudimentary"/w | believe in
 Negro more developed 32-33w Bentham law
 1318 17-20m 1328 19u "may|unperceived"/16-
 26w Has remarked this with all senses,
 bears on habitual actions not being
 perceived 1335 18-22m/18u "germ|parent"/
 19-20u "merely|plant"/?/21u "only|organised"
 1339 23-26m 1344 26-30m, 30-35m, 42-43m
 1345 5-7m/5-6u "The|consciousness" 1347 21-
 27m 1348 1-5m, 8-9???/8-12w savage has
 power 11-13m, 32-33m/33u "distinct power"
 1351 21-33m/21u "human|able", 30-31u
 "and|speech"/28-33w V. Ld Brougham &
 Althorp 42-44m/44u "are|notion" 1352 5-9m/
wt if there is 'abstraction' on smallest scale,
 it may graduate into the highest - 7-9m/8u
 "image|constant", 30-40w this does not apply
 to animals doing things for first time 1353 2-
 6m, 18-19u "but|reaction" 1361 25x, *wb* x In
 the case of the Dray horse, there is, he *wd*
 say, no intermediate step, by generalising or
 abstracting that function retards movement
 &c &c - but simple association - 1362 22m/u
 "special|memory" 1364 28-30m/30u "but|
 relation", 31-33m, 40-43m/40-41u↔ 1399 20u
 "ennobling|form", 23u↔ 1400 26-36m 1405
 15-19m, 27-30m 1407 13-16m, 32-35m, 42-
 44m/42u "temperaments" 1421 19u±/17-20w |
 remember Owen doubted this. 1424 19-26m
 1425 5-6u↔/3-9m/w good expression 1426
 18-21m, 12u♦, 20u "a force", 25-26u
 "formative power", 32m/u "formative|latent",
 36-37m/37u "then|manifested", 40-41m/40u
 "formative|cytoblastema" 1427 34-37m 1428 1-
 5m, 26-27u "But|may", 27-31u±/29w (a) *wb*
 (a) differs in duration of life = non-
metamorphosis or less variation.= 1435 10-
 15m, *wb* | have to treat simply of variation by
 gemmiparous & sexual generation 1437 11-
 15m, 21u "force", 23-26m/23u "differs|
 fissiparous", 29-30m, 36-37m 1438 7-13m, 33-
 35m 1439 13-16m/15u "gemma|division"
 1440 30-34m 1444 36-38m 1445 1-9m, 7-9m,
 10-17m, 10-12m, 18-19m, 30-32?, 33-34m,
 37-43m 1447 7-9m 1448 19-20m, 19-21m
 1449 1-3m, 33-40m 1451 21-29m 1452 22-

32m, 23-24u "notion|inadmissible", 30-31u
 "some|alone" 1453 5-7m/u "each|indep-
 endently", 21-22m/21-24w like dichogamous
 flowers 30-31m/31u "Once|tapeworm", 38-
 39m 1454 4-6m, 12-13m, 25u "includes|
 sexes", 26-29m 1455 11-14m, 18-35m 1456
 28-29m, 40-42m (R. Wagner) 1457 27-32m,
 37-39m 1458 12-14m/12u♣, 41-43m
 (Rudolphi), 44w Poor Book 1459 4-6m, 31u
 "but|internally" 1461 31-33m/33u "but|
 atrophied" 1462 42-43m 1463 1-2m 1464 9-
 10m/9u "in|embryo" 1478 *wt* z) not more
 peculiar ♣ to hybrids than to Mongrels 16m/
w z)? 21-25m, 27-29m, 30-32m, 34-36m (R.
 Wagner), 34-36w analogue to Digitalis 43m/
wb Coll. of Surgeons 1479 1-10m/4-7w are
 these dioecious? 35-36m (Meyen) 1480 22-
 24m 1481 30-34m (Geoffroy, Cuvier) 1482 37-
 40m 1502 25-26m, *wb* the conditions which
 allow free propagation of leaf buds will yet
 prevent flower buds 1504 5-14m, 18-20m/19u
 "down|stock" 1506 15-18m 1516 29-33m
 (Rathke, Reichert) 1520 16-19m 1531 16-17m/
 16-17u "fishes|type", 38-39m 1553 18-19m/u
 "the|arches" 1555 *zb* 1566 20-22m (Prévost
 and Dumas) 1569 2-4m, 17-19m 1570 34-35m
 1586 42-43m/43u "3|slits" 1589 16-18m, 17-
 18m 1592 2-6m, 10-12/11u↔, 13-15m, 19-
 21m, 22-24m/23u "unaptly|branchial", 25m,
 28-31m, 34-37m, 38-41m 1593 20m/u "are
 reduced" 1596 7-11m, 34-38m 1597 2-3u
 "human|sharks", 3-4m, 15m/u "Mammalia|
 Man"/w always contrasts them 1599 6-10m/
 7-8u "genus|foetus" 1610 25-27m, 37-38m
 1613 42-43m, 44u "which|abortive" 1614 5-
 11m 1615 11-14m, 32-39m 1616 *wb* All this
 section had perhaps be better reread 1619
 34-36m 1620 1-3m 1621 1-3m, 3-5m/5u
 "early|embryo" 1622 33-35m 1624 11-17m
 (von Baer) 1629 32-36m 1630 20-23m, *wb*
 ones wonder is lessened, ♣ at selection
 making an eye, when one sees how eyes
 are really formed 1632 39-41m 1633 20-22m
 (Huschke), 34-41m 1639 23m, 32-38m 1640 9-
 11m, 13-14m 1650 28-40m 1661 14-18m/17u
 "certain invariable", 19-25m/!, 27-29m/29u
 "another genus", 30u "natural repugnance",
 36-38m, 39-42m (Rudolphi, Prichard) 1662 6-
 9m/8u "varieties|faculties", 12-14m, 16?/u
 "races"/17w individuals 20u↔, 26-28m/26u
 "is|species", 31-34m, 39-42m 1663 2-8m, 19-
 29m, 27-30m, 31-35m, 37-40m, 44u "also|
 education" 1664 1-3m, 9-12m, 14-21m 1665 1-
 20m, 37-42m 1666 12-13u "caused
 propagation", 35-44m (Vrolik) 1667 4-7m, 9u
 "ossa|one", 18-20m, 29-30m, 33-35m 1669
 15-18m, 42-44m 1671 32m (Vrolik), 34m (R.
 Wagner), 38m/u "R. Wagner|1840" 1675.a

66m 1675.b 2m 1688.a 56m, 57m 1701.a 22-36m appendix, 1 wt O/ 8 19-27m (Retzius)/ 21w gradation 28-31m 10 7-9m ♦

Supplement *Recent advances in the physiology of motion . . .* [ed. Baly and Kirkes]; London; Taylor & Walton; 1848
rd, sx

NB 111 Rud. uterus in Males Q
23 ↑16x/uo "crystalline" 26 12-15m 60 ↑20-17m/w Now there has. Newport 111 ↑12-6m/Q

MÜLLER, Johannes *Über die Gattungen der Seeigellarven* Berlin; K. Akademie der Wissenschaft [Down, I]

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ci, fo, gd, geo, gr, is, mi, se, sp, sx, t, ti, tm, ve

vol. 1 NB X means Species Theory
18; 104 X Curculios & Neuropterous insects in L. Coal.; 109; 111

116 In reading an account of the Carboniferous formations – the variety of beds on which the whole rests & the thinning out of certain portions – the footsteps in New Red &c &c show how many partial elevations like East Indian Archipelago –

140; 151; 160; Read Chapt 13 again with sections; 183; 186; 189; 200; 205 list of good sections in Ludlow Rocks; 211; 230; 233; 235; 243; 244; 245

18 18-24m/w compare with coasts of Patagonia in the map appear like isld in the map.– 104 21-25m (Buckland), 29-31m 109 33-38m 111 11-15m 116 24-30m 140 1-31m 151 33-37m 160 23-28m 183 14-17m/w Do they reappear in the Carboniferous 186 6-14m 189 4-8m 200 17-21m 205 14-23m 211 3-9m 230 33-38w/wb p109. look back to Malvern ? several other instances occur of relevation of lines/volcanic eruptions. & on simple lines of violence 231 32-35m 233 14-20m/w Curious analogy with Falkland Isd the sandstone there resembling Caradoc sandstone 235 24-32m 243 12-15m 244 17-33m 245 19-24m 246 20-23m, 26-39m 247 1-7m, 22-29m

vol. 2 NB O Species Theory
256; 260; 262; 271; 273; 277; 278; 283; 291 Bedded trap. worth visiting; 299; 360; 374; 400 how curious the connection of sandstone caradoc at Falklands with quartz; 407; 421; 426; 482; 491; 515; 517; 522; 534; 553 & 554 & 557 On range of Mammalia; 560 do; 564; 569; 572

256 6-21m/11-13w rather faulty 260 21-25m 262 1-11m, 7-13m 271 10w Perr fig.41.m 273 1-6m/w I much suspect metamorphosed dikes 277 25-30m/w Cordillera same case 278 29-31m/w analogous to the copper mines of Chile 283 4-10m 291 30-42m 299 1-8m 360 18-25m, 26-33m/28w V. p.362 362 32-39m 374 11-15m/15w V. p.377 377 22-24m, 24-28m/24w see p.378 378 16-21m, 22-28m 400 5-9m 401 1-5m 407 25-38m 421 12-18m 426 1-6m 482 10-15m 491 25-29m 515 5-9m/w this shows the withdrawing power of the sea 517 12-15m, 23w i.e. islands 522 6-32m 528 8-10m, 24c/wæ 533 3-5m 534 37-39m 536 8-11m, 9-14m 553 20-22m 554 9-12m, 15-17m 555 15-16m (Strickland) 557 wb Mammalia on both sides of channel dividing England good instance to remove difficulties – they might have been before united. 560 21-24m 564 15-22m 569 9-26m 570 20-22m, 32-38m 571 3-5m 572 6-12m

vol. 3 NB 583; 584; 585; 589; 665; 666 eyes in Cymothoadae, sexes of Q; 671; 701 583 10-43m 584 5-35m/25-29w if seas less divided this would follow 585 8-17m/10u "true|transition", 28-31m, 33-36m 589 4-6m/!! 595 31-39m/33-35w only analogy? 665 1-15m, 29-32m 666 32-37m, 33-44m 667 43-44m 668 wb Nesocila 669 20-29m, 30-33m/33u↔/w from me?! 671 14-16m/15w Falkland Isld 701 33-42m

ϕ

MURCHISON, Roderick Impey *The Silurian system* (from *Edinburgh review* April 1841) [Down, I]

MURPHY, Joseph John *Habit and intelligence* 2 vols.; London; Macmillan; 1869 [CUL, I from publisher in vol. 1]

af, beh, ds, he, hl, mhp, ig, no, oo, pat, phy, sl, t, tm, v, y

vol. 1 NB p.215; 233; 237; 238; 241; 253; Carp 258♦ Man♦; 263; 265

294- contractile Sarcodae with muscles- Hypothetically there must be diffused nervous muscle in lower animals & even Plants – 304 Surely ♣ in fish we have

MURPHY, HABIT, 1ST EDN

gradation to bone from cartilage?— Other tissues?—

301; 303; 307♦; 322

♣ 339 Causes of difference in number of offspring — Ratios of increase & Struggle for Existence. See H. Spencer, Principles of Biology

SB → 1.

233 Medusae will root & develop polypites

237 ● of Ungulates alone bear horns

238 Tissues of all Vertebrates homologous

241 Serial Homology ought to precede Homologies between distinct species.—

247 on Difference in no of cervical vertebrae in different Mammals.—

253 differentiation of tissues & organs mark of Highness265 The young flowers which swim vertically retain primordial condition & so may be said to reverse—

294 on possibility of transitions in tissues — (see M.S. notes at end of Book)

301 Homologies of Trachea — Mucus-sack

322 striped muscles common to Vertebrates & Invertebrates, cd have been derived from common ancestor for wd have been too low.—

215 17–20m, 36–37m (Huxley) 233 34–38m (T. Hincks) 237 22–24m 238 18–23m, 24–27m/w● 239 18–21m 241 11–20m 247 5–19m 253 1–5m 258 1–5m 263 11–16m, 18–23m, 28–37m (Huxley) 265 29–35m/→ 294 1–11m 301 19–25m 303 16–25m 304 35–38m (Spencer) 305 13–17m 307 4–18w♦ This seems all rubbish 35–38m 320 1–15w Look at the greyhound See dom. animals 322 11–17m, 27–29m 323 28–30! 339 21–29m/17–27w Death falling on young more probable selection

vol. 2 NB p.2; 186♦ read; 187 ♦; 190♦ Copied

SB → Vol. 2

p.2. forms of Blindness in which iris opens & closes & yet no transmission of light.—

v 3m viii 2m xiv 8m, 21m xvi 25m 2 35–37m

59 24–31m 186 37–39m 187 33–36m/34u

"selfish | contentious" 188 1–6m, 12–17m/14u

"are fidelity", 26–30m 190 31–36m

MURPHY, Joseph John *Habit and intelligence* 2nd edn; London; Macmillan & Co.; 1879 [Down]

no, sp, v

NB 241 Delboeuf

Law of Equality of number of vars & species

241 21–28"..."

MURRAY, Andrew *The geographical distribution of mammals* London; Day & Son; 1866 [Down]

MURRAY, Andrew *The geographical distribution of mammals* London; Day & Son; 1866 [CUL]

ad, af, ch, gd, geo, h, sp

NB All on Geographical Distrib.

♦ no explanation of adaptation—

p.8 Change of dogs in W. Africa

17 error

19; 20 & 30 & 32 Glacial

34; 36; 38 to 56 Man; 57 do; unimportant

126; 138; 140; 144; 151; 155 Reindeer of N.

America; 197; 209 Glacial; 213; 216; 261;

312; 314

8 33–42m 17 28–30m 19 16–23m 20 15–23m/16–17w | dispute 30 13–17m 31 3–8m 32 26–32m 34 23–28m 36 6–10m 38 39–41m 39 26–28m 40 9–12m 42a 32–38m (Malmgren) 42b 33–38m 43 8w Spain 45 34–41m 56 17–21m 57b 36–42m (Pickering) 59a 22–35m 59b 38–43m 126 2–15m 127b 35–43m (Falconer), 46m 138 15–19m, 22–27m (Lund) 140 6–10w Dr Hayes O says now a native of Greenland 144 20–27m 151 32–36m 155 5–8m 197 31–35m (Cuvier and Owen) 209 22–36m 213 31–43m 214 7–10m/1–9w This theory does not account for affinity of American & Indian genera. 12–23w Same species being accorded 2 distinct Indian lines will account for their similitude 39–41m 216 7–14m 261 1–8m 312 1–7m/3–4? 314 5–14m

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vol. 1, 218 4–6m 219 13–16m 220 1–6m, 26–32m♦ 221 14–18m♦, 27–30m, 31–33m 222 1–3m, 5–9m, 10–11m, 13–15m 225 22–23m 226 14–24m 228 21–29m 229 1–10m 395 25–26m 396 29–30m 397 3–5m, 15m, 19m 398 5–6m

vol. 2 ♂

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2. Band; München; F. Staub; 1866 [CUL]

ad, af, cc, ch, che, cs, ct, ds, em, ex, f, gd,
geo, h, he, hl, hy, ig, in, mhp, mn, no, oo,
or, pat, phy, sl, sp, spo, t, ta, tm, ts, v, wd

SB □β

106 Von Baer – believes Bee on its own
type higher than Fish

210 He has 2 embryos in his possession
that he cannot tell whether they are
Mammals or Fish or young Birds – (good to
quote)

211 The more different 2 animals, the further
back we must go to ♣ find similarity. (I
believe date 1828 see last number. Must
have preceded M Edwards

214 The embryo of higher animal resembles
the embryo of lower

217 Dog & Pig resemble each other – still
longer Pig & Cow

219 & 220 But embryo of Mammal more like
mature fish, than embryo of Fish is like
mature Mammal

221 Arrests of Development well established
for Monotremes

228 The higher the histological &
morphological differentiation, so is perfection
of type

229 Retrogression of types

231 Ruminants stomach more perfect than
mans

267 Twisting of leaves in relation to great
size: correlation??

103 wt All marked 110 25–34m/w/wb var.
grows everywhere in all soils strongest
Europe – But other vars also produced (it is
a polymorphic genus) 111 9m, 16–17m, 21–
24m/w also Differt vars in same plant 113
10–17m 114 wt other examples as before 115
5–11m, 14–15m, 17–20m/17–25w 2 vars
adapted to 2 stations rarely mixed in equal
number ♣ in both 31–33m 116 1–2m, 4–11m,
16–22m/w cases of direct action 23–30m 118
3–22m/5–12w On Hardyness of Plants 13–
32w Various vars in same station, so not
effect of evolution 24–32m 119 16–19m 120 wt
growth of size & chemical products direct
effect of conditions– 1–7m/w Light on
colouring matter 121 wt Alpine forms due
only to want of food & not form true races 1–
10m 122 15m 123 1–14m/w He argues from
these facts that height no influence but these
no proof – so others wb He overlooks effect
of length of exposure & inheritance – 125
16–26m, 29–34m/29w Summary wb Maintains
that Alpine height does not cause Large size
of flowers. 126 3–13m/w My objections of

time & chance = spreading considered. 127
wt/1–19w Variation must depend on some
chance relation between state of organism &
certain conditions 17–19u "Ueberhaupt |
Ausnahme", 32–34m 128 1–3m/wt/1–20w
These close species which inhabit distinct
Districts ♣, shows how little we know about
adaptation of near var – So some close
species, live mingled together. Are we sure
that the 2 Oaks are not specially adapted for
special circumstances – 2 Anagallis○ 15–16u
"Primula elatior", 23–24u↔, 29–30u "die |
andere", 33–34u↔ 129 wt When alone, each
will grow on wrong formation; but not in
company for then I suppose competition, this
looks like adaptation. 1–3u ↔, 4–7u, 19–
26m/7–17w says all true local vars. wd
behave thus. 130 wt/1–11w All foregoing
reasons do not apply to vars. arising from
inner causes; but something must set inner
causes into action. 5–6u "durech | sind", 25–
30m/w Opposed vars. arise under cultivation
131 wt one plant might absorb different
elements from another 1m, 1–2u "äussern |
können", 18m 133 1–7m♦ 134 wt/1–24w♦ He
seems to admit there is some relation
between variation & extreme conditions &
1–24w He remarks that greater size
independently of good soil ♣ never could
become hereditary & constant wb Effect of
grafting – & cultivation & wide range & bud-
variation all show that extreme condition
have close relation 135 3–20m/1–20w/wt He
admits that difference of soil &c may in
course of generations affect chemical &
molecular constituents & then lead to
changes of form – this is the same thus –
23–33w as individuals differ so will results
differ in fluctuating variability 136 wt a chill is
direct cause of various illnesses – 1–11w but
here denies all before apparently admitted
16–33w Denies that a plant can in same bed
with others absorb different nutriment ♣ 138
15–18m, 30–34m/26–34w/wb permanence in
culture in garden no test of specific
distinction 141 wt Yet if these sp. were
cultivated like P. Ponticum it wd no doubt
vary thus perhaps not so much.– 5a/u
"Alpenrose"/w Rhododendron ferrugineum 6–
7u↔, 8–10m/w (a) 8u "trockenen", 8u
"oberitalienische", 9u "700 | 1300", 20–27w
similar facts 143 wt/1–10w objects to Hooker
on acclimatisation.– (He is a general
objector.) 13m, 20–31m/w He tried
experiments but failed with uncertain results
144 3–6m, 11–12w explains fact 149 wt
difficulty of knowing direct action of
conditions on account of Selection.– 1–6m

150 *wt* Asks Have plants which ♣ have long lived under different conditions different constitutions, though externally alike? He doubts 151 1-2*w* Conclusions on Direct action 5-6*w* natural Distribution 7-9*u*↔, 11-12*u*↔, 19-20*u* "innere|bedingt"/*w* But what excites them; something must, as with illnesses.- 25-34*w* His Causes work through chemical condition of Plants & cause direct & indirect effects 152 29-34*m*, *wb* He assumes direct effects never become hereditary.- 155 *wt*/1-28*w* He allows that changed conditions give impulse to variation; the differences in the results must depend on differences in the individuals; but these differences must have had some cause. 17-34*m* 156 10*m* 158 *wt*/1-23*w* I think here he attributes the mixed vars in same locality to selection, or adaptation *wb* Finally I do not see that he throws much light on ♣ subject - Everything remains as odd as before - some good facts on Distribution of Varieties.- 164 *wt*/1-21*w* On Alps when no detritus - chemical nature of rocks has influence on distribution.- 18-31*m*/*w* representative species on different soils 170 13*m*, 16-32*w* Closely allied plants excluding each other - my view 172 6-26*w* Struggle for existence explains well, but not new.- 174 34*m* 175 *wt* Both the Achillaeas will live on wrong soil - if only one form is present, so no struggle.- 7-13*m*, 16-18*u*± 176 11-26*w* These sp. exclude each other according to dampness.- 20-23*m*, 28-30*m*, 29-32*m* 177 9-13*m*/11*w* do 179 *wt* Thinks many plants do not grow in certain places, because seeds have never been brought there. 3-7*m*, 25*m* 180 9-11*m*, 24-25*u* "Auf|Arten", 27*u*♣ 181 11*u* "Kerner"/11-13*w* doubt his observations 29*u* "Gültigkeit"/*w* authenticity 182 19-21*u*↔, 29*m* 187 19*w* I have not read 294 10-12*w* some close plants distinct 15-18*m*/16*u* "Mittelformen", 17*u* "Verbindungsgliedern", *w* some thus 20-21*m*, 25-27*w* says very important?? 300 12-14*m* 305 14*m* 310 25-34*m*, *wb* argues well against those intermediate forms, which are constantly or frequently found, near the forms which they connect, being Hybrids 312 *wt* a complete graduated row of intermediate forms may be hybrids, but such cases are rare - The exactly intermediate wd be rarer than the steps on either side. 12*u* "Verfechter"/*w* defender 313 25-29*m*/28-29*u* "zwischen|officinalis"/25-31*w* intermediate forms exist both Hybrids & really intermediate & constant & fertile.- 314 1-20*w* He evidently doubts (with reason) any ♣ constant

intermediate form being Hybrids. 318 12*m* 319 *wt* (a) If species which are connected by intermediate forms are blended with single species the result monstrous.- 5-10*m*/7*w* (a) 13-18*w* must be enumerated as intermediate forms- 320 7-18*w* these are good instances of a species constant in one place & variable in another from crossing with intermediate forms. 21-23*m* 324 10*m*, 17-20*m*/16-26*w* Middle forms not Hybrid generally inhabit nearly same districts as the forms they connect- 29-33*m*/*w* but less in number *wb* I presume he attributes the intermediate forms to variation 326 12*u*♣/*w* Hybrid 18*w* Hybrid 28*w* Hybrid 327 2-3*u* "beiden|Uebergänge", 3-5*w* Hybrid? or middle form? 34*w* Hybrid 328 5*w* Hybrid? 11*w* Hybrid 21-22*w* Hybrid 25*w* Hybrid 32*w* Hybrid 329 18-20*w* gradations from crossing 29-30*u*♣↔ 330 5*w* Hybrid 23-24*u* "da|vor", 30*u*, 32*u* "Das|Vorkommen"/32-34*m*/*w* not Hybrid yet intermediate 331 2-26*w* it seems improbable to decide whether a hybrid, which in places has become constant, or has arisen from variation of one of the 2 species which it connects.- 332 *wt*/1-8*w* another doubtful case 8-9*u* "Sie|acaule", 10-15*m* 333 4*w* Hybrid 335 5*u*♣, 7-8*u* "Dieses|Ursprungs", 13*w* Hybrid 17*u* "Zwischenformen", 18*u* "wiederholt|Floristen"/*w* not Hybrid 21-24*u* "fast|der", 31-32*u*↔ 336 13-14*w* Hybrid 24*w* Hybrid 32-34*w* True intermediate form 337 17-18*w* Hybrid 23-26*m*/*w* Hybrid 338 15-16*w* Hybrid 23*u* "Sie|Uebergangsreihen", 24-28*m*, 30*w* Not Hybrid 339 3-4*w* not Hybrids 342 5-10*m*, 6-8*u* "welche|auftreten", 28-33*m*/29-31*u*↔ 343 32-34*m*/34*u* "entspringen|Ursachen" 344 3*u* "verzichten"/*w* delay 4-6*m*/5-6*u*↔ 345 10*u*♣/10-14*w* most variable & graduating of all endemic genera. 31-32*u* "die|sind", 34*u* "nur|Species" 346 4-6*m*/*w* between the 3 no intermediate forms 24-32*w* looks at this species as in process of formation the intermediate forms not extinct 347 5-8*w* also Hybrids formed. 349 *wt* The Hauptformen are much commoner & ♣ then the intermediates 1-3*m*, 4*u* "Die|vielen", 5*u* "die|finden", 7-8*u* "Ich|von", 10*u* "Tausendfache übertroffen", 11-17*m*/*w* Intermediate do not extend beyond range of Haupt-formen 19*m*, 20-28*m*/*w* range in height rather more than Haupt-f 30-34*m*/*m* 350 14-17*m*/*w* no intermediate forms between exclusively Alpine & exclusively plain species 351 2*m*, 12-13*m*/10-15*w* What he has said before on Hybridism applies to ♣ Hieracium 355 18*m*, 21-25*m*/*w* are Hybrids in some places 357 9-11*m*/*u* "H.|angesehen"

359 1m 361 10m 362 17u▲/18u "Welche Zwischenformen"/16-19m/w the only 2 forms previously characterized 366 2-12m/w Evidence from treatment by authors how intermediate some of these forms are 367 wt The Haupt-forms must first be settled & then the intermediate forms - (so it wd be if we possessed all linear descendants) 1-3m 393 14-24w I think because as much vars of one form as of other 22-24m/22u↔ 394 12-16m/12-14u↔, 23-28m/w Constancy most important element. 396 10m 397 wt We must judge of constancy only from many individuals from many different stations.- 1u "verschiedenartigsten" 399 28m 401 19m 402 11-15m/w closely allied species exterminate each other 404 30-33m/w/wb but no great difference effect of good soil- 406 5-15m/6-7w grades of species 16-27m/w He does not believe Kerner 407 15-22m/w natural selections of genus going with power of Hybridity 410 wt/1-13w Does not believe the intermediate forms are commonly Hybrids 411 17-24m/wt/1-11w Between 2 forms either a few intermediates or a whole series of steps, & in the latter case the species more allied ↓w N.B May not many of Nagelis constant intermediate forms be Hybrids. which ♣ are constant like Gärtners ♣ hybrid Dianthus? I suppose not.- 27u "grenzlose Verwandtschaft"/27-34m, wb In these the Haupt-form, (independently of the intermediate forms) is variable, whereas in former case, when growing solitary the Haupt-formen are constant 412 13-15m, 21-25m/22w examples 413 wt We have, also, variability in the first individual planting Constant as in Vine-tendrils - or occasional i.e. sports, or bud-variations ↓w We have protean or chaotic species nowhere ♣ constant - species constant in places but connected by few or more intermediates, & true species not thus connected.- it looks like a process of exterminating the intermediate links.- 28-31m, wb His grades of affinity graduate into each other.- 414 10x/wt This shows that conditions have certain effects 17x/wt The chaotic forms in places have fixed characters 9-11m/w Hybrids & intermediates absent in certain localities 12-16m/w examples 15-20m, 22m, 28-31w mingled vars. adjoining & representative vars Distinctly-inhabiting vars 415 5-6u "hängt | dasein"/3-6w This refers to true species 12-14u "entweder | sind", 15-22w so much 2 plants mingled, generally so much more synodically distinct 19-21w & therefore can live together 21-23m♦, 30m/wb Close♦

species of same genus tend to exclude each other.- 416 4-7w representative forms. 6-8u "oft | die", 20-21u▲/21-22u▲/19-23m/w more forms adapted to different stations 25-27m/wb These forms sometimes found mingled, sometimes as synodic or representative 418 wt/1-16w Constancy alone will not decide what forms to call species; for many finest varieties are constant & Jordans species wd all have to be admitted. Comes to what I said amount of difference deserving a name. 20-22u↔, 28-34u↔ 419 1-2m, 17-21u "Sol Zeiträume"/17-33w a species depends on degree of relationships (or difference from) other forms. 420 24m 421 11m, 22-27m/w all the forms which are connected by intermediates cannot be united as a single species.- 33-34u "doch | sind", wb "generally sharply defined" must be admitted as part of definition of species!! 422 11-29w Rules cannot be applied to forms inhabiting distinct areas. 423 33u "Zwischenarten", 34m, wb Ought to be so designated, so new term 426 31m 427 3-4u↔/6u "bleiben | Hauptformen"/wt/1-6w Thinks the variables & intermediate forms extinguished by competition. 22-24m/22-23u "Gattung | Entwicklungsprocesses", 23-32m/25-29w The glacier is a stream, though one does not see the streaming 33w examples

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(markings presumed to be by FD)

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cc, ch, cs, ds, fg, fo, gd, he, ig, in, mn, no, pat, sl, sp, sy, t, tm, ud, v, wd, y

NB ☞ 103; 104; p133 use; Use Q☞

NATHUSIUS, VORSTUDIEN

SB □β

Used

Nathusius Schweineschaedel

(over) ↷ *(not CD except X and ♦⇒)*

Nathusius p.2

p.104 X↷ The culture, shape of skull does not depend upon race most different races have it, yet most seem crossed with the Indian.

p.105 x↷ about skull – dogs & Nata cattle

106 but common swine have not the short culture-head

113 the Diploe different in wild & culture races. Extremest culture-skulls

131 x↷ Great Yorkshire race – probably crossed with Indian, has all its characters. wonderful changes incisors do not touch. not monstrosities for all inherited (u↷, CD)

133 X↷ articular surfaces of condyles of occiput modified head not much used

134 case for brain not much changed

135 all these great changes only a climax of those seen in wild boar races

136 all house pigs belong to the above two races

138 X↷ 1/32 even 1/64 of Indian blood is sufficient plainly to modify the skull

138 great differences in the ears & c & c in the 2 great tribes

139 all Indian Swine introduced into England have short ears

140 X↷ Q Berkshire swine of 1780 is quite different from that of 1810 & since that time 2 quite diff races have borne that name

141 All the new English breeds seem to have Indian blood

142 Sculptures in Herculaneum shew no doubt that Neapolitan breed then existed. this breed & Andalusian & Rutimeyer's grau bundtner race are all like Roman therefore like the Indians

144 Roman probably is a cross from the Indian

146 is not convinced that the turf-swine was wild, but will not dispute it – 147. gives reasons why with swine difficult to tell – 148 in India wild cross with tame

149 almost certain that turf & Indian closely allied

150 curly swine with curly wool in South East Europe from lower Hungary – closely allied to Indian

153 Japan swine in skull is near to Indian.

157 certainly stands near to short-eared Chinese race.

(over) Used⇒ (CD)

(over) 160 Nathusius

Rutimeyer has shewn that N. African wild

swine is like European

163. S. verrucosus excluded 164. S. Celebensis skull like Past

165 S. vittatus from Java like skull like Indian

166 S. Timoriensis close to vittatus

167 in S. barbatus tho' with long face, lachrymal bones are short

168 S. lucomistax from Japan like S. vittatus

169 Arn wild Pig

↷ (CD)

173. Summary on wild swine

175. Diagnosis

185 wild Boar of Hindustan

(over) ↷ ♦⇒ (CD)

Laws Nathusius Pigs 1

p.2. X Gestation earlier in Culture-races & features less matured

20 – teeth developed in well-fed races

63 S. scrofa – tamed races – ♣ greater height of head in relation to length – in all dimensions broader – p.66 – all differences variable 68.– in tamed intermediate in character between young & old wild explain changed shape by less use of scratching in ground.

71. The position of rows of teeth a central character.

72. Much intermediate variability.

74 X↷ In these swine beginning of changes more plainly seen in culture-races–

75 These swine in Russia & all over N. & central Europe.

76. Difference in length of Ears– hair– colour. length of limbs & shape of body all different.

Indian

(not CD; X↷CD)

77 Almost all now crossed with Indian; not known wild, comes from China

83 Shortness of lachrymals most remarkable character

86 and the shape of the palate & position of row of teeth

89 position of last upper molar– 89 X Considerable slight differences in teeth – 90 width of fore part of palate does not depend solely on divergence of pre-molars

91 X skull broader in relation to length than in common swine

94 Indian swine a distinct species if no reference made to domestication. [⇒Culture races]⇒

95 the above Indian pigs not more affected by culture than common swine

99 X Berkshire not high culture race & descended from Indian, a born dispeptic individual had skull much modified & legs

elongated, & period of appearance of the teeth & crowns of molar teeth affected.

Laws

103 rich food during youth gives short & broad head

103 X in high culture races the incisors stand much higher than back teeth; the canines of upper jaw stand before the canines of under jaw & this is a most remarkable anomaly.

2 ↓m/w period shorter in the early matured races. gestation different in sheep & swine.— In early culture races of swine, the young less matured in skull ♣: perhaps from crossing with Indian. 3 16m, ↑4m 4 ↑5-1m/w change of skull from growth to adult comes from elongation of front part of skull & separation of the 2 laminae 20 ↑15-10m/w teeth developed earlier in well-fed. culture-races than in common pigs. 23 1-2m 27 20-23m 63 6-8m/w — in tame i.e. face shortened. ↑2-1m 66 ↑4-1m/w differences in these swine from wild are variable. 68 ↑20-15m/w common swine's skull intermediate between that of young & old wild swine ↑15-1w/wb Explains differences by primarily wild swine wholly living by rooting○ & using greatly the muscles attached to back of head— entailing that other differences in skull by action during youth — lays great stress on this view.— Mem. he does not here refer to Culture-races.— 71 ↓w a ♣ constant difference in flexure of row of teeth ♣ in common & Indian swine or their crosses.— 72 ↑12u "kürzen|des", ↑15-10m/w individual variability 74 12m/u±, 10-13m/w In these swine beginning of changes, which are variable, in teeth which are greater in culture-races 17-20m/w wild swine with simple teeth 75 ↑16-13m, ↑4-3m/u±/w such swine in these countries 76 6-7u "Ohrlänge| Rippen"/w of these swine with same skull these parts differ & can be selected 22u "lang|kurzohrige", 24u "osterlogisch| begründet", 25-27m/w He formerly placed some of the short-eared races in this class, which have been crossed with Indian. 77 9u "indischen Hausschwein", 10m/u↔, ↑8-3m/w almost all cultivated swine crossed with Indian ↑1u "nur|Culturrasse"/w not known wild 78 14-15u±/14-18m, ↑5u "zwei"/w Few skulls exist only 2. 79 2m/u "chinesischen Hafenstädte", ↑5-1m/↑4u "China|14" 83 ↑8-7m 86 10-15m/w shape of palate or space between teeth different in Indian & wild ↑14-12m 89 3-4m, 13u "bedeutende Verschiedenheiten"/w considerable slight

differences in teeth 90 6-8m/u±, 12-16m/w width of fore parts of palate does not depend solely on divergence of premolars ↑12-11m 91 ↑8u "ist|zur", ↑6u "Hausschwiene sind", ↑5u "in|geringerm" 92 8-10w Breadth may have been graduated. 14u "Kürzel Breite"/m/w no trace of these in common swine.— ↑1u "eine|Schweine" 93 1u "dass|im", 3m/u "Breite|Gaumens" 94 5-12m/w concludes that Indian race descended from distinct wild species & this wd be admitted by Zoolog. if no reference made to identity & domestication 95 10m, 11-17w The above Indian pigs not more affected by culture than common swine before described.— not highly cultured race ↑8-7u "und|Jugend", ↑6u "einen|aller" 99 15-18w Berkshire not very high culture race. skull & descended from Indian.— ↑16-13w A Dyspeptic individual from youth ↑10-9u±/w skull thus modified by want of food — Can this be Reversion? 101 ↑4-1m/↑4-3u "Kopfl|geworden", ↑2u "ernährten| geworden" 102 20-22m/w Period of teeth appearance & structure affected in this dyspeptic pig. 103 4-7m/w division of crown of molar teeth affected. 11-12m/u↔, 16-20w & Do not use their muzzles because ringed ↑6u↔, ↑1m/u/c/wt±, wb see p.130 104 5-6m/w Proofs 9-12m/9u "langohrige|Rücken", 10u "diese|wie", 15-22m, ↑9-3m/w Nata Ox 105 1-8m/w Offspring vary in shortness of head according to keep○ 17-19m/w says not hereditary!!! 19-21m/w happens with our cattle & sheep 23u "Egelkrankheit", ↑14-12m/w Bull-dog analogy ↑11-5m/w argues this does not contradict his explanation of want ● of Snout 106 1-2m/1-4m/w common swine like wild-Boars have not this short head 13-16m/w probably might be gained. by progeny of common wild Boar. 19-21m/u↔ 108 13m/a "Form" i.e. short-head 112 3u "Stirnhöhlen", 4m/a "Schwein" in cultur pigs 4u "Entwicklung|aber" 113 4-7w Diploe different in wild & cultur-races 130 9-11m/w p.103 ↑20-5m 131 8-10m/u±, 21-22u↔, 21-30m/↑3u "Gehörgänge" 132 2u "Augenhöhle", ↑15-13m/w do not touch 133 4u↔/m/w all inherited ↑20u "Gelenkfläche"/↑20-15m/w articular surface condyles of occiput modified → ↑4-1w because head not used 134 ↓w can affect Brain? Very similar 135 9u "nur|dort", 8-12m/w All these great changes only a climax of those seen in the races like wild Boars. 14u/wt, ↑10-1m/w two Races 136 3-7m 138 ↑15-13m, ↑12-8m/w Argument for Indian Race being parent of Domestication ↑4-1m/w All these differences in pure European & Indian Races 139 ↑14-11w Siam & China all

NATHUSIUS, VORSTUDIEN

with short-Ears $\uparrow 9u$ "Siam", $\uparrow 4m/u$ "Rasse | Pallas", $\uparrow 1m$ 140 $\uparrow 5-2m$ 141 14-19m, $\uparrow 10-7m$ 142 11-16m/11u "aus Herculanum"/w Neapolitan Breed! 143 2-5m/4u "Andalusien", 6-9w All these like Indian 11u "Graubündtner", 12u/wt, $\uparrow 16-15u$ "dass | steht" 144 19m/u "romanische Schwein" 146 $\uparrow 11-10u \leftrightarrow$ / $\uparrow 12-6m$, $\uparrow 12u/wt$, $\uparrow 5u$ "wilder"/w is not convinced that turf swine was wild 147 11-16m/w wild swine in fertile plain joints different $\uparrow 19-14m/w$ turn out tame when stock of wild reduced 148 7-14m/w In India wild swine cross much with tame $\uparrow 19-14m/w$ Rutimeyer difference between wild & tame born generally correct, but must be received with caution with pigs $\uparrow 13-11u \pm$ 149 1a "Formen" Turf & Indian 1-3u \pm , 5-6u "Die | Gaumens", 10-12m, 15w Not certain 16-17u \leftrightarrow , $\uparrow 16u$ "des indischen"/w only for Pallas $\uparrow 13-12u$ "alle | Japan", $\uparrow 8-7m/u \leftrightarrow$ /w not certain for E. India 150 7w curly Hair 12u "südöstlichen Europa", $\uparrow 14m/u$ "sogenannten | Schwein", $\uparrow 12u$ "aus Ungarn", $\uparrow 4u$ "Niederungarn" 151 1-3m 152 8-10m/w like Indian 153 $\uparrow 15-13m$, $\uparrow 8-7u$ "Der | bekannt" 154 1-8w Gray makes it a distinct genus $\uparrow 14-13m/u$ "das | nahestehend", $\uparrow 5-4m$, $\uparrow 1u$ "weil"/m/w Indian swine has not forked snout 156 3-9m, $\uparrow 14-12m$ 157 $\uparrow 7-5m$ 160 4-6m, 10-13m, 15u "Nilinseln"/16u "Aegypten"/15-17m, 19-20? 161 $\uparrow 14-13u$ "das | ähnlich", $\uparrow 6-4m/w$ doubtful 162 13-14m, $\uparrow 10-1w$ Gray not to be trusted in the least 163 7-9u "kann | nahe", 14-18w whether Hindostan & European different not yet known. - $\uparrow 4u$ "S. verrucosus"/w Excluded as parent of our domestic Pigs 164 $\uparrow 8u$ "S. celebensis"/ $\uparrow 8-1w$ skull very like that of S. verrucosus & not parent of domestic 165 5m, $\uparrow 13u$ "S. vittatus"/w different from European & like \clubsuit Chinese skulls 166 17-18m/u "Sus | vittatus", $\uparrow 10m/u \leftrightarrow$ 167 12-13u "dass | Wildschwein"/w though with long face 14-17w argues that \therefore specific character in Chinese 168 3-5m/w in general appearance like S. vittatus 11-13u \pm /m/w but in these respects liker to S. vittatus 19-20m 169 5-6m, 7u "Typus | haben", $\uparrow 8-6m$ 170 8-9u "dass | Thränenbeins", $\uparrow 19-15m$, $\uparrow 14-8m/w$ no proof that wild 171 wt/1-2m if Arn Pig is feral shows constancy of character of Indian Swine 173 $\uparrow 10-1m$ 174 "5"- "7".m 175 $\uparrow m$, u \pm 176 $\uparrow m$ 179 1m/u "Das | kurz" 183 7-8m/u "männlichen | Cochinchina", $\uparrow 5-3u$ "Eckzähne | gleich" 184 15-16m, $\uparrow 14m/u$ "ächten Maskenschwein", $\uparrow 6u$ "Breite | Gaumens" 185 1m/u "auch | von", 7-11m, $\uparrow 10u$ "sind | europäischen", $\uparrow 9-8m$, $\uparrow 6-3m$ 186 $\uparrow m$ Atlas Taf. II, "10".*

NATHUSIUS, Hermann von Vorträge über Viehzucht und Rassenkenntnis 2 vols and supplement; Berlin; Wiegandt & Hempel; 1872-80 [CUL]

cs, ds, f, fg, he, in, pat, sp, sx, t, ta, tm, ud, v, wd, y

vol. 1 NB 8; 26; 63 Descent; 64 Horse; 135 Sheep Case Q

title page wt Horn of Sheep 8 4-8m/1-13w now so many no such need 21 20m 26 9-17m/w False the Chili ones are cross between goat & sheep 24-30m/w swine distinct. 28 10m 35 14-15m 47 10-11m 50 12m 59 31-34m/32w/wb (a) individual differences 63 5-9m/w females more like males most variable 11-13m, 11u "eigentliche Representant"/12u "welches | Universellen" 64 1-11w can Long Horns be Reversion to wild state? - See Antelopes 18-20m/16-20w castration stops Horn in Sheep (a) 3-31w castrated rather late - the effect may be known when done earlier - castration ought to produce greatest effect. How with Welsh sheep on both sexes - but then they end wb (a) Is there not here curious relation & evidence of Horns retaining more of S. Lex. character than in cows - in as much as the females of some breeds have no horns? In Merino is white males alone are horned. 68 3m, 5u "ganz gleich"/4-7m/w Free-martin horns like oxen - ! 69 12-16m/17-18m/12-19w Food makes differences of period when adult character attained 21-22u \leftrightarrow /21-24w even when capable of reproduction 71 24m 93 wt (a) early & late maturity depend in part on food of pregnant mother & milk, & partly on race. - 4m/w (a) 7m 94 25-33m/3-34w proportion of 3 stomachs altered in highly nourished young 98 14m, 16-21w early maturity only slightly hereditary 99 3-6m/w Treatment alters period of gestation 18-25m/21-28w related to early maturity & 1/2breeds show hereditary 100 wt individuals differ in profiting by same amount of food 4-10m 102 23m 109 17-18m, 27-29m/27-31w castration causes less consumption of food. - 112 1m 118 25-31m/11-31w Rule of male or female transmitting certain parts false. - 122 19-27m/15-28w Merino sheeps tails cut for years & not inherited. 127 1-3m \diamond 135 25-30m 140 1-6m/wt/1-3w of same race individuals transmit with greater power 19-20m 142 5-10m, 13m, 15-23w Does not believe in individual potency of transmission 145 24m 158 4m 166 27m

vol. 2 \wp

Supplement "Kleine Schriften und Fragmente"
Berlin; Wiegandt, Hempel & Parey; 1880

iii ↑15x/u "249-264" **Inhalt** "93".m, "179".m
∅

NATURAL HISTORY 2 vols. of plates;
London; Whittaker; 1824-26 [Down, pre-B]

THE NATURALISTS'S LIBRARY ed. W.
Jardine *Ornithology* vols 9, 14; Edinburgh;
W.H. Lizary; n.d. [CUL]
beh, cs, gd, hy, mg, sx, tm, v, wd, y

vol. 9, Pigeons; SB □β

117 *Carpophaga oceanica* excrescence at
base of Beak sexual

178 Wilson & Audubon on rice in Pigeon
crops at New York

90 23-26m 113 21-30m 117 18-23m 136 20-
23m/w● 140 1-5m 144 9-11m, 12-15m 146
23u "Orkneys" 148 5-6m 151 19-23m 153 12-
15m, 24-31m 157 12-17m 158 10-16m 160 5-
9m 161 6-8m, 15-17m 164 11-13m 179 1-5m

vol. 14, Gallinaceous birds; NB 203 205 P
superbus

166 169 Argus Pheasant

SB □β

129 Turkeys associating. 3 sitting on one
nest

138 wild often crossed with tame

173 Siberian or Russian Muffler with tuft
from lower jaw

184 *Gallus forcatius*

126 17-22m/Q 127 1-10m/2-3u "strut|
feathers"/6u "strutting|puffing"/3-4Q 128 17-
19m 129 27-30m 138 6-16m, 10-15m 139 1-
3m 140 1-4m 141 15-19m, 28-29m 166 20-
25m/22u "feathers|inches" 167 12-15m/13-15u
"being|flight"/"...", 18-24m (Temminck), 27-
29m 168 3-7m 169 1-3m, 7-22m 171 18-21m
(Temminck) 172 1-18m/3-10w Malay 21m/w
Sultan Persian 25-26w X Bearded crested
173 5-8m/w Bolton Grey Siberian or Russian
Muffler. 10-11w This Dorking is baby one
17w The true Dorking 26-28w A cross from
the Silk fowl 174 1-3m/w Jap 15c "Crested"
Frizzled 175 24-25u "with|chestnut"/12-28w
Resembles the black breasted Red Game
176 1-6m 177 7m, 12m/w nonsense x 13-
14m/w J right I think 17m/w pumilo is crested
21-22m/w Sebright not a Bantam 23m/w not
near wb x Crawford says from Japan. on
what authority? 178 11m/w Malay pl. 9 w tail
purple 183 wt Mr Blyth says positively a
hybrid between *G. varius* & ...? wt N.B. *G.*
varius is distinct from *G. furcatus* or does he
mean only Synonym?? 184 wt When Blyth

says not *furcatus* does he only mean that *G.*
varius is prior name - I suspect so.- 10u
"with|entire"/w yes 11u "single|springing"/w
yes 12u "they|red"/xx wb xx if *G. furcatus* =
varius this utterly wrong description.- pl. 10
w Feathers on neck short & rounded
Crawford says wretchedly unlike 185 23-24w
so will a pheasant 188 7u "the|margin", 9-
10m/10u "mottled|markings", 15-20m (Latham)
203 9-12m/11u "feather|feet", 13-14m, 15u
"more|feet", 15-17m 205 12u "3|long", 21-
23m, 22u "The|length" pl. 19 wt♠ 237 zt 251
3-5m (Dickson)

**NATURAL SCIENCE, religious creeds and
scripture truth** by "the author of the *Divine
footsteps in human history*"; Edinburgh &
London; William Blackwood & Sons; 1870
[Down, I by publisher] ∅

**NATUURKUNDIGE Verhandelingen van de
hollandsche Maatschappij der Wetenschappen, te
Haarlem** Part 3, 3rd edn; Haarlem; De Erven
Loosjes; 1878; containing
FRITZ, Hermann *Die Beziehungen der
Sonnenflecken* [Down] ∅

NAUDIN, Charles *Nouvelles recherches sur
l'hybridité dans les végétaux* Paris; 1862 [CUL,
I]

cs, fg, he, hy, no, sp, t, v

SB □β ↗

151 Pangenesis - good on Hybrids being a
living mosaic of 2 species & on specific
essence of each (this is vague term) being
accumulated & self-alternated○ either in
ovules or pollen-

161 Definition of a species-

title page wt *Nouvelles Archives du Muséum*
/Tome 1 p25 27 4w Father; Mother 20-22m/
20-21u "turbinée|ovoïde" 29 25-26m 30 2-6m
32 23-28m/w First generation flowers of both
colours & panachee 33 1u "bandes|pourpres",
2-3u "quelquefois|couleurs" 36 1-14m/3u
"deux"/7u "un|cependant"/10u "dix-sept"/13u
"un|maturité"/10-18w given in full in
Chapt 27 on Pangenesis 22-31m/23-25w
Pangenesis 37 7-10m 41 25-28m 42 15-20m
45 28-30m 47 5-7m/1-8w ? yet most distinct
species 15u "fleurs|fertiles"/!!, 23-30m/w
action of pollen good - like Hildebrand's
facts 49 7-13m/13u "influence|annihilée", 24-
25m/w like my sweet pea case Ch. X 25-
31m/26-31u±, 31→ 50 1-3m/1u∅ "qu'un
quart"/2w Loevis 4-6m, 9-10m/9u "hybridité
disjointe" 51 1-6w He does not say the seed
was separated, only other capsules

NAUDIN

produced the two forms 19-23m 53 22-25m 54 16w Sweet Pea 22-24m/!!!/18-24w ♦ Polyanthus & Cowslip one of grandchildren returned to pure Cowslip 58 8-17m 60 29-31m 93 28-31m 99 25-30w/wb He admits the *L. vulgaris* grew near !! & yet advances the case as one of Reversion- He never counts seeds! Seeds were forgotten & other negligences & never apparently protected from variation Careless experiments in every way.- 100 12-14m, 25-29m/w colours not blended 113 8-22m 126 12-17m 127 3-6m/5u "pas | embryonée" 131 17-20m 135 20-31m 136 8-14m 137 9-11m, 13u "la | année"/13-14w crossed with common none were peloric 22-24m/23u "cinq | égaux", 24-25m/u "alors | présence" 141 14-15u "l'hybridité | ovules"/w confirmed 142 8-11m/10u "un | ovaire", 17-19m, 21-23m, 24-25m, 27-29m 143 23-27m/23-25u "car | vertu" 145 3-8m 146 6-9m/6-7u "une | génération" 147 23-27m (Klotzsch)/23-25w Reciprocal Hybrids like each other 148 6u "intermédiaires", 7-9u "l'immense | espèces", 18u "c'est | tort", 19u "au | père" 149 11-12w prepotent species 12-14u "dont | espèce", 24-26u "la | hybrides" 150 22-26m/21-28w/wb If so this pollen of a hybrid placed on one of parents or on third species wd give widely different results from Hybrid fertilised by the same. 151 1u "deux | essences", 10-16u±/10-11w Pangenesis 19-35→ 152 1u "les | hybrides", 13-18m, 20-23m, 25-28m 153 12-14m, 16-21m 154 19-23m, 28-31m 155 1-4m, 32-35m/32w loevis close 161 9-14m, 15-18m, 26-29m

NETTER, Abraham *De l'intuition dans les découvertes et inventions; ses rapports avec le positivisme et le Darwinisme* Strasbourg; Trenttel & Wurtz; 1879 [Down]

NEUMAYR, Melchior and PAUL, Carl Maria *Die Congerien- und paludinenschichten Slavoniens und deren Faunen* Wien; Alfred Hölder; 1875 [CUL, I]
cc, ch, ds, dv, gd, geo, gr, ig, oo, sp, sy, t, ti, tm, v

NB1 All marked very important on direct effect of conditions-

NB2 p57

57 25-28m/w like Hyatt 30-33m 84 40m 90 1-3m/w gradual slow changes 45-55m/45u "viele | Typen"/48-50u "Viviparen | müssen"/53-55u± 91 36m (Lyell) 93 26-28m/29m/17-35w Is vehement that it is arguing in a vicious circle to call all forms which can be connected by gradations the same species [true but useful or necessary for systematic work.] 95 22-

27m/23-25u "die | sind", 27-32m/30-32u "dass | Gestalten", 36m, 41-45m 97 26-31m/28u "Auftreten | Formenreihen"/30u "variiren | Abänderung", 33w 3 species of new genus 34-39z/39w 3 species 43m 98 9u "Reihen", 11-12u "während | slavonischen", 13u "mehrfach Ammoneen", 17u "sondern | Uebergänge", 20-21u "dass | feinsten", 31-40m/31-35w each form in a successive bed. 52-54m/53-54u↔ 99 1m, 20u "auf | X", 19-22m/w Table of Descent 47-48u↔, 49-51m/50-52u "eine | Hauptverbreitung" 100 3-4u "während | auftreten", 4-12w Looks as if periods of rapid variation & then of rest, but denies. 25-27w modification goes on in same district. 31u "kein", 32u "innerhalb | stattfindet", 33-34u "Auftreten | Mutationen", 33-40w a row of forms divides into 2 rows only in separate districts 41-46m/42m/45w an exception 101 wt just what I have said 3-5m, 18-19u "von | hin", 20u "die | Variationen", 21u "erhalten sich", 24-27m/27u "die | nicht", 30m, 32-33m/33u "so | Auge", 35-38m, 40-41u "Verdickung | Sculptur" 102 2u "Verdickung | Sculptur"/3u "Unionen"/4u "Dickschaligkin"/1-5w in a distinct genus, (showing effects of conditions. 7-10m/8-9u↔/12u "Einwirkung | suchen"/8-13w in a different district another series of forms. 18-24m/14-22w Thickening of shell in small pond to be due to water becoming more fresh. 30-34m/30-32u↔, 36-37u "Nur | angenommen", 46m 103 19-23m, 40u "abgeänderten | wird", 41u "constatirt | können" 104 1u "innerhalb | ihrer", 4u "von | bekannt", 16-17u "dass | Reihen", 18-22m/w fail on sea because we do not have whole area 33m, 42-45m/43u "Mealnopsis | nachgewiesen"/45u "Jahrb. | Heft" 105 1m, 19-20u "betrachten | Formenkreise", 20-21u "wie | Verbindung", 50m, 51-52m/51-55w same kind of variation in several distinct forms 106 1-3m/1-5w same var. at very distinct periods

NEUMAYR, Melchior *Zur Kenntnis der Fauna des untersten Lias in den Nordalpen* Wien; J.C. Fischer; 1879 [CUL, I]
fo, geo

NB 45 Parallelism of Ammonites

♂
45 8-18m

NEUMEISTER, Gottlob *Das Ganze der Taubenzucht* Weimar; B.F. Voigt; 1837 [CUL]
beh, cs, f, he, oo, ta, tm, v, y

NB 4,6

SB □β

Neumeister

17 Dovecots do not like Fancy Pigeons
 18 Crosses very fruitful
 21 In young white bars nearly red & true Q
 character remains only till 3 or 4 years 24
 Nearly parallel case
 29 odd hereditariness in Trumpeter
 31 Hinkel flight-feathers doubts Q
 P19 Never seen yellow or red Fantail

title page *wt* A working man enquired all himself; Laugher & Finnikin Spanish rust not mentioned ⇒ Frill-back i 11-12m 4 9w 20-24 years 8-10w These fancy races 6-8 years age.- 12u "Holländerknopftaube" 17 wt 17 5u/wt, 10u/wt, 13u "Gesellschaft | zahnen"/12-14w Dovecots do not like fancy pigeons 18 8-9u "Es | Tauben"/6-9w House Pigeons crossed with Fancy very fruitful 21 13u "schwarz"/11-16w correspondence in age 18u "gewöhnlich"/19-20u "der | schön"/18-22w in young the white bars are rust-red & perfect character remains only till 3d or 4th year old 22 12w shell-shaped cap 13m/14m "Muschelhauben"/13-23w cross at back of Head top of head white upper & lower Mandible different colours 23 11-12w ♣ This seems rather different 12u "etwas grösser", 13u "Brust | Oberrücken", 14-15w Head smooth white tail flight feathers & feathers on feet white 17u/wt 19-24w These have strongest shell-shaped caps of all Breeds-runs down half neck 24 5-8w In young the white feathers are first edged with colour 11w Spot 25 1u "wegen | kurzen", 5u "Schnabel | als"/w I see this is mine 26 7-11w I have now written descriptions on plates 27 10m/w Blue 23w (a) *wb* (a) called Riedel Polish Pigeon 29 2wt, 2-9w Mr Gilbert will back one of his to travel for 1/4 of hour 7u "einen | Schnippe", 16-17m/u "doch | trommeln"/Q, 17-18u "Ohne | tauben", 18u "noch | gut", 19u "Altenburgische" 30 24u± 31 1-2m/1u "Schwungfender | doppelte", 4u/wt (all plates.w (descriptions of varieties of pigeons and doves))

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NEWTON, Alfred *Zoology* London; Society for promoting Christian knowledge; 1874 [Down, I]

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 ig

NB O/
 10 Gradation
 10 1-22m 29 22-25m

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NILSSON, Sven *The primitive inhabitants of Scandinavia* 3rd edn, ed. with introduction by John Lubbock; London; John Murray; 1868 [Down, I]
 h, oo, t

NB I a universal law that strong tribes extirpate weaker; 104; 248
 I 26-30m 104 2-9m/w identity of man under similar conditions 248 29-31m (Lovén)

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 no, tm, y

NB 39♦; 110♦; 16♦; 13 numbers of feathers; 14 young birds
 13 40-43m 14 8-12m

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title page *wt* as Mark *wb* 233

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 ss

NB 97 Sexual Selection, dogs
 97 11-23m/11-21[...]

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ad, br, cc, ch, ds, gd, mhp, no, oo, or, sp, sy, t, ta, tm, v, wd

SB1 18; 20; 34; 41; 43; 48; 51; 54; 55; 70♦; 70; 72 to 84; 107; 228 variation; 243; 244 taste &c &c varieties besides common peculiarities resisting wind another quality early fruits – age at which it produces; 254; 268; 327; 362; 397; 401; 429; 436; It is striking how many varieties there are, & how some seem to do better in one province than another

SB2 266 Journal Geolog. Soc♦

SB3 □β

42, 44, 48 of immense numbers sown, rarely new variety produced.

70 on classification of grapes – 74 p.80 wd like descent if possible p107 is possible (p244 Sub-families)

71 same grape has round & oval berries Q

78 Simon (like Van Mons) cannot think all came from one Parentage (Ch. 2)

227 grape like dry, but apt to rot when ripe p243 slow to ♣ breed but ripens fruit early; fruit resists long-continued humidity; attracts wasps♣♦♣; p254 apt to be broken off bunch – resisting wind & 254 More attacked by insects 362 Early excited by April sun ♣ & so killed by Frost

243 & 254 & 362

327 a Grape more than. 600 years old.–

397 see♣ leaves turning yellow when fruit ripe

429 Pulp adheres slightly to seed 436 in other case turning red, at lower part of shoot.–

(All Quoted)

18 4–8m (Dussieux) 19 17–20m, 30m 20 1–3m 34 1–2m 41 29–30→, wb very few & yet thousands sown; applicable to domestic birds 43 23–30m (D. Simon) 44 3–5m, 22–30m (Rozier) 48 4–9m 51 19–24m 53 12–13w♦ 600 to 800 54 5u "ait|huit", 6u "un|cultivées" 55 1–3m 70 1–3m/wt/1–7w Wants to make classification natural 4–9m, 11–14m, 16–18m, 19–24m 71 15–18m/16–17u↔, 26–29m/Q♣ 72 3–6m 74 16–19m 75 12–14m 76 13–19m 78 17–25m/w like Van Mons on peas 79 20–21m/20u "où|trouver"/21u "sur|la" 80 24–25m 84 12–18m 85 22–24m♦ 107 2–3m "ce|toujours", 10–22m, 21–25m 227 ↑2–1m 228 1–3m←, 2–4m 243 20–21m 244 11–16m/13–14w Sub-family 254 18–19m/19u "cet|fragilité", 28u "passeriller|guêpes", 29u "cette espèce"/w raisins? 268 1–2m, 8–11m 327 2u "plus|six",

8–11m 362 26–29m 397 23–25m, 25–27m 401 5–10m 429 7–10m 436 4–9m

UN OFFICIER DU ROI *Voyage à l'isle de France* Neuchâtel; Société typographique; 1773 [Down, pre-B]

NB 8 use of broom for cordage – Pliny 8 last paragraph.x 170 1–5m 173 1–2m, 4–7m, 9–16m

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NB 31; 154 bears on concretion○ in worms 31 14–19m 154 29–33m 155 1–9m

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NB O/

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NB 1/4 of Plants near Quito are Compositae colour of flora due to chemical rays 103

107 Geese not breeding; 283♦

103 3–6m, 20–24m (Herschel) 107 21–23m 283 1–5m♦

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NB 154 Extinct deer fossil in Amazonia 154 15-17m/15u "deer"

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NF (prob CD) Sept 24 1830 Kendal

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NB 69 72²◆
69 Floating Isd 100ft long & broad covered with grass about 4 leagues at sea -
69 12-14w² See p.64. probably 4 leagues from shore 14-18m 72 6-15m 448 1-3m

OWEN, David Dale *Report of a geological survey of Wisconsin, Iowa and Minnesota* 1 vol. with vol. of illustrations; Philadelphia; Lippincott, Grambo & Co.; 1852 [Department of Earth Sciences Library, I by J.D. Dana] fo, ig, ir, sp, sy, ti

NB Think what wd classification be if only Eocene fossils had been unearthed○
p.50 Fossil ● Lingula
p.198 Nebraska - some of Leidy genera very intermediate - *
p.571 do. Nebraska intermediate mammals

50 14-19m 198 5-17m 199 2m/u "eocene",
↑1→ 200 8-16m 571 ↑3-1m

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NB 52; 40 an halln.; 51; 134 judgemt 179 do (some editorial marks in text)

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vol. 1 NB 168; 170; 179

SB1 Vol I Owen

331 Eyes of Fishes in Lancelet & some other as simple as in the lowest crania○; 342◆ range of gradation great in F. & R.; vol I; 354 Electric organs; 358 similar action with Muscles

xxxvi; 254; 345; 378; 393; 401; 409; 486,7; 492,7; 533 Wollfian glands Man; 543 551 567 - Regrowth for Chapter on Inheritance -; 576; 588; 589 sexual selection; 609; 611; 612; 615 sexual sel.; 616; 640

SB2 □β ◆ (not CD)

Owens Anatomy of Vertebrates Vol I 1866

p.xxxii Rudimentary & nascent organs. Cases of fins becoming rudimentary in old age.

254 Gradation between homocercle & heterocercle tail - also in embryos.

345 On air bladder in Colitis aiding organ of hearing

378 Six modifications of structures of teeth in fishes, 2 sometimes in same fish or each in same tooth.

393 On egg feeding serpent with mouth without teeth but with vertebrae acting as teeth in the gullet.

401 Dicynodonts approach mammals in having growing tusks, besides as in other reptiles being implanted in a socket.

409 In an extinct crocodile the teeth can be divided into canines, incisors & molars.

486 on the persistence of an embryonic structure of the branchiae in certain low fishes.

487 on an accessory breathing organ in the climbing perch.

492 Structure of air bladder in fishes. 497 ditto.

551 Drawing of the female Surinam toad with eggs on back

588, 576 Gradation in reproductive organs of fishes

609 Embryonic characters of fishes permanent in sharks.

611 Metamorphoses in fishes.

640 On transitory tooth in young sharks & lizards for cutting through egg

xxxii 10-18m (Tiedemann and Vrolik), 19-25m

xxxiii 3-6m, 6-10m xxxv 7-15m, 21-27m

xxxvi 1-7m, 27-31m xxxvii 14u "selective" 9

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167 22-24m 168 23-27m 179 16-19m,

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345 19-25m 346 1-8m 354 1-6m, 19-23m 355

29-36m 356 25-32m 358 31-42m 378 12-27m,

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OWEN, VERTEBRATES

409 7-12m 486 17-32m 487 1-6m/fig.325.m
 492 35-43m/fig.327.m 493 1-7m, 25-30m, 34-
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 640 6-13m 646 54-56m

vol. 2 SB ♦

p.12^{ab} affinities of Birds – greatly Modified
 Birds their affinities

read as far as p.14; 517 ♦ Tail of monkeys ♦;
 551 & 552 ♦ Apes anthropomorphism Man;
 544 & 560 to end Man

All used

258 ♦ Sexual diffn in Beak

12 23-27m 13 10-16m

⌀

p.258 27-34m 517 27-36m 520 33-35m, 36-
 38m 551 27-29m/29u "mastoid processes", 31u
 "the|the", 32u "auditory process", 33-43m/37u
 "posterior|internal", 40u "ectopterygoid|the"
 552 1-3m, 13-17m 553 8-14m/10u "great toe"/
 11-12u "perhaps adaptive"/w adaptive 564 4-
 15m 506 16-21m

vol. 3 NB ♦

Law of Inheritance 619 Hair in foetus; 628;
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 244 Ear; see about external ears

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323; 325 ♦; 336 gradation of characters; 347
^{ab} affinities of Hippopotamus shown by Milk
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 415 Kangaroo Ruminating; over ♦

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 read ix 19w read 39w read x 7w read

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 417 fig.315.m 433 36-38m/38u "terminal|
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 19m 798 37-42w Say, as far as I mention –
 damn this 41-48m 799 3a/c€/w Man 9-11m
 (Darwin) 800 18-22!!/20u "my basis", 26-30m
 807 10-13m

⌀

OWEN, Richard Description of the skeleton of
 an extinct gigantic sloth (Mylodon) London;
 John Van Voorst; 1842 [CUL, I]

af, ch, em, fo, ig, rd, sp, sy, tm

NB 83; 97 to 106; 137; 154; 155; 162; 165;
 166; 170

SB □β

100 striking gradations in abortion p.101-106
 162 Sloth now seems to be a remnant of
 large class – Sloth most anomalous if looked
 at by itself

165 Modifications of teeth in this order
 extreme – indicating low ebb & flickering of
 development

166 approach Birds in some respects

83 28-31m 97 1-4m, 4-6m 98 1-2m/1u "atrophy"/1-2w another term 99 9-10m 100 11-15m, 23-26m/w entirely aborted 101 20u "fifth"/20-22m/20-25w 5th here present absent in Unau. What a gradation of abortion! 106 18-23m 137 17-18m/17u "The structure", 31-33m 154 32-34m 155 15-19m 162 30-31m 163 1-4m (Cuvier, Blainville), 10-12m, 15-17m 164 14-18m 165 16-19m, 20-21m 166 1-6m, 7-10m, 11-14m, 19-20m 167 3-5m 170 19-25w Is Glyptodon in the Phyllophagous group?

OWEN, Richard *A history of British fossil mammals and birds* London; John Van Voorst; 1846 [CUL, S]

af, beh, ch, ds, em, ex, fo, gd, geo, ig, ir, is, mg, no, or, rd, sp, sx, sy, t, ti, tm, v, wd, y

NB Owen - Queries?

♦ p.81-; 83,7; 99; p212 - Reference to Corsica cavern

p441 & 432 How far are ♣ Anoplotherium & Palaeotherium distinct; are they as distinct as are at present the unequal & equal-toed Pach-Rum:- or rather were the two Eocene groups of equal and unequal toed animals as distinct, as present 2 groups

p245 width of tusks 160 sp.

SB1 All Introduction

It is important S. America having Mammals in Eocene Toxodon & Rio Negro & Miocene Mastodon

Most of cases animals also found in Strata This looks as if record not so imperfect p.151 How few skeletons even any number of perfect Crania! though enough to make out species

p.7,8,10; 20; 25; 31; 49; 53,5,6; 61,2,7; 74,6; 78; 30,3,6 to 91; 107,9,12; 114,7; 121; 129; 130,1,3,5; 171,3; 192; 197; 202,8; 211; 213,4,5; 220; 236; 243,4; 293,5,6; 300; 311; 341; 334, 342; 346,50,354; 359; 372, 381,5; 388,90,92,97; 413,14,18; 427,29,30,32; 436-441; Over

(over)

♣ Owen B. Blanca. Toxodon plateau

♦ p.xxi; xxiv; p.28; How far can close species be distinguished by skeletons for instance American & English Beaver

How isolated would the elephant be without fossils ♦ How is pachydermata & Ruminanta fall into 2 new classes not this

Mastodon & Dinotherium to connect it with Tapir? or Palaeotherium

p.442; p.449; p.451,2,4; p.458; p437,8; 473,8; 483; 488; 493,4; 499,500; 505,8; 510; 512; 514; 520; 526; 540,2; 546,8; 557

SB2 ☐R (2 sheets)

xxi Dinotherium & narrow t. Mastodon diminish distance between Lophiodon & Elephat

xxxvii - On relation of fossil to recent mammals of same districts to xliii no fossil Mammal in N. Zealand - xlv

♣ except seal - Huxley

87. variability in rudimentary premolar in Ursus ♣ spelaeus

111 Badger oldest existing mammal Red Crag

133;2 varieties of Dog ♣ doubtful case Q

173. Domestic cat. not from F. maniculata

197. On the animals which have existed since Peat cd form in Britain.-

212 Rabbit Bones in Corsica

214 Lagomys do & in Britain N.B variability of Tusks of male Elephant in India is a variable sexual character

261 Southern range of Mammoth in America. p359 of woolly Rhinoceros in Tuscany

296 Mastodon older than Elephas & intermediate in structure of teeth

334, 342 affinity shown by rudimentary organ

(over) 2

394 Elasmotherium forms link between Horse & Rhinoceros, especially some fossil Horses.

413 Fossil genera between Sus & Hippopotamus

432 Anoplotherium, remarks on rudimentary teeth in Ruminants; young of latter approach anoplotherium.- (N.B. A form whilst forming would not spread?♦) p.436

540 on Rudimentary teeth in Whales, & embryonic character in Ruminants

514 Bos longiform parent of British wild cattle

title page *wb* 1846 xiv 31-33m xv 35-36m xvii 21-24m xx 16-19m, 29-31m xxi 1-3m, 25-26m, 30-31m xxii 1-3m, 10-11m xxiii 24-33m xxiv 1m/w♦ at same time 20-21m, 29m xxv 1-8m, 16-19m xxvi 17-20m xxviii 12-16w♦ about Tiger swimming a few miles xxxi 25-27m xxxii 7-9m, 21-27m xxxiii 19-20m (Nilsson)/w see Description to understand fully *wb* altogether 2. Bos Primigenius & longiform 2. Bisons priscus & minor xxxiv 25-30m, 32-33m xxxv 33m xxxvi 1-5m, 6-10m xxxvii 1-2m, 5w Hippopotamus 7-11m, 14-19m, 27-31m xxxviii 9-11m, 13-17m, 18-19m xxxix 10-14m, 15-16m, 31-32m xl 11-12m xlii 9-13m xliii 4-6m, 17-19m xlv 6-8w (see my Journal) 10-13m, 23-26m xlv

OWEN, FOSSIL MAMMALS

3-8m 7 11-13m 8 8m/u, 21-23m 9 18m, 20-24m, 23m 10 5-6m (Lyell) 20 21-22m 25 9-11m, 13u▲ "gigantic Beavers", 14u "water-mole", 17-19m, 22m 27 1-3m/3u 28 21-22m, 25-28m 31 33m 49 5-8m 52 24-26m (Cuvier) 53 13-16m, 24-28m 54 1-4m, 31-34m 55 1-6m, 27-28m (Cuvier) 56 9-11m, 31-34m 61 9-12m 62 3-6m 67 29-33m 69 15-16m, 27-29m 74 3-6m 76 6-8m, 9-14m (Cuvier) 78 10-14m, 28-33m, *wb* Philippi shows in shells, that decrease in size does not go with increasing rarity 79 1-3m♦, 5-6m♦ 80 8-10m, 11-14m 81 3-4m/4u "very|exceptions", 25-27m/26-27u "from|character" 83 24-25u "in|obliterated" 86 23-25m 87 18-20m, 21-22m/w ∴ direction variable? 88 20-23w firm species are hard to settle from Bones 91 9-17m 99 5-7m/5-6u "the|destructive" 107 1-3m, 27-34m 109 14-17m 111 22-24m 112 16-21m 114 10-13m, 15-16m 116 4-5Q 117 18-19m/u "the|Weasel" 121 21-22m, 33-34m 126 4-5m 127 27-30m/29u "Wolf|Dog" 128 28-31m 129 12-21m 130 2m, 5-12m, 19-21m (Cuvier, Daubenton) 131 4-7m, 19-22m, 24-30m, 32-33m 133 6-7m/6u "two|notably", 11-13m (Blainville), 21-22m/! (Schmerling), 22u "recent", 23u "Human remains" 135 2-4m/! (Bell), 30-32m 171 9-15m 173 12-15m, 19-20m, 22-23m (de Blainville) 178 12-19m 192 7-9m 197 11-26m 202 8-16m (Lyell) 208 12-14m (Bell) 211 16-21m, 24-26m 212 15-16m/u "osseus|Corsica"/w See to this as change of surface 213 15-17m, 21-24m 214 8-10m, 14-15m 215 27-28m 216 4-7m, 13-15m 220 1-4m 232 3-8m 236 1-5m 243 31-33m 244 33m 245 24u "hundred|sixty" 261 15-17m 293 16-21m 295 17-22m 296 2-5m, 27-31m 300 10-11m, 31-32m 311 10-13m, 15-19m 334 1-12m, 9-13m (Cuvier)/w affinity from abortive organs 341 6-13m, 36-38m 342 20-26m, 33-35m (Pallas) 346 1-2m/2u "Caldy Island" 350 13-19m 354 12-17m (Pallas)/12-22w England & N. America good case of range, interrupted, with Siberia between 359 26u▲/23-26m/w This is the cold animal 32m 372 8-13m 381 4-7m 384 23-25m, 28m 385 9-10m, 14m, 23-25m (H. von Meyer) 388 5-6m 390 29-30m, 33m 391 9-15m 392 10-12m, 21-22m (von Meyer) 393 1-4m, 22-26m, 27-33m 394 1-5m, 7-9m 397 1-3m, 14-16m, 19-21m, 29-33m/w 4 species in England *wb* ? whether Drift & Pliocene & caverns will not turn out very different periods 413 13-16m, 23m 414 25m/w Eocene 415 1-3m 418 14m/14-17w X analogical or real 18-22nm 25-28m 427 11-12m, 16m, 20m 429 2-4m, 20-22m 430 12-15m 432 12-13m/7-16w Reference to Lamarcks views 16-17m/!u "or rudimentary", 19-20m, *wb* Owen says young of present

Ruminants in not having horns & rudimental teeth approach Anoplotherium 433 5-12m, 31m (Goodsir) 435 17-20m 436 27-30m, 31-34m 441 wt/1-18w Did ruminants then exist in some other quarter - 1-3m, 4-5m, 9-10m/10u "for|Ruminant", 15-18m/18u "young Musk-deer" 442 26-28m 443 1-8m 449 32-34m 451 6-8m 452 4-5m, 13-14m, 18-19m, 29-30m/29u "The|both" 453 32m 454 7-10m, 26-29m 458 28-29m/28u 467 19-25m 468 3-7m 473 3-9m 478 8-10m, 11-14m, 18-20m, 23-28m, 29-32m 483 25-29m 488 9-13m, 19-20m 490 2-4m, 8-10m/9u▲/10u▲, 14-15m, 19-20m 493 24-30m 494 28-31m 495 6-10m, 19-21m 496 3-9m, 17-19m 497 23x, *wb* This seems whole evidence of Bison minor 499 21-23m/w now extinct? 500 12-20m, 31-33m (Bell)/w V. p.510 505 2-4m 508 18-20m 509 wt Nillson (V. Annals 1849 p.350) makes another doubtful species *B. frontosus* 1-2m (von Meyer) 2-5m (Cuvier) 3x, 7-10m, 19-22m/21x/21-22u "primitive|Bos", 31-32m/32u "species" 510 wt/1-29w NB The Rhinoceros, Elephant Hippotamus (Horse?) *Bos primigenius* & *Bison priscus* all having had such immense ranges; is opposed to the cattle of different parts of Europe being descended from several species. 1u "or variety", 10-13m, 11-13m, 27-31m 511 6-11m (Ball), 30-32m 512 33-35m, 36-39m/38u "have|Bos" 513 1-2m/x 514 7-14m 515 6-9m, 18-22m 520 14-16! 526 10-11m 540 25-33m 541 1-8m, 26-27m, 32u "eocene"/31-33m/w♦ only probable age → 542 5-7m 546 3-8m (Cuvier, Mantell) 548 29-33m/31u "still|any"/! 557 4-5m/u "referred|approximated", 21-25m

OWEN, Richard *Lectures on the comparative anatomy and physiology of the invertebrate animals* 2nd edn; London; Longman, Brown, Green & Longman; 1855 [CUL, S]

ad, af, beh, br, ci, cs, em, ex, fg, gd, hl, ig, oo, phy, sl, sp, sx, sy, t, ti, tm, v

SB1 91; 110; 125; 130; 152; 153; 157 to 162; 179; 183; 187; 194; 208; 211; 212; 220; 223; 236; 239; 254; 264; 267; 268; 297; 301; 324; 334; 339; 342; 346; 354; 399; 405; 406; 425; 437; 439; 443; 455; 459; 467; 476; 479; 498; 508; 521; 525; 527; 528; 537; 543; 560; 563; 565; 566; 576; 589; 603; 615; 638; 642; 643 to end

SB2 □β

86 Union observed in Planariae

125 Hydra sometimes male, sometimes female, sometimes both Q variable by double organs p.137 Q

151 Spermatozoa escaping from Bryozoa Ch.3

161 My notion of relation of Medusae & Hydrozoons
 179 On dioicous Acalephae
 213 Synapta only hermaphrodite Echinoderm
 221 Parasite of Synapta, wd seem impossible to cross
 239 On Homology of Tracheae (?) Q
 256 Earth worm & Leech unite
 264 Great diversity in having or not metamorphosis in Annelids
 268 346 In low organized classes, there is extreme gradation in forms – Perhaps more extinction in lower than in higher forms
 297 Thinks Larvae typical of Epizoa & Cirripedes!
 425 In all insects the 1st segment is quickly modified & most modified
 439 Owen compares Embryo of Vertebrate, of independently living to larva
 443 Arachnids a short special branch, beginning very low
 455 Spiders with both pulmonary sacks & Tracheae
 459 Hermaphrodite Acarus 467 do
 477 Solitary Ascidians of distinct sexes, aggregate hermaphrodite
 521 Lamellibranchs generally dioicous
 527 Doubts locomotion in larval stage of Molluscs
 539 Pteropods coitus reciprocal
 543 Gastropods, before Lias have simple shell-mouths
 560 In a few Gastropods pulmonary sack combined with Branchiae
 565 Bulini make nest for eggs with leaves – is it water tight? in Coll. of Surgeons
 567 Larvae of naked Mollusc Tritonia survived for 2 weeks in sea-water
 577 Nautilus Pompilius & Spirula only representative of the vast assemblage of old Cephalopods – (single species in genus) Vide p.650 Classification
 603 Belemnite combines characters now separated
 638 No Metamorphosis in Cephalopods & I believe none in Spiders
 643 Vegetative repetition
 645 all organisms alike in very earliest stage – 647
 648 Laws of embryological development
 8 6–9m, 10–17m 29 39–41m (Barry) 38 32–34m 39 32–34m, 33–34m 42 34–40m 58 12–17m 69 6m, 7–8m/7u "androgynous", 12–15m/14u "small orifice"/15u "pore\male", 22–24m 86 34–37m 91 34–37m/35u "dioecious generation" 92 40–42w (renumbering of lines of text which are wrongly ordered) 93 1–6w (renumbering

continued) 1, 6, 7, 8, 2, 3, 4, 5, 9 110 36–39m 118 27m 125 15–17m/Q 130 7–14m (Ehrenberg and Krohn) 135 22–25m 137 14–19m/Q 150 15–16m, 33–35m (Van Beneden) 153 16–19m/w but others are dioecious 157 14–21m 159 12–24m 160 14–19m, 23–25m 161 6–9m/8u "few analogous"/wt/1–22w If some larvae of Beetle truly bred in this state we shd have then have parallel of Hydrozoa & Acalephae. If the male glow-worm had been like female then wd have been case. But all Acalephae-ought to have hydrozoa larvae, without the embryo be concealed in egg state i.e. either Hydrozoa or none.– p183 some have & p187 40–42m 162 1–6m 179 11–13m, 17–18m 182 35–38m 183 5c "3" 7 7–12m 184 fig.w The Medusa first produces an infusoria planula which turns into a polyp 187 35–37m 188 1–3m 191 13–15z 198 1–6z 199 6u "star-fishes", 8–12m 208 8–9m 211 38–40m 212 34–36m 213 1–3m, 7m 216 39–43m (J. Müller) 217 8–11m (von Baer) 220 29–33m (J. Müller) 221 11–16w Mollusca parasite of Synapta 30–32m/w seems impossible to intermarry 36–40m 223 15–25m, 27–31m 236 1–5m 239 24–34m/26–27Q/29u "lateral sacs"/33–34u↔ 254 37–40m 255 22–23m, 25w worms couple 28–29m 256 18–19m, 30–31m 264 6–19m, 21–24m 267 21–28m 268 6–7m, 26–29m, fig.114.w Extinction. 269 14–15m 283 33–37m 297 1–2m/!/1u↔, 41–42m 301 37–39m 324 27–37m/w Daphnia do their females or larvae undergo metamorphosis 325 31–36m 334 1–4m 339 5–9w not adapted to active life 342 14–30m 346 7–11m/7–16w retrograde development or rather in another line, less height.– 23–26m/26–27u "the varied"/19–28w because not really lowest, but retrograde developed 353 5–6m 354 40–43m 399 10–13m, 32–34m 405 29–33m 406 17–21m/w I wonder whether any○ selection 425 5–9m 437 17–21m 439 15–17m/16u "the structure", 37–41m 443 20–25m 445 36–41m (Simon) 446 5u▲, 8u "water-bear" 447 40–43m 455 23–29m 459 24a "Macrobotus"/24u "is androgynous"/19u▲/19–22w is acquatic p446 23–26w p.446 see fig. of.– 466 41–43m 467 36a "Macrobotus" aquatic 37–38m/38u "hermaphrodite", 39w/wb Inhabits follicles in skin – p.445 they swim in Pus– ∴ hardly land animals 476 33–35m/34w● 477 37–38m (van Beneden) 479 7–10m (Milne Edwards) 480 19–23m 481 15–23m 483 31–32m (Krohn) 498 34–37m 508 13–19m/w nearly terrestrial 521 35–37m 522 26–28m (Krohn) 523 2–4m, 23–26m 525 27–31m, 29–32m 527 33–40m (Forbes), 42m 528 11–13m, 14–16m, 29–32m 529 19–23m, 36–38m 537 40–41m 539 31–33m 541 1–2m 543 22–25m 560

OWEN, INVERTEBRATES

7m, 12-14m 563 1-2m 565 8-10m 566 9-10m/
w how transported 567 18w Tritonia 19-20m,
41m 568 30-34m 576 24u "from|types", 35-
37m 577 5-6m/6u▲/w Dibranchial 589 17-
18m/18u "ink-gland" 603 11-17m 605 8-12m
615 1-2m 638 21-30m/21-24w p.466 Q 34-
38m 641 22-27m 642 1-6m, 34-37m 643 1-5m
645 21-24m, 30-36m 646 15-17m 647 11-14m,
27-35m 648 2-7m, 10-18m, 18-22m, 27-31m

OWEN, Richard *On the nature of limbs*
London; John Van Voorst; 1849 [CUL]
ad, af, ch, ds, em, fo, h, ig, rd, t, tm, ts, v

NB I look at Owens Archetypus as more
than ideal, as a real representation as far as
the most consummate skill & loftiest
generalizations can represent the present
forms of Vertebrata.- I follow him that there
is a created archetype, the parent of its
class

NB2 2; 9

SB □β

2 the primal pattern of all the modifications
of a part

9 Man does not trammel himself in his
inventions by any common type

10 Final causes not sole governing principle
14; 37

13 Capital comparison of hand of Mole, Bat
& Fin

33 In Elk rudimentary hoofs of use in marshy
ground

35 Abortion of one toe variable in Ourang

39 a desire to ascend to cause of
Homologies

40 On Head of Human foetus formed of
pieces for parturition not applicable? Chick

45 Horses legs & Lepidosiren good contrast
if simplicity from abortion & original

45 Only rudiment of Pelvis in Whales - 78
rudimental limbs in Boa

82 Lepidosiren realises nearly ideal
Archetype (see my remarks at end of
Volume)

84 Some think falsely (I argue. that
conformity of plan is opposed to idea of
design.

86 Alludes in grandiloquent sentence to
some law governing progression, guided by
archetypal light - &c.-

99 Vertebrae of head & thorax first
developed

103 on variability of coalescence of segments
of vertebrae.-

115 Rudimental tail proportionally longer in
embryo man, than subsequently.

2 28-30m/28-29u "essentiality|form", 35u
"primal pattern", 36u↔ 3 16-18m/17u "special
homology" 8 zb 9 33-36m 10 9-11m 13 1-3m,
22-25m, 33-35m 14 3-6m 15 1-2m 30 9-14m
32 19-23m 33 20-24m/21u "dangle|project" 35
6-8m/7-8u "commonly", 10u/wε 36 28-31m 37
27-36m 39 14-28m 40 6-11m, 24-26m 45 22u
"lepidosiren"/9-23w In all these cases the
tibia & fibula shows that they are simple by
abortion & it is rash to argue from. about
original simplicity of limb. 23-24m/13-25w
apparently aboriginal simplicity. 31-35m/34u
"rudiment" wb The contrast between the 8
almost singly serial bones of Horses leg.
(p8) & appendage of Lepidosiren good
instance of ♣ rudimentary & primeval or
transitory stage 49 28-31m, 35m 56 10-14m/!
10u "return|it"/12-13u "development|point",
16-18m 59 17-18u "osseous fishes"/17-21w
What is relation in Sharks? 78 21-29m 79 15-
19m 82 33-35m 84 12-14m, 21-34m 86 7-9m,
12-17m 89 34-39m 96 39-40m 97 1-8m 99
29-36m 103 27-30m/?, 33-37m 115 6-10m

OWEN, Richard *Palaeontology* Edinburgh;
Adam & Charles Black; 1860 [CUL]
e, geo, ig, tm

NB 57 & 69 shows how important record is
70; 132; 145; 150; 152; 199 Enaliosaurians♦

SB □X ♦

57 & 69 & 70 shows how imperfect record of
Mollusca is

132 gradation in ossification of first bones

145 generalised ancient member of Sturgeon
Family

150 The History of Fishes indicates mutation
rather than development - good remark -

57 2-4m 69 30-33m 70 12-15m 132 16-19m/w
grades 145 15-19m 150 16-22m, 31u "special
piscine type" 151 10-14m 152 6-8m 199 9-21m

OWEN, Richard *Palaeontology* 2nd edn;
Edinburgh; Adam & Charles Black; 1861
[Down, S]

25 9-14m, 24u▲, 27u▲ 27 22-25m 28 5-6m 30
19-31m 39 9u▲ 54 32c/wε 55 2u "long", 8-
10m/9u "mid", 24u▲ 57 1u "having|spires",
4u "deltidium", 11u "internal partitions"

∅

OWEN, Richard *On parthenogenesis* London;
John Van Voorst; 1849 [Botany School, I to
Alexander Bain]

OWEN, Richard *On parthenogenesis* London;
John Van Voorst; 1849 [CUL, I]

br, ci, em, fg, h, he, in, -phy, sp, t, ti, v

NB ♦ 13; 25 metamorphosis of epizoic Crust

5, 6, 7, 8 Pangenesis
25-26 - Owen's Belief

64 do

75 Pangenesis - buds & ova alike

Remember that Metagenesis (generation or growth within) blends into Metamorphosis - any explanation for one must hold for other.-

SB1 □ 13; 20; 25; 35; 53; 62; 64

To Owen's view, there appears to me ♣ 3 objections.- 1st the astounding diffusion of the spermatic force in many mosses & c which for centuries do not breed - 2d the vis medicatrix - nails produce over stump in Man's ♣ fingers, which facts blend into gemmation. 3d facts of buds & c partaking of character of old time, & not varying, whereas seeds go back & take new characters.= 4th (p26 - growth & gemmation are hardly distinguishable

SB2 □ β

13 Larva of cirripede more typical of class than Mature Barnacle

title page *wb* 1849 5 27-35"..."/32-35m 6 8-9m/8u "individuality|spermatic" 7 26-28m 8 22-23m, 25u "legacy|virtue" 9 29-34m 13 4-8m 20 7-16m (J. Müller) 24 19-22m, 28-31m 25 14-17m, 21-24m/25-27m/"..."/23-27m/17-34w He uses expression that it is Metamorphosis - growth within 36m/"... 26 1-5m, 6-10m/6...", 8-22w all growth may be thus called parthenogenesis for metamorphosis gradates into metagenesis 35 29-35m 53 5-11m 62 3-8m 64 3-7m 75 11-13m

PACKARD, Alpheus Spring (the younger)

A guide to the study of insects Salem; Essex Institute; 1868 [Down]

beh, sx, tm

NB1 124 On Cells of Bees

NB2 149; 177- Mutillariae females wingless, but in 2 species females winged; Habits of Ants

177 28-32m 181 10m (*Huxley, Latreille, Kirby, Spence*)

PACKARD, Alpheus Spring (the younger)

Insects injurious to forest and shade trees Washington; Government printing office; 1881 [Down]

PAGE, David *Man, where, whence and whither* Edinburgh; Edmonton & Douglas; 1867 [CUL]

beh, cc, ch, ex, geo, gr, h

NB ♦ Man; 55; 62 good Q; 88; 92; 98; 142; 153; 171; Extinction of old civilisations

55 17-24m (*Agassiz*) 62 6-8m/1-12w Tropic Dr Hayes ♣ yet little change, not more than between Tropic of old & new world 8-13m/16-22w Effects on Habits of Life 88 12-19m, 19-23m 92 6-16m/9w refer to 98 *wt* but not through inheritance 3a "members"/3-8m 142 22-27m (*Huxley*) 143 1-7m 152 24-27m 153 1-5m/1w *Lyell* 170 12-17m 171 23-28m (*Owen*)

PAGET, James *Lectures on surgical pathology* vol. 1; London; Longman, Brown, Green & Longman; 1853 [CUL]

af, beh, cc, ch, che, ct, em, h, he, in, pat, phy, rd, sx, t, ta, tm, v, y

NB p.25;32; 39 & 41 Size of Bloodvessels through attention to part- Expression; 63; 67; ♦ I have read First 3 & last Sections; 69; 71; All read; Ch 7 wd be worth reading; Pangen♦; p.11♦; p.13♦

SA (pp. 38-39) □ β

Lectures p39 & 41 On thought increasing Blood-vessels

SB1 Pagets Pangenesis 1

♦ p.11 growth of new tooth & hair by offset go for simile with cell-gemmules

♦ p.13 each hair

•♦

a feather lives its appointed time & then dies.

p.19 On differences in parts or cells appearing alike as shown by symmetrical diseases due to ♣ matter in blood which has affinity with those certain parts

✓ p. 27 On affinity of each part for

PAGET

certain substances in blood Kidneys for urea & for certain morbid poisons. as chancre.- Hydrophobia

50 scar propagating itself for years; & bears on blood altered for life by certain diseases
72 transplanted spur of cock, excessive growth of.-

150 ✓/✎ Repairs of parts wonderful provision ready though so seldom wanted.- adult repaired by adult form - tail of tadpole-hence same force which was O before occupied in its maintenance during wear & tear

154 ✓/✎ power of reparation inverse to amounts of power, already consumed in development of individual

158 Gemmation retards repair of injury

159 Nais cut into 30-40 pieces & all formed individuals

163 Insects which do not go through much metamorphosis can alone when adult repair injuries p.164 power of development of embryo same as that ♣ in restoration from injury

SB2 181 & 331 The theory of coagulable lymph developing structure & as I supposed containing gemmules

219 ✓/✎ - cuticle on sole thicker than elsewhere & so renewed, independent of pressure. good sentence to quote under Nisus, & on identity of power of development & of repair

239 Q On the tissues of scars gradually & slowly altering & assuming proper character

243 first material thrown down in uniting Bone.

343 assimilative power was assigned formerly to each tissue or the coagulable lymph in the vicinity

357 ✓/✎ False membranes assume character like adjoining parts ✎ 369 Lymphatics

384 on Pus cells

✎ 254 Repair of Bones

✎ 256 good

SB3 ✎ Pangenesis; Pagets Lectures on Path.

11; 13; 19-20; 22 ♦ Laws of Variation ♦; 27; 32 ♦; 50; 58; 60 good - refer to in *; 72; 150; 154; 158; 163; 164; 181 good; 199 ♦ Nisus formativus; 209 quote; 239; 243; 263; 268; 290; 331; 343; 351; 357 Ask- Nisus Formativus; 384; 483 Direct Action

I must say that Paget maintains that ordinary reparation & growth & gemmation &c are all the same.-

[I shd say that unknown cause prevents a man cut in twain from reproducing - partly too much injury]

SB4 □β ⇨

25 Rudimentary organs serve to excrete matter Human foetus covered with wool

27 Kidney increases & does double work if one destroyed 67 skin growing thicker from use

39,41 on thought of part increasing blood-vessels

71 on growth of Hair, near where surface inflamed 73

72 enormous growth of spur on comb did not decrease spurs on legs

SB5 ✎

✎ Mem.- it is possible that gemmules may come from surrounding tissues & be developed in the Lymph - case of Negro-skin looks like this so with elastic tissue, which comes afterwards.-

(over, part ✎)

Mullers Phys I p410 speaks of effused Lymph as transport & formation of new parts as due to its reciprocal action on inflamed adjoining structures.

[p416 regenerated skin in Negro after a time became black.- shows that gemmules entered after a time over

1 zb 11 2u "shows |connection"/wt/1-6w These germs must be very different from my gemmules; far larger & with power of male & female gemmules uniting - probably always distinct & not united into germ like that of tooth. Yet there is analogy in these cases. 15-19m, 15u "from |germ", 16-17u ✎ "separating |germ", 28-34m (Kölliker)/15-34w These germs may be compared with offset-bulb 13 15-19m 14 3m 18 15-24m 19 3-5m 20 11-16m 22 7-10m (Budd), 12-16m 25 21-32m/22-24w like milk teeth 33m 26 1-9m, 9-14m 27 1-9w special affinities 12w Hydrophobia 13-16m, 17-20m 32 5-12m/9-15w Horns for fighting 13-17m, 19-24m 33 10-16m (Treviranus) 39 29-30m 41 14-17m 50 15-25m 58 12-13m, 14-15m/18a "But"/w not 23-28m, 28-33m 59 7-11m, 14-17m, 17-18m 60 1-31w How on my view can milk ♦ 2d teeth, what are effects of old ♦ first teeth resemble those of father 5-9m, 17-21m, 25-30m/w important 31-34m/34w good 61 3-5m 63 12-13m/u "dependence |composition" 67 9-16m 69 5-9m, 22-26m 71 10-14m, 22-25m/w Bears perhaps on wet producing more hair 35 → 72 2-6m, 16-18m 73 4-6m 150 2-6m/"..."/6c/7c✎, 32-34m 151 1-3m/1-2u "to |parts", 9-29w Newport has some remarks on this in Myriapoda 31-34m/w tail of tadpole which ● cut off 152 15-19m/17x ✎ 154 7-9m, 13-18m/13-16m/11-21w when body grows old

gemmules like rest of structure cannot multiply. 155 1-2m 158 27-29m (Trembley) 159 2-5m, 8-11m (Lyonet)/9u "Nais" 163 6-8m/w some mature incr 164 4-10m 181 8-14m/1-31w must contain gemmules of many kinds; coag. lymph. I suppose is not cellular but forms cells 29-33m, wb p198 - coagulable lymph is apparently ♦ exuded always with ♣ some inflammation.- 182 1-6m, 23-30m 187 5-7m 198 10-12m 199 3-6m/w false membranes 209 1-2m, 11-18m/w from Coag Lymph but has said before on Hairs 28-31m/"..." 210 6-8m 217 1-3m/wt outgrowth of Blood-vessels into granulations 238 13-16m, 19-22m 239 2-4m/4u "change|year", 7-11m, 12-19m 243 28w Bones 29-31m 254 8-13m 256 ☉ 11-13m/12u "exposed", 14-15m 257 ☉ 9-14m 263 30-34m/30w cartilage 268 11-12m 290 10-12m 331 9-10u "coagulable lymph", 11-19m, 11u "inflammatory exudation", 12u "pellucid", 13u "through|capillaries", 17-19m, 34m 333 wt These are evidently formed 2-5m, 2u "coagulation|ordinary", 3u "corpuscles form", 9u "corpuscles|cells", 10-14m, 15u "first", 20-22u "not|nucleus", 23u "in|hours", 24u↔, 26m 334 7u "exposes|nucleus", 9u "the|cells", 15u "various degenerations", 15u "pus-carpus" 335 3-10m, 31-35m 343 22-34m 351 1-3m, 16-18m 356 6-10m, 10-12m, 14-15m, 33-34m/34u "fibrous|ligamentous" 357 2u "bone", 2u "osseus", 3u "epithelium", 3u "epithelial", 7-9u/7w Bone?? 14-18u↔, 23-27u±, 32-34m 369 11u☉ "that|first" 384 28-31m/19-31w Differs from L. Beale 483 20-30m

PAGET, James *Lectures on surgical pathology* 3rd edn; London; Longmans, Green & Co.; 1870 [Down, I]

PALEY, William *A view of the evidences of Christianity* London, 1822, 7 vols [CUL.1900]

vol. 1, 130 ↑11-8m 307 9-11m 315 6c "fortuis" 342 11-13m

vol. 2 NB 159

33 11-15m 34 ↑15-10m 39 wt Peter & John 41 wt Stephen 18w persecut 43 11w James 44 ↑6-5w Barnabas 45 3u "one"/w Paul ↑5w Luke 46 wt● 57 ↑10-5m 80 ↑2w Matthew 81 1-10w Mark Luke John 140 1-7m, 9-17m, 9-17m, 20m, 20m/u "our Digesta", ↑10-9m/u "Old|Testament", ↑6-5m 190 16u "Nothing"/w the letting of a house some times depends upon it! 233 18-25m 236 ↑18-1m 238 ↑15-1m 239 1-6m, 13-16m 257 ↓m 258 1-20m 263 1-12m 264 ↑7-1m 265 1-20m 269 ↓m 270 1-6m 272 ↓m 273 ↓m 274 ↓m 275 ↓m 278 1-15m 280

1-6m 289 9m 309 13m 310 6-10m, 16-22m 335 ↑18-1m 336 1-12m 341 ↓m 342 ↓m 385 ↓m 386 1-8m 393 ↑20-1m 394 ↓m

vol. 4, xxii "vi-xxii".m xxiii "Part II".m, "x-xii".m/w read "Part III".m, "Book IV".m/w read "Book V".m/m xxiv "Book VI, ch x".w read

vol. 7, vii-xiv (dates between 29 November 1840 and 4 September 1842 written against contents entries)

PALM, Ludwig Heinrich *Über das Winden der Pflanzen* Tübingen; C. Richter; 1827 [CUL, pre-B]

gd, mhp, or, phy, sp, v, t, wd

NB1 Phaseolus cirrosus; 29 & 52 Momordica winds to left; 52

NB2 p.34 Hops

NB3 ☉ Species Theory

p.26 Convolvulus sucking plant like Cuscuta.- origins of new habit - Anagous var. see p.45 perhaps describes growth of papillae of Cuscuta

41 on certain plants becoming ♣ Twiners - good analogous variation.- see my Paper on Climbers

☉ p45 On growth of Cuscuta

☉ p2 Movements of Plants

1 ↑4-1m 2 19-21m/19u "Calcana" 6 17-23m/23u "Fünftel", 26u "6|10" 7 6-7w 4/5ths 10 27-32m/27-28u "die|führen" 11 3-7m/4x☉, 19u "Blumenstiele", 21u "Amplideen", 22-24m, 32-34m/33u "Blattstiel" 12 18m/w 424 22m/w 339 24m/w 378 29m, 31m/w 589 33m/w 402 13 2m/w 664 33m/w 653 14 2m/w 686 6m/w 511 8m/w 524 12m/w 538 16m/w 281 20m/w 205 21m/w 205 23m/w 158 25m/w♦713? 27-28(line across page), 29-31w all world not - Lindley 15 12m 16 17-20m, 32-34m 17 6-8m 18 8-10m 26 10-19m 27 2m 28 25-27m/26u "Arten|Gattung", 30-31x☉, 30u "wahrscheinlich", 31u "Gattungen|natürlichen" 29 14u "Passiflora", 14u "Mormodica" 30 31-34m/x☉/32u "Stengels|sich" 32 26m 34 3-4m, 6-8x☉, 13-17m☉ 35 31-32m 41 3-4m/x☉/u↔, 15-20m, 22-26m/x☉, 26-28u↔/28-30m/25-30w wild plant 42 6-9m/7-8u "es|Habitus", 21u♦ 43 10u☉ "Periplora", 14-16x☉/u "denn|Aesten" 45 9w not read 48 19u "sich|Gegenstände"/17-21m/w Mohl devices 52 11-15m 53 27-29!, 28-30! 54 15-17m 55 3-6m/4x☉/u "für|hält", 26-27m/u "sind|Blumenstiele", 29-30x☉, 31u "Sie|von", 32-33u "und|untersten" 56 5-12w do not curl up 12-14x☉/m 57 14u "Cardiospermum", 16-24m/22-24m☉, 32-34m 58 5-7m/5x☉/u♣, 30-34m/

PALM

34x/23-34w Cirri more like Ivy Plants 60 12-14m, 14-15x/m 61 11-12m, 23-29m/14-29w Will not twist Ivy 62 27-28m/28u 63 10u/10-11w Linaria ● 14u "die|selbst"/x 68 31-35m/33-34x 79 20-22m 92 13-14x, 15-28w no irritability!!! 93 4-7m/4-6m, 7m/x 94 30u, 31-33u "ersteres|Windung" 95 wt This shows his theory 1m, 5-6m, 7x, 9u "Die|Spiralform", 33-35m/34m/u "mit|Breite" 96 3-7m/5x, 32-35m/x 97 34u "die|selbst" 98 1u "aber|variire", 10-11u "indem|Pflanzen", 15-16x/u↔, 26-27m/u Wachstum|unabhängig"/x 100 21m/21-22u↔/1-25w there is no relation of quickening in movement of cirri to revolution 31-33m/31m/u "paralell|Wachstum" 101 wb I cannot make out whether he knew revolving movement of tendrils

PAOLUCCI, Luigi *Il Canto degli uccelli* Milano; G. Bernardoni; 1878 [CUL, I] ♂

PAOLUCCI, Luigi *Il Canto degli uccelli* Milano; G. Bernardoni; 1878 [Down, I] ♂

PARIS, John Ayrton *The elements of medical chemistry* London; W. Phillips; 1825 [Down, pre-B, S] ♂

PARIS, John Ayrton *Pharmacologia* 6th edn, 2 vols.; London; W. Phillips; 1825 [Down, S]

PARKER, William Kitchen *A monograph on the structure and development of the shoulder-girdle and sternum in the Vertebrata* London; The Ray Society; 1868 [Down] ♂

PARKES, Edmund A. *A manual of practical hygiene* 4th edn; London; J. & A. Churchill; 1873 [Down, FD]

PARKINSON, James *An introduction to the study of fossil organic remains* London; Sherwood, Neely, Jones & W. Phillips; 1822 [CUL, ED, S (Erasmus crossed out and replaced by Charles)]

PAUCHON, A. *Recherches sur le rôle de la lumière dans la germination* Paris; G. Masson; 1880 [Down, I] ♂

PENNANT, Thomas *History of quadrupeds* 3rd edn, 2 vols.; London; 1769 [CUL, S in vol. 2]

beh, hy, tm, v

vol. 1 NB ↔ 237-242; p.21

21 16m 33 11-14m 34 14-17m 151 1m 237 1m

238 16-17m, 21-27m/21u "produced|puppies"
239 22-26m 242 17-21m/20u "vide|i.49"

vol. 2 (markings presumed not by CD)

PERNETY, Antoine Joseph *Journal historique d'un voyage aux Îles Malouines en 1763 et 1764* 2 vols.; Berlin; Étienne de Bordeaux; 1763-64 [CUL, pre-B]

vol. 2, 438 1-9m

PERRIER, Edmond *Les Colonies animales* Paris; G. Masson; 1881 [Down, I] ♂

PERSOON, Christian Henrick *Synopsis plantarum* 2 vols.; Paris & Tübingen; C.F. Cramer & J.C. Cottam; 1805-07 [CUL, ED] gd, sx

vol. 1, 222a 31m, 38m, 43m, 52m

vol. 2 NB1 Eucalyptus Icosandria
NB2 Many monoecic dioecious plants in New Zealand & many trees & bushes compare Monoecic & Dioecious here marked by crosses

(untranscribed w: W meaning Water-plants)

506b 15u "labello tripartito" 512a 7-10m 529b 4w, 30w 530a 11w 531b 5m 532a 37w 532b 19w 534a 17w 550b 11m 551b 9m 557b 23m 561a 9-11m 562a 28m 562b 21m 565a 27m, 42m 566a 2-3m, 11-12m, 45-46m 567a 18-20m 571a 43m 571b 25-26m 572a 15-17m 572b 46-47m 573a 16-17m, 28-29m, 50-51m 576a 32m, 49-50m 576b 1121m, 114m 577a 50-52m 578a 2-3m, 36u "geminis elongatis" 579b 36m, 52m 580a 31-33m 580b 32m 588a 39-40m 588b 34-35m, 45-46m 589a 3-5m, 15-16m, 32-33m 596a 6m 597a 6-7m, 33m 597b 28m 598a 50-51m 598b 21-22m 604a 41-43?, 44m, 54-55m 608a 6-9m 612a 32-33m, 41-43m 612b 31-33m 616a 12-13m, 35m, 39-40m 616b 47-48m 617a 2-4m 622a 12-13m, 29-30m, 42-43m, 51-52m 622b 43-45m 623a 2-3m, 14-15m 623b 3-6m 624a 24-26m 626a 2-4m, 20-21m 626b 2-4m 628a 47-48m 628b 27-29m 629a 23-24m 639b 9m 630b 29-30m 632 6-8m, 21-23m 632b 39-40m 633a 22-24m 634a 44-46m 634b 22-24m

PETTIGREW, James Bell *The physiology of the circulation in plants, in the lower animals, and in man* Edinburgh; Oliver & Boyd; 1873 [Down, I]

PETTIGREW, James Bell *On the physiology of wings* Edinburgh; Neill & Co.; 1871 [Down, I]

PHILIPPI, Federico *Catalogus plantorum vascularium chilensium* Santiago de Chile; Imprenta Nacional; 1881 [Botany School, I] \wp

PHILLIPS, John *Geology of Oxford and the valley of the Thames* Oxford; The Clarendon Press; 1871 [Down]

fo, geo, sy

NB p.404 on the filiation of Secondary Molluscs

404 1-9m/w see previous cases 405 17-20m/17w Palaeotherium

PHILLIPS, John *Life on the earth* Cambridge & London; Macmillan & Co.; 1860 [CUL, I] ch, fo, geo, ig, ir, or, sh, sp, t, ti, tm

NB1 (a) argue against this; it is not always the perfect types which first appear - Ruminant & Pachyderms. Intermediate Reptiles - Intermediate fish-

\wp In Asa Grays Review of this book (I think in Origin Portfolio) I have some remarks on one important subject, why some forms are changing I bring forward some mammals not changing

p.163

NB2 Species Theory; 212 & 214 good (a); 66; 69; 99; 126 calculation of sediment of Ganges; 133 - Time required for formation of Coal; 141 Retrocession of Falls; 167 Age of chief axes of Britain; 207 Breaks are not real, elsewhere filled up

When I come to Geolog. Record or Laws of Succession look over this Book

69 21-27m 99 23-27m 126 9-15m/6-14w Blank interval omitted 127 17-18m/→ 129 16-20m 130 8-11m 133 24-26m/26u "127.5" 134 3-6m, 9-12m 141 23-25m 163 wb 233 167 14-19m 206 2-27w Silurian strata not like Tertiary - one steep inlet○ at Malvern○ 207 1-17m/wt/1-18w but what percentage of identical fossils in these stages - what term for each 3 or 4 percent 1-13w How can this be said, when we have such cases as Forbes 3 sets of shells 17-24w It is hard to judge of breaks. 210 9-21m 212 7-22m 214 4-12m, 17-26m

PHILLIPS, John *A treatise on geology* (Lardner's Cabinet Cyclopaedia), 2 vols.; London; Longman, Orme, Brown, Green & Longman; 1839 [CUL, S in vol. 1]

che, fo, gd, geo, mi, sy, t, ve

vol. 1 NF Buy Brewster on Microscope

267 37-38m 268 20u "red masses"/19-21w \wp 272 19-22m 277 36-40m

vol. 2 NB1 ♦ Lyell; p.13 wretched classification; Mention this, whenever I come to S. America; Copied

NB2 18 (he means 13) List of Mam. of Europe must be referred to for notes

♦ 46; 51; 57;

The whole of Plutonic including trap veins perhaps do not differ greatly from the whole of the Volcanic.- But in the latter there has been a greater separation of ingredients, from position, causing cooling & crystallisation

lead & silica do not separate, whilst both fluid - How is brass, & glass with red lead in it? Attraction○ in these cases.-

63; 65; 73; 80; 83; 100 St Jago; 115; 125; 135; 160; Copied

1 zb 13 21-43m (Lyell, Cuvier, Owen, Agassiz)/26-36w not applic. to S. American fossils 24 25-27m/26u "Irish Elk" 27 15u "Irish &c" 28 27?/u "fallow"/26-29w see Bell's quadrupeds 46 27-33m/30-31w see p.50 50 ↑10-1m 51 24-39m 52 1-28m 57 29-35m, wb This classification infers that there is as great a difference in the Plutonic as the Volcanic which I reject 65 9-15m, 2nd fig.m 66 11-12m, wb Felspar is in excess surely see analysis of greenstone 68 1-27m (Phillips) 72 wb There are dikes of granite 73 wt Tortuousness still more distinguishing character hence not stretched mechanically shrinking 1-37w The Plutonic rocks being so much most internally heated would shrink more than volcanic. Do most substances shrink in solidifying, yes, except water. iron shrinks?? wb Trap veins most analogous in Salisbury craigs to Plutonic: 80 37u "porphyritic", 39u "never case", wb Andes 81 17-22m/w argue granite near surface of all ages in all parts of world hence thinness of crust 83 5-39m/wb thin crust theory 84 3-20m 100 4-6m (Daubeny, Von Buch) 115 30-37m, 38-39m, wb augitic porphyry: granite:: basalt: trachyte 116 1-8m, 20-24m/w thin-crust theory 125 1-28m, zb 126 4-39m 127 1-38m (Necker) 128 1-26m (Dufrenoy) 129 15-18m/w No 135 3-18m (De la Beche) 160 12-19m (Fox) 162 14-23m (Patterson) 209 3-32m (CD)

PHILLIPS, John *Vesuvius* Oxford; The Clarendon Press; 1869 [Down]

PHILLIPS, William *An elementary introduction to the knowledge of mineralogy* 3rd edn; London; W. Phillips; 1823 [Down, pre-B]

che, mi

PHILLIPS, W., MINERALOGY

SA (pp. 224-25) Jamieson lecture 2.2.1846 about iron when cmpds. scratched
SA (pp. 62-63) ditto, about Hornblende
SA (pp. 350-51) ditto, about Tin when scratched
xxvii 26-27m cvii 4w potash 58 wtee, 17-19z wbee 114 wt/wb (calculations for making various compounds), 10m/13-20w Jamieson 136 14-16m 146 wbee 147 wtee 161 14-15m, 31-32m, 34-35m 368 1-4m

PHILLIPS, William *An elementary introduction to mineralogy* 4th edn, ed. R. Allen; London; Longman, Rees, Orme, Brown, Green & Longman; 1837 [CUL]

55 fig.wtee 218 10m, 36-37m

PICKERING, Charles *The races of man* new edn, to which is prefixed *An analytical synopsis of the natural history of man* by J.C. Hall; London; H.G. Bohn; 1850 [CUL]
fg, gd, is, ti, wd

SB1 I have not read this book sufficiently

☞ Read again

46; 74; 63; 315; 317; 318; 323; 326; 333
Table; 339; 340; 346; 366; 369; 372; 374;
377

Consult Index for History of ancient animals
♦ Mr Birch told me that History of Fowl is given in some work by Pickering

SB2 ☐☒

Selected References Oct 56

317 Dog, thinks introduced into America.-

338 Feral Animals of Pacific

315 (he means 335) Rhamses Sethos, Bullocks in Aegypt during his age

361 Domestic Pigeon in Sama Vida

374 Ancient History of Fowl

361 & in Institutes of Menu

58 on island only 2 plants & drift wood

55 transported seeds

59 lizards

46 25-33m 55 3-10m 58 13-27m, 31-34m 59
30-33m 61 31-33m 63 6-8m/7-8u↔ 75 20-29m
274 1-7m 314 ↑4-1z/zb 315 6-8m, 17-20m/25u
"Greyhound | Turnspit" 317 3-6m 318 29-32m
323 25-31m 326 4-8m 339 9-11m/11u
"has | wild", 16-17m/16-17u↔, 22-25m/23u
"Hawaii", 23u "according | Samoa", 26-27m,
36-39m/38u "greatly | Honolulu" 340 27m 345
27-29m 346 9-11m 355 33-34m 359 36-39m/
38u "Rhamses Sethos", 45m (Rosellini), wb age
360 29-30m, 43m 361 13m, 14-16m, 34-37m,
36-46m/37-46m 362 4-5m 363 13-15m 368
38u "sixth | Saccara" 369 4-21m/4-5m, 10-15m,
19-21m 370 2-4m 372 19-21m/19u "BC2200",

23u "Beni-Hassan", 29-33m, 33-37m, 39-41m
373 45m 374 18-27m, 26-28m, 29-32m/30u
"Medinet Abou" 377 36-38m 415b 48w

PICTET, François Jules *Traité élémentaire de paléontologie* vols. 1 and 3; Genève; Cherbuliez; 1844-45 [CUL]

cc, ch, ds, em, ex, fo, gd, geo, hl, ig, im, ir, is, mg, no, or, sp, t, ta, ti, tm, v, wd

vol. 1 SB1 ☐β

67x-x91 Law more ancient the animal the more different from living (must mean in mass p.69)

89 argues no important differences in domestic animals

91x argues against change of species, from apparition of new types. Good like new organs

91 admits that successive stages of same formation have closely allied forms

108 curious to see how lately my conclusion wrong on coming in of Mammalia

126 what a number of monkeys over world must have existed since Eocene period & tertiary beds of Hymalaya & Brazil - continuous in Europe - How rash to judge of what world holds from Europe: no insectivora or hollow-horned Ruminants in S. America - Madagascar no Carnivora Australia Carnivora. Europe probably once an isld.

144 Cuvier doubts on species of Ursus

154 on intermediate forms

165 Dog, origin of, important

Bearing in mind Glacial periods rash to say conditions similar in stages of one formation; or if so look to space as guide.-

I will cease extracting better get new Edit

SB2 read as far as p37 ♦ Pictet Vol I

66; 80; 83; 91; 108 creation; 126; 129; 134 to End of Vol.; 362

66 16-20m 68 5-11m/5-7w Fish!! 69 6u
"terrains anciens", 15-16m, 19u "térébratules",
24-25m 80 16-17u "gastéropodes", 24-30m/25w
ancient 83 1-11m 89 5-16m 91 3-5m, 23-30m
108 20-25m/w immigration of ruminants??
126 18-30w/wb What an immense number of monkeys must have existed - this highest form being Eocene convinces me of prior existence of Placental Mammifers. How many marsupials since Jurassic ones. we may always put on one side cases ie those of Brazil & N.S. Wales 127 24a "Simiae"/w old world 129 19-25w In Europe from Eocene to Miocene & only 2 fragments 134 24-26m 138 1-5m/wt/1-6w Australia now no great Carnivora - 141 1-3m/w none fossil or recent

in S. America 145 18-21m/w Madagascar no Carnivora? 149 24-27m 154 10u "bassin | Paris"/w Eocene 11-19m, 14-15m, 18-21m 157 24-25m/24u "des | sa" 158 3-4m/4u "miocène" 160 22-24m, 24-26u "dès | qu'ils", 28m 165 5-7m, 17-19m 166 10u "osseuses | Sardaigne"/10-11m 168 26-28m 172 26-27m 174 23-25m/6-25w It is evident that Carnivora more connected formerly than now 178 10-12m 182 15-19m/14-21w yet widest ranges, ought to have lived long 187 26-30m (Lund) 188 19-20m 190 14-17m 195 24-26m 212 23-25m 231 20-21m 235 10-14m 236 11-16m 237 5-8m, 11-13m, 15-16m/16w recent 238 10-11w Miocene Mastodon 255 26-29m, wb I do think it odd that not more intermediate forms - many as they are. Preservation only at periods 256 24-26m 258 20-22m 259 8-9m 260 30-31m 264 6-8m, 12-14m 267 9-12m, 14-16m 269 1-2m 274 28-30m 275 15-16m 276 13-15m 280 2-4m 288 6-12m 289 9-12m/9-25w Ruminants & pachyderms coincide in India- From Edentata of La Plata how rash to argue Rumin not created - or Australia 297 13-14m 308 9-11m/w S. America wb We see now that several tribes more restricted than at latest Tertiary period, so formerly they might have been still more so - If we knew that the Anoplotherium was created at Eocene then we might argue that Ruminants were created lately 320 16-19m 346 16-21m (Cuvier)/19u "onze espèces"/16-21w cf. Water & Land Birds! 13-25w/wb How strange not more common in Secondary period - Lobsters Fish in Old Red also - Didelphys again What a gap from Lower Jura to Tertiary 347 8u "l'argile | Londres", 16u "l'argile | Londres" 349 22-24m (Schmerling) 350 20-22m 351 7u "à | doigts"/5-8m (Lund) 362 18-21m

vol. 3 NB1 I must allude to Pictet in Preface as having argued against perfectibility & variability with great skill.-

NB2 45 Ampullaria Branchiae & pulmonate cavity

SB1 In the Gasteropods & in a lesser degree in the Acaepales, it is really surprising how few exceptions there are to the succession of the genera - when a genus appears in Silurian it almost always (all exceptions marked) appears in nearly all the great formations. When we consider the different mineralogical nature of some of the formations; & difference of depths (such as chalk Sea probably deep) it is wonderful - when an existing genus appears in Jurassic

almost ♦ always ♦ far most generally appears in Chalk & Tertiary [Fish are ♦ genera are too short-lived for this to appear: but yet I think it holds pretty often; but then the formations for fish are so rare] It must be remembered how easily errors occur.

SB2 See to this & to Chelonia & Crocodiles, & in few existing genera of Mammifers which are formed in Eocene. It wd be very important to show that this is law; certainly in Mollusca it is impressed on one; & so in few Cephalopods? - It would be like showing connection in Geographical Range. so in space & time.- [I did not think of this, till beginning Gasteropods: easy to see to it in other orders] In Fish the law had better be tested by families. It will signally fail if M. Bolca in Cretaceous

7 15-19m 10 13-15m/?, 28-30m 11 19-20m 12 23-26m 21 3-4m 27 18-21m/w certainly 26m, 27-30m 36 1-5m (d'Orbigny) 39 6-9m, 16-18m 43 13-15m/w Have they Branchiae 45 11-13m/11-17w V. Cuvier would the abortion of Branchiae give structure of Pulmones? 46 15-18m 47 17-21m 53 3-4m/w Turritelles 90 12w Triassic 15-17m 95 1-2m 128 15-18m 133 12-15m 208 28-30m 223 18-24m 224 18-22m 225 3-9m 241 1-2m 252 10-17m 256 9-12m 270 11-12m 273 12m ♦ 305 28-30m/25-39w Thus the extinct genera occur in considerable formations wb What a number of genera are Silurian; it is most clear that according to me Silurian must have been preceded pretty much by longer time than has since elapsed. Cephalopoda lead to same result. 313 23-25m, 26m/? 322 15-17m 325 16-18m 327 27-30m/29u "tandis | Europe"/w perhaps not 333 19m, 23-24m 362 22-27m 365 13-29m/14-15w series is extinct wb It may be said, when a genus is extinct & occurs in several formations, those with rarest exceptions are consecutive formations → 366 wb/23-28w This class of facts makes one think the record for Mollusca pretty perfect, but it does not affect frequency & size of gaps in record. 397 1-5m 408 25-28m 409 9-15m/w so found in consecutive formations

PICTET, François Jules *Traité de paléontologie* 2nd edn, 4 vols. and atlas; Paris; J.B. Baillièrre; 1853-57 [CUL]

af, ch, ds, em, ex, fo, gd, geo, gr, hl, ig, ir, no, oo, or, se, sp, sy, t, ta, ti, tm, v, wd

vol. 1 SB □β

42 to 55 D'Archiac Law to 75 to 133 157; 166; 169 to end

PICTET

573 important on classification
202 on fossil Dogs Q
363 on Bos

46 16-19!!/17-19u↔, 27-30m/28u "verra que"/
29-30u "les |tranchées" 47 9-16m, 20-22m 48
18-20m 49 13-23m, 30-33m 53 12-14m, 20u
"de |pour" 54 11-16m 55 8-11m/Q 56 20-25m
57 26-28m 58 15-18m 59 7-11m, 28u "terrains
anciens", 29-30m, 31-33m/33u "térébratules"
60 5-6m, 8-12m/8-18w not evidence enough
- How few new orders have appeared 61
14-25m/16-18w decreasing Forms 62 2u
"dévonien"/w Lizard 7u "époque oolithique"/!,
9u "monodelphes"/! 65 29-31m 67 6-7m 68 13-
15m 69 1-7m, 20-22m 70 24-26m 71 8-14m/
8u "genres"/9u "celle |familles" 73 14-15m 74
9-11m 75 29-30m 77 24-28m/25w Extinction
30-33m, wb it is not surprising that
Geologists shd talk so, but it is astonishing
that Naturalists shd do so - 78 1-6m 79 27-
28m (Elie de Beaumont), 29-31m 82 20-23m,
24-28m 85 1-4m 87 29-33m, wb like Vestiges
89 1-3m, 25-29m 100 9-19m/13-14? 101 20-
22m/? 111 7-14m 133 21-27w 5 ● or 6
Faunas in France beneath recent 157 27-
33m 161 1-2m 163 14-17m 166 5-7w yet how
specialised a genus 9-10m, 11-12m/u▲/w
same genus 169 8-10m, wb 1854 Spal-
acotherium tricuspis present Mammals in
Purbeck 179 20m, wb Machairodon f. in
Nebraska Eocene 186 12-14m 188 4-
11m (Serres), 31-34m 192 16-17m/17u
"intermédiaire", 21-24m 193 6u "pendant |
existence" 194 6-8m, 9u "miocène", 28-33m
202 14u "tertiaires éocènes", 15-17m 203 16-
21m 204 5-7m, 13-19m (de Blainville), 26-29m
205 6-8m/7u "crânes |sont" 207 16-17m, 18-
19m 209 13-15m 211 20u "miocène
d'Auvergne" 214 17-19m/18u "transitions
intéressantes" 216 4-5m 223 20-28m 226 29-
30m 230 6-8w Now in N. America & I believe
S. America 234 17-18u↔ 257 23-26m 261
22-25m/24u "comblé l'espace" 262 4-7m 263 9-
12m 273 8-11m 276 18-21m/18u "tous |
habitent"/19w no 292 6-7m, 11-17m, 20m, 21-
23m, 32-33m 293 3-5m, 10-11m/6-12w Look
at globe & see where a spot explored 25-
26w 2 series of Pachyderms 28-29u↔, 31-
33m 313 29-30m 318 29-34m 335 15-16m/12-
34w Ruminants may have existed in other
continents wb In all such cases, it is not that
Ruminants & Pachyderms then existed. How
often people have wondered why no
Ruminants in Paris Basin! 343 21-23m 344
5-8m, 11u "moyenne" 352 10-12m/11u
"tertiaires |supérieur" 361 19-21m, 26-27m 363
22-23m 364 29-32m 365 5u "comme |boeufs",

12-13m (von Meyer), 14-15Q 16-17m (Owen),
18u "brachyceros" 366 28-29m/27-35w I shd
think Probably new order; but naturalists
object properly to new orders. 367 13-15m,
28-31m 375 7m/u "ordre nouveau" 383 26w
Arctic seas wb & Sirenidae Tropics 384 14-
15w What range 386 25-28m 390 4-10m
(Buckland) 392 15-18m 393 wb 1854
Stereognathus ooliticus a larger quadruped
Charlesworth Stonefield 2ce the size of
many of his ↗ 395 27-28m/u "espèces de"/w
Didelphus in lower Miocene 404 18-24m/20-
22w Iguanodon Owen 407 26-28m 408 10-
12??, 13w↔ see p.527 410 22-23m/22u "la |
de" 411 18-19m/18u "Strix"/19u "gypses |
Montmartre"/20u "genre |caverne" 412 22-23m/
22u▲ 414 2u▲, 3u "cavernes |Brésil"/m, 6u▲,
8u▲, 15-17m/17w Am 415 7-8m/7u "gypses |
Paris" 416 1-3m, 6-8m (Lund), 19u "sous-
genre Rhea"/18-20m/w Good Birds follow law
417 11-12m (Owen) 419 6m/u▲ 420 20-23m
(Mantell) 421 17-18m/18u▲ 425 1-3m 429 27-
33m 430 11-15m 431 10-12m, 17-20m, 29-
35m 432 5-8m, 10-14m, 18-21m 439 11-13m/
w 4 families & Chelonians 440 28-32m 455
14-16m 459 13-17m/13-28w Emys & Trionyx
being now present alive in F.W. is another
instance of F.W. preserving alive ancient
forms. 474 wb 1654 Nothelis destructor a
minute Megalosaurus - Owen ● 475 28-30m,
33-35m 493 21-27m/22w Transition 500 wt♦/
1-6w♦ Even to a certain extent our generally
FW crocodiles are only remnants of the
large families numerous Secondary &
ancient Tertiary Marine genera So many
were formerly F.W. forms 501 7-8m, 9u
"rappelle |crocodiliens", 12-14m 513 21-22m
527 10-12m (Owen) 529 13u↔, 22u "sauriens |
de" 530 12-16m 532 19-22m 543 7-10m, 18-
21m 544 3-5m, 6-8m 545 27-29m 547 9-11m
551 4-5m 554 15-17m, 20-23m (P. Duff and
W. Mantell) 555 23-26m, wb Excellent case
of Analogy (?) 556 6-10m 560 3-6m, 8-9m
568 13-20m 572 34-37m 573 wt Does it come
to be whatever is fixed? 1-4m, 5-6m

vol. 2 SB1 22 to 40; 77; 98; 101; 102; 127;
132; 196; 226; 309; 310; 318; 349; 361; 363;
368; 371; 386; 396; 399; 405; 406; 409; 411;
413; 476; 481; 482 to 484; 490; 502; 580;
582; 585; 601; 619; 649; 659 groups of
ammonites more or less confined to different
stages; 485 Balancement; 476 blending; 480
soldering; ↗ Vol 2

22 13-16m, 19-22m 23 1-2m 24 5-8m (J.
Müller)/5-6u "esturgeon |polyptère", 14-16m 25
7-9m 26 19-23m, 23-28m 27 11-14m, 22-25w
Eocene mammals very different 24-26m, 34-

35m/34-35u "à l'époque" 28 11-13m, 30-33m
 30 8-11m 31 3-6m 32 22-26m/27-33m/17-
 33w/wb sea shells & echinoderms convince
 one sea was salt if there was rain there wd
 be lakes. Might as well say no caves. 35 1u
 "Glavis"/w Tertiary 36 24-27m/17-29w So he
 thinks Teleosteon a recent fish the most
 perfect 37 16-20m 40 14-16m 77 14-19m 98
 30-34m 101 wt Constantly removed from
 sea, is why not more ancient. 7-13m, 15-
 17m, 33-34m 102 8-9u "d'eau douce", 9-11m
 127 16-18m, 28-29m 128 13-21m/w If we look
 to sea alone more striking still 129 1-4m 132
 16-21m 133 1-5m 196 31-34m 226 21-24m
 309 16-22m 310 12-19m, 22-24m 318 21-23m
 329 20-22m 349 1-2m 361 1-9m 363 21-24m
 368 3-8m 371 24-25m 380 23-27m 386 1-4m
 396 13-15m 399 25-26m 405 18-20m 406 23-
 26m 409 13-14m 411 23-26m/23-32w & very
 different in Fish & in Mollusca Cephalopods
 27-30m 413 7-8m, 22-28m, 28-29m, 31m 414
 28-32m 476 23-29m 480 12-13u "mais
 ensemble" 481 21-28m 482 15-22m/6-22w
 Gestation or incubation necessary for
 discovery of Metamorphosis or free &
 different life 483 6-11m, 12-14m, 27-28m 484
 1-5m 485 1-2m/1u "à l'thorax", 3-7m 490 16-
 25m (Barrande) 502 22-25m 570 wb▲ 574 1w
 is a boring sponge 8w is a boring sponge
 580 9-11m, 31-33m 581 19-25m 582 1-5m,
 26-30m, 31-33m 584 29-33m 585 2-8m, 9u
 "des diverses", 11u "pendant primaire", 16-
 20m, 33u "deux branchies" 593 1-2m 594 14m
 601 3a "spirulides"/wt all Tertiary 4a
 "céphalopodes"/wt Lias 2-6m, 7m, 12-14m/
 13u "famille tenthides", 14u "bélemnites", 16u
 "aptiens" 619 6-8m, 10-14m, 16-19m, 21-24m
 649 24-31m 659 5-12m

vol. 3 SB □β

7 & 11 & 12 & 14 & 36 & 38 & 128 How
 excessively slow Gasteropods species♦
 change - how few groups appear or
 disappear since Eocene.-

250; 333; 416

463 It is evident thus very few exceptions at
 whatever stage species♦ a genus or Family
 commences it is continued till it becomes
extinct. This being capable of in fact
 strongest fact I turn against Imperfection of
 Record. Perhaps only shows no enormously
 long blank intervals

7 26-33m 11 10-13m, 17-21m 12 15-20m 13
 13-16m, 21-25m 14 5-11m 36 25-29m
 (d'Orbigny) 38 6-7m 128 26-31m 250 5-11m
 333 12m, 17-20m, 32m 334 3-4u "orthoconques
 sinupalléales", 26-33m 335 1-5m, 14u↔ 416
 2-5m, 7-9m 463 3-9m

vol. 4 SB □β

2; 7; 8; 42; 79; 90; 119; 231; 261; 263; 284;
 293; 360; 481; 487; 532; 562 to 569; 577;
 578; 580; 584 to 617 to end of Vol.

All evidence in this Book relates to Genera It
 may be that species change quicker
 without♦ than genera; about higher & lower
 forms changing quicker

SB2 (over) On my view of formation of long
 intervals (because during subsidence &
 when mud) & though each very long in years
 yet infinitely short compared to all time; the
 chief difficulty is contemporaneousness of
 formations over Europe & in America - it
 shows some grand movement of earths
 crust yet very existence of continents implies
 very wide elevation-

2 6-9m 7 16-18m, 20-22m, 27-29m/28u
 "presque moitié" 8 1-3m/m♦//3u "vingt-huit",
 7u "dix", 10-12m/9-17w♦ le genera which
 change quickly necessarily have short
 duration wb When many species & genera
 exist they change quickly because they are
 too common & varying forms not in class but
 in whole Kingdom, & are quickly replaced 9
 1-3m, 11-12u "quatorze inférieur" 42 11-15m
 79 28-31m 90 3-5m, 4-8m, 19-20m 119 23-
 26m 231 wb so many cases of this (leaving
 out Silurian) that it must be a rule, though
 exceptions as in Fish Ctenoids coming in
 261 wt show how small proportion of lines
 from Silurian to present day compared to
 what has existed 3-9m/5w (a) 263 17-19m
 284 12-16m 285 17-20m, 30-31m/31u "trois
 quarts" 286 1-5m, 5-21w There seems no
 relation to speciality & absence of genera
 here 293 27-28m 360 15-21m, 24-26m, 27m
 361 1-4m/1u▲, 6-8m 481 4w 79 6w 51 9-13m
 487 7-11m 532 16-21m 562 3-7m/3u "Si", 15-
 16m/15u↔, 23-25! 563 2-4m, 9-13m, 16-18m
 564 27-30m 565 18-23m 566 17-22m 569 19-
 21m, 27-30m 577 3-6m (Agassiz) 578 fig.w
 Inequality of relations of successive
 Formations 580 17-26m, 32-34m, wb Marine
 Triassic not well known 581 1-3m/w less
 marked 583 24w St Cassian? 584 18-21m
 586 15u "six genres"/14-16w In total 588 27-
 28m 589 19-20w change rapidly 29u "dont
 spéciaux" 617 4-5m, 8m, 14w St Cassian 16-
 20m 618 12-16m 619 20-25m/w & very
 closely allied 31-33m 620 1-3m, 23-31m
 (d'Orbigny) 622 34-35m 624 25-27!/27m/u
 "Un l de", 29-30m 627 4-5m/4u "deux genres"
 630 4m, 8-9m 634 12-14w no Genera see
 Table 636a 27m, 37m 636b 7m, 8m, 12m, 17m,
 25m, 26m, 28m, 42m 644 37-38m, wb So he
 brings down to level of Teleosteos & before

PICTET

that Fish not very rich 645 9u "en Amérique"/
1-31w shows how many sub-divisions can
be locally traced, not so everywhere 646 24u
"sont|abondants", 31-32m 649 3u "gault|de"
650 9-11m 651 12u "y|connus", 15-16m/15u
"genres" 652 36-37m/36u "mont Liban" 666 2-
4m 667 1-4m/4u "ont|tranchées" 668 14-16m,
31-38m 669 10-13m/w 7 672 37-39m 678 19-
24m 684 2-4m 687 18-20m, 28u "Monte
Bolca" 688 12-16m 692 7u "quelques|douce",
13-14m 702 40-41m 703 4-5m, 25-27m, wb
Palaeozoic, Secondary & Tert., only due to
larger gaps

PIDERIT, T. *Wissenschaftliches System der
Mimik und Physiognomik* Detmold;
Klingenberg; 1867 [CUL]

af, beh, ds, h, pat, phy, rd, t, tm, v, y

NB 21 to 27 His view given

p.88 do to end of Chapt

p107-9 Th. resume -

☞ p.91 Perhaps a rudiment ask W. Turner.

After p.109 Not one word for me

Many good bits in this Book, but the
fundamental idea seems to me groundless &
fanciful - Nov. 67

SF □β ☞ <10 sheets, not CD; mainly a
translation of pp. 21-27>

4 4-13w Man understands expressions
without a grammar Very interesting 24-28w
No explanation 5 6-12m/w Sir C. Bell does
not explain why certain muscles act during
certain emotions. 14u "Oken", 15-18w
explains by Homologies of muscles of Limbs
& face.- 7 5-6m/w madness? 21-23m/w
order 8 wt He prior to Gratiolet 1-5m, 16-
17m 19 7-13m/w Face most expressive
because nerves site nearest to Brain!!! 21 2w
Translated 23 3-16w Each abstract idea
appears to mind like real object 19-20m, 20-
25m 25 2-4m 26 19-21w His theory!! 21-27m
40 14-26w Hence face muscles not very
distinct so Huxley says 23-25m 44 wt
corrugators used in shutting eyes very
closely 1-2m, 10-11u "und|Auges", 20-31w
Henle considers Corrugator as part of Osb.
Palp. 46 1-13w wrinkle forehead pulling on
Boot.- a stammerer.- Concentrated thought,
when difficulty - seeing or hearing anything
with difficulty. Suffering diseased Men.- 48
4-8w Expression of eyes modifies character
of frown- 50 wt widely open eyes
astonishment 52 7-12w occip-frontal raises
eyebrows & thus opens eyes widely 56 24-
27m/w shining of eye 58 8-20m/w secretion
of tears excited differently from saliva or milk
59 15-33w Rubbish - no explanation - nerve

excited because near seat of mind.- 60 12-
23w why do tears relieve grief why do
scream relieve pain - 61 24u "Lebensmonate"/
22-26w Q☞ Cretins do not cry nor babies 63
wt Brightness of eye depends on fullness of
ball 1-4m/w In Cholera eye collapsed 7m/w
in dead do 64 18-19m/9-23w in Fever eyes
sparkle owing to capsules gorged with blood,
so perhaps in passion - 65 20-24w in grief
circulation depressed & eye dull 31u
"Freude|Zorn" 66 14u±/w sparkle 67 7-8w
Drinking eye dull 70 13-23w Kissing initiation
of sucking - movements of Babies: after
nodding, but not instinct for Fuegians do not
kiss.- 72 7-18w mouth opened with bitter
taste that the tongue may not be rubbed
against palate 21-30w good account of
expression from bad taste. upper lip raised
74 5-28w Thinks the bitter look, with raised
upper lip comes in expression of horror -
Leonardo says upper lip raised as if for
scream 79 4-8w In great exertion one shuts
mouth & teeth firmly. 11-5m/11-22w the
exertion spreads in useless way to other
muscles: especially face muscles- (so in
yawning○) 80 26-30m/w nearly my view 81
15-17w firmly closed mouth expresses 18-
22m 82 18-28w in ♣ rage upper lip raised!!
for bitter taste & teeth closed for energy wb
X Wings of nostril raised, because
respiration & heart action increased. & with
closed teeth person must breath through
nose - No ↑3-1m/x/w All like my views 83
29w Contemplative expression 84 1-5w lifts
head & looks downwards & sideways & half
closes eyes. 20-29w upper lip bitter
expression Lower lip as if to push away
something disagreeable 28u, wb blows out
air as if to blow away some insignificant
object. 85 ↑3-1m 87 wt/1-23w When
Eustachian tubes plugged by mucus in
inflammation of the throat Hearing rendered
difficult 14-22m, 25-27m/w He who listens to
unclear sound opens his mouth→ wb See
my old Notes - Whales Dr. Murie. all very
doubtful 88 4-7w I must quote him 8-13w
elevates eyebrows in astonishment opens
mouth. 11-15m, 15-22w My theory is here
given, & is applied to mental phenomena.
22u 89 wb When horses & dogs surprised &
startled they prick their ears, Man opens
mouth - & raises eyebrows 91 23-26m/w
rudimentary wb See Moreau's Essay - He
does not know this Essay The variability of
Muscles of face stated by Moreau perhaps
indicates the tendency to rudimentary
condition in many & agrees with descent 92
11-23w nostrils distended in surprise & in

Careful observation This f true curiosity.— Perhaps owing to being startled. 93 2u "Mm.l.nasi", 3–5m/w orifice of nose made smaller 13–16w in bad smell shut nostrils with upper lip 96 8–13w by Laughter after powerful respiration goes back by starts; conversely in crying 9u "rückweises", 9u "Zwerchfell", w diaphragm 15–24m/w attributes respiration affected by emotions to nerves arising near sense-organs!!! 97 1–18w In fact he explains nothing about laughing or crying. 28–32m/28u "Zeichen|Innervation", wb spasmodic action, want of force, the nerves which wd show during exertion of respiration 98 wt see Duchennes photographs 4–17w In laughter & crying mouth opened wide speaks as if no difference in shape○!! 99 2u "l,h,o", 4–6m/4u "p,q", 22–25m/23w Smile 100 6–12w dimple caused by some muscles not extending to corner of mouth 101 wt Great laughter approaches to pain, thinks brows contracted!!! 1–4m/w oh 102 wt/1–13w action of depressor alae nasi only difference between crying & violent laughing. I rather trust Duchennes; but how little known about muscles The action of this muscle is to narrow nose & says it can be easily perceived. 26–30m/w This muscle does not contract in Babies 103 14–17m, 22–34w in Babies tears irritate eyes & surrounding muscles contract !!! oh oh!! Sir C. Bell fig. 15 w Bad taste fig. 19 w Horror fig. 46 w excessive laughter fig. 47 w still more excessive laughter, so as to have bitter expression

PISTOR, E.M.W. *Das Ganze der Feld- und Hoftaubenzucht* Hanau; C.F. Edler; 1831 [CUL, on B, S Ap. 10/56]
beh, cc, cs, f, he, hy, v

NB p.12–22, p.46

SB □β

15 Hybrids of Barb & Fan-Tail sterile Q
46 Lesser fertility of Dovecots only owing to less food
v 11m, 13m 7 wt will not feed themselves 5–7m 12 12u "krumme"/10w bowed 15–18w carriers 27u "Augenkreis", 27u "weisswarzig", wb white wattle & very big only differences 13 14u "zwölf"/15u "zwei|besitzen"/14–16w 12 to 32 14 3–5m/5w will cross with Turbits & have both characters 16u "bläuliche", 19w Jacobins 15 12u "Ciprianer", 13w Barb 19u "Hövchen"|Pfauentauben", 24u ↔, 26w like barbs but bigger wb Eggs of Barbs & Fantails sterile 16 2–4!/3u "kurzen", 5w Runts 21 5m, 9u "dreht|Burzler"↔, 15w C. Coronata 46 5–7m, 12–17w owing to food

PLANCK, Karl Christian *Seele und Geist* Leipzig; Fues; 1871 [Down]

xviii 6m xxii 43m

PLANCK, Karl Christian *Wahrheit und Falschheit des Darwinismus* Nördlingen; Bech; 1872 [Down]

NB not read

PLANS of the various lakes and rivers between Lake Huron and the River Ottawa Toronto; John Lovell; 1857 [Down, I by M. Logan]

PLAYFAIR, John *Illustrations of the Huttonian theory of the earth* Edinburgh; Cadell & Davies; 1802 [CUL, pre-B, S]
geo, mi, t

NB 414 sand & gravel moving

(CD?) 501; 511; 524 Theory & observation
viii 4–10m 5 4–9m 6 1–3m, 22–25m 9 7u
"other|series" 12 18–20m 13 9u "Primary", 9u
"Primitive" 14 26m* 15 1–9m 18 1–5m 21 8u
"pressure", 17u "increased pressure" 22 14m*
25 19–27m/22? 26 6–10m 30 14–20m 31 1–4m
32 1–5m 33 1u "pyrites", 3u "the|fire", 4* 37
18–21m 39 11m/1u "trona" 42 24u "moved
angularly" 43 4–5u "in|layers", 6–9m 45 1–5m
46 21–24m 49 16–20m 51 5–9m, 18–19u
"breccia|between", 21–22u "is|general" 5 8–
14m, 26–29m 54 7–16m 55 2–3u "expansive|
heat" 58 20–23m 67 11u "spathose", 19–20u
"series|gradations" 68 11–12u "This|former",
29u "so|whinstone" 69 5u "carbonat|lime", 8u
"compressing force", 24–26u "hence|surface",
27u "whinstone", 28u "un-erupted lava" 71 22–
23u "one|them" 72 11–15m 75 20–25m 78 10–
13m, 20–24m 79 6–10m 82 4–9m 83 16–19m
84 14–19m 99 3–6m 102 18–26m 104 13–21m
107 1–5m/"..." 114 1–3m 119 21–26m/? 125
19–25m 135 6–10m 144 18–22m 148 6u
"Buffon", 9u "A|mistake", 14u "omitting", 15u
"coal", 15u "carbon" 151 22–24u "at|degrees"
163 15–21m 167 20–25m/24u "small|other"
170 17–21m/19–21u "it|formation" 186 14–15u
"Friction|heat" 189 10–14m 191 14–16m/? 195
22m 198 7–13m 208 17–21m 210 5–20m, 23–
27m 211 4–8m, 27–29m 217 11–17m 222 16–
20m 225 19–23m/19–20u "have|soft" 226 1–3m
227 11–16m 240 13–16m 242 25–27m 243 1–
2m 246 23–27m 248 11–14m 256 2–4m 258
22–26m 263 19u "large|terraces", 22–23u↔
265 9–13m, 19u "granite", 20u "basalt" 267
14u "extinguished volcanoes", 17u "fire|
mineral" 283 12–17m 284 21m, 27–28u "that|
which" 285 1–18m/1–2u "is|other" 294 2–8m
296 12–24m 298 16–19m 304 17–19m/18u

PLAYFAIR

"plumbago" 336 11u "schistose", 15-20m/18?/
19u "fluidity" 338 23-27m 340 1-4m 351 21-
22m 362 13-23w explained ice theory 364 7-
10m/8w ice 371 10-16m 373 1-4m, 15-19m
374 13-17m, 24-27m 377 8-11m 378 10-14m,
23-28m 390 11-14m 393 1-3m 394 17-28m,
wb Geneva Stone angular 399 11-19m 401
17u "is|we"/w retiring sea 414 20-29m 417
23-27m 488 14-22m/"..." 494 17-26m (Buffon)
497 1-8m 499 15-16m, 21-28m 500 1-5m 510
13-17m 505 18-24m 506 1-14m 511 5-6m 512
20-25m 518 1-4m 521 11-13m 523 17-21m
524 24-27m, 28-29m 525 1-7m, 8-19m, 21-
28m 526 1-6m

(other markings here and there not by CD)

POMPPER, Hermann *Die Säugethiere, Vögel
und Amphibien nach ihrer geographischen
Verbreitung* Leipzig; F.C. Hinrich; 1841
[CUL]

gd, is, v

NB 1 *Lepus* variable Iceland

p.5 Animals of Greenland & not Greenland
(lists follow)

title page wt Nothing 1 21-23m/23u "Island"
5 7-8m/7u "M. | Grönland", 9-11m/10u "auch |
Grönland", 14-15m, 16u "Grönland", 17-19m/
18u "C. | zwischen"/19u "nicht | Grönland"

PORCHER, F. *Du Fuchsia, son histoire et sa
culture* Paris; Audot; 1844 [CUL]

f, sp, v

NB Oct 1857 O Nothing

3; 94; 98 Read; 105; 35; 95 722 vars 34
species

title page 10w Porcher p. 102 3 3u "trente-
quatre", 5w ♦ 35 32u "Constellation", 33-35m/
34u ♣ 93 20-33m/21u ♣, wb Corallina not in
list! 94 6-8m 97 24-26m 98 9-12m 101 37-
38m, wb How fruitful Corallina has been 102
22-24m 105 16-20m/17u "tube | nul"

POSNETT, Hutcheson Macaulay *The hist-
orical method in ethics, jurisprudence, and
political economy* London; Longmans, Green
& Co.; 1882 [Down, I]

POUCHET, Georges *The plurality of the
human race* trans. of 2nd edn by J.C. Beavan;
London; Longman, Green, Longman &
Roberts; 1864 [CUL]

h, is, pat, sp, t, tm, wd

NB 50

SB □β

50 Aegyptian types not so distinct

60 Negros Yellow Fever

♦ 83 Pouchet has argued at length that
domestic animals are quite different take
easily plants removed to new isld

♦ About Will of Animals being destroyed -
does not apply to plants

114 & 118 Remarks on Species Theory of
no value-

114 Definition of Species

50 2-12m 60 28-44m 83 3-19m (Cuvier and I.
Geoffroy St Hilaire) 114 1-6m, 16-23m (Buffon)
115 1-4m 118 30-33m 119 11-20m

POURTALÈS, Louis François de *Illustrated
catalogue of the Museum of comparative zoology,
at Harvard College. No. IV: Deep-sea corals*
Cambridge (Mass.); Museum of comparative
zoology; 1871 [Down]

POWELL, John Wesley *Introduction to the
study of Indian languages* 2nd edn;
Washington; Government printing office;
1880 [Down, 2 copies]

POZZI, Samuel *Du crane* (extract); Paris;
1879 [Down, I]

PREYER, Thierry William *Die Blausäure 2
parts*; Bonn; Max Cohen & Sohn; 1870
[CUL]

che, in

part 2 NB1 I cannot find place where said
that different individuals are differently
susceptible to P. Acid

NB2 Not read

PREYER, Thierry William *Die Blutkrystalle*
Jena; Manke; 1871 [Down] ∅

PREYER, Thierry William *Das myophysische
Gesetz* Jena; Manke; 1874 [Down] ∅

PREYER, Thierry William *Naturwissen-
schaftliche Thatsachen und Probleme* Berlin;
Gebrüder Paetel; 1880 [Down] ∅

PREYER, Thierry William *Die Seele des
Kindes* Leipzig; Th. Grieben; 1882 [Down, S]

PRICE, John *Old Price's remains* London;
Virtue Brothers & Co.; 1863-64 [CUL] ∅

PRICHARD, James Cowles *Researches into
the physical history of mankind* 3rd edn, vols.
1 and 2; London; Sherwood, Gilbert &
Piper; 1836 [CUL]

beh, cs, f, gd, h, he, hy, oo, pat, sp, sx, tm,
v, ve

vol. 1 NB1 w ♦

NB2 ♦ Alpine Botany of do

The entomology of Tierra del Fuego with respect to Europe – Patagonia to S. Africa must be well studied–

Vol. 47 Zoolog Soc about contagious diseases my Father about diseases common to animals.

The Highlands & Western Isles in Letters of Walter Scott: 4 Vols

W. f D. Edwards sur les Characters des Races Humaines


Lesson Hist. Nat. des Mam. often quoted

NB3 ♦ p114 Lyell's mark

14 to 56 all worth reading again – to 164. 174

ask Henslow to put name in my catalogue.– March. 1857 I have not looked through all these, but I have gone through the later Edition

206; 216; 220

225 on  Blushing & 271 – Good

242,4; 258; 264; 266; 286; 288; 305; 311; 314; 318; 333; 334; 340; 350 to end of Vol done Feb 25/01 (FD)

xii 36–38w this not in Ed ii xiii 36–37w =p130 Ed ii xv 29w =192 Ed 2 14 27–32m/? 15 3–5m, 11–19m 17 39m (Rudolphi) 21 27–31w singular/catacea/converse of antiquity 31–32m♦/w Latin 24 2–39m 25 1–8m, 26–30m/w How does my collection show this 31–32w a great difficulty 35–36w I suspect not so 26 24–32m/28–30m 29 1u "analogous species"/1–4m/w in a limited sense.– 7–22m (Humboldt, Robert Brown)/11–12w insects forms 30 3–12m (Humboldt), 7w B 31 7–10m/w Waterhouse similar remark 29–34m, 35–37w Tell Henslow 35 22–28m/27w aquatic? 37 22–28m (Rudolphi) 43 6–13m (Rudolphi), 15–17m, 23–28m 44 12–20m 45 1–3m/?, 38–39m 50 1–7m (Linnaeus) 51 1–39m 52 1–38m (Humboldt, A.P. De Candolle) 53 1–5m 57 23–28m/24u "the|no", 37–38m (Latreille) 58 1–11m 60 37–38m/37u "Quarterly Review, vol. 47" 61 6–33m (Lyell) 63 38m (Lesson) 64 34–36m, 36–39m 66 wt consult Beales Book 1–15m 67 3m, 6–9m, 39m/u "Gmelin|Amoenitat." 68 17–30m 73 20–27m/24–27m (Lesson), 35–37m 74 18–23m/19u "chironectes"/?, 32–37m/35u "parameles", 35u "New Guinea" 77 26–33m 80 10–14m 82 10–23m/14–17w Flying squirrels in N. America 84 16–20m/16u "The|everywhere" 85 3–11m/4–6w Relation to trees?? 86 11u "Moluccas"/w ! Baluchian 89 34–35m/36u "Annales|vii", 38–39m (Cuvier) 90 38–40m 93 9–11m (Lesson) 95 11–13m 105 6–20m/6!!!, 7u "definite", 8u "separate origin"/10–11?!!!/11"... "always" 106

4–19m (A.P. De Candolle) 107 31–40m (A.P. De Candolle) 108 36–37m (Geoffroy St Hilaire and Serres) 112 1–4m, 33–39m/35–36u↔ 115 18–25m, 31–33m 118 23–29m 119 36–38m 130 11–22m, 29–36m, wb I have heard of some facts different from this 138 36m (Rudolphi) 139 37–38m (A.P. De Candolle) 144 37–39m 145 24–27m/?? (Gaertner) 149 9–13m 153 30–36m 155 12–21m 156 19–31m 157 31–36m, wb In Malcolmson's Pamphlet is there not something about goitre peculiar to races 158 1–5m 163 2–37m 166 37–38m (Jacobi) 174 4–8m 175 6–31m/31u "everywhere", 36m (Hancock), wb Anafuras have no such beliefs 176 1–39m 180 28–31m/29u "voyager Kolben", wb consult for Cattle &c see p.182 183 5–10m 216 26–31m 220 30–33m 225 31–33m/32u "par|honte" 242 20–23m 243 17–32m, 17–19w Consult Rengger 22w when? 29u "permanency|breed"/w how long? 244 1–7m/w strongly versus Walker; if considered races 32–33m, 39m 245 9–15m/13–15m, 19–21m, 27–31m, 37–38m 258 31–35m 264 16–20m 266 10–14m 271 18–22m 286 10–15m, 17–24m 288 27–33m 304 38m (W.F. Edwards) 305 11–15m 311 26–30m 314 21–32m 318 12–21m/12–13? 333 6–11m, 21–29m (Vrolik) 334 18–22m (Owen) 340 18–29m 341 1–11m 350 31–39m (A.P. De Candolle) 351 38m (Pallas) 352 29u "by|organs", 27–30m, 27w retriever ! 38–39m (Meckel) 354 4–25m, 27–37m (Buffon) 355 1–34m (Blumenbach) 356 5–10m, 10–36m (Blumenbach and Cuvier) 357 1–28m, 29–31m (Pallas) 360 31–37m 361 wt I have note of small sheep on Red Sea 1–2m 367 30–39m 368 23–30m 370 9m, 10–13m/w This being cross, father ought to have given 20–27m/w Mr. Walkers Theory!!! The father here gave only part of cuticle!!! 30–40m 371 23–28m 374 6–11m/8–9? 375 10–12m/u "separate|economy"/10–13m/w assumed 17–20m/?, 31–39m/? facing 376 4–18m (Prichard)

vol. 2 NB March 1857 I have not looked through.–

2; 3; 10; 33; 95; 97; 141; 175; 181

197 All before Chapt X: very dull This whole Chapt. amusing

207; 210; 221,2,3,6; 264; 275; 278– is this true; 323,5; 329; 331; 336,8; 340 whole section; 344 –copied FD; 348 Done FD

SB (by FD, referring to 2nd edn, vol. 2 & 4th edn, vol 4)

2 3–8m 3 34–36m (Lacépède) 10 31–33m 33 3w Galapagos 7u "abounded|size"/5–8m/w New Zealand 9w Gap 95 33–34m 97 4–37m 141 16–20m 154 9–16m 175 34–37m (Rüppell) 181 19–32m/25–26m 197 wt The case of African

PRICHARD, MANKIND

nation which has grammatised its language from the Arabian has been mentioned, so much so, that it might be mistaken for Semitic dialect 15-18m 207 19-22m 210 38-41m 221 26-28m 222 1-38m 223 1-39m/39u "purposely framed" 224 1-8m, 13-38m/15-20m/14-17w What evidence? 226 2-14m 264 25-30m 275 29-31m 278 14-21m, 28-30m 279 4-5m 323 1-16m 325 9-22m, 25-38m 329 34-38m 331 17-22m 334 wb ● 336 17-24m 338 7-34m, 36-39m 339 1-4m, 19-27m 340 1-4m 344 5-13m/8-9"... 345 17-21m 348 24-35m

PRICHARD, James Cowles *Researches in the history of mankind* 3rd & 4th edns, 5 vols.; London; Houlston & Stoneman; 1841-51 [CUL]

beh, cs, f, gd, geo, gr, h, he, hy, is, mg, mn, no, pat, sl, sp, sx, ta, ti, tm, ud, v, ve, wd

vol. 1 NB1 (note on Mendel by FD)

NB2 Blumenbach de Unite de Genre Humain

Blumenbach Beytrage zur Naturgesichte & Meckel Traite general de Anatom Compr Must be read Has not Erasmus one of their works

Pallas Spicilegia Zoolog

p311,320

271 Blushing said to have been acquired by Negroes (passage in text is about Amerindians)

SB1 Prichard Vol I p.23; 26; 33; 41,42; 61; 84; 87; 90; 94; 112; 115; 133; 141; 144; 153; 163; 175; 224; 228; 245; 271; 311; 316 How like my Book all this will be.

I must read some Book on geograph distrib of insects or of one great class

p.321; 322 & p.324 & 331 on relation of body, pelvis & Head

311; 334; 340; 345; 349; 351; 353; 366; 370 SB2 □β

23 S. African plants in Europe (Glacial?)

42 quotes Lyell & Keith on seeds in Baltic from Germany do. 61 Eding. Phil. Mag. 1832 on Distribution of Parrots

84 Bat in Sandwich Isld 87 Pteropus keraudren at Marian & Oualan; at Tonga peculiar species

90 Australian Dog same as that of N. Ireland M. Lesson N.Q.

141 Sparrmann says hybrids of common & Aethiopian Hogs fertile

144 It seems Buffon was strong on repugnance to 2 species to cross

155 On Heredetary Plica Polonica - on races of Man becoming predisposed to disease in certain countries

163 do ♦ on diseases of Hot countries

224 Albinos subject ♦ sensible to bite of flies 245 Good Heredetary cases of toes & fingers - Heredetary rudiments

311 X Nasal cavities large in American skulls, Blumenbach connects with high smelling powers

321 X Cox says flattened head "an essential point in Beauty" in American Indians

324 Vrolik says shape of Pelvis must have some influence on that of Pelvis ♦ Head 331 333

334 Lumbar vertebrae sometimes six in Negro

341 In Tobolsk Cats generally red Q

343 Skin & hair go together in colour - Sheeps Mouths black when hair black

345 On complexion & temperament.

349 Porcupine Man coming on at same time in him & children

353 Blumenbach on some strange vars of Pigs - Marcel de S. on skeletons of dogs & wolves Eding. Phil J July 1835 p.244

356 Feral horses of Pallas in Siberia. Dun or brown Q||

23 16-18m/w N. Migration during cold Period

16-20m, 20-25m 26 3-10m 33 38-41m 41 27-35m (A.P. De Candolle) 42 26-29m/w Fundus maris semina non destruct 43 28-29m 44 39u

"marine birds" 58 19-22m (Latreille), 36-39m 59 36m (Illiger) 61 36-37m 84 8-10m/9u

"small crepuscular" 87 4m/4-5u "has | Oualan" 90 31-33m (Lesson) 94 25-28m (Buffon) 112

29-39m 115 3-9w who can tell - it is begging question to say constant. 11-12m, 19-23m

133 9-12m, 21-23m 141 13-14m, 37m (Sparrmann) 144 35-37m 153 31-35m 155 6-

10m/10u ↔, 11-15w The point to show is that a race by living in district long may acquire

hereditary tendency 14-21m/w proof of peculiarity acquired by certain race in certain

area 24-25m, 26m, 33-38m/37-38m, 39m 156 1-6m, 8-16m, 23-30m 157 18-21m, 27-29m,

32-33m, 36m 158 1-4m 159 6-10m, 36-37m (Winterbottom)/36-38w would be worth

reading 38-39m 163 3-9m 175 1-3m 224 35-39m 225 30-34m (Buffon) 228 6-18m 245 7-

16m/11u "rudiments of"/15u ↔/11w Heredity 17-21m 271 17-21m/w no doubt wd increase

tendency 311 1-3m, 28-35m 316 12-17m (Tiedemann) 317 39m 318 16-22m 320 22-25m

321 7-9m, 7-8u "They | point", 18-19u "Dublin | 1834" 322 16-18m 324 3-10m

(Vrolik) 331 26-29m/w see references to Book p324 333 25-28m/w p281 for main

character of skulls 26u "oval shape"/w do.

head 28a "oblong" do. head 28a "Mongolians"
do. head 334 19-21m 340 40m (Blumenbach)
341 16m (Gmelin) 343 5-8m, wb over 344 33-
35m 345 14-16m, 17-21m 347 21-23w~~ccc~~,
29u "bark\hide" 348 11-13m, 21-26m (H.
Baker) 349 7-9m, 21-24m (Lawrence) 351 7-
9m/7u "J.F. Meckel" 353 13-20m, 33-35m
(Serres), 36u "Beyträge\ubi", 38m 354 14-16m,
18-20m 355 18-21m (Blumenbach) 356 6-7m/
6u "dun\brown" 366 18-23m 367 36-37m 370
32-36m/w Piebald

NB [done FD Feb 25/01]

vol. 2 SB1 p33; p45; p181; p334

SB2 □β

33 Dogs & Goats in Canaries - Cada. Mosto
discovered C. de Verdes

181 To produce effect on race by crossing,
the two parent races must be nearly equal in
number.

334 Reference to table of complexions by
Esquirol, possibly may allude to liability to
disease (But it was madhouse)

33 9-13m, 30-32m/31w♦/u "Cadamoto" 35
22u "bandages\skin" 45 23-32m 46 6-9m 47
7-12m 181 20-31m 334 31-34m

vol. 3 NB O/

vol. 4 NB ⟨w~~cc~~, not CD⟩

[FD copied] p103; 243 -X not N. Sel; 407;
413; 423; 454xx; 477; 492; 519x Beauty;
525; 529 - ext condus

530 common mule (c of Ass & Horse) shows
that no great variability or appearing of new
characters in Hybrids

534 537 Beauty 539 Climate~~cc~~ 616

SB □β

103 Date of Vedas 1343 B.C. 477 History of
China 2200 B.C.

407 X~~cc~~ on shape of Head in relation to
senses

454 X~~cc~~ On variability of chief characteristics
of each Race of Man 519, 530

519 X~~cc~~ Chinese admire Chinese beauty

534 so Siamese 535 Cochin China 537

103 6-12m/8w concludes 243 30-39m/34-36m

407 19-21m, 23-27m 413 6-10m 423 1-5m 454

21-23m/21-38w/wb so darkness variable in

Hindoos - Bump in Hottentot, & I think many

other particulars which I have omitted to

mark, wd require selection to separate.

There was something on skull of Australians.

So shape of Pelvis.- Shin Bone of Negros?

476 18-26m, 31-37m (Rémusat) 477 4-7m, 10-

12m 492 22-25m 519 12-13m (Barrow)/u "the

nose", 15u "high\bones", 17-18m, 24u

"Pallas", 25-29m, 39m 520 2-5m/5u "short

flattened", 15-16m/15u "hands\feet" 521 34-
35m 525 10-19m 529 6-10m 530 35-38m 533
30-36m, 38-39u "features\bold" 534 1u
"small", 2u "nostrils", 4u "rather thick", 8-
13m/9u "breadth\of", 13u "large", 27-28u
"beauty\them", 29-30u↔/29-32m/w Siamese
535 4u "Cochin China", 26u "globular", 27u
"orbicular\face", 33-35m/w Cochin China 39m
537 21-26m 539 22-28m 615 13-15m

vol. 5 NB 67 Beauty

SB1

X~~cc~~ 67 Beauty

146 Drift wood Easter Isd

168 Spaniards introduced Stag, Mariane
Isd? From Freycinet. Lib 3. p.270

283 Differences of Oceanic People - 292 N.
America - Man in a Polymorphous condition.

419 Mandans grey-hair

463 Chest & Body of Indians

✓~~cc~~ 476 Beauty

542 Differences in American Races

☞ X 145 Difference low level Islets & High
Volcanic Isld-

⟨over⟩ ♦~~cc~~, ♦~~cc~~

In my note on Man - Ask what makes any
peculiarity not always hereditary; then why
shd not this cause act & react.- Effect of
civilisation on poor children & rich.- Hair &
colour - Polymorphous state Geographical
representatives most difficult to decide whether
to call vars. or species.- Moral ♣ restraints -
(Spreading not like spreading of other
animals?) Allude to Pritchard on colour &c
♦~~cc~~, ♦~~cc~~

Mans Sexual characters like tufted Ducks.-
First○ spreading out even○ families wd be
part○

67 16-21m/19-21m, 22-25m 141 18-21m 144

32-36m 145 2-7m, 21-29m 146 33-36m 168

30-35m 283 6-10m (Foster) 293 17-29m

(Morton) 418 31-35m 476 35-37m (d'Orbigny)

542 28-33m (Humboldt and d'Orbigny) 543

17-23m (d'Orbigny)

PRINCIPLES of organic life London; Robert
Hardwicke; 1868 [Down, S]

NB O/

☞

PROCTOR, Richard A. Pleasant ways in
science London; Chatto & Windus; 1879
[Down, I]

geo, oo

NB p379 Dust important for Worms

379 wt But this cannot apply to a whole
country 6-37m, wb St Jago When covered

PROCTOR, RICHARD

with vegetation ♣ very little dust raised 380 1-2!, 26-37m/30-35m/13-35w But clay○ must have been taken from one part to another

PROCTOR, Robert *Narrative of a journey across the Cordillera of the Andes* London; A. Constable; 1825 [Christ's College Library, on B, S]

NF Have read as far as the pages are cut
 ♣ ● X Vizcacha Azara ●; Biscacho - Proctor; Cachia Caldcleugh; Cuvier Viscatcha
 15 wb Gau (for Gauchos) 368 wt/1-2w Gua Gua Gau quipos Gau

PSYCHOLOGICAL ENQUIRIES (published anonymously by B.C. Brodie); London; Longman, Brown, Green & Longman; 1854 [CUL]

beh, ch, gd, gr, h, or, phy, t, tm, ud, ve

NB1 Emma 104

NB2 ♣ much good on man
 p166; p183,4; 186; 190; 192; 194; 196; 198; 203

p.196 Man wd not spread beyond Tropics till fire invented nor very widely, perhaps, till Boats?

Perhaps first Learnt in a Volcanic region, with lava flaming things around

SB □β

188 Q Good case of Bees building comb beneath a fallen hive temporarily

192 Moral sense due to Social Instinct p203

195 Man must have had more instincts when first Produced

199 Q An acquired habit converted into instinct show change in Brain

166 13-19m 183 19-22m 184 20-23m/? 186 5-9m 187 18-22m 188 13-19m/17..." 189 24m (Dujardin) 190 23m 192 16-18m, 17-24m 194 21-24m 195 4-8m, 15-18m 196 14-18m 197 21-22m/u "instinct of self-preservation" 198 5-7m 199 18-21m 203 7-10m, 22-24m

PUBLIC LIBRARIES in the United States of America Part 1; Washington; Government printing office; 1876 [Down, S]

NF 419-442; 476-504

∅

PUGIN, Augustus Welby *Contrasts or parallels between the noble edifices of the middle ages and corresponding buildings of the present day* London; Charles Dolman; 1841 [Down]

∅

PULTENEY, Richard *A general view of the writings of Linnaeus* London; J. Mawman; 1805 [Botany School, pre-B, ED]

PUSEY, Sidney Edward *Bouverie Permanence and evolution* London; Kegan Paul, Trench & Co.; 1882 [Down, I] ∅

NB All mere rubbish

PUTSCHE, Carl Wilhelm Ernst *Taubenkatechismus* Leipzig; Baumgartner; 1830 [CUL, on B]

no, v, wd

NB ♣ Nothing March 1857

p27; p30

iv 16-19m/17u↔ v 6-8m/6u "dreyssigjähriger"
 vi 9u "Leipzig", 9-10w I have 22 19u "Montauban", 20-22w Leghorn Rump scanderosus &c 23 9w Carrier 26 9m, 32u↔/ 31-32w/wb Almond Tumbler has been reduced in England 27 14-15u "auch ihnen"/ w Turbits 28-30m/28u "1573" 30 21-24w same as spots 31 22w with a mane 32 13-24m/w Swallow-Pigeons thus seem to be domesticated

PUVIS, M.A. *De la dégénération et de l'extinction des variétés de végétaux* Paris; Huzard; 1837 [CUL]

ch, che, cs, dg, fg, phy, sp, t, ta, ti, v, wd

NB p1-41 → chiefly on old vars of Fruit-trees dying; 48; p.63,5; 76-79; 82

SB 36 on apples half one sort, half another.

Attitude to direct fecundation

37 on genera varying in having only single species Q

41 on vars. of Peaches within recent times

76 on certain fruit-trees coming true

77 81 in cultivating a number of Cereals, all those near each other, were greatly modified in garden of Society - attributed to crossing but I doubt Q

<over> ♦

p10 M.S. reference to Lindley on grafting

5 8-10m/w Fruit-trees 15 11-16m, 18-21m 22 27-31m 15 11-16m, 18-21m 22 27-31m 25 25-28m 30 1-8m 31 1-5m, 10-13m 34 10-15m 36

1-7m, wt/1-4w attributes all variation to crossing 11-12m, 19-23m (A.P. De Candolle), 24-26m, 27-32m 37 wt Maize

Rice Potato 1-4m, 1u "principalement", 4u "kolreuteria", 3u "seigle"/w Rye 5-6m, 7-8Q

11u "platanes", 12u "encore entr'eux"/9-14m/w

Ch 4 Big grain & small grain - 13-15m, wb

The Variation in Fruit-Trees shows that many generations are not necessary to cause

variation 39 20–28m 41 1–4m, 11–14m 48 19u
 "Annales"/19–21m (Sageret) 49 5–8m 63 20–
 23m 65 4–10m 76 2–4m, 15w cultivated 15u
 "franche", 16–18m, 19–21m, 24u "prune", 31–
 32m 77 1–2m, 9–11m, 21–23m, 24–29m 78 3–
 7m/w chemical change 18u "été"/9–18w
 Thinks it all due to crossing affecting the
 very grains. 79 11–14m 81 23–26m 82 wt
 spell. Dict. French 1–3m/1u "épeautres", 8–
 11w ask about Aegilops 12–15m 83 10–12m

QUADRI, Achille *Note alla teoria Darwiniana*
 Bologna; Giuseppe Vitali; 1869 [CUL, I]
 ad, ex, fg, is, no, sh, t, ts

NB1 p26♦; p.28 very good; Struggle for
 existence

NB2 (not CD)

SB Ch2 p37; 3 p105; 4 p137; (I have not
 read)

28 wt/1–9w (a) Prophesied that Culicidae wd
 be rare on account of vast number of
 Empitae, & these abounded because Water-
 beetles sick & very rare 9–30m/w (a) 32–35m/
 34w (b) wb (B) Land-shells devoured by Mice
 – one kind protected by Carduus – like
 plants on commons by Thorns – Beans on
 shells in islands, where no mice, lately
 exterminated → 29 wt He classes the
 relations of the Economy of Nature 8–9m/4–
 21w The more perfect the organism the less
 Evolution (external) wb Mr Traherne
 Moggridge remarked to me that he cd find
 seed of Legum. climbing plants only when
 dropped among thorny plants, in all other
 places devoured

QUATREFAGES DE BRÉAU, Jean Louis
Armand de Charles Darwin et ses précurseurs
français Paris; Germer Baillièrè; 1870 [CUL, I]

NB ♂ O/

♂

QUATREFAGES DE BRÉAU, Jean Louis
Armand de Études sur les maladies actuelles
du ver à soie Paris; V. Masson; 1859 [CUL, I]
 ad, beh, br, em, ex, gd, he, mn, oo, pat, rd,
 sl, sx, ta, v

NB 12; 31; 101; 209; 214; 304; 321

SB □β

Q

12 & 214 do One knows that everywhere in
 France white races have resisted disease
 better than yellow.– [It may of course have
 been accidental coincidence]

31 Disease Hereditary The old races
 promptly disappeared from whole country

101 Great care is always taken in selecting
 cocoons for breeders.

209 a breed of which females had much
 finer & not so monstrous wings ♣ as in the
 South-* certain black caterpillars resist
 disease much better

214 some breeds have lost property of
 attaching eggs to any support

304 Often mere rudiments of wings (u) –
 doubtful whether due to disease

321 an account of diff vars. of Mulberry with
 leaves of different qualities some only fitted

QUATREFAGES, VER À SOIE

for caterpillars in latter stages; Hence selection might easily come into play – as the stiff-leaved vars could exterminate a species.– No doubt judging by our oaks only the more delicate trees wd be thus exterminated.

12 27–28m 31 18–20m 101 21–24m 209 1u "vers|Jean", 17u "plus|dans", 18u "sont|étalés", 25–28m 214 14–15m, 16–17m 217 26–29m 304 1–13m/7–8Q 321 4–12m/6–9Q/8–9m/9u "qu'on|davantage", 14u "assez|découpées", 15u "feuille|plus", 19u "laquelle|ramassage", 23–26m/25–26m, 29m

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Histoire naturelle des annelés* 2 vols.; Paris; Roret; 1865 [Down, I] ♂

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Métamorphoses de l'homme et des animaux* Paris; J.B. Baillière & Fils; 1862 [CUL, I]

cc, em, fg, gd, mn, oo, phy, sx, t, tm, v

NB 32; 79; 84; 94; 99; 103; 113; 118; 122; 129

SB ☐℞ ↔

32 Embryology

79 do

84 – Destruction of caterpillars by Ichneumonida

94 – Neuter insects

99 4 forms of successive Respiration in Frogs

103 do.

113 Retrograde development

118 F.W. Molluscs no metamorphosis

122 Embryology

129 Period of monstrosity X

174 alternate generations

251 True generation always necessary

280 Parthenogenesis in Wasps

299 do.

293 do.

312 & 315 & 317 Embryology

32 8–16m 79 17u "quatre formes"/13–25m (Fabre), 28–34m (Joly) 84 27–30m 94 21–24m/1–24w I doubt – will not explain two castes of ants 99 21–30m/18–30w four forms of respiration 100 1–9m, 19–25m 103 1–6m, 8–24m 104 22–32m 107 31–34m 113 23–27m/23w Lernaean 118 wt/1–2w Why? No food 23–27m 119 13–16m 121 27–30m 122 24–29m 129 4–8m (Meckel and Geoffroy), 13–23m/7–19w so with all variations 28–30m 174 12–30m 251 12–19m 280 4–11m (Leuckart) 282 12w ovipary 290 9–14m 293 6–13m 312 18–22m 313 9–12m 315 4–7m 317 29m (Dufossé)

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Nouvelles recherches faites en 1859 sur les maladies actuelles du ver à soie* Paris; Victor Masson; 1860 [CUL, I]

NB O/1860

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Physiologie comparée. Les métamorphoses* Paris; Estrail de la Reine des Deux Mondes; 1855 [CUL, I]

ad, cc, ct, em, fg, in, no, sx, t, ta, v, y

SB1 ☐β

In insects variation cannot come on till later in life– so no necessity for coming on early The case may be early if measured by year towards close of life.

85; 96; 102; 118; 121; 125; 126; 134; 136; 138; 140 Hermaphrodite Fish.

By the enormous increase of individuals by gemmation in animal & vegetable kingdom number of eggs increased, & at times of year when perhaps not good for seeds or eggs to be produced–

SB2 ☐β

96 great differences in Metamorphoses of closely allied Polyps

125 Transformations, Metamorphoses, genea-genesis.– all forms of Metamorphosis 138 Summary of do

140 Serranus Hermaphrodite Fish

N.B. In an ephemeral insect how late a variation appears in life as measured by time – though the causes may act at a very early period

85 26–41m 96 7–14m (Löwen) 102 23–29m 116 9–11m 118 18–24m, 28–32m 121 1–6m, 21–25m 123 1–10m (Owen) 125 5–11m 126 23–25m/20–34w This after all turns on metaphysical point of what is individual. 37u "monogénèse", wb In young Anodon wd it be mono or digenesis – the cases blend together 127 15m, 22m (Carpenter)/u "son|fond" 128 3–4m, 6–9m/w just as I thought 129 3–7m 134 16m, 26u "n'aura|germe"/w No 27–31w His own case of Moths.– 136 17–21m 137 35–37m 138 1a "oeuf"/wt & the young organisms adapt to external conditions 2–8m, 37–40m 140 40–43m (Dufossé)

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Souvenirs d'un naturaliste* 2 vols.; Paris; Charpentier; 1854 [CUL]

af, ch, dg, em, gd, no, or, phy, sx, t, tm

vol. 1 SB1 vol 2 p.184; p.193; p.278; p.338

vol I p.116; p.121; p.123; p.135

p.254 works out well particularly of laws of

propagation in animals & vegetables.-
p.296; p.306; p.308; p.321

SB2 □β

121 On division of labour, 297
137 Great size with degradation in Nemertes
vol 2 193 simple eye of Annelid
338 On important change in one part not
compelling changes in other parts, with good
remarks against the subordination of
Characters of Cuvier

116 2-6m/4-5w analogue 117 18-23m 121 wt
How applicable to Plants - Shark & Salmon
& Pike The mere facts of being less like
Reptile makes more Fish-like 1-4m, 7-10m/
9u "inférieur", 24-25m (Milne Edwards) 122
11-15m/11u "types", 17-21m/20u "plan
général", 23-25!/23-24u "le | branchie" 123 5w
Lamprey 22-26m 135 15-18m, 26m 137 3-6m,
25-26m 139 14-20m/16w Fish? 26m 140 3-5m
257 18-22w The leaf buds are ♣ larvae 295
24-26m 296 1-11m 297 24u "illans"/23-25m
(Milne Edwards), 25-26m 306 1-7m 308 22-
26m 309 3-8m, 19-22m 321 10-22m/22u
"réunis", 23m/w Land 24w some Rotiferae
are bisexual 26w Land 27u "Turbellariés"/w
Land 29-32m (van Beneden), wb♦ There have
been land-forms produced because such has
been possible owing to these being M All
wrong

vol. 2 NB1 40; 48; 52; 64

NB2 40; 48; 52

NB3 ○

40 17u "représenter" 41 26m 43 9-14m 52 13-
17m/13u "parenté zoologique", 16-21m, 23-24u
"d'identité apparente" 53 2-4u↔ 62 10-13m 64
4-8m 184 1-7m 193 1-13m/3u "partout |
centre" 278 6-15m/10-11w Teredo 338 2-23m,
15-18m, 24-26m 339 1-5m (Jussieu), 9-16m,
20-21m

QUATREFAGES DE BRÉAU, Jean Louis
Armand de *Unité de l'espèce humaine* Paris; J.
Claye; 1861 [CUL]

beh, br, ds, em, h, hy, phy, sp, v

SB1 □β

20 Man. Language

31

39- ⚡ Definition of Species

Some truth to similarity, some truth to
descent alone

52; 53; 57; 78; 119; 152; 156; 158; 161;
169; 205 a Book on Health of World

Americans altering looks like conditions

Whatever produces 6 fingers, could if
prolonged produce six.-

Nothing important

Jan 1861 Quatrefages on me

SB2 ⇨

20 Compares Languages of Man & of
Animals

152 Results of crossing Primrose & Cowslip

156 on the crossing of 2 species of Camels.
doubts thrown on.- & 2 species of Guanaco.

158 on the sheep & Goats of Chile.

161 Naudin on Law of Return of Hybrids - I
doubt - It is certain that he does not believe
much in insects.-

19 11-16m 20 28-35m 21 21-23m/22u
"caractères moraux", 26u "vertu | vice", 37-
41m, 43u "sel généralement" 31 27-30m, 31-
38m, 40-41m, 42u "compagnie" 32 9-14m 33
1-6m 39 20-25m 52 31-38m (De Candolle) 53
26-34m, 35-40m (Linnaeus) 54 34-39m 55 33-
40m (F. Cuvier, I. Geoffroy St Hilaire) 56 3-9m
57 6-12m (Sageret) 59 21-22m 69 29-33m 78
12-15m 79 24-36m (Geoffroy) 88 14-21m
(d'Orbigny) 93 40-41m 95 39-40m
(Desmoulins), 39u "seize" 119 25-35m 125 2-
10m, 28-33m/29-30w like Wallace 128 24-
43m 129 21-24m, 36-39m 152 12-20m
(Naudin) 156 5-24m (Khanikoff) 157 37-41m
(H.A. Weddell) 158 18-24m 159 2-9m, 31-34m
161 wt I must study Naudin on Return; I
cannot but suspect crosses 25-30m 169 26-
37m (Geoffroy) 205 21-27m (Winterbottom),
31-38m (Boudin), 39-41m, ↑3u "Boudin"/wb I
must read that book 206 11-16m

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eloppement de ses facultés* 2 vols.; Paris;
Bachelier; 1835 [Down, ED]

THE RABBIT BOOK London; Journal of horticulture; n.d. [CUL]

v

NB p.2; 4; 14; 16; 22; 24; 34

2 2-8m (Confucius) 4 33-35m 14 5u "Double | Full"/w Oar lop - Horn-lop 13u "5th | eye", 20-23m/21u "1 | inches"/22u "5" 15 fig.m 16 2-4m, 29-32m 22 28-32m 24 27-33m 26 16u "Chinchilla", 20u "wild | sprig", 23-29m 28 1-3m, 12-14m 30 15-17m, 19-21m, 22-23m 31 11u "Ram Rabbit", 17-19m/18u "from | 20" 32 4u "Rouennais", 4-16m/12-16m, 19-23m, 26-28m/26u "Nicard" 34 8-10m

RADCLIFFE, Charles Bland *Dynamics of nerve and muscle* London; Macmillan & Co.; 1871 [CUL, I] beh, phy, tm

NB1 Does killing Drosera cause contraction - is elasticity contracted during life?

NB2 ♦ 9 & 27 & 29 & 38 Torpedo

144; 165 Blushing

178 contraction of muscle due to elasticity contraction of amoeba

237 Trembling- why excitement, because too great

9 3-5m (Du Bois-Reymond) 27 25-31m (Matteucci) 28 30-31m 29 1-11m, 23-27m 38 2-8"..."/3-10m 144 7-17m 165 4-10m, 19u "vaso-motor" 178 22-31m 179 20-23m 237 20-30m 238 3-15m/14-16m

RADENHAUSEN, Carl *Osiris: Weltgesetze in der Erdgeschichte* 3 vols.; Hamburg; Otto Meissner; 1874-76 [Down] ø

RAM, James *The philosophy of war* London; C. Kegan Paul & Co.; 1878 [Down]

RAMES, J.B. *La création d'après la géologie et la philosophie naturelle* part 1; Paris; F. Savy; 1869 [Down, I]

RAMSAY, Andrew *Descriptive catalogue of the rock specimens in the Museum of practical geology* London; G.E. Eyre & W. Spottiswoode; 1858 [Down, I]

11 1-3m 13 1-7m 148 13-14w Galapagos 149 16-19m ø

RAMSAY, Andrew Crombie *The physical geology and geography of Great Britain* London; Edward Stanford; 1863 [Botany School, I]

RAMSAY, Andrew Crombie *The physical geology and geography of Great Britain* 3rd edn; London; E. Stanford; 1872 [CUL, I] geo se

NB Will Shrinkage account for surface grt elevation & subsidence on same area p.261 Earth brought down by Rivers 261 1-9m

RAMSAY, Andrew Crombie *The physical geology and geography of Great Britain* 5th edn; London; Edward Stanford; 1878 [Down, I] ad

NB p107 On Marine animals getting accustomed to salt water 107 31-34m

RANG, Sander *Manuel de l'histoire naturelle des mollusques et de leurs coquilles* Paris; Roret; 1829 [CUL, on B, S]

RANKE, Johannes *Grundzüge der Physiologie des Menschen* 3rd edn; Leipzig; Wilhelm Engelmann; 1875 [Down] ø

RAY, John *The correspondence of John Ray* ed. Ray Lankester; London; The Ray Society; 1848 [Down]

NB (not CD) 356 4-7m

RAY, John *The wisdom of god manifested in the works of the creation* 2nd edn; London; Samuel Smith; 1692 [Botany School, S]

NB1 & Instinct so Babies

Vine 99 manured in Vine leaves

99; 107 babies; 100

NB2 p106 112 114 115 121 125-140

p.134 p.136 Part II

part 1, 106 9-18m 107 1-5m(FD) 108 ↑w As domestication makes some animals more prolific (? fresh teats produced?) questions answered 109 1-8m/wt/↑w are the last eggs fertile If so, possibly animals might regulate their prolificness according to case of feeding young Will not apply to caterpillars.- Was not Doris superfluously prolific 112 ↑3-1m 113 ↑12-1m 114 ↑10-1m 115 ↑10-1m 116 6-20m 121 4-6m, ↑6-1m 125 1-10m 127 1-7m/w if not they would not live. This argument shows in what strife each species lives wb Adaptations might be classed always necessary to existence, necessary under ø 128 ↑10-1m 129 3-12m 130 ↑16-1m, wb burrowing animals grow analogues 132

wt Co relation in structure, as breast & womb, must be result of laws of organisation
 †w Adaptations which may have grown with formation of the species 5-20m 136 "II"?.
 139 †10-3m
 (other markings not CD - some FD)

part 2, 68 †20-1m 69 8-14m 134 10-16m 136 4-20m

RAY, John *Memorials of John Ray* ed. Ray Lankester; London; The Ray Society; 1846 [Down] ∅
 149 8-10m

READE, Thomas Mellard *Chemical denudation in relation to geological time* London; David Bogue; 1879 [Down, I] ∅

READE, Winwood *The African sketch-book* 2 vols.; London; Smith, Elder & Co.; 1873 [CUL]

beh, gr, h, sl, ss, sx, tm

vol. 1 NB African do not 41 Kissing
 ♦ 60 Error; 306 Aymara (text has "Amyamara")

152 Direction of Hair on arm of Gorilla & manner of killing
 223 Women ugly in lowest tribe & selected as slaves

♦ Ananga pretty story (Sketch of African discovery)

445 Rage Expression
 109 wonder

41 21-23m 60 3u 109 16-18m 152 25-27m/25-26u "rain\head" 223 9-13m 306 †1u "Amyamara" 445 5-17m

vol. 2 NB African Map. ingored
 Missionary 153 313 savages singing when excited

253 Beauty, & 521-522 Blackness

258 intelligence of Negros

306 & sexual selection man

♦ 310 Language

313 singing

394 Blue eyes in negress, uncanny

364 M. of N.

Your map not alluded to

153 16-19m 253 1-7m, 11-14m, 18-22m 258 10-16m 306 17-23m/19-20w like male Birds 307 29→ 308 11-14m, 15-16m, 19u "women fanciers"/18-24w American Men have as long hair as women 310 18-22m 312 11-15m/?, 26-29m 313 11-12m/11u "the", 16-20m 394 1-4m, 10-12m 520 6-10m, 16-19m, 29-32m/31u↔, 32-34m 521 1-2m, 7-10m, 22-24m, 29-

31m, 33-35m, 38-39m, 40m 522 1-4m, 12-15m, 20-21m, 31-34m, 35-36m 523 1-2m

READE, Winwood *The martyrdom of man* London; Trübner & Co.; 1872 [CUL, I]
 beh, h, or, sl, t

NB 112♦; 410♦; all very striking & original; 415♦ Poetical♦ 434♦; 420; 423; 237; 441 & 453 What authority

SB □R ↔

Passion

420 & 421 combination depends on language ⇌ Selection Man

423 Sharpening sticks by rubbing probably origin of Fire.

♦ 437 Origin of curiosity

441 Savages - When excited singing What authority ⇌ Own

453 Origin of ♣ decency ⇌ & propriety

⇌ Mind of Man

W Reade *Martyrdom of Man*

112 14c "West"/w East 410 12-17m 415 3-10m 420 13-17m 421 17-18m 423 8-9m 434 6-9m 437 15-18m/w Why not danger 441 19-30m 453 8-20m

RÉE, Paul *Der Ursprung der moralischen Empfindungen* Chemnitz; Ernst Schmeitzer; 1877 [Down, S]

NB O/

REEVE, Lovell *The land and freshwater mollusks indigenous or naturalized in the British Isles* London; Reeve & Co.; 1863 [Down, I]
 gd

NB 255-57 Distribution of
 255 2-10m, 41m 256 10-17m, 20-24m 257 18-21m, 21-22m, 21u "have\influence", 32-34m 258 24-30m

REICHENAU, Wilhelm von *Die Nester und Eier der Vögel* Leipzig; Ernst Günther; 1880 [Down] ∅

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RENDU, Victor *L'Intelligence des bêtes* Paris; L. Hachette & Cie.; 1863 [Down]

NB Mere Compilation not worth reading

RENGGER, Johann Rudolph *Naturgeschichte der Saeugethiere von Paraguay* Basel;

RENGGER

Schweighauser; 1830 [CUL, on B]
ad, beh, br, cc, cr, cs, dg, ds, fg, gd, geo,
gr, h, he, mg, no, oo, or, pat, phy, sp, sx, t,
ta, ti, tm, v, wd, y

NB

I did not notice whether tame Monkeys have
bred

354; 357; 360

334; 336; 340; 364; 368,9,70,90

10; 21; 38; 41; 43; 45; 47,8; 50

71; 100; 106; 110; 115; 118; 125; 126; 149;

152; 155; 165; 212; 214

368,9,10

173; 174; 175; 185; 189; 196; 201; 208; 224;

233; 249; 250; 259; 263; 265; 268; 276; 288;

291; 294; 295; 298; 301; 309; 327; 331; 342;

345; 351

xv 6m, 9m, 10m, 11m, 12m, 14m, 15m, 16m,
17m, 18m, 19m, 20m, 21m, 22m, 23m, 24m,
25m, 26m, 27m, 28m, 29m, 30m, 31m, 32m,
33m, 34m, 35m xvi 2m, 3m, 4m, 5m, 6m, 7m,
8m 3 5-14m/7-10w resemble of women to
men 20-22m/w Beard 26-27u "Die|Farbe",
30-32w complexion in passion 4 18-20m/w
from Life in Canoes 8 19-22m, 24-25m/w
See correction pxv 9 7c/wæ, 115c/wæ 10 32-
38m, wb Jemmy Button sharper eyesight
than sailors 11 1-5m 14 12u "ums|Zoll", 22-
34m/23-28w sexual differences in colour
26u "graulich-gelb", 27u "bräunlich-gelbe",
29u "jungen Carayas", 30u "tragen|Weibchen",
34u "rötlich-braun", 35u "dritten Schwan",
37u "vierten|Jahre" 15 27-28u "Das|
Stimmapparat", 33-37m, 34u "Beim|dieser",
35-36u "zwei|Männchen" 20 19-22m/w
Polygamy 21 5u "Des Morgens", 6u "der
warmen", 11u "Männchen|gewöhnlich", 14-
15u "oft|lang", 17-24m/w these Monkeys
make noise merely for pleasure 23 2-4m 26
14-17m ♦ 27 26u "sieben" 31 30-31m/u ↔ 34
32-37m 35 12u "Cebus-Azarae", 16u "der
Eckzähne", 17u "etwas|Schwanz", 18u
"Gesichtswinkel" 38 15-17m, 22-23m 39 21u
"einige Töne", 33-34u "mit|lösen"/33-37m/w
Beat the oranges to losen rind 40 2-4m/w
Yet oranges not aborigin 41 19-22m/w
Monkeys drive flies from their young 42 35-
37m, wb afraid of cold Mothers 43 20u
"häufig", 36u "Käfig" 45 30w Cebus 34w/
36w/wbt 46 wt Ennui - desire for object -
astonishment - passion - Fear & pain -
Joyful recognition 1-8w Desire astonishment
(2) Passion (3) Fright or Pain (4) (5) (6) 9u/
11wt 13-16m/w same in all - instinctive 19-
27m/w the crys cause very strong associated
emotions & act on them 30-33m/w Crys &
laughs 34-35m/w Laughter 32-34u±/wb

Expression wbt, wb Humboldt mentions
crying monkey 47 28m 48 25u "Zorne"/24-
27m/w Harm by passion ! by spirits 49 1-2m,
11-12m/w male monkey arrives later at
puberty than female 15-18m 50 1-6m/w
Monkeys diseases very like men 5-23m/w
colds, coughs consumption. Cutting teeth die
from fever accompanying. Cataract.
Apoplexy & inflammation of the bowels.
Medicine produces same effect on them 51
5-19m, 5-12w directly accustom to
confinement - very affectionate & loose
even wish of freedom 26-30m/w like Negros
best 34u "Hunde", 32-36m/w People say
horses created for men, I might say dogs
created for monkeys wb (With reflection a
monkey with these feelings would be sorry
having attacked his friend) 52 wt How like to
man's character! do for comparison 1-4m,
6m, 8-20m/7-16w (Vengeance encircled○)
21-26m, 29-31m, 34-37m 53 wt Emma often
perceived he had been on dining room on
the table & found it so - 1-10m/2w Jemmy
did this 3-5w but Squib○ was not so 12-13u
"Habsucht", 17-24m 54 5m, 6-8m, 14-15m/14u
"selbstständigen Charakter", 20-22m/20u
"andere|unterwerfen", 24-29m/25-33w Rides
dogs & makes them go where he likes. wb X
Man to horse, Molothrus to cows dog to
monkeys (& even some crustacea probably
to Cetacea see Macleay in ● on accidental
selections; 55 1-3m/w/wt was easily taught ♣
to open shells of Palm with stones 7-15m/8-
11w generally learns to break eggs.
15w Learns by exper 15u "sachte", 16u
"zerbrochenen Theil", 17u "nur einmal", 17-
18m/17-20w if once cut himself with tool very
careful 35-37m/w wasp always listened to
paper 35-37m/w knows expression of Man
wb these alpaca in S. America Man to
Mule! better 56 wt A This shows how arts
wd be acquired. 6-18m/w A once taught to
break nuts, with stone, uses this art to break
nut with stones with bad taste 19w & boxes
20-27m/w N.B Monkey gave me nut out of
herself & seem to expect it to be cracked 57
wt strength of judgment 2u "Urtheilskraft", 6-
10m/4-11w senses of Monkey ♣ are much
impressed by circumstances 8u/wt, wb X 58
10w Nothing about breeding 61 22-27m/w
p38. lay only on other side 62 10-11m, 17-
18w Nocturnal Monkey 64 15-20m 71 16-18m
99 19-26m/20-23w Occasional differn in
sexes 100 10-18m ♦, 20-28m, 29-37m, 34-
36m/36u "Farbenabänderungen" 106 18-23m/
19u "Gefangenschaft"/19-20u "Jahre lang"/21u
"zeichen" 107 1-3m/1-2u "der|Behandlung",
12u "Der|zahn" 110 7-9m 115 5-9m, 14-18w

This is a representative species 16-26m/18-19u ↔ 118 13-15m 125 5-7m/7u "von Geschlechtstrieb", 12-13m/13u "sehr zahm"/14u "folgt|wird" 126 13-14m/14u "grösseren|zu" 129 29-32m 141 26u "sol|zahm" 148 12-14m, 31-36m 149 1-5m, 26-32m/w like Bizatcha useless instinct 151 1Q 152 12-19m/w Proofs from name of places that Dog is aboriginal 21-22m, 32-36m, *wb* Thinks hairless dog probably aboriginal - is called Chinos - which is evidently wrong, as African species is nearest 153 18-22m/18w (a) 22-28m, 30-33m/w not uncommonly some of the Hairless Dogs, are dumb, only howl - *wb* Q² The naked dogs appear to cross less with the common than the latter amongst themselves - where they do cross young take after mother - ♣ never knew a hairy dog produce hairless or half hairless how in vixen 154 XX Although Spaniards introduced many races, now so generally mingled that it is rare to find trace; though that sometimes can be done 6-9m/w concludes hairless dogs descended of aboriginal dumb dogs 11-18m 155 14-18m/14-32w wild dogs like tame in colour & form - burrow holes hunt like wolves single or in packs do wolves burrow 24-25m 161 29-36m 165 7-9m/w curl end of tail like cats 18-21m/w do not break neck 173 25u "bewegen|Schwanz"/24-27m/w like cats. 174 23-26m 175 17-23m/w does not live probably 20 years produces 1 or 2 young 183 2-6m/w like young deer 8-22m/11-17w slight different shades of colour 189 25-28m/27u "schmiegeten|an"/26w & p.190 30u "Spinnen"/29-32m 190 14-15m 194 10-14m 196 5-8m, *wb* the variation of wild animals probably is only at different point of wider range - very different from domesticated animals 199 16-24m/w Toads & serpents kill this Cat 32-36m 201 3-6m/w even in Native country 7m/u "Niederkunft|seine"/w odd possession in instinct 210 *w*t/1-7m/w Two cats in same country with very similar habits yet much rarer 212 *w*t/1-10w Most important instance of my theory Marriage keeping form constant 10Q 11-14m, 13-30m, 16u "300 Jahre", 22u "fortwährend", 26u "kürzere", 28u "Schwanze", 15-19m/15-32w/*wb* The cats of interior of Paraguay differ in quantity of hair, & places of body where most scanty, & ♣ forms for European, but not in Aegyptian where European Cats have perpetually been introduced 213 3-4u "verschnittene Männchen"/w castrated males larger 11-12m, 35-37m/w no wild cats! *wb* wild dogs rare in Paraguay common in La Plata 214 1-7m/1u "Eseln", 10-22w no old wild cats - even

when left behind, die 224 22-28m 233 4-8w not good case p.236 9-14m/10-12w representative Species 23-26m/22w exceed 28-33m/w/*wb* but wild far from Man 236 1-2m 249 28-29m/29u "wie|Kaninchen", 32-34m/34u "alle|kamen" 250 25-31m 251 25-35m/28-29w variation 33u "dritte" 252 1-4m 259 18-22m/w variation 260 31m 261 11-13m 263 24-25m/23-29w shows how necessary for ♣ pheasant to avoid this path *wb* has confessed it varies a little from British species 265 33-37m, *wb* Is it not unhealthy women which most miscarry? 268 31-32m 276 34-36m, *wb* no variation 277 6-10m, 27-36m/w not parent of Guinea Pig - *wb* without indeed the changes in constitution of latter, prevents its breeding with the Aperia 288 20-25m 291 33m 294 24-31m/w ankylosis kind of vis medicativa 295 29u "nicht|vor"/28-32w yet very similar habits 298 6-8m 299 5-6m/5u "gemein" 301 26-30m 304 3-6m 309 1-6m 310 27-28m/27-35w other species rarer than foregoing but habits rather diff. 312 18-20m 325 1-2m 326 13-16m 327 11-15m/w yet so tame almost domesticated 331 1-3m/1u "gross"/2u "sol|Junge", 24-27m 334 1-29w² & in 1580 (ie 43 years afterwards) Sarmiento saw horses with the Indian in Str of Magellan. 1-25w² Horses new in 1545. have run wild for 300 years 27-29m, 34-38m/w so increased without man's care *wb* Pampas did not exist 335 13u "bei|von"/w like Capons 23-31m/w Q Compare Azara 34-37m/36-37u "brauner|Farbe" 336 14-19m 340 21-27m/w rickety horses short in legs 30-32m/x/30u "gourme", *wb* Glanders & gourme, shows that contagious diseases peculiar to constitution & break out without contagion. 341 26-27m, *wb* ass remained unchanged in colour - more degenerated than horse - 343 13-18m ♦ 344 26u "braunlichroth" 345 6u "Mittellinie|Brust", 10-14m/12-13u "Der|und"/10-11w Deer 19-22m 351 28-30m 354 6-9m/w therefore different habits 355 22-27m/w secondary character 357 3-10m 360 14-22m 363 6u "1546", 26-29m, 28w ♦ oranges 364 6-12m/w Paraguay no wild cattle - from flies 369 2-17m, 3-8w no monkeys rest of Andes 13-17m 370 1-7m/1-20w apparently horse constitution peculiarities go with genera C.D. 8-19m 371 1-8m/2-6w these limits of genera all wrong 15-18m/15-22w species of Carnivora, Bats genera. not generally confined in longitude, with some exceptions. 372 20-25m 274 2-10m/5-6? 375 *w*t Thinks distribution of these animals, which do not feed on grass, is determined by vegetation, which changes

RENGGER

much in longitude. I doubt- X 1-26m, 29-32m, 32-33m 376 2-7m, 13-15m, 18-22w
 Distrib. of Carnivora indirectly follows plants
 27w (see p.396) 28-31w Distribution bears
 relation to process of locomotion of species
 32-37m/w even rivers separate Monkeys *wb*
 in some genera chiefly depends on the form
 of the tail!! *wb* NB Mem^c Sir F. Chantreys
 story of tame Monkey readily taking to water
 377 4-10w (a) examples of distrib in
 proportion to tail 13-18m/16w a 21u "zum
 Laufe"/20-27m/w surely this does not apply
 to antelopes of Africa 31-32u "einige
 ausgenommen"/31-37w one exception shows
 range not determined by powers of
 locomotion but by adaptation *wb* (a) Surely
 the doctrine of range being determined by
 locomotion powers & kind of foods (such as
 can be perceived) is false; for think of case
 of two ostriches: they living together shows
 (rest \diamond) 378 1-9m/wt/1-4w This is all absurd,-
 powers of locomotion will perhaps greatly
 limit in many cases most wonderful overuled
 Coypus extension, but adaptation is great
 feature N.B Are not these remarks applied to
 genera if so perhaps true 8-9w Biscatcha &
 Agouti 27-31m, *wb* ie as far as \clubsuit food &
 climate (& enemies preoccupation by other
 species) ie conditions allow species &
 genera to range, so will they range in
 proportion to their mode of progression & the
 form of the land 379 4-8m/w S Africa 15-
 22m/w Monkeys partial migration & of other
 animals 380 1u "Auch | Einfluss", 2-12m, 25-
 29m/24-33w \diamond Beasts of prey destroyed
 others increase immensely, & drive others
 from habitation 381 1-3m, 25-26w probably
 increased 26-28m/27-28u "fünften | aller" 382
 2-4m/3u "kleinen Raubthiere", 11-24m/w chief
 deaths of carnivora when young 390 *wb*
 Waterhouse Mice generally or sectionally
 very large range, but many species of S.
 America show that species small range -
 Now this agrees with Rengger 376 fact
 about Monkeys, but the larger range
 coincides with possibility of transport.

RETZIUS, Gustaf *Anatomische Untersuchungen* Stockholm; Klemming; 1873 [Down, I]

RETZIUS, Gustaf *Finska Kranier* Stockholm; Central-Tryckeriet; 1878 [Down, I]

RETZIUS, Gustaf *Das Gehörorgan der Wirbelthiere* part 1; Stockholm; Central-Tryckeriet; 1881 [Down, I]

REYNIER, Louis *De l'économie publique et rurale* Genève, 1818 [CUL.1900]

SB all Q

363 Merchants visited England & Ireland before Caesar

418 several vars of Cereals cultivated by the Celts at time of Caesar

486 nomad people do not improve beasts. Celts did attend to this subject.

499 Celts had 2 races of sheep with work for different purposes

503 Celts improved Horses.

363 \uparrow 6-2m, \uparrow 2-1 \rightarrow 364 5-9m 486 14-17m 487 4-8m 499 9-14m 503 9-13m, 13-15m

RIALLE, Girard de *La Mythologie comparée* Paris; C. Reinwald & Co.; 1878 [Down] \emptyset

RIBEIRO, Carlos *Noticia de algumas estações e monumentos prehistoricos* Lisboa; Academia; 1878 [Down, I] \emptyset

RIBOT, Théodule *L'Hérédité psychologique* Paris; Germer Bailliére; 1882 [Down]

RIBOT, Théodule *Heredity* London; Henry S. King & Co.; 1875 [CUL]

beh, h, he, mn, pat, t, ta, tm, y

NB \diamond p.25; 33,34; 39; 142; 323; 373

SB \Rightarrow

25 33 34 Relation of instinct & intelligence.

39 Effects of Habit in giving short-sight

142 Calculation like Lutke \circ on chances against accidental reappearance of attribute in children.-

373 Average duration of French noble-families

25 2-34m 33 32-38m 34 6-12m/7u "if | exist"

39 19-37m 142 25-28m (Mauvertuis) 323 25-36m 373 27-36m (Benoiston de Châteauneuf)

RICHARD, Louis-Claude *Démonstrations botaniques ou analyse du fruit* Paris; Gabon; 1808 [CUL, S]

RICHARDSON, H.D. *Pigs* Dublin; J. McGlashan; 1847 [CUL]

cs, f, or, sl, tm, v, wd, y

NB p.15; 24; 29; 30; 32; 38; 41,2; 44

SB $\square\beta$

26 Cross with Chinese restores lessened fertility Q

29 Berkshire a spotted Breed Q

30 Irish Grey-hound Pig with appendages Q

37 16 British Breeds NQ

41 Westphalian 1/2 wild Breed always have

young striped like wild (p.43 do)
 42 Crossed Breed of 3 kinds in Pigs, forming
 a Breed Q
 44 Good sentence on selecting short legs of
 Swine

15 2-7m, 11-12m 19 12m 24 5-8m 26 1-3m,
 5Q 12-15m, 22-24m, 8u "Lawrence"/Q 29 1-
 4m 30 fig.w compare with drawing in title 32
 1-2m 33 14-18m 34 4w 1 5w Berkshire 7w 2
 31w 3 39w 4 35 22w 5 36w 6 36 5w 7 10w 8
 19w 9 26w 10 32w 11 38w 12 43w 13 37 4w
 14 22-23Q 38 16w 15 29w 16 33-36m 41 9-
 10m, 11-12Q 13-18m 42 11-13m, 26-27m 43
 33w N.Q. 34-36m 44 5-8m, 34-37m/35" .../
 37u↔/34-35Q, wb it has been obtained
 ♂

RICHARDSON, John *Fauna Boreali-Americana* 3 vols.; London; John Murray; 1829-36
 [CUL, on B and later, I (14 August 1837)]
 ad, beh, ch, cs, ex, gd, gr, ig, mg, oo, sl, sp,
 sx, ta, tm, ts, v, y

SB1 Richardson Vol I.

p.xxxi.

Fauna B Americana

◆ NB Write to Dr Richardson about selection
 of dogs of

p3; p.11; 14; 16

◆ 26 (p35 Journal) - Canis Azarae Bahia
 Blanca cat in Chile - an armadillo at
 Concepcion Mntains

29 42 47 to 51 61 to 95 116 125,7 136
 140,2 157 161 166 181 191 195 231 233
 239 241 250 p252 p.263 p.268 p.276 p.280
 vol. 1 SB2 □β

15 White rings around neck characterises
 several bears when young Q

29 Vars. of Bears in colour differing in
 ferocity p.66 variation in Wolf

49 Mustela with aquatic habits Q

51 Local races of Pine Martins

64 on resemblances in appearance & voice
 of Dogs & Wolves 75 do. 79 do.

67 variation in Wolves Q

62 Dogs broader feet for running on snow Q

72 Crossing of do

Q 76 Var. of American wolf analogous to
 European wolf - 84 Q do. in Foxes in C.

lagopus, fulvus & vulpes

93 on Cross Foxes Q

140 on Brown Rat exterminating black in N.
 America, as Europe, (& as N. Zealand?)

so Hooker shows how many plants which
 are naturalised in America are same with
 those in Europe

142 Field Mouse occupying sheds in N.
 America

191 Squirrel approach to structure of Flying
 Squirrels Q

239 Rein Deer & distinct vars. inhabiting
 woods 250 & other barren grounds

241 Horns various Sexual Q

263 Herds of Deer which remain, all
 destroyed by wolves. Q here we see manner
 of destruction p88 Colonies of Foxes do.
 destroyed.-

268 Female ♣ antelope with only
 prominences & no horns see the account Q

xxxi 23-24m/24u "same|animals", 35-37m xli
 25m 3 34m 11 25-26m/25u "larger|tail" 15
 17-23m/Q 16 28m, 30-32m 26 37-39m 29 10-
 12m 35 10-11m 42 25-26m 49 4-6m, 7u "its|
 otter"/w a Mustela 10u "haunts|hunts"/9-14w
 Q good to argue against the assumed
 impossibility of otter-transformation 51 20-
 21m/20u "Particular races" 61 16-17m/16u
 "others totally", 23-24m/24u "Wolves|litter" 62
 1-2m, 4-5m, 13-15m, 16-18m 63 19-20m 64
 25-26m/Q 28-29m/28u "four|nine", 30-32m,
 33m/Q 65 1-3m 66 12-13m 67 5-6m, 8-9u
 "reindeer", 10m, 22m, 25-28w shorter, though
 larger animal 29m 70 17m/15-21w greater
 than in last, though this is smaller wolf 30m,
 33-34m 71 1-2m 72 12-13m 73 1-3Q 74 1-
 2m/1u "muzzle|ears" 75 7-8m, 10-13m, 14m/
 Q 76 1m, 3-4m/Q/3u "characters"/4u "which|
 wolves" 77 13-14m, 15u "five|litter" 79 20m,
 25-27m/Q/"...", 31u "the|paws" 80 19-21Q
 26-27m/Q 81 22-23m 84 42-43m (Gmelin) 86
 35-36m 88 5-9m/6-7m 90 13-15m, 24-29m 91
 19m, 22-24m, 27m 92 21-24m/21-22u "Cross|
 Foxes"/Q♦ 93 15m/Q/u "inclined to", 24-25m/
 25u "be|difference" 94 26m 95 25u "an|
 arrangement" 116 38-39m 117 3-4m/u "three|
 young", 11u "great|cause"/w So with Beavers
 125 31-33m 127 23-25m 136 9-11m 140 20-
 22m 141 5u "1730", 6u "1775", 8-9m 142 10-
 13m 143 4-5m, 13u "varieties|met", 14-15m/
 14u "in|tail" 157 18-19m/18u "rudiment of"
 161 3-5m 166 1-3m (Sabine) 181 18-23m
 (Pallas) 191 24-25Q 25-26m (Vigors) 195 15-
 17m, 18-21m 231 9-10m 233 8-10m 236 30-
 33m, 34-36m 237 20-22m/20-21"..." /21m 239
 6-9m/w only for keeping distinct Q 19-20m
 240 top fig.w 19 points low fig.w 29 points
 241 12-15m/12u "largest|horns"/Q/13u "have|
 branched", 18u "majority", 29-33m/32u "by|
 bucks" 242 1u "month|May" 250 5m/6-7m/wt/
 1-9w other var In May the Females proceed
 northward to coast & the males follow in
 June 8-10m/11u "Lake Superior"/9-14w Q
 only for keeping distinct 15m/u "September"/
 16-17m, 15-19w other var. proceeds
 southwards at this month 24-30m/w does not

RICHARDSON

appear that Bucks & Does migrate separately in the other var: does 252 7-9m/8u "moose|rein", 16-20m (Cuvier) 259 35-37m ♦ 263 29-33m/Q 32-34"... 268 1-4m 276 17-20m 280 15-18m, 20-23m

vol. 2 NB ♦ Remark about ● Beak

G.R. Gray ask about number of tail-feathers; 27; 30; 31

SB □β

pxx The Younger Birds are driven away & go wandering

27 var. in tooth of mandible of Jer Falcon, present or absent p30 Q

31 var. analogous to other species of Hawks Q

60 variability in length of primaries - 80,90 Q all 3 quoted

89 Owl fishing 139 Tyrannus do

192 Orpheus changing range with man

268 Similarity in Habits of Goldfinch - Habits often more constant than Structure

283 Var. geographical of Sturnella

292 Eggs of Magpie different from those of Europe; so with an Owl

331 & 332 Change in migration of Swallow - Q nest differing Q only for nest

361 On a Grouse running in circles

404 Fulica var in number of tail feathers Q

469 Variability in length of tarsus & toe in Anser canadensis Q

xix 34m xx 1-10m xxxv 2-3m ♦/3u "mostly|birds" 27 25-26m, 28-33m/33Q 30 30-31m, 32-33m, 35-38m 31 5-9m/w analogous Q 57 21-27m, 34-36m/36u "perhaps|birds" 58 3-4u "third|fourth", 4-6m, 20-21m/20u "third|equal" 59 3-5m, 34-37m 60 4-6m (Savigny and Temminck) 70 19-20m 72 9u "bird|of", 26-28m 77 8-9m 80 1-2m 83 4-6m/5u "localities"/6u "rufous tints" 85 26-29m, 30u ↔ 89 8-9m 90 5u ♦/5-6u "The|shorter"/w not equal 8u "about|fifth"/w 1st short 34-36m 91 11-13m/13u "the|other" 118 12-13m/13w very close 139 35-36m/36u "dives|fish" 150 35-38m/37u "octave|whole" 177 1m 187 12m 189 zb 192 18-19m, 22-25m 226 30-32m 231 36m 233 33-34m 249 32-33m, 34m 250 10m 268 22-26m (A. Wilson)/20-28w other instances of representative species, having allied habits - Thrush in their songs & nests - Gull in S. America 278 7-9m, 22m 282 24-27m 283 30m, 33u "6"/w yet small 34m, 35-37m 292 16-18m/17u "blotches|diffused", 27-35w English eggs shorter but broader 33-36m/35m/w broader 293 34-35m 305 13-16m, 25-27m 306 36-37m (Swainson) 331 18-19m, 20-22m, 25-29m, 36m 332 2-4m, 4-7m, 9-13m, 25-29m, 34-36m 343 1-5m, 6u ↔ 355 35-38m (E.

Sabine), wb observes measurements from stuffed specimens often vary apparently. 359 5-17m/7u "celebrating|wedding"/8u "buzzing|ground"/9u "bare|size"/13u "presence|intended" 361 32-35m 362 1-3m, 4-7m/4u "last|more" 404 29-30m, 32-33m (Cuvier) 407 39-40m/39u "than|among" 413 31-35m 422 17-21m, 22-24m 443 18-21m (Pennant), 22-23m, 25-27m 448 38-39m 453 22-27m, 38m 456 36-39m 469 19-22m/21u/22u (numbers), 23u "same length"/w Q (a) 24-25m/24u "middle|lines", wb (a) many cases especially amongst these water birds, of variations in total length, have not been marked 472 17-23m (Pennant and J.R. Forster) 475 8-9m, 33-34m/33u "The|but"

vol. 3 ♂

RICHARDSON, John and GRAY, John Edward *The zoology of the voyage of H.M.S. Erebus and Terror* London; Longman, Brown, Green & Longman; 1844-48 [Down, I by Gray]

RICHARDSON, Samuel *The history of Sir Charles Grandison* 7 vols; London; W. Strachan; 1781 [CULR, on B; vols 1 and 2 missing; S in each vol. Charles Darwin Buenos Ayres Sept. 1833]

RIEDEL, W. *Die Taubenzucht* Ulm; F. Ebner; 1824 [CUL, pre-B]

ad, beh, br, cs, ds, f, hy, no, oo, or, sp, sx, ti, tm, v, wd

SA (pp. 232-233) □β

17 Fertility of Crossed Pigeons

25 Turbit & Fantail with Bald Pate - 27 other Hybrid Q

41 On Hawks catching light-coloured pigeons

42 Dragon silent Q

86 Some she pigeons prefer stranger pigeons to own husband

158 Same coloured pigeons pair more readily (Ch. 6)

163 Results of crossing different colours

9 wt Home-doves not so fertile as field!

12u ↔ 10 21w carrier 25w Turkish Pigeon

29w Ranger 11 wt long wing-feathers 1u

"Möven", 4u "Schwungfedern"/w (a) 7u

"Hauben"/w Capuch 8w Top-knots 9m/w

Tumbler 11w Fantail; 17 wt Bastards very

good breeders Vilmorin Turkish to Carrier

& common Pigeons either bastard will

bastardize with other bastard 19 3u

"gewöhnlich behaupt"/3-6w German variety of

carrier 20 30-32w Horsman on origin of Carrier 21 1-2w great Pigeon ♣, 6-14w Beak middling long little curved great Wurzel & skin at nose Body & wings small 22 wt Either these Turkish Pigeons or as cross with common pigeon, so not pair breeding with Owls & Trumpeters - Owl hybrids & trumpeters 6-9m/w (a) 13-18w Canton crossed with Powters fertile 23 21-23w all kinds can inflate crop. 25 26-31m, wb Hybrid Turbit - fantail X into a Bald Pate 26 5-10w can be crossed with Capuchin & Powters 19w Jacobin 23w (a) wb (a) Wings so long as often to sweep ground 27 wt very quiet 1-3m/w (a) 25-27m/w (a) wb Hybrid Capuchin - Trumpeter X Turbit 28 8m, 26-28m, wb Bechstein never sees so many as 32 feathers 29 8-9u/w Bald orbits 30w Trumpeter 30 14-17w male & female trumpeter alike 31 31m, wb Trumpeting varies 32 7w Pair 8w Swallow 12u "Feenl Feentaube"/w Fairy 16-29w Marked like the PowO of Sea Swallow of the Germans colours vary I think mine very pure. Purest not very true. ♦ Those with crest have been crossed generally wb Swallow smooth beaked feather footed coloured as mine - only little smaller than Field Dover but slenderer quick flyer Thin legged 33 1u "einerlversehen", wb Good flyers & at first wild 34 wt not caught by Hawks for manner of flight like swallows 4-6m/4u± 35 8m, 9u "Cypersche", 10-15w Bald Pate? a toy Neumeister Priest 23u "Pfaffen"/w Priest 36 21-27w Bechsteins birds 1 genus 38 29-30m, wb 14 sub vars colours of the Monck Pigeon or Bald Pate 39 4w Toys 40 17u "Spot Pigeon" 41 16-20m/17w (a) 21-28w same account as Neumeisters variety of Horseman or Carrier wb very great difference is attributed to colour in facility of Hawks catching them 42 wt very silent; I think our Dragon is.- 3m/w (a) 8-12w crossed with Turkish produces following 10w The Turkish is figured by Neumeister 12w I cannot think what this is 13u "Römische", 14-17w/16u "Schnabelldick" used for carrying letters 20-24w not the Spanish Birds wb (B) Moore says white Barb is the Mahomet Pigeons, so little known 43 wt ♦ I suspect all details here copied 4w Barb 5u "Indianische|Judische"/w Barb see Neum 10-11w Leghorn, Runt. 16-19w Tail stands up 24w a Toy wb on Finakin and Turner 44 wt These strike their wings together like trumpeters 1u "Trommler", 8-14w very small fingers, Legs very short feathered Beak excessively short 17-29m/w Not the Lace Pigeon but the Foilback 33-

35m, wb with a mane He has not seen this 45 5u "Col.|Forficata", 6-10w Pigeons with forked tails 12u "Thiergärten", 26-28m/w very modern 46 wt Ring Dover 54 3-12w Blue Rock Pigeons 9-11m, 32-33m/w doubtful 55 9-34w (not CD) 56 8m, 10-15m/12w (a) wb (a) Will occupy old trees when house destroyed 61 30-34m 62 23c/wæ 86 13-20w some she pigeons prefer stranger to own husbands 158 5m/wt/1-13w This seems to imply like coloured Pigeons prefer each other. 159 wb same coloured Pigeons pair most readily 160 22m 161 wt (a) difference is reciprocal cross of Pouter & common Pigeon 11-12w Hybrids bigger 12-19m/15w (a) 21-24w male gives form the female instinct 24m 162 17-32w Rules of results in crossing colours 164 5w cry back 227 4-34w/wb (not CD) 244 8-16w (not CD) 245 1-2m/w a popular error 246 wt (not CD) 3-6w Whitish yellow skin over nose 11-19w (not CD), 21-26w V. Dixon.- 24-26m/24u "Campana" 247 5w Foilback 15-16w Sea swallow Turkish 248 5-12w Tumblers turn on ground with Crop inflated 13-17m/w (not CD), ↑13u "Paggedetten"/w Horsemen ↑13w Carrier 249 3-8m/w Powting Horsemen wb (not CD) 250 ↓w (not CD) 251 ↓w/wb (not CD)

RIEDEL, Wilhelm *Die vorzüglichst bekannten Feinde der Tauben* Ulm; F. Ebner; 1824 [CUL, pre-B]

NB O/
ø

RILEY, Charles Valentine *Annual reports on the noxious, beneficial and other insects in the State of Missouri* Jefferson City; Horace Wilcox; 1871-77 [CUL]

beh, ds, em, fg, gd, h, ig, mg, mm, no, oo, or, r, rd, sl, ss, sx, ta, tm, v

no. 3 (1871) NB 14 Stridulating insects; 46; 52; 67 Transitions; 92; 97; 101; 127; 131; 139; 141; 148 Descent; 156; 164 ✓/ø; 168 Origin

SB1 □✕ → (not CD)

Riley on noxious insects

156 Autumnal broods alone of a certain caterpillar having a peculiar instinct of forming house, so that it is developed in alternate generations

SB2 (as SB1)

Riley Noxious Insects of Missouri

46 Pea Weevil one of the few injurious insects endemic in Europe ♦ America & introduced into Europe.

52 Sudden spreading of *Bruchus fabae* (i.e. *fabae*)

RILEY, MISSOURI INSECTS

67 Larvae of a ♦ same moth of 2 distinct colours & respectively attached to corresponding objects. Means of sudden transition

92 & 139 Native insect which has lately acquired an appetite for cultivated apples, but only in certain districts, so considers it a newly formed race with new habits.

97 Rapid spreading of potato-beetle.

100 Increase of its natural enemies; certain vars. of potatoes more exempt than others

127 Phytophagous races.

131 Same insects forming cocoon above or below ground & varying in being single or double brooded

⇒ (CD) Very good essay on Mimicry

14 48-50m 33 40-44m 35 12-17m 46 27-35m
52 16-20m 67 6-15m, 17-25m 92 3-12m, 17-20m 97 3-6m, 8-21m, 39-45m 100 19-23m 101 24-28m, 38-41m 127 38-45m 131 4-8m, 40-42m 139 7-11m 141 20-24m 148 43-47m 149 14-16m 156 27-36m 157 17-27m 163 21u▲, 26-32m, 37-42m, wb Archippus has bad ●
164 21-25m 168 wt/1-13w Grt destruction of the grey makes the preservation of the Old Type important 15-19m, 22-25m, 33-37m

no. 4 (1872) NB p10; 11; 16; 23; 35; 58; 63; 66; 74; 85; 119; 123

SB □R ♦

10 On new colonists at first most injurious

16 Enemies increase & acquire new habits

11 change of Habits in introduced insects

23 local var. of moth of caterpillar attacking peaches.

35 Migration of an American insect

58 Aphis, two distinct types of Habits though forming same sp. → to p.66

74 Silk-moth the caterpillars of distinct sp. quite alike at first

10 6-13m 11 2-4m, 7-12m 16 29-33m, 41-43m
23 1-3m 35 7-13m, 21-24m 58 wt leaf-galls & roots-galls 1-4m 63 10u "No leaf-galls", 11u "Leaf|abundant", 26-27u "No|lice", 29u↔, 32-34u↔, 43-45m, 46m 64 1-3m, 24-26m 65 3-5m, 46m 66 25-31m 74 7-15m 85 15-27m, 33-34m, 38-42m, 43m 86 5-7m, 20-22m 119 25-29m 123 13-18m

no. 5 (1873) NB 63 Change of Nature; 66 Phylloxera; 83 Mistaken Instinct; 86 ♦ ↗
Transportation of Pollen of Coniferae Q

● 87 Scale insects of Vars. of apples

150 The moths which fertilised Yucca for crossing

Nothing for the Descent of M.

SB ♀ 63 Phylloxera. Change of instincts

83 Mistakes in instincts in Scale-louse

150 The Moth which fertilizes the Yucca

63 17-24m 64 13-18m 66 39-43m/40u "as|most"/42-43u "Some|here" 83 25-33m 86 36-40m 87 1-4m/Q 7-13m/Q

no. 6 (1874) NB 115 Sexual Selection in Curculio; 131; Pronuba Moth, Yucca 114 33-38m (Wallace) 115 4-20m

no. 7 (1875) NB 20; ♀ On Hemiptera with perfect wings & more or less wingless - copulate together & continues inhabit distinct regions, the wingless generally to the north.- 20 31-40m 21 1-6m

no. 8 (1876) NB1 103 Grasshoppers drifted far down Mississippi clinging to logs

106- take advantage of wind & often travel 100 miles per hour-

122 very curious changes of vegetation owing to Locusts destroying certain kinds; & the change in vegetation caused proportion of insects to change

NB2 ♦ 103; 106; 122

103 12-17m 106 16-21m 122 wt because the l plant not eaten 1-7m, 14-18m, 22-27m 123 12-14m, 14-17m, 18-23m, 31-39m

no. 9 (1877) NB 18; 17♂ Indigenous insects how learn to prey on endemic; 20 Rudiment; 24; 37 Rate at which potato bug travelling; 40; 52 new Habit in insects attacking Wheat 57

8 28-35m 17 3-8m 20 fig.m 21 6-16m 24 14-18m 37 8-14m/9u "average|bribes" 40 13-27m 52 3-7m 57 8-12m

RILEY, Charles Valentine *The cotton worm* Washington; Government printing office; 1880 [Down]

mg

NB 23 wide migration of moths; 34 ants

15 20-24m/21u 23 22-30m, 32-34m, 35-44m
34 1-10m, 17-24m/23u, 24-28m

RILEY, Charles Valentine *The locust plague in the United States* Chicago; Rand, McNally & Co.; 1877 [Down]

RILEY, James *Loss of the American brig Commerce ... with an account of Timbuctoo* London; John Murray; 1817 [Down, S C. Darwin Feb. 13th 1826] ♂

RITCHIE, Archibald Tucker *The creation. The earth's formation on dynamical principles* 5th edn; London; Daldy, Isbister & Co.; 1874 [Down, I] ♂

ROBINET, Stephane Manuel *de l'éducateur de vers à soie* Paris; Dusacq; 1848 [CUL] beh, sx, v

NB p267 female cocoons heavier – (separation of Sexes) probabilities

p.275 I suppose Males were tested again – ley eggs immediately

4 9–11m 5 26–29m, 30m 7 16m/u↔ 8 16–20m, 29–30m 12 1–6m, 10–16m, 17–20m 13 17–24m 15 7–11m 26 2–6m/2w mistake 30 25–26m/m 31 1–3m/1–2m 37 24–29m 266 20–26m 267 1–3m, 20–21m 269 19–20m 271 16m, 22–24m, 25–27m 272 7–9m, 26–29m 273 2–4m 303 16–18m 304 4–8m 306 21–23m, 24m 307 11–12m 308 28–29m/28u "vers" 309 2–3m, 14–17m 310 1–3m/2u "teinte verdâtre", 15–17m 311 1–2m 312 9–12m 313 9–10m 314 13–14m 315 6–7m 316 5–7m, 23–24m/23u "Les|deviennent" 317 20–22m, 22–25m, 26–27m 318 16–20m

ROLLE, Friedrich *Darwins Lehre*

cc, ex, gd, oo, spo, v, wd

66 31–36m/w crocodiles of Egypt 76 1–6m/w variation of forest trees 14–20m/w rich soil produces variation 78 4–9m/w wild sport 84 6–9m/w Tacitus says Germans ate wild apples 85 1–4m/w Perhaps but O cultivated of Crab cider? 1–4w parents 33–34m 87 10–22m/10–12w acclimation 107 5–6m/w Properties of sexes attended 177 5–7m/w Rutimeyer says not known 15–18m/w 1st record 26–30m/w treating Common Rat 31–35m/w kill each other 179 3–6m, 15u "Deutschland", 19–20m/w 180 14–15m/w Mice earlier 182 3u "grossen", 6–10m, 10–15m, 13–15m/w are the larger beasts of ● destroyed?

ROLLESTON, George *Forms of animal life*

Oxford; Clarendon Press; 1870 [CUL, I]

ad, af, fg, gd, geo, in, no, sp, sy, t, tm

NB1 (w by FD)

◆ p136, 152

NB2 XXI Sp Theory

XXXII La

–VIII Generative Organs

XXXV Reproductive organ

LI Sp Theory

LXVII Affinities of Fishes to Dipnoi & Ganoids

LXXX CV◆ Classification of Fishes

Sp. Theory

XXI ◆ Ascidiens C.I

LI; C.V. Spe Theory; CX CXXV CXXVI

SB ↔

pXXI Von Baer paucity of individuals & species & confined area go together

pLI Dental papillae with caps of dentine observed in Parrots

p.C.V. On important organs multiplied in Annulosa, but not in Arthropoda

p.CX Transition between aerial & aquatic respiration.

⇒ Rolleston

xxi 1–5m, 33–36m (Wyville Thomson) xxxii ↑2–1m xxxv 13–27m xxxviii 4–6m li 34–36m lxxv 27–29m lxxvii ↑12–7m lxxviii 7–11m, 11–14m lxxiv 39–40m lxxv 15–17m, 30–37m lxxx 21–24m, 24–27m, ↑8u "Ganoidei|type" lxxxi 5–8m/w La, 11–15m, 24–26m lxxxiv 6–13m, 20–22m ci 13–14u "distinctive|Vertebrata" cv 3–6m/w I suppose multiplied inversions in Vermes cx 19–30m cxxv 20–24m/21–28w these might seem O at every point cxxvi 11–32m cxlvii 1–2m facing Pl. 10 w (barometer readings)

ROLPH, W.H. *Biologische Probleme, zugleich als Versuch einer rationellen Ethik* Leipzig; Wilhelm Engelmann; 1882 [Down, I] ∅

[ROMANES, G.J.] "Physicus" *A candid examination of theism* London; Trübner & Co.; 1878 [CUL]

⟨markings presumed to be by FD⟩

ROMANES, George John and EWART, James Cossar *Observations of the locomotor system of Echinodermata* (extract from Phil. Trans. Roy. Soc.); 1881 [Down, I]

ROSENBUSCH, Carl Harry Ferdinand *Mikroskopische Physiographie der massigen Gesteine* Stuttgart; 1877 [Down] ∅

ROSS, James *The graft theory of disease, being an application of Mr Darwin's hypothesis of pangenesis to the explanation of the phenomena of the zymotic diseases* London; J. & A. Churchill; 1872 [CUL, I]

beh, ch, ct, em, fg, he, or, pat, phy, r, sp, t

NB Pangenesis; p40

quotes Hippocrates on Pangenesis – 42 48 description of growth of cells –53

113; 114; 241; 247 249 252 Beauty; 262; 267

conclusively inquires on origin of contagious Diseases – 269 272

40 1–11m, wt/1–11w This bears on pangenesis i.e. not gemmules in blood 42 1–3m, 29–30m 48 16–23m 53 18–23w but the skin on sole of foot is inherited 54 25–30m 55 18–26m 58 25–30m 59 3–20m/9–11? 112 16–18m, 21–24u↔, 25–28m 113 4–6m, 9u

ROSS

"circulation"/8-11m/w this is against me 114 26-30m/w I look at quantity *wb* ♦ No Nature must be different *wb* The prepotency of foreign pollen depends on general vigour for a change 224 *wt* development may be said to result from the fecundation of tissue by gemmules from older tissues 1-3m 241 30m (Adam Smith) 247 3-9m/w The delicate kind of Beauty 249 16-21m 252 2-13m (Burke, Dugald Stewart) 261 14-22m (Wallace) 267 12-20m 268 8-28m 269 15-20m 272 8-19m

ROSSI, Darius C. *Le Darwinisme et les générations spontanées* Paris; C. Reinwald; 1870 [Down]

NB O/

ROUX, Wilhelm *Der Kampf der Theile im Organismus* Leipzig; Wilhelm Engelmann; 1881 [CUL, I, FD]

14 22m 65 21m 71 11m 81 23m 94 16m 100 5m 121 31m 127 9m 134 5m 141 13m 149 28m 154 11m 171 11m 218 19m 224 19m

Royal Commission Report on the practice of subjecting live animals to experiments for scientific purposes London; HMSO; 1876 [CUL]

NB ♦

p.30; 74; 166; 172; 200

iii "Colam..77"m x "4672"- "4667"m/ ["..."] "1188"- "1543"m/["..."] xii "1442"m xv "1018"- "2242"m xvi "1867"- "1874"m xvii "5627"m, 21a "knowledge"/w, "4934"- "5037"m, 112m 78b "1538/1541/1543/1546/1548"m 166b 112-1m 167a "3163"- "3178"m 169a "3218"m 172b "3298"m 176a "3383"m 279a "5583"m 282a "5627"m 335a "Innervation".m

ROYAL SOCIETY *Catalogue of scientific papers, 1867-79* vols 1-8; London; Eyre & Spottiswoode [Botany School]

vol. 2, 142.b 22m (Dana) 153.b 36w General work 154 *wt* Lythrum Illustration Essay ♦ 655.b 57m (Forbes) 656.a 53m (Forbes)

vol. 3, 482.a 59m (Huxley) 483.a 53m (Huxley) 483.b 57m (Huxley) 687.b 10m, 24m (Knight), 42m, 45m (Knight) 688.a 33m (Knight), 39m, 43m 688.b 11m

vol. 6, 247 *wt* A narrative of travel on the Amazon 1853 *wt* 7 papers 1850-53 247.b "8".m, "11".m, "12".w large number of papers put here 248.b 18m, 27m, *wb* 55 papers up to 1863

vol. 7, 140.b 13m (Bentham) 744.a 26m (Gaudry) 1046 5m (Hyatt)

ROYER, Clémence *Origine de l'homme et des sociétés* Paris; Guillaumin-Masson; 1870 [CUL]

beh

NB ♦ 67; 84; 89; 328; 337 good; 339; 121 good note ♦ on growth

67 6-10m/6w courage 84 2-6m 89 15-20m/w No quite different 121 23-26m (Gratiolet, Huxley)/26u "atropié", *wb* some monkeys here becoming extra arboreal if so hand degraded Hence degraded in some of the swinging monkeys 111 → 122 3-8m (Huxley) 328 6-15m 337 at p.337 *wt* never defend each other only good, perceiving danger (Rabbit social & silent) C.D. 339 14-18m/w Birds pair & yet are social

RUDOLPHI, Carl Asmund *Beyträge zur Anthropologie und allgemeinen Naturgeschichte* Berlin; Haude & Speuer; 1812 [CUL]

NB (on p.188)

40 ♦; 58,72,78 (he means 73) Felis Manul origin of Angora; Pallas Books

115 to 137 to 167; 184; 186

SB ☐

Rudolphi

115 does not believe after careful looking that seeds ever stick to birds feathers, as Willdenow accounted for water-plants, 139 Bring case of F.W. Fish, difficulty in diffusion

139 Linnaeus asserts that the Pike is disseminated by Birds

♦ 143 Rudolphi argues f

155 Rudolphi was greatly misled by little knowledge of antiquity of world in present state

161 cases of Hybrid Fish

163 - Zebras (only references), no one good case for me

163 - Rabbit

165 - Hellenius case Q

184 on the Hen of ♣ Vidua(?) with long tail disowns cock when robbed of it (very good) 186 Beautiful male butterflies more difficult.

40 8-11m (Pallas) 58 14u ♣, 15-17m/15u "stamme lab" 72 26u "Petrop. 1780", 31-32m (Pallas)/wb I have, I think, read 73 3-4m/w supposed parent of Angora Cat 78 16-18m 81 2w not read 115 13-16w Bird & beasts can do but little in spreading plants 20-26w still less sticking to feathers of Water Birds,

for feathers oily.- 116 1-6m/w Has looked to many Water Birds & fd. no seeds. Stomachs of migratory he has always fd. empty.- 21u "Wassergewächse"/18-30w He thus accounts by water-birds for wide distribution of water plants - by sticking to feathers & in dung 119 22m 120 9-12m/w When salt, sea-side Plants occur 124 14-20w wind cannot transport from mountain to mountain 127 4-6m/w when cold 129 5-9m/w 1812 137 10-12m/8-18w When wingless insects fd. in 2 parts of world proof of distinct Origin 139 wt/1-3m/w (Remember Water-spouts) So before Agassiz - Fish speak strongly that they have been created at many points, as same Fish in distinct rivers - 7m/u "Fischen | Wassers"/w (Remember Löss) 11-12w Rivers of Scotland. 14-20w Alps; But if all under sea, it requires more means of transportat. 22-24m/w Glacial case makes of Fish much more difficult 25-26u↔, 26-27u "ab | seritur", 28u "Th | 1391"/w My Edit - 35-36m, wb Take North of Gt Britain alone all under water, except Peaks perhaps, & then wd not have Fish.- But then since united to Mainland, as shown by land-animals.- 142 22-27m/w if only pair created then carnivores wd have destroyed the herbivores & c 143 19-22m/19-29w When S.B. found on Alps & Mtain of Asia what right to suppose came from one to other 154 wb How completely all this is Nott & Gliddons work in Abstract - fortified by the Aegyptian work 155 wt All that I shd expect wd be that Negros raised in U. States wd be more variable in slight degree in colour & other respects.- 6u "Anfang"/6-11w there shd be at least the beginning of variation in Negros & c in U. States 13-14u "nicht | ist"/13-18w as we know the world not so old in present state!! 156 26-28m/17-32w Mem Races have been driven from place to place, confounding effects of conditions & so with animals. 159 5-7m/w how like Agassiz & c 10-11u "alle | bleiben", 21-26m/19-29w species or no according as one looks to variability of limits 161 4-11m/6w Hybrid Fish 32-33m/w Hybrid Canary 162 1-7m/1u "Citronenzeisig"/w Siskin 5-6w Bechstein fruit Bronn- Have 163 3-4m/3-8w Donkey painted like Zebra before it was permitted to cover the Donkey 23-24m (Hartmann)/23-26w This Book I have seen referred to 25m/w Hybrid Zebra 164 6-8m/7u "äthiopischen | gemeinen"/Q 10-12m, 14-16m, 38u "Auszuge"/w abstract 165 3u "Rehkuh"/2-7w Sardinian Roe-Cow was this not probably a Mouflon?? 13-17m/w case os Seals old observer offspring not described 166 zt, 22-23u "Meerschweinchen"/w vars of

Guinea Pigs true 167 wt albino 2a "Kakerlaken" albino 2a "Kaninchen" rabbits 180 14-16m/u↔/w female elephants & Rein-deer 181 24-26m 182 29-31m/u "bey | mehr"/w I suppose confined to male 183 13m, 18-19u "der | hindert"/w checks flight 21-22u "Dann | fliegen", 26u "fesseln", 30-32m/w Polygamous 184 2-5m/2-10w The female does not recognise the "Anmer" without tail when robbed of tail - 4u/wt, 20-27w What cause of beauty of snakes? 30u "fand | zwey" 185 wt Lizard or Newt 1u/wtt, 5u↔, 8u↔, 9-12m, 19-21w Salmon Hook male fish different 20-23m 186 7u "Leuchtkäfern", 9-13m/w female shells 15-19w male butterflies most beautiful 187 1-9w female Bees sting 20-22m/22u↔/w spiders 188 10-15m/w generally no differences in flowers in dioicous flowers 17-19m, 20-24w Exceptions of Male flowers authority Ask Hooker

RÜTIMEYER, Ludwig *Beiträge zur Kenntnis der fossilen Pferde* Basel; Schweighauser; 1863 [CUL, I]

gd, geo, sp, tm, v

NB Milk teeth; 38 Sp. Theory; 57; 79; 136 Sp. Th

38 20u "so | dieser"/21-22u "Moschusarten"/24u "Anoplotheriumart"/26-27u↔/15-31w milk teeth of Moschus like 2d teeth of Anoplotherium 57 19-21m, 28-32m 79 1-14m, 15-20m, 23-30m 126 12-17m 131 5-6m/w Slight difference in teeth 6m, 8-9m, 12-17w does not know whether present Horse of same district like the ancient one of Lake ●, 23-25m/u±/w great differences in other respects 26m 132 1-2u "Celtisch bezeichneten"/1-4w In Horses of bronze & Celtic periods 5-7m/7u "Bronzezeit", 24m, 32-33m, wb E. fossilis distinct from E. caballus which is the living Horse 133 4-7m/w one Horse; probably not endemic, but imported from several places & times 11u↔, 12-14u "Equus | Varietät"/w fossil Horses in S. Russia 22-24w but not same as true E. fossilis 134 3-4?, 8-12w In Switzerland few remains belong to E. fossilis 135 26-28m/28u "Diluvium" 136 14-18m/w E. plicidens doubtful

RÜTIMEYER, Ludwig *Die Fauna der Pfahlbauten der Schweiz* Basel; Schweighauser; 1861 [CUL]

br, ds, e, f, gd, geo, ig, mg, sp, tm, v, wd

NB p30 Wild Boar formerly larger than now Changes in Foxes, Weasels & c & c

RÜTIMEYER, SCHWEIZ

SB1 Variation of Nature; Spec very good
Look through volume

SB2 □β

♦ 75 Friesland ox nearest to B P

Cattle ☞ Rutimeyer

130 cows bones proof of old domestication

133 teeth present certain difference from our present cows

134. People of Stone period possessed race of cows of different sizes

– Turf cow oldest race short body & fine legs & feet like Zebu ✓☞

– 136 & very large races

137 Trochoceros race fd only in 1 locality

140 domesticated – 148 doubtful sp.

140 Primigenius races found everywhere, of slightly variable size, & agreeing closely with wild type mixed races

143 Brachyceros Brachyceros race or longiform p148 very distinct ✓☞ – small race – B. frontosus very close to it – This agrees closely with Turf cow of which is so common in oldest buildings

145. B. frontosus of Owen race now living in Switzerland, did not exist during Stone period.–

145 from moment of taming wild allied races, then stability is lost & hence he calls them races – B. taurus for commonest races – Bos. primigenius &c for species.

148 Simmenthal race now in Switzerland belong to frontosus-races

201 Oldenburg Holland Friesland race. = Primigenius

205 Brachyceros-race fd in Switzerland ✓☞

207 frontosus-race – thinks, possibly the Norwegian race descended from it not fd in Stone period – but living in Switzerland

211 Canton of Freiburg cattle belong to this race

The great part in all these fd fossil & domesticated

214 Brachyceros race no white, different shades of – dark-colours with lighter stripe along back ✓☞

215 Frontosus race red or black – ♣ or some patched with white

216 for M. & W. Europe – Brachyceros race East & South

♦☞ 221 B. trochoceros – formerly domesticated, but does not recognise as parent of any country race – so may be passed over–

SB3 □β ☞

Rutimeyer Pfahlb Pigs☞

27. S. crofa & S. scrofa palustris – latter wild & domesticated

30 wild swine formerly bigger otherwise

identical

42 Summary on difference of teeth of Turf swine

52. X☞ Stone turf swine as wild species. 53 X☞ nearest to Siam

120, 121 on domestication of Turf swine & common swine

163 Turf swine domesticated towards end of Stone period X☞

167 – a still smaller race at a later period

168 a Roman race with different teeth

171 Races of 6th century

181, 184, 186 Bundtnerschwein – Turf-races

188 all tame swine have different back head

190 Turf & Indian swine closely allied X☞

SA (pp. 102–3) □β ☞

Rutimeyer

Cats. 23,28♦☞ Swine p.27 & 120, 160, 168, 171, 175, 176

Cattle p.71 to 112 – 130 to 149 p.161, 172, 200 to 223, 235

Dog 117, 119, 162, 170, 238

Horse 122, 164

Goat 127

Sheep 128–191

Swine continued 181

Hens 231 about

15 wt character of Bones different in wild & Tame animals. 1–5m, 4w/5wt, 16–17m/16u

"Ur und Bison" 16 8–15w urges effect of domestication on the Bones 11–17m, 21–28w

Recent skeleton of wild swine darker than tame 22 25–30w Fox not so large as wild

certainly same species 23 28–31m 25 7–12w

Beaver of greater size apparently teeth modified 7u "ausser", 8u/wt 27 5w excluding

sub genera 8w only 3 known species 13w

Fitzinger rubbish 23w House-swine few remains 24–30u±, 26–33w the common swine

is a race, now extinct, which he calls Turf swine existed with the wild swine – 27–28m

28 1–7w Turf swine also domesticated – People would call this a species. 29 11–13w

Bones of wild & tame swine break differently 30 19–28w The wild swine of old period

bigger than recent, otherwise identical.– 33 2u "Das Torfschwein", 9–11m/w From reasons

given does not consider distinct species. 42 6–18m/w summary of differences of teeth of

Turf swine 49 22–23m☞ 52 ☞ 32–34m/32u↔

53 ☞ 1–5m, 1–8w Later Turf-swine was domesticated & traces yet remain in our

Breeds.– now extinct in wild state 23–29w comes nearest in short face to Siam swine,

which is not known wild 55 21u "erlischt"/17–22w☞ Turf-swine has some characters of

Miocene Suidae 57 ☞ 6–8w identical with

recent 13w Horns variable 18-21w differences do not bespeak new race 58 ⑥ 7-9m, 8-14w great weight of Horns in old animals causes slight differences in back of skulls 20-22w great size of skeleton 60 23-24u ⑥ "um|übertrauf" 61 1w ⑥ no change 70 20-30w ⑥ Musk & Bison both lived during Stone Period.- over all Switzerland.- 72 ⑥ 6-9m/w cattle descendants of Urochs 75 ⑥ 14-15w Friesland Ox nearest to Urus 84 ⑥ 3u "Der|Zebu"/3-8w | see many references to differences in various Bones 85 15u ⑥ "Zebu|Taurus" 98 ⑥ 2-3m/2u "Genus|Mitte" 101 ⑥ 8-11m/9-11u± 109 ⑥ 4a "Auerochs"/wt Bison 3-4u "gemeine|Auerochs"/w B. primigenius 6u "Urochs|Ochs"/8u "doch|constant", 6-8m/w points of anatomical agreement 13u "auch|Ausnahmen" 111 12m ⑥ 112 13-19m/w What a History of changes 117 ⑥ 28u "kleinsten|Race"/25-28w Stone Period one very constant race of Dogs. 118 ⑥ 23-24m/23u "welche|Grösse" 119 ⑥ 2u "Wachtelhund"/2-4w quail-Dog setter-Spaniel agrees with this 10-12m/w agrees in these respects with Hunting dog - 21u/a "Jagd|Wachtelhund"/19-25w both remote in equal degree from Wolf & Jackall; & agree with the oldest known domestic dog.- 120 ⑥ 6u "Wangen"/6-8w no tame swine here 9u "Moosseedorf", 29-33m/w in these later buildings the Turf-swine was domesticated 121 1u "Schwächung|derselben", 5-7w good arguments that turf-swine was domesticated 18u "gewöhnliche Wildschwein"/w not then domesticated. 25-28w in these the wild swine were domesticated & which agree with present swine 122 13-15w very rare, though present in all 27-33w common in newer Buildings; large & small Big & Small Horse *wb* as they kept so many domestic animals, probably many domesticated.- 127 12-15w Goats identical with present Swiss goats 19u "ältern Pfahlbauten", 19-21w Goat commoner than sheep in older Buildings 128 *wt* Goat has not altered since the old period. 129 14a/u "Solche|Ziegenhörnen"/m/w wild horses like those of Stone-period. now in Orcades, Wales.- 15-18u±, 22u↔, 26u "Schaf|war"/24-27w very small sheep with thin & rather high legs. 130 29-33m/w cows bones show marks of long domestication. 133 24-28m/w some teeth like those of present kinds, some different.- 134 12-16m/w differently sized Races.- 18-20w Different Breeds at all seasons localities 23-30w The commonest races, especially in oldest buildings (but these not exclusive) is the Turf-cow.- This had short body & very fine legs & feet. like

Zebu.- 135 1-3m/w Zebu very unlike our cattle in proportions 30u "Concise"/w has the turf cow & a race larger than largest present race. 136 2-6w Robenhausen besides Turf cow race as large as one between largest race & Urus.- 12-14m, 23-25u↔/m 137 9-11m, 16u "welche|engster"/17u "aufgestellte|Species"/15-18w only found in one ♣ locality 140 4-8m/1-8w Trochoceros shown to have been domesticated by variability of size of Bones 14-15w♦, 18-24w Trochoceros is a very large-horned race.- 24-27m, 28-33w Former domestic race confined to W. Switzerland. This present race found everywhere, of variable size & agreeing with wild B. primigenius. 141 20-22m/21-22u↔ 142 21-23m/w size does not vary greatly 143 1a "Concise"/1-3w skulls certainly of mixed races between these two 4w or longiform "mit|Rhinoceros", 8u "Torfmooren|Megaceros", 9u "römischen Antiquitäten", 26-30w B. frontosus comes very close to B. longiformis.- 26u↔, 28u "kleinhörnige|auf", 31u↔ 144 2u "ab|Torfkuh"/1-8w The foregoing agree with Turf cows which is so common especially in oldest Buildings.- rarer in the more modern- 145 15-20w The above 3 Races alone found- A common living "frontosus" race now in Swiss, is not found. 18-20m, 25-29w From the moment of taming allied wild species, their stability as species is lost - Hence he calls them races. 29-31m/w a 31-32u↔, *wb* (a) The right of giving the descendant of distinct species under name of Bos taurus is not so difficult, as the separating the wild parents.- *wb* What a proof of fertility of distinct species.- If not good species what variation in a state of nature.- 146 *wt* the races, Bos primigenius, trochoceros & c for wild Taurus primigenius, trochoceros & c for tame 1u/wτ, 18u "Owen"/w Nilsson 19-20m/u "Bos|indicus"/w 3 other parents of our tame oxens 32-34m (*Cuvier*), *wb* Cuvier thinks primigenius one of parent races 147 9m, 11-12u↔, 13-17w Yet some difference between these & tame Oxen of present day. 29-31m/w differences perhaps due to crossing 148 1-3w more doubts about specific differences of B. trochoceros 9w or longiform 11-14w This form very distinct from the 2 others 149 1-6w Zebu more distant from B. primigenius & others, than any of these from each other. 15-18m/w difference in no incisors in such as he has seen - Does not Blyth speak about differences at birth? 17u "Verminderung|Incisiven", 21-22u↔, 31-33m/w/*wb* quite immaterial in bump of fat - appears in Argali & Rein Deer

RÜTIMEYER, SCHWEIZ

in winter.- 156 22-25w Extinction & rarity of some species. 157 wt who could have ever expected so much change??- 1-2m, 3-8w Changes in wild anims gigantic size of - perhaps differs in Horns of the(1) - small size of Foxes - the sharper teeth ♣ of some of the Carnivora 25-27w Abbeville 2 races of cows of different sizes 159 15u "Verschiedenheit"/11-19w Morlot's Bones from Railway cutting, are like present races & very different from Pfahlbauten - & of variable size, whereas constant in the Pfahlbauten -. 161 17u "Brachyceros"/w or longiform 18-28w Turf cow almost exclusive in oldest buildings.- In later supplanted by large primigenius races. & in one region the other larger B. trochoceros.- wb (The whole importance of case depends on the 3 forms being found fossil & not domestic. C.D.) 162 1u "einer|zahmen", 2-3u "Concise|Rindvieh", 5-7w native Concise only tame beasts were Turf-cow & one small dog. 7wt 10-15w Dogs do not change, whilst cattle do 163 1-3m/w In Morges, dog larger 9-11w Turf-swine domesticated towards end of Stone period. 20m 164 10m/9-13w The Horse of Morges belonged to very small Breed 167 4-6m/4-17w a still smaller race of swine than the Turf-swine.- in a rather recent Building, this Breed a strong Breed - so diversity in the lost race of Turf-swine 168 23-31w or Roman - this race of Pigs like little turf race, but with stronger marks of domestication, & change in Molar 3 170 5-7w In 563 different Dog from Stone Period 171 2m, 3-9w in 6th century Swine large race & above mentioned smaller domestic Turf-races with difference in teeth. 26-31w The shortening of row of teeth.- Here comes question whether race really same as Turf swine 31-32u "äusserst | 3" 172 21-27w a very small race of cows of rather recent date 175 25-30m/w Does not doubt that long-raced common swine descended from S. ferus 176 4-10w Turf swine - wild seems to come nearest to Siamese swine.- 179 10-11m 181 wt He has before remarked that all the Eastern, Chinese, Siamese are pretty closely the same 9-11m/w Berkshire & Chinese Swine skulls closely alike 17-23w a small peculiar Swiss race somewhat allied to Berkshire. 184 16-22w Turf swine differs greatly from Berkshire but with some exceptions comes near the small Swiss Race p.181 186 7x, 7-19w Berkshire reverse in Teeth of Turf-swine 20u "Bündtnerschwein", 23-28w This Breed near to Turf swine, like common swine to the wild Swine 29-30u↔ 187 15-19w Berkshire

perhaps related to S. Celebensis 23-24w Berkshire a crossed Breed 188 5-8m/w certain of back of Head common to all wild Swine 10-12m/11-15w all tame swine have a ♣ different back Head - 13u "sondern| betrachten", 16u↔, 25w Summary 26-27u↔, 32u↔ 189 3-4u↔, 8-9u "das|Formen", 16-19m/w not improbable that Turf-swine related to short-faced Breed. 25-29w Turf-swine in wild state assuredly not confined to Swiss. 190 8-13w He widely thinks Turf-swine & Indian swine closely allied.- wb The great point is that a distinct wild species or variety, ♣ has been domesticated - (probably more). Whether the Turf-Schwein be called a race or species is unimportant - it differs osteologically 191 17m, 19-21w Stone sheep different from present common races 192 20-21m/21u↔ 193 3a "Wildschafes"/wt Wild forms not enough known.- 1-5w Thinks many parent-forms probably.- 6-9m/w The only known fossil sp. differs from the known wild 19-20m/w Not one to him known race of sheep agrees with that of Stone Period 195 1u "den|Nalpsthales"/1-8w Here a race of Sheep like those of Wales & agrees with Stone Race (I do not think this race wild.) 201 16-20w He misses in Stone period one existing race; & amongst the existing there is one not found in Stone period.- 21u "Friesland|Holland", 22-27w These races agree with the Primigenius race of Stone Period closely in skulls. 205 1w This is the same as fossil ♠ longiformis of Owen 207 21-22w Found in Turf in Scandinavia 23-24u↔ 208 5-7m (Nilsson)/6u "Ausser|dieser", 11-13m/11-22w thinks that some Norwegian cattle may be descendants not found fossil in Switzerland in Stone Period but domestic races belong to it in Switzerland. 211 18m, 20u "Freiburg"/19-22w These cattle belong to frontosus race * wb * The great point is that 3 or 4 species or forms of cattle have been found fossil, & clearly allied domestic groupd are found at the present day.- 212 12-14m/11-16w apparently a crossed race with that of Brachyceros 214 21-28w agriculturalists make 2 chief Swiss races, which are geographically separated 30-33w/wb all dark coloured - a lighter stripe along Back - This agrees with Brachyceros Race (ie longiform) see next Page 215 12w a Southern Breed 21-22u "roth|gefleckt"/21-25w patchy colours This is Frontosus race 216 6-7w a Northern Race 19-21w This present at oldest period 20u "Brachyceros", 21u "Frontosus", 22w this is a later importation 32u "nördliche|zweite"/wb ie frontosus 218 1m, 7-8u "romanische|

Vieh"/w with great Horns 8u "folgenden | rechnen", 27-32w 4 Wild Races primigenius frontosus longiform or Brachy & trochoceros 220 18u "Simmenthal | wahrscheinlich", 19-20u ↔ 221 1a "brachyceros"/wt Norwegian wt longiform 8-9m, 14-15m/14u "bracycheros"/15w longiformis 16w Final result 17-21u ±/w longiformis 20-21u ±, 22-26w as this found in oldest Buildings, probably endemic in Switzerland, not so B. frontosus 22u "Bos", 27-28u ↔/28-32w This formerly domesticated; but he does not recognise it in any living race.- 222 8u "podolische | romaische"/8-10w origin doubtful perhaps from 10u "Bos primigenius", 11u "trochoceros"/w or 14-19m/15-17w Indian ox distinct 223 11-14m/13u "Mischform | ansehe" 225 15-16u ↔/13-16w Robenhausen true old Stone period Q₄, 23u/wt 24u "Roggen | Hafer"/w none 226 4-5u ↔, 9u "Fruchtkappeln", 10-12u "kleinere | Klappen", 14-15w more like this 17-21m/17-19u ↔, 29-30u ↔/w apples 33u "14mm"/34u "22 Millim" 227 1-3m/3u "oder | Robenhausen" 228 6-8m/6u "Vorkommen | Scop."/7u "fehlt | ganz", 9a "findet" now this is found 9u "ist | L.", 14-20w Hooker disputes that they can be distinguished 22-24w The P. mughus now in Mountains 25-27m/w case like as in Ireland turf-bogs 31-32m, 33-34m, wb These plants now only in mountain-lakes 229 3-4m (Kölliker)/w this plant now very rare 6-7m/w formerly very common in turf-waters 9-15w Altogether flora of old & present times nearly the same; so different from Denmark 23-26w yet some traces of vegetation changes in Swiss 230 10-14m/w Except for Bones of Buildings did not know of these 3 animals 21-23u ↔ 231 8-11m/9w changes in animals 13-15m/13w no mice or rats 19w no cats or Hens 23-24u "Hausthieren | Hund", 25-27m/w two races of cows 30w next come Pigs 232 3u "concise"/wt more modern 5-12w The large House swine from wild swine seem to have suppressed the small previous Turf swine. 16-18w After Concise new domestic beasts appear 17u "grosses Hund", 19u ↔ 233 wt since then wild & tame are near 1u "6. Jahrhundert", 7-10w not much change in domestic animals during the whole immense period 11-15m, 11-23u ±, 21-23m 235 20-28w Frontosus race ♣ is absent in older periods - The longiform has endured. The old primigenius race has disappeared; apparently remained until 10th or 12th century. 237 wt oldest period 1-3u ↔/w 2 races of cows 5-6u ↔, 8m, 14-15u ↔, 15a "dieser" those 238 1m, 21u "Torfhundes | Pferdes", 22-24m, 22-27w These probably

from the East for not known fossil in Europe 27-28u ↔ 239 10-14w B. frontosus race seems to have travelled from the North.-

RÜTIMEYER, Ludwig *Die Grenzen der Thierwelt* Basel; Schweigerhaus (Hugo Richter); 1868 [CUL, I]

RÜTIMEYER, Ludwig *Die Rinder der Tertiär-Epoche* part 2; Zürich; Zürcher & Furrer; 1878 [Down]

SABATIER, Armand *Études sur le coeur et la circulation centrale dans la série des vertébrés* Montpellier; C. Coulet; 1873 [CUL] em, he, ig, phy, y

SB p.315 to 322 Embryology of Heart & animal series—
315 13–33m/→/11–12w inheritance at younger age 316 10–12m/11u "précocose | penser" 317 11–13m/w see p319 319 10–12m/w good 24–28m 320 10–17m 322 3–13m, 22–26m

SACHS, Julius *Geschichte der Botanik vom 16. Jahrhundert bis 1860* München; R. Oldenburg; 1875 [Botany School]

SACHS, Julius *Lehrbuch der Botanik 2te Auflage*; Leipzig; W. Engelmann; 1870 [CUL, I]

dic, f, fg, he, hl, ig, oo, phy, sx, tm

NB 633 ♦ ◊ Vegetable Elements; 638 ◊ Separation of sexes in lowest Plants; C. Sprengel on non-sexual fertilisation – was he before Kolreuter?; 641 small Cleistogams imperfect perfect always sterile V◊; 665 & 676 Abstract of Nägeli on intermediate form on inheritance of morphological characters
§
169 5–6m 170 10–17m, 31–35m, 37–40m, 41–43m 171 8–11m 173 37–41m 175 34–36m 176 8–13m 177 22–24m, 41–43m

§
633 30u "die | activ", 31u "andere | passiv", wb Even in the vegetable K. Sachs in speaking of S. Elements ◊ he says 638 8m, 16–34m, 41w Monoiacous 639 4–7m, 18–22m, 30–34m/31u "auch | Farnprothallien"/w Dichogamy 41–46m (C. Sprengel) 654 36m 656 22m 665 13–42m/24–41w Nägeli struggle 667 43m 676 6–46w about inheritance of morphological characters, worth studying 43–47m 677 3–34m

SACHS, Julius *Lehrbuch der Botanik 3te Auflage*; Leipzig; W. Engelmann; 1873 [CUL, I]

che, mhp, phy, tm, v

NB1 86 Bloom on fruit & leaves

NB2 Drosera

p771 p782 interesting discussion Carbonic acid in atmos
on catch of clasping movt of Tendrils
p785 Movement causes of
801 He Sprengel quotes Contrivances ◊
[The Last section of Book has ◊ discussion on Variation ◊
p134,143 Trichoms

p674 Effect of gravity on movement of Plants

♦ 118 Work on Harz-elongation ◊ Bot Zeitung/

v 24m, 30m 86 32–33m

§

118 2m, 50–51m (Hanstein)

§

771 1m, 32–47m/47u "de Vries" 772 19u "Verkürzung der"/18–21m/18w chiefly 23–32m/25–26u "durch | Oberseite"/25–28w by pressure the concave side 39m, 41–44m/42w (a) wb some tendrils can clasp only thick objects 773 6–10m/7w (a) 24–31m/w press more closely on object after clasping 782 14–17m/14–15u "stark | Atmosphäre" 785 16–19m/17–18u ↔ 789 25m 801 4–13m, 40–47m (Sprengel)

SACHS, Julius *Traité de botanique* trans. of 3rd edn; Paris; F. Savy; 1874 [CUL]

cc, che, ct, em, he, mhp, oo, phy, sp, sx, t, ta, tm, v

NB 829 Roots making mark on Marble bears on Chalk in Worm experiments

SB (See other paper)

◊ (By bloom I refer to movements in my experiments by shaking
803; 831; 846; 850 Bloom; 853; 854 Temp.; 855 Bloom 856 do.; 867 Bloom; 868 on refrangibility of rays which act ◊ in chlorophyll, 875 Bloom; 887 (do); 889 do; 890 do; 901 do; 903 do; 908; 919; 924 Bloom; 936 glycerine extracts & water; 953 Bloom; 957; 958; 972 Bloom; 986 Bloom; 988 do

(over) 996 Geotropism depends on growth; Bloom ◊ & 999 ; 1010; 1020 Tendrils; Bloom ◊ 1025 to 1031 Bloom; 1035 transitory rigidity, what I have called paralyzed; Bloom 1039 ◊ to 1051 Mechanism of Movt; 1056 crossing to 1061 Sexuality ◊; 1072 do ◊; 1093 ◊ Struggle for existence between closely allied species; ◊ 1021 Bloom to 1018 & all this last Part

ix wt Dissolution of dextrine by protoplasm Traube on passing of fluids out x 49m xxix 10m, 36m xxxi 42m 26 8–13m 43 20–23m (Nägeli) 49 13–29m 51 12–16m, 15u "métaplasme" 55 23–28m 63 wt The contents of cells cannot be considered as chlorophyll because not in grains 3–4u ↔ /5u "couleur | homogène"/3–7m/w & entire cells contents green 64 21–26m, 22–23u "masse | chlorophylliens" 65 8–9u "des | rouge" 71 9u "Pisum sativum", 11–14m, 12u "d'aleurone", 13u "légumine", fig.w over 72 5–8m/7u

"albuminoïde" 77 35-40m 101 1-4m 116 fig.w 73/74/75 16-20m, 21-24m/21-22u 117 31-36m, 35-37m (Strasburger) 118 2-7m 119 18-20m/19-20u "bien l'épanouissement" 153 26-28m (J.B. Martinet) 155 1-3m 769 9-15m 771 1-11m, 34-39m, 40-43m (Nägeli) 772 14-19m 774 4-9m, 32-36m 779 6-16m, 17-19m, 18-32m (Traube) 803 23-27m, 25u "absorber l'appréciable", 25w (a) 28-31m, 39-42m (Duchartre), 46m, wb Plants with bloom must be different - their epidermis perhaps not that protective 804 14-23m 820 24-31m 823 41-43m, 45-46m 824 16-21m 827 2-3u "abstraction | transitoire", 11-12m, 12u "inuline", 13u "formatrices | cellulaires" 828 35-40m, 35u "albuminoïdes", 36u "transport | organes", 37u "nombreuses", 41-46m/41u "albumine", 41u "caseine", 42u "gluten", 45-46m 831 6-14m, 23-26m 839 8-15m, 10u "grains d'aleurone", 13u "formation | protoplasma" 844 2-12m, 14-17m/17-18u "les | endosperme", 21-24m, 32-35m, 36-42m 846 5-10m, 8-12m 850 30-32m/w Drosera 851 5-7m/w Leaves 7-39m, 7-11m, 38-41m/39u "rosée | qui" 853 12-15m 854 5-8m 855 wt for I did not know of analogous observations 10-19m, 26u "47°-48°"/25-28m (Nägeli), 28w over 29-30 → 856 11-16m 857 35-46m 867 29-34m, 40-43m 868 6-11m/7u "faible refrangibilité"/8u "rouges | verts"/11u "rayons frangibles", 12-13m/13u "actions mécaniques", 31-37m, 45u "autre | ammoniac", wb I had better try first in dark 875 38-41m, 40-41m 876 1-3m 877 4-5u "dans | intensités" 887 11-17m 889 21-27m/21u "obscurité | lieu", 33-38m/34-36w an error 890 12-15m/9-15w He thinks Mimosa same case as sleep?? 901 38-40m 903 15-20m/w many facts about growing 21-22 →, 33u "déterminées | pesantent" 904 2-5m 908 13-19m/18-19u "pour | accroissement" 919 wt ♦ In Drosera is must be elasticity of under cells 1-3m 924 11-17m, 35-39m 925 6-10m, 13-15m 936 7-12m 953 6-22m, 26-29m 957 25-33m/28-34[...] 858 42-46m (Hofmeister) 972 1-9m, 31-38m, 39-41m (Reinke, Sanio) 973 3-10m, 24-26m/24-25u "allongement | nuit" 986 8-13m, 35-38m/36u "contact | protoplasma" 988 14-27m/7-24w if so, they cannot go back 996 35-37m 997 3-9m 999 23-25m 1003 20-24m/20w leaves 1004 11-18m, 19-22m, 24-43m/29-37w owing to growth!! 1005 14-21m 1010 25-34m 1020 38-43m 1021 5-17m, 21-24m (de Vries), 27-37m 1022 wt ?? Does he apply growth to sensitive Plants? May not elongation on one side favour growth 8-14m, 20-26m/w (a) wb See how quick P. gracilis bends - I think in a few seconds - is it credible that it can grow so quickly? 1023

12-17m (de Vries) 1025 8-12m, 19-20u "parcel influence"/20m/21u "complètement | croître"/16-31w How are movements of leaves of Mimosa & Desmodium with respect to age 20x/wb X may be these more sensitive 1026 15-16u "se | accroissement", 28-32m, 36-39m/36-38w ♦ No Stem of Randonium O 39-43m/w This asserts that tendrils owe only to growth 1027 37-45m/42u "variations | température" 1028 6-11m/3-13w How different from Drosera in which the bending plant is not touched 15-17w Distinct category 30-32m, 41-45m/43u "Starrezustände | 1863", 46m (Meyen) 1029 24-26m, 27u "différente | latérales"/27-29m/w I do not quite understand 36u "Marsilia", 45-46m (J. Sachs) 1030 wt in climbing plants the movement is only required whilst young & growing 21-22u "feuilles | autonomes"/18-22m/w I suppose this is by nutation 23-28m, 35-38m/36u "Phaseolus", 40-45m 1031 26-32m, 33-34m, 35-36m 1034 45u "rigidité transitoire" 1035 1-4m, 6-11m, 17-22m, 23-26m/24u "490-500", 30-32m, 34-39m, 42-46m/42-43u "Bert | Paris" 1036 20-23m/16-23w my test of C. of Amm. is better 22-24m 1037 22-26m (Kabsch), 31-38m, 34-39m 1038 7-12w ● 1039 1-9m/1-2u "endomostique | élasticité"/1-3m, 19-20m, 30-35m, 45-46m (Unger)/46m 1040 19-21m, wt 1st Protoplasm Passes out of cell - Endosmosis & Exosmosis may be supported by - but wb be like in effect 1041 wt ● of cell-wall & not expelled wt must have some different object 5-8m, 6-9m, 9-12m, 15-17m, 35-37m 1042 24-29m 1043 1-5m, 36-42m/36-37x/39-40x 1044 19-25m/x/19-20m, 37-41m 1046 29-36m, 41-44m 1047 6-10m, 24-29m 1048 1-5m (Pfeffer), 7-12m/7-8u "que | cellules", 19-26m, 33-38m (Brücke), 44-46m (Dutrochet) 1049 32u "pétioles | continuel", 34-36m 1050 6-17m 1051 4-12m, zb 1053 wt under same conditions action with the exterior tends to cease & the union of 2 differently exposed differentiated the aggregate 1-4m 1056 7-10m/1-18w may be related to exposing them to different conditions so as to diversify them 1059 2-17m, 31-39m, 44-46m 1061 1-7m/1-5m 1072 40-43m 1093 18-44m

SAGERET, Michel *Mémoire sur les Cucurbitacées* Paris; Huzard; 1826 [CUL] cs, ds, gd, h, he, hy, sp, t, v, wd

SB1 Sageret 7; p8; 10; 12; 17; 18; 20; 23; 25 to 30 to 55
2d Part; 5; 93; 102; 104; Duchesnes Works? ♦ Bailliere or Hort. Soc.; see to

SAGERET, CUCURBITACÉES

Duchesnes

SB2 □β

8 certain melons more true than others

17 A melon from U. States

25 & 27 Melon with seeds of different shapes

28 Hybrid melons more vigour 30 more fertile 36 repeated

I must see Duchesnes' works look in Pritzel Catalogue

Part 1, 6 22-26m 7 7-19w He evidently thinks descended 10-14m/11-13w all cross 14-21m 8 3-5m, 7-12m/7-15m/12-14m 9 5-9m 11 6-7m 12 15-16m/10-16w colour and character 17 21-23m 18 11-12m 20 8-10m 23 1-3m, 8-10m 24 13-16m, 17-25m 25 7-9m/m 26 9-11m 27 2-7m 28 5-9m/1-10w confesses it doubtful whether *Cucumis flexuosus* a species 25-26m 29 9-11m, 10-14m, 15a "le"/w, 15a "dudaim" p30 17-24m/20u "les naïtre"/21m, wb all animals ∴ fertile 30 16-17m/m 31 16-17m 33 9u "Koelreuther", 24-25m/u± 34 18-19m 35 1-5m/3w Tobacco 36 1-2m, 12-13m 37 19-25m 38 22-27m (Duchesnes) 39 20-21m 40 1-3m, 5-6m/?, 7-9m (Vilmorin), 13-15m/14-15u "époque | culture" 41 25-27m 43 1-4m 45 6-8m 46 1m/w a gourd 3u "giromont", 5u "pastisson", 6-9m/3-11w Look in Bot Catalogues 10-12m, 14u "dans | ouvrages"/13-14m (Duchesne)/w He is avitism man 47 15-17m, 18-19m 52 7-10m, 12-13m, 15-18m 53 13w gourds 54 10-11u↔/8-13m/w variation & tendency to hybridise does not go together 55 7-13m/10u "bastisson"/12w V. supra

Part 2, 5 13-17m 93 1-2m, 15-16m/5-15w X Hence I suppose fertile 102 7-12m 104 wt/1-11w all these plants appear cultivable on same system, so constitutions not different. 6-11m/w other cases

SAGERET, Michel *Pomologie physiologique* Paris; Hizard; 1830 [CUL, on B]

cc, ch, dv, f, fg, gd, he, hy, in, phy, sl, sp, spo, sx, t, ta, tm, v, wd, y

NB 6 compare grafting & Hybridisation are there any exceptions to plants of same Genera being graffable.-; 9; 13; 14; 16 effects of graft & 44 summing up=; 43; 47; 48; 65 as odd as *Crinum* being more readily impregnated by foreign species; 72; 105; 106; 126; 134; 136; 138; 143; 146; 151; 153 to 158; 161; 168; 217; 218; 222; 228; 231 to 404; 491; 552 to end

SB □β

17 Sterility from grafting Q

43 & 72 seeds from grafting Pear on Quince gives more varieties than on pure stock

47 Contrasts the diminution of size in seeds of fruit-tree, with increase in size of nuts, Almonds & chestnuts by selection

65 222 some vars of pears succeed better on Quince Q than on own stock (like case of *Crinum*) Q

106 The more a plant departs from type the more tends to depart (contrast with opinion of limit)

126 on double fecundation in melon like Thwaites *Inula* case

136 556 on "variantes" or slight direct variation from conditions

155 does not believe in acclimatisation, only in seedlings vegetating at different periods

218 on changes in fruit-trees

262 on some pears & apples being true by seed

321, 346 Peach does not succeed equally well on all plums Q

358, 364, 367, 382 Remarkable vars of cherries - good to quote as more than trifling

398 Work on Gooseberry

561 in characters of parents in Hybrids N.Q.

569 two Fathers

6 23-26m 7 10-12m 9 14-17m 13 10-13m 14 9-10m, 24-26m (Thouin) 15 26-28m 16 19-20m 17 2-8m, 11-24m/11-16m/13-17Q/18-22m 43 24-27m 47 8-10m, 18-23m, 20u↔, 27-28m 65 24-28m, 25-26Q, 25u "choses remarquables", wb Coignassier is quince 66 8-12"...", 20-22m 72 3-6m (Cabanis) 105 1-4m 106 8-12m 107 5-9m/w like hybridisation 126 7-11m/12-13w like *Fuchsia* 14-17m/15-16Q 127 5-6m, 12-13m, 21-25m (Brongniart) 134 2-16m 136 10-14m, 16-19m, 21-28m 137 17-22m, 21-28m 138 11-17m, 21-23m 143 13-17m, 17-19m 146 11-14m 151 24u "datura stramonium"/wb is it N. America? 153 10-13m/13u "crois | plus"/10w acclimatisation 28m 155 3-7m, 9-15m, 22-25m 157 13-16m 158 3-5m (Thouin) 161 19-22m 168 12u "arbres hybrides", 16-18m, 18-19m 217 18-22m (O. de Serres), 22-26m 218 10-21m (Duhamel) 219 20-23m 222 13-21m/16-18Q, 22-27m 228 24-26m/24-25? 231 1-5m/2w p.251 8-13m 233 2-11m, 12-18m 239 10-14m (Knight) 240 13-14m 241 13-16m/5-27w How inexplicable that the improvements should suddenly stop, as soon as fruit gets arbitrarily good.- 244 11-14m 245 1-5m/wt/1-15w By selecting these poor seedlings, the race passes through many changes.- this perhaps explains it; but then we must suppose that

all the good old fruits have been sudden sports!!! or they have been long individually exposed to same conditions 246 1-6m, 7-10m 247 1-3m, 10-13m 248 22m 250 14-20m 252 1"... , *wb* X Perhaps whole case resolves itself into that good fruits do not come in first generation - V. Mons choosing spicy plants has relation, Poiteau says, to their bearing early 253 28..." 257 3-8m 258 11-14m 259 9-11m 260 16-19m 262 7-12m, 27-28m/28u "leur espèce" 263 2-3m, 4m, 14-16m 264 3-4m 265 13u "Belges", 20-24m 266 7-9m 271 2-4m/*w*/1-5w very true Van Mons all bosh except so far better try successive seeds seedlings than of established pears which may have been produced suddenly C.D. 272 25-28m 273 4m, 5-9m 288 10-13m (Van Mons) 289 13-17m 293 11-15w I never knew what the paradise stock was 14-17m 296 22-26m 297 3-8m 299 7-9m ♦ 303 19-22m, 27-28m 306 3-6m 313 6-7m 320 15-17m 321 17u "pêcher", 18-21m/18u "prunier", 24-25Q♂, 25-28m 325 1-4m 346 5-8m, 9-12m, 13-15m/14w for plums 22-24m, 23-26m/24-25u "Il abricotiers", 25-27m/Q♂ 351 2-4m 355 12-20w Before rereading this be sure to look at Loudons Ency of Gardening p.922 358 16-20m/17m 364 16-24m/19-20x♂Q 367 2-4m/x♂/Q 5-7m, 13-15m/14-17w Monter 17-19m, 20-21m 369 4-5m, 21u "soixante-quinze" 379 3-5m, 24-26m/24-25x♂/u↔ 380 25-26m/? 381 14-17m 382 3-5x♂/4-6m 393 20-23m 398 23-24m 400 6-11m, 12-16m 404 18-22m 491 22-26m 552 24-28m 554 1-4m 555 16-19m/? 556 20-25m 558 25-28m 559 6-13m 561 25-28m/27u "non dans une fusion" 562 1-2m, 3-7m 565 2-3m/3u "plus étonnante" 566 17-20m 569 24-28m 571 10-15m (Vilmorin)

SAINT BARTHOLOMEW'S Hospital reports ed. J. Andrew and T. Smith, vol. 11; London; Smith, Elder & Co.; 1875 [Down, FD]

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NB1 {author's address}
NB2 O/

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af, ch, ci, cr, ds, em, fg, gd, h, hl, ig, in, mhp, mn, no, oo, or, phy, rd, sp, sx, sy, t, ta, tm, ts, v, y

SB1 □β
57 analogies, Tillandsia like Lichen (172)

63 Rudiments of many organs, a so called gland
143 & 153 Q abnormal ♣ organ in class, variable
145 good case of Balancement: 199.-619 Q
183 Q var in individuals analogous to difference in classes
226 species turning into branches
301 Q on passages being general 508 stronger 541 do
407 Rule of colours (same for vars & species)
413 Embryology in plants irregular flowers at first regular
442 rudimentary stamens- 475 of Pistils: 637
♦ 446 var. in individual & differences in species?
448 on anthers of Asclepias
516 two kinds of placentation in same genus characterising two sections of genus = passage by jumps possible =
548 do on ovules
572 a multitude of flowers are impregnated in bud. strong case of - in Goodenia
617 seems to think multiplication sign of highness
♂ under classification allude to Ch. 7 my discussion showing abnormal parts variable
711 Genus not natural when founded on one character
754 on classificatory value of different parts of seeds; it is in fact embryology
756 On great difference in cotyledon in 3 allied plants, showing no charcater is constant
SB2 □β
761 Ash 500,000 seeds
763 introduced plants into S. America
782 & 784 on value of character, according as it allies itself with others, which is inferred simply from being constant
786 on value of characters good - embryo most important, yet it is a whole
787 direction of embryo in Helianthemum, very different
788 good showing that physiological importance no rule, because importance of all characters variable.
789 Remarks on Mirbels views on classification
791 & 793 & 814 on High & Low plants good m.s. remark
793 on series not being lineal
815 good case of impossibility of arrangement
818 Monstrosities are only anomalies of the species Q

SAINT-HILAIRE, A., BOTANIQUE

821 Classification of varieties.

826 no resemblance of embryo in plants as in animals

834 Important organs may vary in early stocks: hypothesis. 836

confirmed by Owen on swim bladder in vol on Fishes

SB3 35; 43; 47; 51 to 57; 63; 66; 127; 138; 143; 145; 152; 154; 159; 170; 171; 172; 183; 195; 199; 226; 297; 301; 312; 332; 352; 355; 356; 358; 364 series in Pappus; 369 in Nectaries; 375; 391; 403; 407; 410; 413; 415; 417; 418; 422; 439; 441; 442; 446; 448; 454; 461; 475; 481; 482; 508; 509; 515; 516 SB4 526; 534; 541; 548; 554; 556; 568; 570; 571; 572; 587; 590; 599; 600; 613; 616; 618; 619; 625; 629; 630; 633; 637; 639; 643; 652; 708; 710; 712; 714; 720; 734; 753; 754; 758; 760; 763; 767; 772; 779; 780; 782; 784; 786; 788; 791; 793; 794; 798; 810; 813; 814; 815; 816; 818; 821; 823; 826; 833; 836; 839

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16-17m 481 12-16m (Guillard, Schleiden, Vogel) 482 24-26m 508 15-19m/Q 509 30-33m/32u "al|tranché" 515 30-33m 516 1m/u "axiles|Puisque", 27m 517 1-10m, 7-12m/7-8u "placentas axiles"/11u "pariétaux|axiles", 13-14m, 21-22m, 23-25m 526 21-25m 534 24-26m, 29-31m/29u "sans exception" 541 19-25m 548 2-11m, 24-26m, 27-30m, 30-31m, 32m, 33m, wb I wonder how if species 549 1-2m 552 4-6m, 20u "M. Schleiden"/19-22m) 554 19-21m 555 zb 557 4-20m (Schleiden) 568 14-18m/w curious 570 26-29m (Salvert) 571 4-7m 572 30-33m/30u "une foule"/w Q!!? 573 1-9m/4-5Q 577 3-5m 587 1-11m 590 30-33m 591 1-3m, 4-6m, 6-8m, 16-19m 599 1-7m, 7-12m, 13-19m, 20-22m 600 31-32m (Jussieu) 613 3-4m/w not so in animals Owen 616 33m/32-33w/wb How made out value of series 617 wt let have no nervous system, no man also○ head 1-2m, 29-30m, wb If most complicated & altered form is to be highest - no for worm forms first - origin might then be highest.- 618 9-13m 619 20-22m, 23-25m, 28-29Q 29-31m 625 2-6m 629 20-22m 630 10-13m 631 13-15m, 17-22m, 23m 633 12-19m (De Candolle, Guillard, Schleiden) 637 wt V.p.643 How know ever existed? 2-6m 639 4-8m (Roepert) 642 28-33m 643 4-12m, 15-16m/u "Commencement|développement", 20-21u "supposition|théorique" 652 17-20m, 21-23m 708 5-7m 710 25-29m 711 18-21m (Kunth), 21-22m 712 4-17m, 7-9m/9-12u "mais|faible"/8-17w good similarity 17-31m/18-22u±, 24u "n'en|pas", 25u "secs", 27-28u "contraire|génériques" 713 5-8m, 16-18m, 21-23m, 26-27m 714 1-5m, 6-8m, 12-18m 720 20-23m 734 25-29m 735 22-24m 753 16-17m 754 1-3m, 12-15m, 30-31m 755 1a "sa"/wt the embryo 1-4m/w like embryonic animals 5-6m, 7-10m, 10-12m, 13-14m, 20-21m, 22-25m, 26u "n'est|caractère", 28-32m 756 1-4m 758 11-27w Means of dispersion of seeds by springing of capsules &c &c 759 14-17m/17-26w it is curious both seeds & envelopes, being thus furnished good argument for final cause. 19u "les fruits", 20u↔, 21u "graines elle", 28-29m 760 9u "corniche|haute"/8-12w What kind of seeds. Gilliflower & Sedum 761 4-5u "cinq|fruits", 6u "trois mille", 21m, 23-24m 762 32-33m 763 1-11m, 17-19m, 21u "aucune|culture", 30-31m/31u "laines" 767 10-11m/10u "cent ans", 14-15m/15u "laissées|vingt", 25-26m/u "vingt|ans", 33u "moins|siècle" 768 16-20m 772 17-20m 779 27-30m 780 4-8m 782 25-30m, 31-33m/31u "s'il|possible", wb We know from experience that any one character is general it will go with others - all organization is correlative 784 8-

10m, 13-16m, 19-20m, 21-23m, 23-24m 785
 4-5m/4u "caractère\peu", 12-16m, 17m, 24-
 25m 786 6-7m, 7-8u↔, 8-10m (De Candolle
 (both)), 13-15m/15u "d'ailleurs\moins", 15-
 18m, 26-28m/27u "de\caractères", 31-33m/!
 787 4-7m, 4-6m, 6-8m/7-8u "nelisolé", 13a
 "caractères" of embryo 12-15m, 14-15m/!
 "leur\constance", 16-17m, 22-25m, 27-30m/!
 30u "de\différente", wb How well worth
 getting good Botanist to explain variation of
 do 788 6-9u±, 14-16m, 16-17-19u±, 20-25m/
 21u "nous\serions", 25-26u "la\Malpighia",
 27-31m 789 1-4m, 5-8u±/7-10w where has
 Mirbel done this?? 8-18u±, 18-24m, wb
 Descent is the key, least variable will then
 be best guide, whatever the part may be 791
 wt Whatever parent form we can trace ♣
 modification wt♦ & so agrees with my theory
 20-24m/25-27m/!!/28-32m/4-33w Schleiden
 Compositae Hooker some parasite So in
 parasite Lerneidae & cirripedes, especially
 males of 33m/u "Renonculacées", wb There is
 no highest, there is most modified but when
 much rudimentary, what we must call
 useless, ∴ not highest & by man's standard
 high & low. The impossibility of saying what
 is highest is conformable to my theory -
 which is highest var of cabbage or dog? -
 most changed will not do - put man on one
 side having any index - except most unlike
 a primary simple form 793 1-3m, 13-15m, 18-
 20m, 23-25m, 25-27!, 27-31m/27-28u "moins\|
 Composés", 33m 794 1-2m, 4-6m, 11-14m, 15-
 17m, 19-21m (Jussieu), 22-24m, 25-26m 798
 1-3m, 4-6w ● type of family 799 6-7m, 7-
 10m, 10-11m 810 1-3m, 5-9m (Schleiden) 813
 24-27m/25-26u "nous\rappports" 814 7-15m/
 12-13u "les\complètes", 17-20m, 20-24m, 24-
 26m 815 2-4m, 8-10m, 11-13m, 15-16m, 1-
 17w What case of impossibility of
 arrangement 816 5-11m 818 10-15m, 16-17m,
 20-22m, 24-27m 821 3-7m, 8-13m 823 7-11m,
 19-20m 826 7-13m/1-33w It does not appear
 that embryo of Dicot, is like at any stage
 embryo of Monocot or Cryptogamic plants
 Even Dicot & Monocot are quite unlike in
 earliest age. as shown by name)- wb N.B
 Reflect on plants not passing through any
 larva-embryonic state (?because they come
 at once to play their part in nature?) good
selection. 827 8-11m, 16-18m, 18m, 18-24m/
 19u "sur\différents" 833 14-15m, 18-21m, 27-
 28m 834 9-12m/wt/1-20w N.B X May
 use account for diversities in important
 characters in families, to their having varied
 in the lower or parent stocks. 835 11-16m,
 25-26m, 29-31m 836 17u "fleurs", 20-24m/20u
 "grandes différences", 25u "bornerai", 26u↔/

26-30w V. Lindley on the rest 837 11u
 "mucilagineuses", 28-32m/28u "mucila-
 gineuses"/29u "morphologiques"/30u "car\ces"/
 w I think there has lately in Linn Trans 839
 1m/u "même\et"

SAINT-HILAIRE, Auguste de Voyage aux
sources du Rio de S. Francisco 2 vols.; Paris;
 A. Bertran; 1847-48 [CUL]
 beh

vol. 1 NB Unreadably Dull

SB □✕

17 ♀ Aboriginal Indians cultivated the
 ground; 70 ♀ a proprietor can sell on 1/10 of
 his stock of cattle yearly
 17 7-10m 70 13-16m 71 1-2m, 9-11m

vol. 2 NB Unreadable

ST. JOHN, Charles Sketches of the wild spots
and natural history of the Highlands London;
 John Murray; 1878 [Down, FD]

ST. JOHN, Charles A tour in Sutherlandshire
 2 vols.; London; John Murray; 1849 [CUL]
 beh, br, cs, hy, no, oo, sx, t, v, wd

vol. 1 NB see end of Vol 2 for Abstract
 x 16m xi 19m/u "Fighting of Stags" xii 10m
 xiii 15m 15 13-16m 74 14-18m 109 21-26m
 134 3-8m

vol. 2 SB1 Vol I; 15; 74; 109; 134

Vol 2; 178; 208

SB2 □✕

Vol I

15 On Herons breeding on ground

74 On cross of common & wild cat - simple
 facts

134 on increase of Grouse when clever
 keeper & trapper kept -

Vol 2

178 More particulars on what Birds have
 increased by destruction of vermin 179.

179- Q on resemblance of the several
 grouses to where they haunt; & importance
 is shown by the great increase in numbers
 when Hawks destroyed.

iii 19m, 22m/u "Fox-chace" iv 16m vi 17m vii
 4m 178 4-5m, 12-17m 179 4-20m/10-11Q 208
 1-3m

SALTER, John The chrysanthemum London;
 Groombridge & Sons; 1865 [CUL]
 sports, t, v

NB Laws of Variation; The first breaking or
 change is the difficulty- →p.3; 41♦ to 43♦
Sports

SALTER

2 21-26m, 26-27m 3 15-18m, 24-27m 6 25-27m 7 27-32m 41 3-6m, 10-12m, 14-17m, 18-20m, 27-28m, 29-31m, 31-32m, wb p.3 primordially yellow 42 3-6m, 8-10m, 16-18m, 19a "Dr. Brock" yellow kind 21-25m/21u "yellow", 31-33m/31u "in suckers" 43 9-15m/10-12m

SALTER, John William and WOODWARD, Henry *A descriptive catalogue of all the genera and species contained in the accompanying chart of fossil crustacea, including an abstract from the Geological Magazine, Oct 2, 1865* London; J. Tennant; 1865 [Down]

SAMOUELLE, George *The entomologist's useful compendium* London; Thomas Boys; 1819 [CUL, pre-B]

t

NB 338 Explanation of terms

SAPORTA, Gaston de *Le Monde des plantes avant l'apparition de l'homme* Paris; G. Masson; 1879 [Botany School, I]

SAPORTA, Gaston de and MARION, Antoine Fortuné *L'Évolution du règne végétal: Les Cryptogames* Paris; Germer Baillière & Cie; 1881 [Botany School]

SAPORTA, Gaston de and MARION, Antoine Fortuné *Recherches sur les végétaux fossiles de Meximieux, précédées d'une introduction stratigraphique par Albert Falsan* Lyon, Genève, Bâle; H. Georg; 1876 [Botany School]

SAPORTA, Gaston de and MARION, Antoine Fortuné *Révision de la flore Heersienne de Gelinden* Bruxelles; 1878 [Botany School, I]

SARMIENTO DE GAMBÓA, Pedro *Viage al estrecho de Magellanes* Madrid; Imprenta Real de la Gazeta; 1768 [Down, pre-B, S]

SAUSSURE, Henri Louis Frédéric de *La question du lac* Genève; Charles Schuchardt; 1880 (extract from *Journal de Genève*) [Linnean Society of London, I]

SAVAGE, Minot Judson *The religion of evolution* Boston; Lockwood, Brooks & Co.; 1876 [Down]

NB O/

SCHACHT, Hermann *The microscope* London; Samuel Highly; 1855 [Down]

SCHERZER, Karl von *Aus dem Natur- und Völkerleben im tropischen America* Leipzig; Wigand; 1864 [Down, I] ♂

SCHERZER, Karl von *La province de Smyrne* Wien; Alfred Hölder; 1873 [Down, I]

SCHIFF, Maurice *Leçons sur la physiologie de la digestion* 2 vols.; Paris; Germer Baillière; 1868 [CUL]

beh, che, oo, phy, t, tm

vol. 1 NB ⚡

64 vegetable feeders can undergo greater & more prolonged fatigue & thus whole structure is in condition. Curious remarks, explaining this

379; 380 Experiments; 396 Expts; 387 Tests; 396 Tests

◇⇒

p255 p261 p263 266 270 Blushing

◆ 270

16 ◇ogar

63 26-35m 64 1-2m, 13-20m/13u "activité", 24-27w Esquimaux Dogs 69 27-32m 73 3-7m/3-11w so probably C. of Ammonia not digested & is not nutritious 30-32m 255 14-17w I ought to read the previous Chapter 19-25m 256 14-17m 261 12-16m, 17-19m 263 5-10m 266 13-16m 268 2-8m, 18-21m 270 11-15m 376 10-12m/13-15m/2-15w There is this difference that it digests at ordinary temps—so must stomach of Frog 379 1-4m, 15u "substance albuminoide"/w cabbage juice 17-18m/w Extract of Belladonna 29-31m 380 1-13w I ought to add C of soda to a leaf which has dissolved cube of albumen & see if any precipitate 15-17w see p.382 for salt. experiments 382 21-22m/u "Le mercure"/w see p.387 383 19u "acide tannique"/18-19w Try 23-25m 387 27-30m, 33-35m 388 8-10m 390 30-33m, 34m 396 30-35m 411 31-38m/34w Have read 413 13-15m, 45-46m 414 2-4m 19-20m

vol.2 NB1 (not CD)

NB2 ⚡ 150 Exper. with Milk done; 154 Exper. done; 157

Drosera 4◆ to 200◆ 245 299 304; 281; 304 Blushing 527; 539◆

410 Expression 415◆; ◇

SB □β (by Emma)

Schiff

Vol 1. p.73 Digestion modifies food & therefore probably, C of Ammonia is not strictly digested by Drosera.

◆☞ (CD) p.376. On Digestion of higher animals requiring heat
 ◆☞ (CD) p.379. On changes of albumen thro' digestion Do - On certain forms of albumen ✓☞ (CD) not precipitated by boiling 383. Digestion requires an acid.
 390. All albuminous substance acquires same properties thro' digestion
 Vol 2
 p.4 On strength of acid best for digestion
 18 On digestion of cold-blooded animals.
 22 & 25 On dissolution of albumen by weak acids X☞ (CD)
 (over) Vol 2
 ◆☞ (CD) 29 On replacements of acids.
 ◆☞ (CD) 38 Fibres of fibro-elastique cannot be attacked by pepsine.
 ◆☞ (CD) 56 On weakness of acids best for digestion.
 ◆☞ (CD) On replacement by various acids.
 77 It is doubtful whether pepsine is an albuminous substance: Mem- my pepsine not really pure.
 80 There is a relation between quantity of pepsine & digestive matter
 86- The same subject
 114 ◆☞ (CD) Q☞ Demonstrates that pepsine is destroyed during digestion
 126 Same subject
 142 Gastric juice cannot affect amedon
 145 ◆☞ (CD) Excellent description of changes in muscular fibres from digestion of W. I did not know when I described my changes.
 (over) (CD) (☞ u☞)
 p387 Remarks of Millon with a fly
 (over) Schiff Vol 2
 ◆☞ (CD) 149. On angles of cubes of albumen being dissolved.
 ◆☞ (CD) 150 On liquid casein or Milk & its coagulation not due simply to the acid-
 153◆☞ (CD) On solid Casein. His explanation does not apply to my experiments.
 ◆☞ (CD) 154 On Legumin soluble in water & its coagulation by gastric juice.
 ◆☞ (CD) Long boiling turns albumens into peptones.
 104 Gastric juice of carnivorous & herbivorous is the same.
 188 Mechanical irritation of stomach causes acid secretion but not true pepsine - 245 - same subject
 196 After copious digestion the stomach is destitute of pepsine
 200 On peptogenes
 (over) 249 ◆☞ (CD) It appears that if gastric juice does not act characteristically on

gelatine, it at least efficaciously accelerates its modification by acidulated water.

281 The peptic glands seem to be different from the mucous glands. Nevertheless the former present an acid reaction. In Drosera they are combined.

304 ◆☞ (CD) On a layer of mucous preventing the auto-digestion of the stomach.
 157 ||☞ (CD) On digestion of fibro-cartilage & on the solution of bones-

4 25-31m/24-29w shows how little acid required 5 30-32m 17 wtcc, 30-32m/w How about cold-blooded anims 18 12u "liquide"/13u "à froid"/12-15m/14-17m/1-17w The pepsine of Drosera probably differs from that of warm-blooded but how about cold-blooded in water 35u "néanmoins | poissons"/19-35m/24-35w all related to liquid Albumen 19 1-9m/7u "deux | semaines", 19-21m, 33-34m (Spallanzani) 21 10m/u "l'albumine liquide"/w loh 25 12-14m/13u± 29 24-33m 38 26-27m/26u "fibro-élastique" 39 5-6m/u↔ 56 18-24m (Brücke) 57 27-31m 58 13-19m 59 24-30m 71 2-10m 77 13-15m, 18u "un | azoté"/14-26w it causes inflation of ● of Drosera but these seem not to be absolutely pure 80 31-35m 86 22-26m 114 28-35m 126 23-25m (Brücke), wb He has shown that it is impossible to get pepsine ♣ pure without the most laborious operations even if it be possible at all - 127 18u "matières albuminoïdes", 24u "graisses | intestin" 142 4-8m 145 5-28m/[...]/9-18w transverse chain of dots which I saw - there being no more 11-27m, 30-32w X not Page 146 2-12m/[...]/7-12m/8-9u↔ 149 7-12m/8u "angles" 150 29-32m 151 1-2m, 23-29m 153 25-30m, 31-32m/30-33w No not so with Drosera 154 15-20m, 21-22m 156 13-30m (Blondlot) 157 1u "fibro-cartilagineux" 166 wt/1-3w Turn them into peptones 3-6m 184 21-25m 188 13u "sécrétion acide"/16-17u↔/12-17m (Corvisart) 196 12-18m 200 3-6m 202 35m 203 1-4m 245 5-7m, 15-16w Mechanical irritation 25u "liquide acide", 23-26m (Tiedemann, Blondlot) 249 9-13m 281 23-27m/26-27u↔/24-25w Same glands in Drosera 304 9u "l'autodigestion | l'estomac", 10-16m, 17-23m (Kölliker), 24-25u "et | pepsine", 33-35m/34u "alcalin" 410 22-28m/22-24u "très | altéré", 29-33m 411 9-10m, 12-14m, 15-16m, 19-20m, 26-32m◆ 414 30-35m, 31-35m 415 1-3m, 12-16m, wb Perhaps for expression I had better read next Chapter 527 6-8m (Ludwig)/4-12w I have not read this Essay 12-17m, 20-24m 539 6-31m 545 22-23m 553 4-5m, 17-18m, 32-33m 554 10-11m, 26-27m, 30-40m, 49-50m 555 5-6m, 15m, 25-26m,

SCHIFF

40m, 47m 556 15m/u "extrait renfermant" 557
1-3m/2u "influences | acide"/w Drosera 47m/?

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beh, br, gd, geo, ig, in, is, oo, or, phy, rd, sp, sy, tm, v, ve

NB p.10; p.21; p26,7 to 55; 71; 80; 85; 92; 129; 131; 144; 146; 149; 197 to end

◆ It might be worth looking to great work to see if he argues his local varieties.

Many for Java & Celebes

SB □β

10 Q Many innocuous serpents have grooved teeth 42 on do. important 47 Q

22 Snakes & Lizards a good gap well filled up p24

26 Q Great changes in position of viscera owing to shape of body conclusion Ch 7 & great difference in different forms. External organs more constant

27 Number of vertebrae differing in same species

38 Rudiment of posterior extremities in 3 genera

45 Q Snakes with tips of ribs forming teeth

55 Q Pancreas ◆ spleen differing in species & varies in individuals

80 NQ Crotalus mutus has spine (u) not rattle

146 Coluber canus only species of genus in S. Africa & abnormal species

199 Snakes in Isld of Pacific

203 Section of genus Elaps, trifling distinction in S. America (shows persistence of trifling characters)

206 Corvus cornix & Corone breeding at Dresden (Ch. 4)

207 Sardinia has many vars. (but not many distinct species)

218 Many Mammals of Japan identical

219 Saurians & snakes of Japan all distinct from Europe. Frogs the same!

222 to 226,8 - to 235 The Monkey of Timor a darker var. this looks as if endemic & other Mammals. Much on Zoology of Malay Arch. Philippines & Ceylon allied!

240 N. America in Reptiles seems to have derived from South (do not range far N.

10 7-13m/8-10Q 21 22a "species" approaches to 22 4-8m/3-26w good passage if such organs did not exist now, we shd marvel at the transition. p24 24 6-14m/8u "difficult | impossible", 30u "Pygopus"/30-34m/w Snake or Lizard? 25 36-39m 26 7-13"..."/Q/10u "but | lung", 24-26Q 27-32m, 34u "external"

27 35-39m/37-38u "in | vertebrae" 28 2u 38
24-28m 42 5-10m/5u "salivary", 19u "anterior end", 31u "posterior part", 32-36m/33-35m/Q/
34u "more | saliva" 43 13-15m, 26-30m, 32-36m, 37u "fatal" 44 10c/9u "germs"/w gums
25c/w 45 31-34m/Q 36-38m 46 14-18m, 31-32u "developed | venomous", 32-35m, 36-37m
47 1-4m/w Explain origin of teeth 9w Salivary
11-13m, 15m/u "tendinous", 21u "tendinous",
23u "to | articulation" 48 1u "dangerous", 1a
"consequences"/wt it is painful, at once 55 29-32m/Q 71 1-3m 80 6-10m/Q 85 22-26m, 33-36m/34?/u "local variations", 37m 86 30-33m
92 14-20m 99 36-38m 110 37-39m 129 37w
Plenty of cases afterwards show no. of
vertebrae vary 131 37-40m 144 21-27m 146
9-11m/10u "known | Africa", 15u "curious"/19-20u
"This | species"/15-21w a wanderer 149
15-18m ◆ 197 16u "most | means", 15-20m, wb
Snakes can live without eating 6 & 18
months 198 36-38m/w not volcanic islds 199
6-9m, 12-14m, 19-22m/20u "other species"/21-22u
"often | Antilles", 28a/u "Japan"/w Java
29-31m, 35-38m 205 15-23m 206 17-26m, 26-30m,
38-41m 207 8-9m, 10-12m, 14m, 17-19m,
24-29m 210 32-36m 211 34-40m 212 26-30m/
28u "elevation | species" 213 37-41m (Buffon, Lamarck)
216 29a/u "Cameleon"/22-34w Q case, I suspect, of great peculiarity,
variable. 31u "Ptytodactylus | nose"/28-32m 217
31-35m 218 17-21m, 27-34m/37-41m (Siebold, Bürger)
219 wt Sea & Land must have been connected between Europe & Japan.- 2-11m/
11u "laudatus"/?, 21-25m (Temminck), 29-33m/
30-31u "Saurians | Ophidians", wb what a difficulty
introduction of F.W. Eel in Otaheite & some of the Antarctic Isds - Do not they breed in Sea. 220 3-17m 221 29-31m
222 3-9m, 26-40m, 30-31m/30u "Timor" 223 wt consult Waterhouse.- 1-5m, 6-40m,
13-15m/14u "Timor", 18u ◆ 224 2-19m/8u "Timor",
20-26m 225 3-5m (Temminck), 9-36m/26u
"Marianne Islands"/28u "Timor", 34-36m,
39-40m 226 1-8m/1u "Timor", 8-10m, 10-20m,
21-23m, 24-29m, 32u "Marianne" 227 5-13m,
23-24u "Sumatra | Borneo", 33-38m 228 wt
Sumatra & Java very different soils 2-9m, 24u
"islands | Timor", 27-34m 229 28-32m, 33-35m
230 3u "and | known", 5-8m, 9-13m/12u
"No Antelopes", 14-26m, 26-30m, 34-41m/
35u "also | tail" 231 17-19m, 22-25m, 38-41m
232 20-24m, 29-36m, 37-42m 233 18-23m,
24-36m/25u "Canis | Javanicus" 234 20-23m,
23-28m 235 11-16m, 33-40m 237 16-19m
238 21-23m, 29-34m 239 1-2m, 18-25m,
25-34m 240 21-30m 245 5w Cuv | p405 246
↑7w 1.409 247 12w Edw p375.1./1.p410 248
↑16w 1.409 ↑5w 1.p410 249 4w | p409 250

↑3w 1.411 ↑8w Edw p374 col 2 /1.410 ↑18w Edw p374 /1.406 251 3w Edw p378.2 /1.417 ↑11w Edw:p378 col 2 / 1.416 252 2w 1.419 11w Edw p377.2 /1.413 ↑5w Edw:p377 /1.414 ↑10w Edw p376 /1.412 (cross referencing of Shlegel's arrangement of serpents to other works)

SCHLEICHER, August *Darwinism tested by the science of language* trans. A.V.W. Bikkers; London; John Camden Hotten; 1869 [CUL, I by translator]
beh

NB Languages primevally invented difficulty – p.54
Speculation on grammar
If one admitted "amabo" is formed of 3 words I will love, agglomerating amabis I♦ you will love
title page 9m 54 5–17m

SCHMIDT, Oscar *Descendenzlehre und Darwinismus* Leipzig; F.A. Brockhaus; 1873 [Down, FD] ∅

SCHMIDT, Oscar *The doctrine of descent* London; Henry S. King & Co.; 1875 [CUL]
cc, ch, fo, hl, ir, mg, no, sp, t, tm

NB ♦ 94; 97,8; 152; 174; 214

SB ∞

p.97 gives reference to German Palaeontologists who have shown impossibility of separating Ammonites into species.— Now if the exuberance of forms had occurred in only some one sea or at only one time we might easily have had not record – with occasionally a few forms emigrating & spreading. good resume of Württenberger &c

p152 case of apparent convergence of character in Sponges (higher organism)

p174 causes why no two groups or stems of polyps are exactly alike.

p214 Ammonites (like Hyatt) first changing in external conditions

94 2–32m 95 1–14m (Haeckel), 23–32m (Agassiz) 97 7–16m (Waagen, Zittel, Neumayr, Württenberger, 23–32m 98 7–32m (Württemberg) 152 29–32m 174 1–25m 214 1–19m 215 1–11m, 16–32m

SCHMIDT, Oscar *The doctrine of descent and Darwinism* London; Henry S. King & Co.; n.d. [Down]

SCHMIDT, Rudolf *Die Darwin'schen Theorien und ihre Stellung zur Philosophie, Religion und Moral* Stuttgart; Paul Moser; 1876 [Down]

NB not read

SCHNEIDER *Der thierische Wille* Leipzig; Abel; 1880 [Down, I]

5 8m 10 25m

SCHOUW, J.F. *The earth, plants and man together with*

KOBELL, F. von *Sketches from the animal kingdom* trans. A. Henfrey; London; Henry G. Bohn; 1852 [CUL]

ad, cc, ch, cr, gd, hl, is, mhp, oo, sp, t, ti, tm, v, wd

SB1 □℞ p.4; 6; 12; 17; 18; 23; 27 to 29; 59,60; 64; 81; 95; 102; 138; 140; 172; 210; 218

SB2 □β

12 on great number of naturalised plants on lslds

18 argues for double creation from Alpine Plants (Glacial Chapt)

20 thinks higher animals never are created at 2 places

29 Alpine plants extremely variable

59 Parallelism in Labiatae & Scrophulariaceae

95 Lotus of Hot Springs in Hungary

218 There have been instances of *Convolvulus arvensis* sending papillae into plant, which supports it very interesting in relation to *Cuscuta* (Ch. 4) (marked vars)

4 32–34m, 35–40m 6 1–2m 12 21–31m/21–23!/ 22u "sea | recent", 26–27u "extent | where" 13 7–41m, 10–14m/!!!, 21–23!!!, 33–35!!! 18 1–2m, 22–27m, 33–40m 19 14–16m, 39–40m 20 8–10m, 29–33m/29u "many places", 29u "single" 23 18–19m, 37–40m 24 19–25m/w never has 27 20–30m 28 28–31m, 33–34m 29 1–4m 59 32–40m 60 30–34m 61 19–28m, 28–36m 64 35–41m 66 6–9m 81 32u±, 36–41m 82 18–25m 93 2–3m 95 35–40m 102 35–36m, wb many species are required to confine & modify habits of forming species. 103 5–6m 138 18–32m 139 23–28m, 34–37m, 38–40m 140 1–4m/ wt/1–4w ? by acclimatisation? 141 13–16m 172 26–29m 210 1–6m, 40–41m 218 14–17m, 23–29m catalogue attached ∅

SCHÜBELER, Frederick Christian *Die Pflanzenwelt Norwegens* Christiania; A.W. Brøgger; 1873–75 [Down, I]

NB 381, 82

381 37–41m

SCHUFELDT, R.W. *Osteology of the North American Tetraonidae* 1881 [CUL.1900, I by author]

title page "Osteology".u

SCHULTZE, Fritz *Kant und Darwin* Jena; Hermann Dufft; 1875 [CUL]

NB1 O/

NB2 Hand revisions O

25; 26; 27; 28; 32; 38; 46; 47; 48-50; 55-58; 61 (1775); 65; 76; 84 &c

SCHULTZE, Fritz *Die Sprache des Kindes (Darwinistische Schriften 10)* Leipzig; Ernst Günther; 1880 [CUL]

SCHULZ, Ernst *Nine plates of photographs: facial expression* [later than 1867] [CUL]

wt to most photo-captions

SCHWANN, Theodor *Manifestation en l'honneur du Professor, Liège, 23 juin 1878* Düsseldorf; L. Schwann; 1879 [Down]

[SCIENTIFIC LAYMAN] *The new truth and the old faith* London; C. Kegan Paul & Co.; 1880 [Down, I] ♂

SCORESBY, William Jun. *An account of the arctic regions, with a history and description of the northern whale-fishery* 2 vols; Edinburgh; Archibald Constable & Co.; 1820 [Down, pre-B]
gr, tm

vol. 1 NB p.457 whalebone; 485 Balaenoptera (6-9 miles)
251 14-17m/15u "three|in"/14u "100"/w 480 ft 22-24m/23u "325"/24u "150"/25u "250", wbe 252 3w 2 1/2 miles 13-15m/w V. Forster 255 27-30m 259 17-19m, 23-25m, 26-28m 457 2u "300", 4-6m/4u "Fifteen|greatest", 24-25m 479 14-15m/15u "4 feet" 483 14u "3|long", 16u "fringe|bristly" 484 8-9u "about|length"/6-13w Balaen. p457 p483 p479 485 26m/u "whalebone|inches" 486 12u "9 inches" 490 9-10m/Q 491 8-11m/Q

vol. 2 NB p.416 Whalebone
416 19-22m

SCOTT, John *Annual report on the experimental poppy gardeners at Deegah and Meetapore* Calcutta; Bengal Secretariat Press; 1876 [CUL, I]

NB O/

SCOTT, John *Manual of opium husbandry* Calcutta; Bengal Secretariat Press; 1877 [CUL, I]

ad, beh, cc, che, fg, he, oo, phy, sl, tm, ud, v

NB see to all marks; 46; 36; 70 to 77; 81; 111; 130; 131; 154; 167; Cross-fertilisation

SB ♂

36 Effects of salts in causing seeds to germination

49 acclimatisation of vars. & closer adaptation to climate

77 slight chemical differences in vars.

80. 111 apparently inherited effects of scarification like inherited milking

154. vars. differ in liability to mould

167 gnawing capsule with the opium causes convulsive twitch to Caterpillar

ii 14m, 17m, 20m, 33m iii 3-9m, 33-37m, 39-45m, 47-55m iv 20-28m v 14m vi 7m 36 20-28m 43 1-3m 45 8-11m/9u "a|the" 46 1-3m, 35-40m 48 43-51m 49 12-16m, 41-46m 50 27-36m 51 20-23m, 23-25m 52 8-14m 56 34-39m/36u "80,000|90,000" 70 15-21m 71 24-32m 77 7-17m 78 5-35w He has before said is found in petals & stamens 9-12m (Schleiden), 15-21m, 22-30m, 32-35m/? 80 16-26m/16-35w i.e. not due to selection - I suppose he means inherited effects of Scarification 45-51m 81 8-13m 111 4-11m/9u "early|exercise" 130 27-32m, 37-40m/37u "Bulk|absolute" 131 1-3m, 11-14m 134 32-34z 154 27-31m 167 9-13m

SCOTT, John *Report on the experimental culture of the opium poppy* Calcutta; Bengal Secretariat Press; 1874 [CUL, I]

oo, phy

14 1u ♂ "weighing|capsules", 36-42m/m 20 13-19m/14-20m, 32-37m, 40-42m/m 21 10-39m/22-24m/35-37m 24 20-22m 29 29-34m 30 16m 42 44-53m 47 49-54m 53 32-37m 54 41-47m 58 11-33m/25u ♂ "affecting only" 60 42-47m 61 30-38m, 47-56m 63 42-46m

SCOTT, John *Report on the experimental culture of the opium poppy for the season 1877-78* Calcutta; Bengal Secretariat Press; 1878 [CUL, I]

oo, phy

NB Frank Protection from Insects

p9 Monkey

17 to 21-22, 28 Protection of poppy by Opium

Frank

part 1, 1 39-46m
 part 3, 9 1-15m 17 62-70m 18 4-12m 19 48-64m 20 24-29m 21 58-68m 22 62-66m 25 8-23m, 29-35m

SCOTT, W.R. *The deaf and dumb* 2nd edn; London; Bell & Daldy; 1870 [CUL, I] beh, he, pat, t

NB 8♦; Deaf Mute reason - ?; 10 smelling - Imbeciles; Expression - 10 Proof of laughing sign of pleasure; 12 Continuation of Gesticulation

There is nothing about antagonism of expressive gestures

♦ 53 Savage snarl of Insane Reversion 8 5-12m, 15-16m, 18-23m, 21-23m 10 9-11m/10-13w Maudsley○ has similar case 13-14u "the boy", 19-22m/20u "laughing" 12 19-26m/m["..."]

SCROPE, George Julius Poulett *Considerations on volcanos* London; W. Phillips; 1825 [Down, pre-B] geo, se, t

iv 23-29m vii 1-20m xiii 9-16m/10-14w Sir H 30 1-21m, 17-22m 64 37-43m 65 27-38m 107 11-13m 147 21-24m 194 6-14m/11? 199 22-25m/26-29m/22-28w maximum elevation having expended the force *wb* NB none of these theoretical views agrees with the structure of the S. American Andes. 212 8-42m/21-22? 264 3-5m/*wt* The curved stratification of the clay beds is not accounted for. Humboldt gisement.

SCROPE, George Julius Poulett *Volcanos* 2nd edn; London; Longman, Green, Longman & Roberts; 1862 [Down] ♂

SCUDDER, John M. *Specific diagnosis* Cincinnati; Wilstach, Baldwin & Co.; 1874 [Down, I]

SCUDDER, Samuel Hubbard *Butterflies* New York; Henry Holt & Co.; 1881 [Down]

SCUDDER, Samuel Hubbard *Historical sketch of the generic names proposed for butterflies* Salem; Naturalist's Agent; 1875 [Down]

SEDGWICK, Adam *A discourse on the studies of the University of Cambridge* 5th edn; London; John W. Parker; 1850 [CUL, I] ad, af, cc, ch, ds, em, ex, fo, gd, geo, he, hl, ig, ir, no, or, sp, sy, t, ti, tm, v, wd, y

NB1 *cc*

NB2 ♦ xxvi; 33; xlv; xlv

SB1 □*⊗*

The publication of the Vestiges brought out ♣ all that cd be said against the theory excellently if not too vehemently

I am almost sure that Hooker in one letter says that *Salix* is not variable in Himalaya - *Is rubus* - this very important.-

The constant speaking of a species, as a something known to be definite is source of error.-

216 ⇨ Introduct. Even the insertion of a Genus between any two others, though it cannot be said to break down a family, yet in fact tends to same way, for the two portions of the family might have been formed into two sub-families. Sedgwick speaks as if family or group of any kind fixed & ascertainable thing.- The not filling up of gaps depends ♣ chiefly on ♣ our view of how far Palaeontology represents old inhabitants of world - but it

(*over*) might have been expected that some forms intermediate between ♣ Mammals & Birds, like ornithorhyncus should have been found - such must have existed probably anterior to Silurian system.- As far as evidence goes decidedly opposed.-

294 ⇨ take any species in which there are several varieties - make any one or two races & we are making a species at the present day.- this is the only evidence possible - What domestic varieties are not making!? I do not mean mere seedlings-

SB2 □*⊗*

Introduction; 26; 33; 48; 54,7; 62,4 to 139; 151; 212; 216 ♣ V. next page of this paper; 219; Appendix; 152; 185; 188 to 192 we here see that a Bony fish as a fish may be highest, but as part of the Vertebrata lower; 208; 278; 290; 294 V. Back

SB3 □*β*

lxv Oldest Fish highest (Book written against law of development higher & higher with which I have nothing to do

lxxi X[⊗] good against evidence for any number of supposed fossils xciv

xcvii difficulty of appearance of Cycloids & Ctenoids (Developed in hot ocean)

ci - on separation of Fish & Lizard

cxiii argument for coming in of Mammals, now broken down by Purbeck

cxxv Falconers argument that serial species do not accord in time or space

ccxii nature shows love of order & harmony independent of mere vulgar use - one may say this when one knows one plant or

SEDGWICK

animal so well as to say why its numbers are so many, not that I pretend every character useful – Inheritance & Laws of correlation & direct effects of conditions
 ccxvi On genera & orders always keeping distinct. V. note at Back
 152 Socrates on use of eye-lashes
 186 Good account of why Fishes ♦ Sharks highest to p.193
 188 On Embryological Development p.278
 192 On coexistence of spiral valves in intestine & Bulbus arteriosus in Ganoids & so allied to Batrachians
 208 Oldest Rocks in America

ix zb xxxiii 1–3m, 16–18m xxxiv 11–15m
 xlvi 4–6m, 14–20m/15–17w not put fairly liii
 17u "Cuvier", 24u "Agassiz" liv 7u "Owen"/
 9–14m/1–8w 3 greatest authorities, pointedly,
 even bitterly declared against theory So Horticulturalist about varieties lv ↑5–2m lvii
 19–23w absence of links between classes
 lxii 4–11m lxiii 4–8m, 15–23m lxiv 17–20m
 lxv 28–30m (Owen) lxviii 1–5m lxxi 6–9m/w
 all excellent lxxiv 11–15m lxxxiii 1–3m xci
 20–23m xcii 13–19m xciii 13–15m (Cuvier)
 xciv 14–16m/w very true 30m/a "Classes"
 Kingdoms 30u "Classes"/wb ? not the Fishes
 & Reptiles xcvi 23–26m xcvii 6–9m xcix 10–
 14m c 25–28m/w But take existing fish &
 existing Reptiles ci 5–12m (Agassiz) cii wt/1–
 12w the first appearance alone ought to be
 chronologically in harmony with natural
 affinities 24–27m, 30–31m ciii 5–22m civ 9–
 16m/w shows how imperfect our knowledge
 of aerial productions 19–23m/w Birds a
 capital argument versus. cvii 7w no! cvii 1–
 3m cxii 23–25m cxiii 10–12m, 29–30m
 (Cuvier) cxvii 1–5m/w except change in
 nature of deposits 6–7u "organic interval",
 27–29m/27u "seem" cxix 6u "Ceteosaurus"/w
 Where described? cxxv 13–16m, 17–18m, 19–
 26m/w opposed to Agassiz argument of
 affinities going with space cxxvi 3–6m, 3–
 13m, 14–20m, 22–25m, 5–26w The most
 important case I have yet seen cxxvii 5–10m,
 15–17m cxxviii 1–3m, 17–19m cxxix 25–27m
 cxxxiv 21–27m, wb All facts &c. do not show
 that there is no difference between species
 & varieties, only that no one can often
 distinguish them – cxxxix 3–5m/3u "gradually
 exterminated"/5u "not | transmutation" cli 16m
 (Whewell), 30m cliv 3–6m, 14–16m cxii 2–6m,
 16–23m ccxiii 20–22m/21w Owen ccxvi wt
 True great classes will never run into each
 other – even Lepidosiren does not do that.–
 wt/1–16w what does break-down mean –
 either then true classes run into one, or are

not so distinctly separated 4–5u "there |
 organic", 5–9m, 13–14m/w What does this
 mean 14u "improve | perfect", 14–15u
 "break | down", 15–17m/w yet naturalists often
 do this ccxix 9u "organic | analogy", 14–
 18m, 20–21m 181 13?/u "Neptune" 185 28–
 32m 186 5–9m, 15–19m (Owen, Hugh Miller),
 29–32m, 36u, wb Electrical Fishes 187 15–
 21m/17u "chronological history"/w no 18u
 "stultifies | development"/w yes 188 3–5m, 11–
 19m (H. Miller), 31–36m 190 1–10m (M'Coy),
 19–21m 191 26–36m (Agassiz) 192 35–36m 193
 1–3m 208 16–19m/16w ♦/17u "oldest", 33–36m
 276 1–19m (Vestiges, Owen) 277 22–32m/22u
 "what | prove" 290 13–17m/13–20w quite
 certain no means of telling what is a species
 294 14–15u "appearance finished"/13–16m
 (Vestiges)/w no ♦ – V. note my M.S.

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 district* Kendall; John Hudson; 1853 [Down,
 I]

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 memorial of the trustees of Cowgill Chapel*
 Cambridge; University Press; 1870 [Down, I]

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 remains of Aves, Ornithosauria and Reptiles*
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NB O/

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part 1 NB O/

part 2 ♂

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 Theorie* Leipzig; Wilhelm Engelmann; 1876
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 Darwin'sche Theorie* Dorpat; Mattiesen; 1871
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title page wt Presented by C. Darwin
 (Duplicate)

SEIDLITZ, Georg *Die Darwin'sche Theorie* Dorpat; C. Mattiesen; 1871 [CUL, I]
beh, ct, em, gd, he, mm, mn, oo, or, phy, sx,
ud, v, y

NB 37 Variability of Embryo

47 Castrated Reindeer does not cast Horns
off

♂

122 Causes of colour of eyes of Birds

127 Protective Colours of Beetles

135 Instinct good – diving of young ducks
whose parents fly away – only like squatting
– for parents do not dive to avoid danger

208 Origin of senses in cells in skin sensitive
to light

144 Reversion in blind insect & has
imperfect eyes

147 Replacement of rats in Europe

176 Carabus in Pyrenees & in N. of Europe

37 21–33m (von Baer) 38 25–29m 47 31–33m

122 8–33m, 34–37m 126 27–32m 127 35–36m

134 21m 135 wt/1–4w Diving of young ducks

whose parents fly away cannot have been
learnt by no by ancestors 16–22m/18w (a)

144 18–21m 147 12–29m 176 8–13m 208 2–
38m (A. Müller) 210 27m

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2nd edn; Leipzig; Wilhelm Engelmann; 1875
[Down, I] ♂

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Zoologisch-Zootomischen Institut in Würzburg
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♂

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conditions of existence as they affect animal life
London; C. Kegan Paul & Co.; 1881 [CUL]
gd, is, t

NB 287 298 Geog. Distribution

290 Wagners Theory

287 15–21m, 38m 288 10–13m, 18–21m, 23–
26m 290 1–5m (M. Wagner) 292 11–14m ♦ 298

20–28m 300 10–15m 303 9m 308 6–15m

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Existenzbedingungen der Thiere Leipzig;
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[Down]

cc, oo, tm, v

NB p39 – Buck-wheat – Affecting animals
differently coloured

♦ p41 graduated skulls

39 36u/wt 41 1–41m

SEWARD, Anna *Memoirs of the life of Dr*
Duncan London; J. Johnson; 1804 [Down,
pre-B, S]

SHAFTESBURY, Anthony, Earl of *Char-*
acteristicks of man, manners, opinions, times 3
vols.; London; 1749 [Down, ED]

SHARPE, William *Man, a special creation, or,*
the preordained evolution of species London;
Robert Hardwicke; 1873 [Down, I]
h, pat

NB p.119 Colour & resists disease
Used

118 22–26m 119 1–6m, 21–24m

SHIREFF, Patrick *Improvements of cereals*
Edinburgh & London; William Blackwood &
Co.; 1873 [CUL]
cs, sl, spo, ta, v

NB 7 several vars. selected out of Fields

SB ∞

7 selected 3 new vars. in one year, from 70
Ears collected out of several fields

p.10 vars. crossing

p.33 & 35 constant & inconstant vars. from
crossed wheat.

p.47 The vars. naturally cross, but seldom

p.94. crossing increases variability, & gives
greater field for selection

7 1–7m 10 12–24m 29 18–25m (Darwin) 33
20–23m/23u "constant variety" 34 11–14m 35
18–19m, 23–24m 47 1–7m/w do not cross
much 11–16m/12w bud-sports 94 12–16m, 15–
24m

SHUCKARD, William Edward *Essay on the*
indigenous fossorial Hymenoptera London; by
the author; 1837 [CUL, I]

ex, f, fg, ig, in, sp, spo, sx, sy, t, tm, v

NB1 Neuration of wings variable in the
species of Fossorial & difference in this
point characterizes the sexes.–

So individual bugs are winged or less & so
sexes.

SHUCKARD

So jaws of *Lucanus* sexual & variable

So horns of *Sheep*.

NB2 =Make stalk of variable parts= also in Coleoptera

5 11 19 23

Variation p40 43 48 62 64 to 70 76 79 & 80 85 98 100,2,5,7 137 139 141,4,8 186 191 204 213 241,2 250

Besides these species which are variable, it must be remembered how very many are rare & therefore may vary, but it is not known-

SB □β

40 Q variation of nervures p.43 do better case in genus *Typhia* Q

39 Neuration differs in sexes Q

48 -Q In *Pompilus* nervures differ in species & in individuals (p.4 Neuration of fundamental importance in classification of these Hymenoptera, as shown by Jurine

241 Excessive variability of shades of colour in *Cerceris*

I see I have note about Bugs being winged according to sex & variable individually

5 7-9m/8u "to vary", 11-13m/13u "marked | constant" 8 18-19m ♦ 11 16-18m/17u "great | genera", 21-23m 19 10-12m 22 15-23m 23 1-2m, 8m, 11-12m/8-18w Important as showing some species are fertile, not owing to any general law, but to the peculiarities of their own propagation.- 39 28-29m/Q 40 20-31m/21m/25m/27u "stigma nearly"/29m 42 31-33m 43 3-5m 48 18m/u "in | individuals"/16-19m/w are different in Fossors in males & females V. p.39 24-25m/u "P. | monstrosity"/20-25w In allied families wings absent in females 62 10m/u "of | posterior" 64 18-20m, 18-19u "which | *Aporus*"/w a diff. genus 65 15-19m/16-17u "and | punctured" 67 14m, 20-23m/20-21u "markings | wings" 70 3-4m, 3u "line | colour", 4u "traversing | not", 21-22m/21u "markings vary", 27-28m 76 33-35m 79 31-32u "third | petiolated" 80 6-8m 85 23-25m/u ± 98 18-19m 100 23u "black ring", 24-25m/24u "sometimes obsolete", 27m/u "interrupted", 27-28u "yellow | margin" 102 12-13u "are | interrupted", 13-14m 103 15-19m/16u "male"/18u "multitude | species" 104 32u "abdomen", 33-34u "first | red", 34u "is | red" 105 1u "or black"/2u "sometimes"/3u "lacteous | of"/4u "segment"/1-4m 107 1-3m/2-3u "characters | mucro" 137 2-3u "yellow | above" 139 14-16m 141 34-35m/u ↔ 144 9-11m, 9-10u "sometimes | only" 148 23u "sometimes", 24-26m, 25u "reduced | spot" 149 8u "variable | abdomen" 152 10-12m 156 11-12m 186 4-6m/w These may be compared to the sports of

Roses & Wheat 191 14m 204 19-21m/21u "frequently entirely" 205 12-14m 213 3-5m 241 14-20m, 27-32m 242 4-6m, 26-29m/!!!, 29-30u "without | fault" 250 7-9m, 22-25m 251 1-2m, 7-8m ♦ 252 8-10m, 15-17m

SIDGWICK, Henry *The methods of ethics* London; Macmillan & Co.; 1874 [Down, I, S]

SIDGWICK, Henry *A supplement to the first edition of The methods of ethics* London; Macmillan & Co.; 1877 [Down]

SIEBOLD, Carl Theodor Ernst von *Beiträge zur Parthenogenesis der Arthropoden* Leipzig; Wilhelm Engelmann; 1871 [Down, I]

SIEBOLD, Carl Theodor Ernst von *On true parthenogenesis in moths and bees* trans. W.S. Dallas; London; John Van Voorst; 1857 [CUL, S]

beh, cc, cs, em, f, fg, hy, oo, phy, rd, sp, sx, v

NB1 Find single seed-bearers & mix pollen of two species or vars

p.70 order F. Smith get good description of Italian Bees

NB2 4; 34; 38; 53; 61; 68 to 75 vars of Bees; Crossing natural; 107; 107 Hooker - Gall-insects male & female in different galls

SB1 □β

p.4 long life of Spermatozoa - p.61

34 Female Psyches in rudimentary condition

53 Dzierzon on unfertilized eggs producing drones

68 Differences of Italian Bees - dark Bees appear amongst the Italian Bees *Apis Ligustica* p71.

69 Golden Bees more industrious & better tempered

70 References to the *Bienenzeitung*

72 fertile when crossed

107 on differences of sexes according to conditions of life of larvae of certain Hymenopter. insects.

106 sexes in Parthenogenesis

(fragment of a letter from B.D. Walsh of 25 February 1867)

4 17-21m 34 17-26m/w rudimentary state 38 10-15m 39 22w why ? 23-33w ♦ They are not fully developed & therefore are in degree in larvae state 53 25-28m (Dzierzon) 56 24-28m (Dzierzon) 61 24-26m 68 4u "variety"/3-6m/w F. Smith calls species 8-19m/9u "rusty | colour", 23-26m, 24u "amongst | yellow", 27u

"*praesentior magis*", *wb* ♦ V. original German to see whether in same hive 69 1-3m, 5u "gold | Bees", 6u "together", 10u "cum | alvo" /w same hive 16u "*rectioribus cruribus*" /w ask F. Smith 20-22m, 25u "1806", 29u "*Lago Maggiore*", 32u "*according | Spinola*", 33u "*also | Piedmont*", 35-39m 70 1-8m, 20-22u "*From | bee*", 21-25m, 40-42m (*Berlepsch*) /w order this book 71 10u "*crossings*" /wt/1-10w I must ascertain whether this refers to pure Italian Mothers. 14-16m/u ↔, 14a "*Italian*" crossed?? 20u "*only*", 21c "*Such*" /21-24m/w I do not understand V. original 72 24-32w clearly much crossing has taken freely place & yet fertile 73 5u "*hybrid hives*", 13-15m/14a "*hybrid*" ized 18a "*hybrid*" ized 19-20m 74 16-19m, 34-36m 75 7-12m, 14c "*otherwise | say*", 20a "*hybrid*" ized 94 25-34m (*Herold*) 106 27-32m 107 19-23m (*L. Dufour*)

SIEBOLD, Carl Theodor Ernst von and STANNIUS, Hermann *Anatomie comparée*, 2 vols in 3 parts; Paris; De Roret; 1850 [CUL] cs, em, fg, phy, sx, sy, tm

vol. 1, 1st part, NB ♦ p.12; p.22; p.34; p.48; p.51; p.70; p.106; p.142; p.170; p.221; p.223 like Land-Crabs; 229 *Hirudo* no metamorphosis-; Annelids Cephalobranches fertilised by means of water 12 26-29m 22 1-3w Larvae ? 4-6m 34 1-4m 48 21-24m, 40-42m 51 34-35m 69 1-2m 70 1-6m 94 15-19m 106 3-5m 107 4-8m 142 2-6m, 8-9m 170 5-8m, 7-11m 221 17-21m 223 6-9m 229 15-17m, 18-20m 230 14-17m 231 19-23m

vol. 1, 2nd part, NB p.282; p.285; p.328; p.330; p.341 & 2; p.348; p.355; 520; 527; 535; 537; 568; 594

SB □β

330 *Ampullaria* Lungs & Branchiae
342 Male & female glands invaginated & yet leading to distinct orifices! p.348
529 Tardigradae, Arachnidae Hermaphrodite
282 20-27m/11-31w Is Herm. so must be able to cross 285 6-7m 328 7-11m 330 37-41m 341 1-7m, 14-17m/16u "*invaginés*", 19m 342 1-14m/wt/1-16w How striking as they arise from invaginated glands: showing bisexuality 343 1-8m 348 5-11m, 10-17m, 30-34m 355 6-10m, *wb* shows animal System not perfect, nowhere to put *Sagitta*, throughout exceptions made 400 6-15m 410 6-7u "*Monografisk | 1842*" /7m (*Kroeyer*) 418 27-30m/! 426 1-6m 433 1-2m 434 27-31m 436 7m/u "*yeux | facettes*" 443 7-8m, 27m/u "*Karsten | 20*" 445 1-5m 465 10-18m 470 1-14w glands for viscid substance 473 20-24m 476 38-41m (*Goodsir*) 477 1-2m 489 32-35m

(*Rathke*)/33u "*Wiegmann*", 36-37u "*Erdl | 1843*" 491 24m (*Rathke*), 28m (*Goodsir*), 33-39m/37-38u "*Kröyer | Homerus*" /w Bell 38w 1 39u "*Erdl | 18*" /w 2 520 17-21m 521 1-4m, 44→ 522 28-31m 526 1-19m/w curious case of poisons so different in two orders 527 6-28m 529 wt/1-3w see p.496 for references 5-9w I cannot find out what 5-7w only genera *Milnesium* *Macrobiotus* *Enydium* 9-12m, 13-14u "*Les Tardigrades*", 14u "*hermaphrodites*" /w What are Tardigradae 535 5u "*des | très*", 8u "*entre | postérieures*", 14u "*prolongement | menton*", 22-23m 536 18-19m, 21-25m 537 12u "*aboutit | abdomen*", 19-21m, 26-29m/w peaking 40-43m (*Menge*) 568 13-16m 594 1-2m 601 22-27m

vol. 2 ∅

SIEGWART, Karl *Das Alter des Menschengeschlechts* Berlin; Denicke; 1873 [Down]

NB O/

SKERTCHLY, Sydney Barber Josiah *The physical system of the universe* London; Daldy, Isbister & Co.; 1878 [CUL, I] geo

NB George p369; p315 References on Denudation; decay of flints; 321 Denudation & Worms
xiii 7m, 13m, 26m xiv 7m 315 27-31m (*Taylor, Geikie*) 321 4-20m 369 19-22m

A SKETCH of a philosophy, part 2: *Matter and molecular morphology* London; Williams & Norgate; 1868 [Down] ∅

SMELLIE, William *The philosophy of natural history* Edinburgh & London; Elliot, Kay, Cadell & Robinson; 1790 [CUL, pre-B, I by J. Wedgwood, S C. Darwin Given me by my uncle J. Wedgwood]
beh, f, fg, he, is, mg, mm, oo, no, sl, sx, ta, y

NB Poor Book; p.139; p.146; p.150; 204; 254; 258; 282; 281; 310; 381; 389; 393; 396; 458; 462; 466; 472; 491; 500; 512; 515; 520
SB □β
p383 Marine Birds few eggs - Orang outang - Lions a good many p284
396 Pair of sparrows destroy 3360 caterpillars weekly
515 age of toad (Ch. 5)
513 age of some Big Birds.- Ravens & Geese lay a good many eggs, yet old livers - So with Carp, which lay so many eggs-

SMELLIE

139 14-19m 146 17-19m 149 22m/u "and|it"
 150 5-11m 151 4-5m, 7-8m 204 19-21m 253
 19u "seeds"/19-31w(not CD) 254 28-31m 258
 6-9m, 29-32m 281 10-11m, 15-16m 310 3-
 14m 381 5w V. p.383 7-10m/7-32w/wb What
 is probable cause of this? - Why should
 many struggling for life ultimately better
 succeed, than a few = Is it that young
 carnivores are protected by fierce parents in
 youth? - are parents long lived? or not
 destroyed by other animals? 383 2a
 "carnivores"/wt marine birds few eggs 4a
 "waters"/wt crocodiles 2a "prolific" Elephant,
 Orang!!! 2a "quadrupeds"/wt pooh. V. p.284
 for Lions & tigers - contrasted with horse -
 sheep &c &c ! 2-4m/4u "who are all
 carnivores", 4-6m, 6-19w Ostrich many eggs
 - Humming birds few eggs?? = does
 defending powers of parent cause few young
 ?♦ by♦ only few being destroyed? 389 5-
 6m, 9-10m, 23-25m 393 20-22m!/22u↔, 24u
 "annihilated|universal", 25-29!, 27u "single|
 permitted", 28-29m 396 1-4m 397 1m/u "and|
 weeks" 454 25-27m, 30m 462 13-14m/u
 "Dogs|generations", 30m 466 16-18m, 24-
 26m/24u "a|mark"/25u "impossible|immense",
 28-30m/w/wb This being habitually con-
 sidered wonderful, shows how closely they
 resemble each other. 472 9-12m 491 7-9m/w
 occasional yet true migrations are of difficult
 explanation 500 1-4m, 20-21m 512 7-8m, 27-
 29m (Buffon) 513 3u "Eagles", 6w 41+? 11-
 12u "The pelican", 13u "eighty", 17u "twenty|
 years", 19-20m, 24u "knew|years", 26u
 "hundred|years" 515 8u "1|years"/w toad 20u
 "old toad", 21u "thirty|years" 520 10-11u
 "annihilation|species", 13-14w islands!! 16u
 "would|this"!!

SMITH, Alexander *The philosophy of morals* 2
 vols.; London; Smith, Elder & Co.; 1835
 [Down, JW]

SMITH, Andrew *Illustrations of the zoology of
 South Africa* 4 vols.; London; Smith, Elder &
 Co.; 1849 [CUL]

af, beh, ex, gd, geo, ig, is, mg, oo, sp, sx,
 sy, t, tm, v

vol. 1 SB □β

Macleay p6 Says importance of character
 inversely to variability

8 thinks anomalous groups merely mean
 links lost

5 6-22m, 23-26m/23u "genus" 6 30-33m 7 1-
 5m, 19u "Natural arrangement"/18-29w It may
 be asked what is meant by natural
 arrangement - first step vague.- if it is said
 affinities of animal - what does affinities

mean? 29-32m/!, wb most resemblances -
 endless disputes, sum of differences |
 conceive object is real relationships 8 15-
 18m, 41-43m

vol. 2 NB ♦ Pl.13 & 17 other vars. & colour;
 Pl.26.

SB □R

Pl 13 & 17 other cases of vars. in colour -
 surprising =

& Pl 3 bright green good case of local var.

Pl. 26 good case of Local var of Lizards
 Pl.77♦ pl. 11- 35-39m pl. 11+ 31m pl. 13-
 15m, 21-30m/w see before good case of
 variation 36-37m pl. 18+ 1-3m pl. 27- 15-
 16m pl. 38- 8-9m pl. 38++ 32-33m pl. 39-
 32m pl. 39+ 9-12m pl. 78- 22-26m

vol. 3 SB1 □R Aves

Pl vi; Pl ix; Pl xxii XX; Pl xx 9; Pl. 44; Pl 63;
 Pl 68 species replacing each other; Pl 110

SB2 □β

Pl ix one swallow taking others place
 periodically during migration of former.

Pl. xxii Variation of Beak - good sentence -

-44 Variation in size even 1/3 longer -

-63 many close representative species Cape
 & Senegal -

-110 A lark, which strikes its wings together
 in flying up

Pl. 7- 19-22m Pl. 10- 33-36m pl. 23- 35-39m
 pl. 30++ 13-16m pl. 45- 1-10m, 15-16m pl.
 64- 22-30m pl. 69+ 14-17m pl. 110- 26-27m

vol. 4 SB □R

Pl I

Pl.30 33 Q 38 one Antelope ranging further
 than other feeding together & then
 separating & one ranging further South -
 Thinks some animals as Elephant migrate
 from Will others from impulse.-

Catoblepas Gorgon

pl. 9- zb pl. 14- ↑7-3m pl. 29+ 26-41m/26u
 "proportion|herds"/28-30u±/w Polygamy 36u
 "male|young"/35-39w killed when expelled &
 not adults of others watching pl. 31- 21-
 23m/w these two species have different
 habits.- vide next species 25-27m, 37-40m,
 wb Every continent must once have been
 islands - hence representative species
 would radiate out & keep to their localities
 pl. 31- 13-20m pl. 32- 30-33m/w This is the
 other pl. 33- 25-27m pl. 39- 1-3m pl. 39-
 36-40m pl. 42+ wt Koodoo

SMITH, Charles Hamilton *Dogs* (vols 9 &
 10 of *The naturalist's library: Mammalia*) ed.
 W. Jardine; Edinburgh; W.H. Lizars; 1839-40
 [CUL]

af, beh, br, cc, cs, dg, ex, f, fg, fo, gd, he, hy, ig, mn, no, oo, phy, rd, sl, sp, sx, t, ti, tm, v, wd, y

vol. 9 NB1 ♦ It would appear that greater the difference as in pigs between parents greater the fertility, as long as difference is not connected with generative system. Infertility is not consequence of difference in size.

Dioecious & hermaphroditic flowers can be crossed.

NB2 What a case of confusion in the canines, what are species & what races especially the diurnal canines

75; 87 to 190; 239

p75 Reference to Pallas Works ♦ Paper on Degeneration See Cuvier Eloge

SB □β

88 Australian Dingo not breeding at Paris Q
89 Capra tharal breeds easily with domestic goat

93 Young ♣ of feral boars striped this is a return of long latent character. as well as Tusks & bristles Q

94 Hair of tail in Indian Boar bristly & sagittated. Mem. W. Indies Q

96 Bos gaveus fertile. see Griffiths Animal Kingdom

101 Posterior branch of lower jaw in Mastiff, altered Q

98 Cuvier says Jackall comes nearest to Dog Q

106 Mastiffs always in temperate countries (Cuba Bloodhound, Aegyptian do N.Q.)

119 Difference in gestation in domestic animals by Tessier

136 The Siberian race of Wolves easily known 148 various vars. of

152 Pallas on crossing of Black & White wolves & Dogs Q

155 says Black & White wolves keep separate from others (see Mauduyt pamphlet) (Ch. 6)

154 Doubts on distinctness of American & European wolves

168 The Red ♦ wild Dogs of India destroy young Felidae

xii 10-13m, 13-15m 75 21m (Pallas) 87 1-6m, 13-17m, 17-20m 88 8-11m, 13-14m, 18-20m/?/14-22w curious if true 89 1-3m 91 3-17m 93 3-10m (Cuvier), 13-23m/Q 94 11-16m, 16-18Q, 19-21m 95 25-28m 96 19-23m (Griffith) 97 27-31m 98 17-19m 100 25-27m, wb quite overlooks selection 101 10-14m 102 20-24m (Cuvier) 104 3-19m, 22-24m/w no! 105 28-31m 106 19-23m 108 8-14m/wt/1-15w I think several allied forms have lately been found

109 6u "foxes", 32-33m 110 7-8m 112 17-21m 117 11-13m 118 3-5m 119 24-27m 124 21-24m, 30-31m 125 15-19m, 24-30m, wb stories not being invented to show revenge in dogs, makes one believe it in monkeys 127 1-5m 129 wb is the Aguarachas related to fossil Hyena of Lund. 133 30-31m 136 20-21u "Siberian race", 22-24m 144 13-21m 148 16-25m 149 2-17m 150 17-19m 152 16-23m, 31m (Pallas) 154 10-19m (J. Richardson) 155 6-10m/w How known?! 26-31w/wb good case, if true, of 3 allied & analogous species in the two continents 159 24-28m (J. Richardson) 168 6-14m, 16-21m/16u "surmise"/18u "keep | increase" 171 11-15m/m♦/ 190 25-26m/? 239 24-28m 267 8m/1u "End | I."

vol. 10 NB1 The analogy of sheep & Cattle makes me doubt Col. Smith hybrid view of dogs (supported with recent conditions & showing pains taken in old times) – for equal numbers must be used to make an intermediate breed & how many parent sources & these sources with characters more permanent (because since hybridised) than now, more acute greyhound – more ♣ brave bloodhound.– occasionally crossing produces effect merely like ordinary variation in excess & thus I believe in – as all hybrids are intermediate, we must suppose as many types as now varieties. How many does H. Smith make?

NB2 78 to 236 ♦ 302

Think over how many English Breeds how many in Zoolog Gardens & other parts of world & extinct kinds!!

SB □β

7 Q9 Mammae of Dogs 10 to 7

94 Ancient Dogs, few Q

103 Colour attended to in ancient dogs, Xenophon (Selection Ch I

104 no pendent ears in old Dogs except in one Aegyptian Dog p107 do

121 Feral Dogs of St Domingo Q

133 Newfoundland semi-palmated Q

156 Florida Indian Dog like Wolf of country Q

158 American dogs breeding freely with wolves of Country N.Q.

196 Pointers standing 1 1/4 hour Q

207 Bull-terrier a crossed Breed

210 Extinction of Dogs in Pacific

214 Q Patagonian Dogs destroying poultry – Ears erected in all these

215 Fuegians value dogs

217 Mastiffs indifferent to form crosses with other Breeds!

218 Toes of Mastiff very generally a fifth in hind feet Q

SMITH, C.H., DOGS

243 Races of Foxes

Synopsis of Canidae at end.

(over) The Plate of Alco dog shows hair growing round eyes

♂
78 28-30m (Richardson) 79 8u "in|sow"/Q 9-10u "species|intermixed", 10-14m (Daubenton), 15-16u "and|other"/w hence variation 20-22m/w (a) wb (a) I doubt any hybrid having unequal mammae 80 7-9m, 10-13m/10-11u "albinism and melanism", 12-13u "they|generation" 81 15u "all|of", 16-17u "into|variety" 82 1m 89 1-2m, 8-10m, 16-17m, 21-23m 94 1-2m, 6-11m, 15-17m 97 1-15m, 14-19m 99 19-20m, 26-30m (Buffon) 101 17-25m 102 1-3m, 4-9m, 11-14m 103 9-10m, 11u "vulpine character", 16-20m/17u "were originally"/18-20u± 104 1-2m, 3-5m, 30-31m/30±.../31u "exception|instance" 105 2-5m/5±...", 14-22m 106 28-31m 107 1-4m, 6-7?, 16-18m, 20-24m, 28-29m 109 13-15m 110 4-7m 111 18-21m 113 12-17m/14w (a) wb (a) a most unclear rigmarole of old names, all these latter pages 116 12-13m 120 11m, 11-12m 121 14-16u "large|ears"/m/Q 22-23m/u↔, 26u "whitish-grey", 27u "slate coloured" 122 14-16m, 28-31m 123 1-3m/1u "blackish", 15-19m, 25-27m 124 3-8m, 17-19m/18u "webbed|furred" 131 3-4m, 24m 132 7-8m/Q 133 12-14m 134 13-16m/13-14u "Esquimaux|races" 136 22-26m 137 16-18m, 18-19u "till|innate" 139 8u "The|dog", 19u "Molossian|dog" 140 7u "The|dog", 14-16m/15-16u "called|Society" 150 18u "Turkmen|dog" 152 23u "yet|to" 153 1u "the|Domingo" 154 5u "The Drover", 6u "Firma in", 24m, 29-30m 155 28-29m 156 22-23m/Q 157 11u "the|national", 12u "like wolves", 19u "the Caygotte", 22-25m, 29-30u "The|resemble" 158 1-5m, 24-26m 159 6-11m 160 5-6m 162 1!!/u "such|modern", 3-7w how little he knows of Selection 8-11m/9-10u "form|qualities", 23u "instead|smell"/w Bull-dog! 25-26u↔, 29u "individual attachment" 163 12-16m 164 11-13m, 16-17m/17u "black" 165 4u "Russian|Tahtar", 6u "silky", 8u "Southern|Western", 10u "haired|those", 22-26m, 26-28m 167 13-15m/14u "personally attached" 168 1m/w 1 5-6m/w 2 14-15m/w 3 169 12w 4 170 1w 5 172 3-5m (Bacon)/4-5u "idols|kennel", 11u "breeding-in destroys", 12u "after|first", 21-24m/22-23u "which|rough" 174 16-17u "that|many" 175 20u "long|ears" 176 17-18m 180 21-26m/25u "race", 26-31m 181 1u "small Hyaena", 3-4u "Lychaon pictus", 7-10m 182 8u "tigris", 12-13m 184 12-15m, 16-17u↔ 185 1-4m 188 26-28m, 26-30m, wb always

overlooks the necessity of long selection to make a crossed-race 190 14-16m/15u "more crossed" 191 20-22m, 27-28m 194 9-11m, 20m, 23-24m 195 3-4m, 11-15m 196 3-7m, 7-11m, 15-16m, 16-18/Q 197 1-4m 198 3-5m 199 12m 200 16-20m 202 19-22m 203 24-31m 206 26-31m 207 1-4m, 15-18m 209 11-14m, 14-16m 210 15-17m 211 9-26m, 27-29m 213 2-7m 214 2-7m, 15-17m, 18-20m, 22-24m, 28-31m 215 7-13m (FitzRoy) 217 14-16m 218 19-23m/Q 219 2-4m 220 4-5m 221 14-24m 222 17-22m 224 18-20m 226 25-27m 227 10-19m, 19-26m 228 10-12m 236 3-6m 237 28-31m 238 3-4m 239 10-12m 242 12-14m 243 15-16m/16u "smaller" 244 3-5m, 6u "black ring", 7u "more grizzled", 7-8u "Mr Pennant", 8u "cur foxes", 8-9w V. this descript: 11u "without|mark", 12-17m/14u "become|the", 24-26m 246 13-15m 248 23-24m 250 5u "The|Fox" 251 11-13m/11u↔/12u "larger size"/13u↔, 18u↔ 252 5-8m 253 29-31m (Cuvier, Richardson) 265 15-17m/16u "fifth" 267 10-13m (Lalande) 268 22-24m/22u↔ 269 4-6m (Rüppel) 276 7-10m 282 5-8m (Lalande) 284 15-17m 285 18-20m 289 12u± "have small", 27u "odour offensive" 302 6-8m/8u "common|wolf", 10-13u±, 14u "is|south"

SMITH, Charles Hamilton Horses (vol. 12 of "Mammalia" in the Naturalist's Library), ed. W. Jardine; Edinburgh; W.H. Lizars; 1841 [CUL]

hy, or, sp, sx, t, ti, v, wd

NF This work is reviewed in Veterinary for October? & November 1841

NB1 ↔ Mrs Hamilton Gray's Etruria says the figure of the old Etruscan horses are like ♦ those of a Dongola breed

NB2 ix; xi; 63 to 120; 135; 145; 151; 156 to 185; 192; 199; 202; 207; 208; 210; 224; 237 to &c &c 266 to end

ix 1-2m xi 7-9[...]/8u/c/w€/9-12m/Q/11-13[...]/11u±, 26u "curiously spotted" 63 19u "Tahtary|Ireland", 22-23m, 32u "some|Ireland" 64 13-16m, 20-21m/!|21u "other genera" 65 29-30m 66 4u "upwards|surface", 5-8m/w ice period! 67 ± 10-11u "existence|type", 12u±, 13u "Asia, Africa", 14u "Mediterranean", 19m/u "cannot have", 27-30m 68 ± 2-5m/!, 7-10m 69 ± 1-3m, 8-16m, 18-19m, wb it certainly is no greater difficulty in supposing many pairs, than one pair produced.- 70 ± 8-10m, 14-18m, 28-29u↔ 71 ± 17u "1821", 22u "five|after" 72 ±, 5-9m, 16-25m, 22u "plurality"/26-33w point of comparison between varieties & species crossing 73 ± 4-8m, 11u "one|species", 14u

"*Equus caballus*", 16-31m 75 1-2m/2u "it | noticed", 14-15m, 23-25!!/m 76 27-29m, 29-33m 82 3-9m 85 4-6m (Moses) 87 32-33m 91 2u "feral"/w good word 94 16-18m 95 20-23m (Herodotus, Aristotle, Pliny) 101 17-18m/17u↔, 19u "still | Axia", 20-23m, 21u "Attention | in" 103 22-25m/24u "in | fortieth" 106 1-4m, 7-10m, 12-24m 109 18-20Q 20-22m, 21u "a | colour" 110 31-32m 112 7-10m 116 15-19m, 22-23m 120 7u "poneys" /?, 8-14m/w are these now different??? 121 zb 135 3-4m↔, 4-7m, 11-12m 140 9-12m 141 7-8m 145 12-19m 148 7u "Forster", 10u "Pallas", 11-22m 151 19-26m 156 1-2m/u "Great | highlands", 3-12m/6-10m/7-8u "the | black" 157 24-25m 158 20-23m/20u "Prussia" 159 2-4m/3u "eelback dun" 160 17-20m 163 11-15m, 16a "Tarpans" ie wild horses 16-18m/17u "tan | mouse" 164 12-15m, 15-20m 165 5-7m 168 14-18m (Virgil), 23-27m 169 3-6m 173 21-22m 174 24-25m (Rengger)/25u "1537", wb 3 authors 175 13-16m, 25-26m, 31m 176 8-11m, 13-21m, 14-15m, 30-31m 178 21-25m, 24-25m 179 1-3m, 5-7m/5u "mostly bay" 181 26-31m 182 23-28m 183 1-3m, 6-9m, 29-31m 184 5-15m 192 4-7m 199 12-19m/14u "five great stirpes"/w what? 19u "some | seals", 20u "the | brown", 22-25m 202 21-23m, 25-27m 207 25-31m 208 19-21Q 21-23m/w 5 stocks 210 27-29m 224 14-15m 237 24-28m 243 24-31m 253 5-11m, 18-23m 266 24-29m 268 17-20m 269 13-16m, 23-24m 274 wt chesnut 1-9m, 7-9m, 12-26m, 28-29m 275 2m/2-3u "when | grey", 3-5m, 5-10m, 13u "divergent | chestnut", 14-16m, 15-16m, 18-19w Kutch & Malay Archipel. 21-22x↔, 23-25m/23u↔ "dun | the", 25-26u "without | cause", 26-27m/26u↔ "dappled" 276 28-31m 277 1-4m 280 22-23x↔, 24-29m 281 6-8m, 10-11m, 28-31m 283 10-16m 284 12-16m 285 6-16m, 28-31m 286 14-23m 287 11-13m 288 7-10m, 10-11m 289 3-6m 290 3-7m, 19-24m 292 24-32m 293 1-5m, 13-20m 299 5-6m 304 16m/w Bands on legs 22-27m (Banks), wb Not likely from Zebra Cross 307 1-21w Utter confusion of species 308 3-6m 309 16-20m 313 3-7m, 12-14m/14u, 24-25m 314 4-10m, 13-15m, 16m (Pliny) 316 5-8m 318 8-11m/Q 319 29-31m (Duvaucel) 334 16-18m (F. Cuvier) 337 7-11m 338 13m, 22-25m 339 11u "two | camel", 13u "including | chartreux", 15u "cat | Pennant", 16u "tortoiseshell cat", 17u "originally indigenous", 21u "females | preserve"/w bosch! 340 6-10m 342 2-13m 343 1-6m, 11u "female | ass", 14-15m, 15u "slate-coloured", 30u "mule | indifference" 344 22-26m 345 16-17m/16u "grey | Egypt", 22-23m/22u "race | large", 31u "dun | breed" 346 7-12m/10u "two | female" 348

7-9m/8u "claim | demonstrations" facing 352 1?, wb a Doubtful species-

SMITH, Charles Hamilton *The natural history of the human species* Edinburgh, W.H. Lizars; London, Henry G. Bohn; 1852 [CUL] geo, gr, se, t, ti

NB1 Australian Geologists Boulder O

NB2 p.47 change in river flowing into Caspian of the Euxus

♦ 116; 117; 146

Nothing May 30 1857

47 wt Consider proofs of uprising of Siberia.- Erratus? no I think before Glacial Deposits wt Cd the Caspian have joined the Japan Sea 4-5m, 24-25→ 48 6-10m/2-9w See Murchison 13-27m 49 20-25m/21w Fish 26-27→ 50 22-27m 116 7-12m/Q 117 6-8m/w what an argument 21-22m 146 5-10m

SMITH, James Edward *The English flora* 4 vols.; London; Longman, Hurst, Rees, Orme, Brown & Green; 1824-28 [Down, pre-B, ED] che, fg, gd, oo, sp, tm, v, wd

vol. 1 NB1 Well worth while to plant seeds of common teazel & see if they cd be turned into hooked teazel; Preserve(CD?)

NB2 Verbascum Nineveh

329 first flowers 5-cleft subsequently 4-cleft; Preserve (CD?)

NB3 5

5 22-24m 280 wb Proved by Henslow, see Hooker that they are same species- grow mixed at Down in same field - foliage different 306 36-39m (W. Hooker) 308 44u "3 | high" 309 1u "seldom branched", 3u "decurrent", 4u "covered | sides", 11-15m, 38u "yard high", 39u "panicked | top", 41u "dark | above", 42-43u "not decurrent" 311 wt↔ Dec 4 1862 Rev. W. A. Leighton says he has tried this repeatedly on *V. virgatum* with like result X 9-17m, 40-43m, wb↔ I suspect end to partial capsule: & blow ants incidentally like chloroform on stamens of Picaberg.- 329 35-36m 333 9-22m, 45m 334 4-9m 339 zb

vol. 2 NB Maple Rare in Scotland; p337 Great variation in seeds of *Spergula*, but in no other part

38 34u "central | coloured" 39 35-38m/36u "one"/37u "neutral | red" 218 14m, 16-17w V. Down Nov.5 231 2m, 17u "rare | Scotland" 337 33-38m, 40-48m 398 wb Down. Oct. 13/42/ Found a Bramble with 9 or 10 petals.

vol. 3 NB 157 *Subularia*

93 wb in colour & size of flower - in shape

SMITH, J.E., ENGLISH FLORA

of spots on lower lip in their absence or in their being white or yellow - Down 108 *wb* Found wild Thyme with no stamens. Down Oct.13./42 126 *wb* Down 157 24*u* "always" 252 13-15*u±*, 17*u* "slightly|tips", 21*u↔* 427 1-5*m*, 7*u* "barren florets", 8*u* "reddish Corolla" 433 42-46*m/Q* 434 31-34*m*

vol. 4 NB 149 Acorn out of Pheasant crop grew

23 *wb* July 2d found snow white Conopsea 1843 - Down. 32 32-34*m* 43 24*m* 149 32-36*m*, 38-43*m*, 42*u* "why|error", 43*u* "contrary|botanists"

SMITH, James Edward *A grammar of botany, illustrative of artificial, as well as natural, classification, with an explanation of Jussieu's system* London; Longman, Hurst, Rees, Orme & Brown; 1821 [Down, on B, ED] sy, tm

NF Preserve

20 5-7*m*, 13-14*m*, 18-19*m* 21 9-26*m* 22 1-4*m* 28 1-4*m*, 18-20*m*, 24-28*m* 29 1-4*m*, 7-10*m* 30 2-18*m* 40 *wt* There are figures illustrating each class 42 2-3*w* ♣ Geranium 6*w* Broom 18-19*w* compound flower 22*w* orchis 43 1-12*m/4w* Nettles 14-16*w* Mosses, Ferns 45 11*m*

SMITH, James Edward *An introduction to physiological and systematic botany* 4th edn; London; 1819 [Down, pre-B, ED]

41 4-6*m*, 10-13*m* 62 19-25*m* 63 26-29*m* 64 20-21*m* 69 21-24*m*, 28-29*m* 149 16-19*m* 150 6-7*m*, 27-29*m* 217 16-17*m* 227 5-6*m* 231 2-6*m* 232 14-16*m* 241 20-23*m* 244 17-19*m* 247 15-17*m* 250 1-2*m*, 7-10*m* 253 26-27*m* 256 25-27*m* 257 15-17*m* 385 13-15*m* 387 11-14*m*

SMITH, J. Toulmin *The Ventriculidae of the chalk* London; Richard & John E. Taylor; 1858 [Down] ♂

SNELL, Karl *Die Schöpfung des Menschen* Leipzig; Arnold; 1863 [CUL]

r

NB ↗ p.54 Remarks on me; 103♦; O/ 54 12*m*

SOLE, Francesco *Il Positivismo* Napoli; V. Morano; 1881 [Down] ♂

SOLE, Francesco *Su la sensazione* Napoli; V. Morano; 1882 [Down, I] ♂

SOLIS Y RIVADENEYRA, Antonio de *Historia de la conquista de Mexico* Madrid; Antonio Fernandez; 1790 [Down, pre-B, S]

SOLMS-LAUBACH, Hermann zu *Fauna und Flora des Golfes von Neapel* 4. Corallina Leipzig; Wilhelm Engelmann; 1881 [Botany School] ♂

SOMERVILLE, Mary *On the connexion of the physical sciences* London; John Murray; 1834 [Down, on B, S, ED]

NB z

♂

SOMERVILLE, Mary *On molecular and microscopic science* 2vols.; London; John Murray; 1869 [Down] ♂

SORET, J. Louis François *Pictet, notice biographique* Genève; Ramboz & Schuchardt; 1872 [Down]

SOWERBY, John Edward, JOHNSON, Charles and JOHNSON, C. Pierpoint *British poisonous plants* 2nd edn; London; John Van Voorst; 1861 [Down] ♂

SPENCER, Herbert *The classification of the sciences* 3rd edn; London; Williams & Norgate; 1871 [Down]

SPENCER, Herbert *The data of ethics* London; Williams & Norgate; 1879 [Down, I]

SPENCER, Herbert *Descriptive sociology* London; Williams & Norgate; 1873 [Down]

SPENCER, Herbert *Education: intellectual, moral and physical* London; G. Mainwaring; 1861 [Down]

NB O/

SPENCER, Herbert *Essays, scientific, political and speculative* (2nd series); London; Williams & Norgate; 1863 [Down] beh, phy, t, tm

NB 138 Definition of Emotion & Sensations title page *wb* 1863↔

♂

106 30-31*m*, 33-35*m* 107 20-21*m/21u↔* 109 11-15*x*♂/m/11c "For"/"...", 12*u* "existing force", 14-15*u* "must|somewhere" 110 *wt* after I speak of grinding teeth cont▯ the sensor, give H.S. view that the nerve force is thus

expended instead of exciting ♦ goes to feeling & thought. 1-2m, 15-18m/w the nervous energy is concentrated in the mind 111 wt not in Love or gentle dislike or despair 1-2u±/w why 14u "purposeless"/13-20w so for frantic gestures of rage or intense grief 23-26u±/27u "organs | speech", 31-34m/w sobbing must be explained 36?/u "extra action" 112 8-10m, 11u "undirected energy", 17u "upper | are"/8-17w Give this under Man under direct action 27-34m/29-32u±/w why 32-35m 114 wt/1-28w but why does the kid amuse persons even if it causes laughter - a bore might interrupt the train & yet not cause Laughter or enough anger to take off superfluous nervous power 15-18m/15"... / 17x, wb Use of voice goes with pleasure by calling social members to each other - to parents - to other sex. 116 wt [Can any idea or remembrance stimulate or depress the brain - does it not first act on the circulatory system & this excite or depress the brain??] 1-3w [As hurting a nerve does so, probably it can] 22-27m/24u "falling jaw"/20-23w passive wonder 118 28-36m 119 wb He seems to conclude when sensorium excited a certain quantity of nerve force is generated, which must flow off in thought, sention muscular or glandular action.- 135 5-7m 137 11-13m/w & so the idea of snake 138 7u, 13u, 18-19u 139 3u, 5-6u
 ⌀

SPENCER, Herbert *First principles* 6 issues; London; G. Mainwaring, Williams & Norgate; 1860-62 [CUL, S in no. 1] ⌀

SPENCER, Herbert *First principles* 2nd edn; London; Williams & Norgate; 1867 [Down, S]

(markings presumed to be by FD)

SPENCER, Herbert *Grundlagen der Philosophie* trans. B. Vetter; Stuttgart; E. Schweizerbart; 1875 [Down] ⌀

SPENCER, Herbert *The principles of biology* vols 1 & 2 bound together; London; Williams & Norgate; 1864-67 [Botany School, S]

ad, af, cc, ch, ct, ds, em, fg, h, he, hl, hy, mn, no, oo, or, phy, sh, sl, sp, sx, t, tm, ud, v, wd

vol. 1 NB1 186♦ nusus formativus; 179 Pangenesis; p.181 Pang.; 186 Use & Nusus; 191 Use

NB2 p.243♦; 244♦; 240; 248 - 249 Use;

254 Pangenesis Theory of Generation when limb of Newt cut off tadpole - ⌀ - limb not proved 259♦; 260♦; 262 - Twins; 264; 269 Man acted on unequally♦ differently by same power; 272♦; 309,10♦; 316♦

NB3 p.383 Vertebrae number cannot be accounted for by type

NB4 ⌀ 445 Sp Theory; 451-2 used under Domestication

455 small jaws in civilized Man

47 21-23m 179 32-35m 180 34-36m 181 1-5m, 10-28m, 24-26m 182 wt/1-5w like my attention on elective affinity 183 19-24m/19u "physiological", 22u "physiological units" 186 19-26m 191 21-29m 243 15-18m (Sedgwick) 244 32-35m (White Cooper) 248 18-20m 249 9-13m 253 22-25m, 29-31m, 30-31m/31-32u "undifferentiated cell" 254 1-3m, 5-8m, 13-16m/w Pan 15-16m/"..."⌀, 18-20m, 24-28m 255 1u "Heredity", 13-21m/"..."⌀, 14-18m/w Pan(u), 16u "on | large", 21-31m/w shows that he has not got idea 23-34m, 26"...♦⌀, 34..."⌀ 256 6-13"...⌀/7-12m 259 3-6m/4w increase 8-10m 260 1-3m, 7-12m 261 20-25m 262 3-14m 264 1-7m 269 19-21m 272 1-6m/w Monsters? 274 4-10m/x/5"... 279 20-26m/x 285 wt Chapt XI 8m/8-10"... 286 6-10m 289 34z 309 25-35m 310 1-3m 316 2-8m 383 5-14m 435 11-17m 445 14-19m, 20m/u "maintained | produced" 449 29-34m 450 10-14m 451 5-6m, 12-16m 452 5-11m, 13u "The | skull", 14u "seated | thickened", 16u "vertebrae | neck", 17u "ligaments", 18u "muscles", 21u "upper dorsal", 22u "spines", 26u "bones | legs", 27-35m/34u "blood | nerves"/w Use wd come in- 455 20-22m 456 4-7m/w feet smaller? 457 1-3m 468 25-31m/"..."

vol. 2 NB1 O/

NB2 Direct action

145 Laws of Variation

147 shape of flowers

151 to 154 do

157-158 Umbelliferae

Hooker disagrees about Umbellifers

NB3 185♦; 188♦; 201 Origin of Vertebrae

Copied 233 - direct action

Explains first cause of change in prototype organisms

NB4 ⌀ not abstracted

NB5 ⌀

326 How animals acquired Lungs in shallow water.-

399 Struggle for existence & Law of Increase

NB6

♦ 428 He does not understand Pangenesis

⌀

SPENCER, PRINCS. BIOL.

♣

437 Bears on Hybridism

♦ 439 Antagonism between growth & Reproduction for Pangenesis

401 Causes which determine degree of fertility

409; 471 to 473

⇒ X470; 416 Male fish guarding nest ask further

SB1 (not CD) □β

Vol 1

383 Good about vertebrae. Why are those of the sacrum anchylosed together?

445 Speaks of the importance of Nat. Select. in maintaining as well as producing structures

Vol. 2

145 on the general relation of form to conditions 147 in relation of obliquity of flowers to their position

151 Do – with respect to Peloric flowers.

157 discusses outer florets of Umbelliferae & Compositae. Hooker disbelieves

185 "the naked Gasteropods in losing their shells have lost that immense one-sided development of the alimentary system which fitted them to their shells, & have acquired that bi-lateral symmetry of external figure which fits them to their habits of locomotion; but the reproductive system remains one-sided, because in respect to it, the relations to external conditions remain one-sided"

188 Discusses one-sided fishes

201 argues well with Amphioxus that the muscles first gave rise to Vertebrae but first of all to the Neural Spines (see quotation of Owens')

233 argues from bulk & cells outside & inside of leaves on the effects of external conditions

(CD) 346 Origin of Nerves

(over) Herbert Spencer Principles of Biology

SB2

That many structures are directly related to differrn of the incident forces, as highly probably as shown by Mr H Spen, but hard to distinguish from selective spontaneous variations. But ♣ p.253 it is difficult to bring proof of such [Direct Action]

p.263 flow of sap – origin of vessels

p.269; p.270 p.273 p.274; p.276; p.278; 280; 287; 294

See note of err. I have marked all

296–97 Thickened epidermis Origin of Horns, Nails, hoofs

301 formation of teeth & Hairs

313; 319; Laws of Variation

H. Spencer No. 16 Vol. 2 (Not abstracted)

(over) ♦, ⇒

I am inclined to attach ♣ much weight to ♣ Mr Spen's ♣ views & inquest; but they do not ♣ harmon with the method followed in this work of giving the variations actually observed under domestication, so that I will ♣ say no more on this head.

SB3 No. 16 H. Spencer

253♦ direct action; 269,58 trunks of trees ♣ by exuding sap Use & Disuse; 263 formation of vessels by elongation of cells; ♣ Sap & vessels 273 274 direct action – ♣ Species; 287 first formation of skin; 297 Origin of thickened epidermis by use♣ & of spurs on Birds wings Sp. Theory; 313 gizzard hardened; ♣ Ch. 3. IV & V SB4 □β ⇒ p399–473 Rate of Increase & Struggle for existenceThe conclusion is that fertility is increased on demand by N. selection, according as wanted too great an increase being an evil to the species – producing more than can take, but that will not injure individuals, but each mother expends more than is necessary. She who produces few eggs will produce better eggs – But there is limit to possible amount of fertility going on by individuation of organism & expenditure in vital actions & growth.– [I think there is error, the individuals who produce much young, wd not be themselves or offspring injured, & them that produce few wd not profit.–](over) ♦⇒ (a fragment of note relating to Westwood, *Insects*, 1840, vol.2, p.541)

37 1–6m 93 8–11m, 16–23m 144 22–24m/c/wæ/ "... 145 1–7m/2"... 146 fig.m 147 19–28m 151 26–30m/1–30w/wb Plantains are on spike by ♣, ↓w May it not be that insects visit indifferently male ♣ an upright ♣ 153 22–36m 154 3–13m 157 11–18m 158 26–30m, 32–36m 185 27–36m/→ 188 18–34m 201 7–19m 233 4–10m, wb Bark cells – outside & inside of leaves 253 8–14m, 16–20m/→ 254 1–30m/4–18w but how distinguish relations 12–17m 258 22–31m 263 5–10m, 17–20m 269 25–29m/ "... ♣ 270 7–25w spiral winder hundreds of feet in length! 273 25–32m 274 11–15m 276 21–27m 277 7–10m(FD?) 278 20–25m 280 23–28m 287 9–24m 289 23–25m/24–30w in man, but in lower anims yes 294 26–33m 296 25–34m/9–32w But then a sort of spur grows to wing of Blackbird & claw of tail of Lion 297 12–15m, 18–19u "nails | horns", 27–29m, 33–36m 299 2–8m 301 1–11m 313 26–36m (J. Hunter) 319 22–34m 326 1–12m 338 16–27m 345 17–24m/18–19w Rickets children 354 17–24m 368 27–31m 369 6–9m 375 23–27m/26u

"interdependence | parts" 398 22-28m, 30-35m
 399 21-30m 400 29x 401 1-3m, 14-17m/16-
 17u "major | mortality", 22-26m 402 25-30m/x
 403 23-26m 407 19-22m 409 1-2m, 31-35m
 416 34-36m 428 7-9m/8u "or | part" 437 14-
 24m 439 11-31m (Carpenter) 470 wt I must
 confine my remarks to beings equally highly
 organised wt (1867) Chapt II to XI 1-10m
 471 9-21m/x 472 14-27m/x 473 15-28m

SPENCER, Herbert *The principles of psychology* London; Longman, Brown, Green & Longman; 1855 [CUL, I]
 beh, hl, ig, t

NB1 178 swimming; 330-332 essential unity of intellect & instincts; 400♦; 410 High & Low; 539 Instinct
 Trick, in studying sense & habit - if inherited are comparable to ♣ or rather identical with 2 ways in which instincts are acquired; & 2 ways in which corporeal structures acquired.-
 573 Man 596 Expression
 <other w not CD>
 NB2 <not CD>

viii 30m/wb Here he explains how gradation necessarily comes into play 21 14-15m 117 zt 400 21-23m, 25u "ability | decompose", 26u "Water" 401 1-14m (Schultze), 36m 402 15-22m 410 7-11m/8-9w Well put 411 26-32m 415 20c "heron", 20w hawk 21c "fish", 21w heron 539 3-7m 540 5-10m, 16-23m (Carpenter) 542 33-35m 573 16-21m 596 9-15w also alludes to in Essays 10-32m/11-18"... 599 31-36m

SPENCER, Herbert *The principles of psychology* 2nd edn, 2 vols.; London; Williams & Norgate; 1870-72 [CUL, S]

vol. 1 NB <by FD>
 <most markings probably by FD>
 <CD> 131 ↑4-2, 138 12-18m 140 15-17m 141 11-15m 323 ↑13-11m 324 ↑15-13m/14u "organism | duration" 377 11-13m 390 ↑10-1m/? 391 ↑15-10m 515 7-11m 614 ↑4-1m 615 14-19m

vol. 2 543 11-13w fingers! 546 ↑5-1m/w quite other○ Gratiolet 552 6-15m/"..."/w Slyness - checking the turning of the head to look to one side 556 2u "every feeling"/wb love 5u "degree | strength"/w No 1-4m, ↑11-7m/↑10u "conceal | primary"

SPENCER, Herbert *The principles of sociology* London; Williams & Norgate; 1874-77 [Down] §

SPENCER, Herbert *The study of sociology* 6th edn; London; Henry S. King & Co.; 1877 [Down]

SPENGLER, Johann Wilhelm *Die Fortschritte des Darwinismus* Köln; E.H. Maner; 1874 [CUL, I]

h, ig, mm, phy, sh, sp, sx, t, tm, v

NB protective colours of shells
 Nakedness of Man

Put note ◊

on Physiological cause why has Hand escaped I may be quite wrong
 <words torn away at top of cover>

5 18u "Planulaten", 1-23m/w Chains of species connected 21-24u± 6 4-9m/w Surely I give this view 12-14m 8 1-3m 10 23-26m 19 wt whether I could show that the long Hand in Chimpanzee are touching organs 12-15m 27 27-28? 71 1-6m/3u "adaptive", 7u "Strahlen | Flecken", 12u "dunkelbraune Schale", 16-17u↔ 73 16m 77 11m 80 16-10m/18-19u "aus | werden"/18-25w Universally rejected - Nakedness is a sexual character 82 4u "Adern"/w veins 7-10m

SPIX, Johann Baptist von and MARTIUS, Carl Friedrich Philipp von *Travels in Brazil* 2 vols.; London; Longman, Hurst, Rees, Orme, Brown & Green; 1824 [CUL, pre-B, on B, S Chas. Darwin Buenos Aires]
 beh, cc, geo, gr, mi, t

vol. 1, 108 8w & Slavery 110 16-17? 164 7-8?, 9-11? 214 19c "a mile"/w 8 miles 216 wt/1-27w when I visited this spot in 1832 this retired cottage was uninhabited 220 8c "granite"/w gneiss 19-21?, 22-23?, wb on this coast there is no shelter for their growth 221 wt Insecta Arachnida Zoophytes Testacea! 247 wt/1-16w All this appears to me much exaggerated 273 2-6m 289 9-19m 290 1-7m, 17-30m 291 7-22m 301 8-19m

vol. 2, 51 3-30m 117 24-30m/26-28!/28u "from | N.E." 136 24-30m 137 1-29m 138 17-31m 147 18-27m 152 18-30m 154 12-20m 156 1-30m 158 1-28m 164 1-30m/8u "incumbent", 26-27u "decomposed" 168 16w p164 172 wb The Lithomarge cannot be decomposed Gneiss - if it contains Topazes & the solid <w>-<w> difficult 173 27-36m/w Germany wb The altered mica is here also incumbent 185 8-28m 187 3-9m 189 23-28m 211 zb 270 1-17m 273 14-22m♦ 281 11-26m

SPRENGEL, Christian Konrad *Das entdeckte Geheimnis der Natur im Bau und in der*

SPRENGEL

Befruchtung der Blumen Berlin; F. Vieweg; 1793 [CUL, pre-B, S]

ad, beh, cr, cs, dic, f, fg, gd, hy, mhp, mm, mn, no, oo, phy, rd, sx, sy, t, ta, tm, ud, v, wd, y

NF He treats of forms of seeds with reference to means of distribution

NB1 It would be worth while to cross Vinca to see if it would then produce seeds—

◆ x[♂] Strong case of Dichogamy in Paridaceae in Gaertner Bastard p.65

Gaertner Bastard p.537 a most weak argument against final cause of Honey to attract insects

586◆ speaks of it as general law that male & female organs are ready at same time — at p. 659 contradicted

◆ Gaertners Beiträge must be studied all about Honey p.75–92

p.242 attributes all C.C. Sprengel facts to praecosity of pistil.—

◆ Kolreuter 3d Fort p127 on movement of pistil to anthers in Compositae & on other cases of movement: this latter subject largely described by Gaertner in Beitrage —

March 19. 59. Lathraea squamaria visited by Bombus — right at top pistil bends slightly over towards passages, projecting & apparently ready, but pollen not shed Yet pollen on stigma for Bee — In lower (& earlier) flower pollen shedding, so that here female organs apparently ready first.

p.415 on Spiders haunting plants with nectar: mem Willy's remark on Listera

NB2 260 on the red Lychnis flowering at different period from the whites ask Henslow or Babington or Watson

◆ p.367 Seeds diff shape from disk & 374 Margin of Picris Composite flower —

♂ Flower of males larger than of Females

March 30 — 46 — Read straight through from 1 to 223◆ 299. Read all

Only subjects not on crossing X[♂]

Good case of mechanical action comparable to action of pollen on head — for no use in seeds being different →

☞ 369 Differences in shape of seed in Disc & centre of Composit.

374 do — (this must be a correlation of structure, & perhaps owing to insects) Figures of 3 kinds from same flower

371 On stigma in Compositae bringing out Pollen — Rudimentary organ useful

383 do — otherwise rudimentary — very curious case

Watch Acacia — Put pollen of own & other var. of Cabbage & shut up flowers

◆ X[♂] Lobelia — Crucianella; Examine next spring; Arnica to see how far passage closed X[♂]; Aristolochia whether insects can escape; Honey in night in Orchis morio; Impregnation of Ophys & seeding of try crossing & see whether some seed; Heartease — whether night insects do the work; Castrate common Pea, several & impregnate several & see if Bees go for pollen or Honey, as perhaps they wd not visit pollen-less Peas.—; Arum about filament about insects escaping; Fraxinella if my account accurate

SB1 □β

2 Iris only by Bees

8 Violets

3 Fls impregnate Orchis 21 & 23 do

4 Epilobium impregnated from younger flowers — same in Euphorbia

16 marks on Corolla to guide insects none on right flower

18 was not aware of use of crossing Bees boring holes dispose necessity of his marks.

42 pollen generally ready first

43 quite as many dichogamous, as dioecious & monoecious

61 case of Salvia

106 Butterflies — Phlox — Dichog:

111 On Campanula read

117 Phyteuma = does not get dusted in room X[♂] (one of Campanulaceae) ♣

Solanaceae ♣ p126 & 167 Passiflora, stigma not ready during the second day whilst another moving up. (Mention after Barberry)

probably night flower

186 Allium in same case with Parnassia

212 Horse chesnuts, probably Dichogam.

240 Kalmia like Barberry, moves on being touched

244 Saxifraga saw fly impregnated

SB2 □β

249 Dianthus dichogam, & yet stated to be impregnated in close flowers

296 saw ants carry pollen (Nothing to show Dichogamy in this class

346 Hollyock Dichogam.

354 does not understand impregnation of Pea.

358 on depression of wings in Bean-flowers & other Legum. causing exsertion of Pistil & anthers so Bees impregnate — whole structure of flower with rectangular pistils fitted for this end — Keel springs up slowly to old position

359 Phaseolus, does not know about one side — hairs of pistil brush out pollen; thinks a dichogamit.

390 violet — cavity full of pollen stopped by

pistil from being shaken out; curved point of stigma moved by bees

394 can know when no Bee has visited by no shed pollen -

395 proved it by putting gauze over

397. does not know much about Heartease

SB3 □β Kurr

<over> <List of plants supposed to be fertilised by the wind>

<over> In one of the Ray Soc. Report Bot. Paper a long description on position of nectars in Veg K.

SB4 □β

403 Orchis latifolia - thinks this impregnate - never saw Bees.- has never seen nectar in. calls them sham-nectar producers - nectary within hairy - look at night -

405 Butterfly orchis has nectar - smells at night - probably a moth impregnation

406 Listera ovata has nectar & visited by Ichneumon (p407) with 2 pairs on head. 409 Next year other cases & Beetles. Saw the act of impregnation effected.

414 often see Flies in Epipactis, cd not be impregnated without insects

415 saw fly remove the pollen-masses & has figured it sticking on back.-

419 Aristolochia from structure cannot be impreg. without insects - 421 f, many flies on with pollen on 423 thinks flies cannot escape owing to smoothness of bottom of trap & from number, but Mem Arum may be here introduced to show how then little insects can carry pollen.-

over

<over> 426. No, flies cannot escape on account of hair in passage - 428 Fabricius has made same remark - (Does not say has f. many dead flies)

<over> <List of dichogamous species>

SB5 □β

♁ Tussilago or Petasites vulgaris type if grows disc hermaphrodite say female (some plants all female & so Senecio vulgaris); Pistil acts in brushing out pollen but has no stigma.; Antennaria always dioicous.-; Pimpinella magna - tends to have some exclusively male; Anthriscus sylvestris say floret with imperfect stigma & no stamens. thinks never sets seeds.-

▶ see Babington for seeds on orchids & Viola○; Picris = Helminthia

♁ Tabulate how many Dichogamous & species

Henslow. Aug 13/1857

1 wb Hairs protect nectar from Rain 2 22-25w Corolla coloured to attract bees♦

insects 29-30m, wb Iris can be impregnated only by Bees 3 8-12w see p. 5 26-29w hairs of pistil to keep pollen 30-32m/w (a) wb (a) Flies impregnate Orchis morio & latifolia & Aristolochia in former attracted by colour, as if there was nectar of wh. there is none 4 37w/wb N.B. Epilob. august & Nigella pistil always impreg. by Bees from pollen of younger flowers - Reverse in Euphorbia 5 wb In this page upsets at other uses of Nectar 7 5-10w♦ Most perhaps all Nectar plants require (W) insects for impreg. 12-13w P wb P. Bees carry pollen as well, wh. Nectar, as when pollen-hunting 8 17u "Märzveilchen"/w 1 30w 2 wb 1. Violets require Bees for impregnat (2) Most hermaph. flowers require insects for their impregnat. 12 36m, wb Suppose all these contrivances only to protect nectar wh he imagines protected even at expense of anthers! 14 wb C.D. The permanence of standard of Kidney-Beans, when lower petals are decayed, shows that the petals serve other protecting ends besides nectar 15 6u "haaricht"/3-9w I do not think explains use of hairs on lower lip of foxglove 16-18m/w stel. Vp.29X 18-21w♦ all nectar-flowers have corolla.- 22-28w He says p.19 Euphorbia has nectar!!! 29-34w Euphorbia has no true corolla R. Brown○ 16 wt Marks on corolla guide insects 10m, 39a "ihnen"/35u "Nachtblumen"/"...", 38u "Saftmaal", 39u "ihnen | Statt" 17 34-36m/36u "kürzer | Dichogamie" 18 1-25w Seems to think fact of insects being required at all does not deserve any explanation & how poor a one of Dichogamy for convenience of insects - !! 14-16m/14u "jeder | gewählt"/15-16u "nicht | kann", 22-23u "halbgetrennten | ähnlich", 25-33m/w How poor! 30w (a) 37a "Schirmblumen"/u "ganzen Familien"/36-37w dichogam wb (a) Has no notion of advantage of intermarriage 19 4u "Euphorbia", 5u Blume", 13→, 14u "Saftblume ist", 20-22m/w How poor! as in p.18 23m, 32-40m/w First & last flowers in the true kind Dichogam must remain unimpregnat wb This kind of Dichogamy requires secretion of nectar for long time, as both old & young flowers must be visited; final cause? 20 wt (a) some plants as Euphorbia & Umbellifera visited by insects /all kinds & visited irregular in manner; not so other flowers 3-5m/4w (a) 13-22u±, Says Bees guided to Antirrhinum by the saft-maal; but has the Purple Linaria a saft-maal.- No whole flower slightly veined but ♁ not there more than elsewhere 21 9u "Fliegen", 10u "Asclepias", 14u↔, 37-39m, wb

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X abortive florets of Golden Rose & Centenary ♣ act for this end V. Viburnum 23 3-4u "kleine Fliege"/4u "Serapias longifolia"/5u "Staubkölbchen"/4-5w Serapias ophidious 24 5-9m/7w z 34-35u "aus|Saft", 38-41m, wb z Directions for finding nectary 25 2u "Blasensüsse|Blumen" 27 7-15m, 9-10m/9u "Gewächse|Treibhause", 15u "Jasione", 19-20u "Coronilla Emerus", 30-31m/30u "wenigstens|Art"/w (a) 33-36m, wb (a) I saw one in Allen's garden a Campanula 28 5-6u↔, 38-41m/w (a) wb (a) Bees attracted by their beauty to some flowers without nectar, for pollen &c &c fructify them 29 wt So then he disbelieves pistil bending down & touching anthers. 7w Elder 8-12m, 14-16m, 14-20m/16w P 21-25m, 23-24m/23w L. 31-37m, 38w These are Hermaph flowers impregnated by wind wb P Hostile to my theory.- are many mono or dioecious plants saft-leer, if so less so - Carex? 30 3-8w Quantity of pollen in Poplar & Pinus sylv. 15-18m/w male catkins larger than females 31 23u♣/24u♣/20-23m/w Horse willows impreg by insects 27u♣/31u "den|werden"/27-34w Hence flowers without nectar are impreg by insects [but have pollen] 37-41m, 43a "liegen"/m/w allow to intermingle this being so & being large or pollen plentiful, with wb XX Important to discover what hermaph flowers, are impregnat by wind 32 24a/u/wt, 32w secretion, but serving for no other end?? wb Q flowers before leaves not to prevent impreg. by wind & before leaves of other trees 33 wt M. case of false final cause very poor 17w M 34 19-22m/w no, not in wheat 35 34-38w 18 days longest duration of flowers! 34-35u "achtzehn", 41-45w flowers fade after fruct. 36 11m, wb X in Scrophularia, stamens move to pistils one after other but S says they are dichogamous - female first 37 wt P. hidden flowers exhale much odour 11-13m/w P 40 wt (a) Anthers & stigma in same place that Bees may touch both 7m, 29-31m/w (a) wb * & yet Bees bore holes in the Salvia & Stachys! 42 21-23m/w (a) 26-28m/26-31w Hairs on underside of Foxglove to keep off rain! 31-32u "dass|herabhängende", 33-34m/34u "regulär|müssen", wb (a) how generally he seems to think pollen is mature first 43 1u♣, 6u "Linde", 7u♣, 8u "Bienen nicht", 9u♣, 14-17m, 17-20m/17-24w no! I saw small ones at holes & reverse 27u "irgend"/24w P 27-28m/"...", 34-36m, 42u "Schirmblumen|Euphorbien", 43-44m, wb P. If this had been 'always' instead of 'ever' it would have been correct perhaps 45 wt compares nectar of fresh seeds 15-18m/w m 28w P 32-34m/w o

wb Hence relation of plants to mammals wb o Seeds which are eaten are conspicuous like nectar-flowers 46 37-44m/w considers the vast numbers of seeds necessary for some to be preserved 47 1w X means Read 4X, 30w requires insects 49 1X 50 1X, 24-26m, 25u "Dichogamist", 26u "männlich weiblicher", 27u "Antheren" 52 8u "dass|findet", 10u "von|um" 55 wb insect impregnation 58 12x 61 5-10m, 15-18m 63 7-9m/7u "männlich weiblicher" 64 25x 65 12-13u "dass|ist", 29x/u♣ 66 5u♣/4-6m/4-14w male flowers larger than female in order that insects may visit male first 25u♣/26u "größer sind"/17-41w So in Strawberries Gardners Chronicle Aug 1861 & so in Wild Thyme- 67 8x 68 2x 69 3u↔, 6a/u "keinesweges|mechanische"/w gives good reasons 19-20m, 39x, 41x 70 43x 72 wt X analogous to Hive Bees at Humble Apertures. 4-5m 74 24-30w Iris impregnated by pollen of distinct flowers 75 31-35m, 40-41m/u↔, wb iris must be impregnated by Bee which has come from another flower 79 32x/w Rye 38u "Saftdrüse", 39-41m, ↓w (a) I observed in every spike of a Rye-grass anthers hanging & pistils feathering, projecting on one (or both?) sides of scales so as to be easy of impreg - observed this in one other grass. wb In Introduction confesses he knows no use for nectar in grasses & this upsets his theory of its sole use.- I kept wheat in glass & was astonished at one night how many long stamens were produced - hence fruct effected by wind, as he remarks; but the Pistil in the wheat, though very healthy, seemed quite concealed. One day in (a) 81 8x 82 3x, 4-5w large marginal florets, that insects may see flower from side, as well as from above - 14m, 20-22m, 24-36m/29-31w Candy tuft wb The variation in marginal florets of Viburnum good instance of structure being acquired - CD 83 40-42m/40-41u↔/w (a) wb (a) pollen first ready 84 20x, 39x 85 1-3m, 1u "Ameisen", 1-2u "in|hineinsteckten", 8x 91 1-25[...] 94 2-6m/w cannot be impregnated by wind but by insects 21x 97 33-37m/35w (a) wb ♦ ● wb Dichogam, males first ready 98 1-6m, 20-25m, 32x 100 44-45u "Dichogamisten|Art" 101 39x 102 13-15m/13u "Kultur"/14-15u "Saftmaal|können", 28w♦ Nothing 28x, 30x 103 7x 104 25x, 28u "Saftlich", 29u "Saftblume ist" 105 18x, 20x, 42-43m/43u "Dichogamist", wb Manlich dichogam 106 1-3m, 4-7m, 12m/u "Schmetterlingen"/x 108 13u "sondern|Insekten", 15u "Krone zukehren" 109 28m 110 32-34m/33u "älteren", 43-44m 111 8-

10m/u "können|ist", 22-24m, 36-37m/w (a) 40-44m/w no real explanat wb Perhaps it is so in Manganthes, but impregnation does not necessarily follow 113 11x 115 5-13w dichogam manlich 117 25u "dieselben|jüngeren", 26-27u "das|oder", 28u "Erfahrung|überzeugen", 32m, wb in some stigma got no pollen, field covered with it 120 15x 121 11x 122 2-26w knows nothing whatever in whole Genus No Honey discernable 129 5-6u "Sie|besucht" 130 41w not Solenaceae 131 11-16m/w stigma turned from anthers 135 12m 137 17-18m, 20-22m, 31-35m, 35-37m, 41-42u↔/42x 139 17x 141 8-11m 142 43-45m/44u♣ 143 7-9m, 11-12m, 13-15m, 19-20m 145 16-20m, 28-30m/29u "Bemühung vergebens", 31u "kleine Wespe", 33u "nachging" 146 27-28m 149 38-39u "welche|Füssen" 150 4x, 19x/18-19u "bloss|wegen" 152 17-19m/17-18u "dass|Art", 44m 154 21-23m/22-23u "für|bestimmt" 156 wt it is evident that many genera are dichogamous 1u "diese Blumen", 3u "zwar|männlich", 6-7u "Noch|IV", 7m 157 25x/w plenty? 29-37m/33w (a) wb Last umbells planted or plant had imperfect pistil; became dichogamous & therefore useless & no pollen or other flowers 158 2-3u "Schirmblumen|Griffel", 40u "von|Dichogamie" 159 19-20m, 23-24m, 23u "geschlechtslose" 160 5-6u "Saft|Blumenkäfer", 8x 164 31u "3|auf", 31-33m/33u "nicht|kurz", 34-35u↔ 166 10x, wb♣ Next page Pollen ready on stamen one after other other move stigma not formed - so dichogamous 167 4-7m/5-6u "nicht|geblieben", 8u "von|Insekt", 14-18m/16u "verlängern"/17u "das|hinlegt", 33-34u "fünf|sieben", 34-36m/35u "und|verwelkt", 42-45m/42-45u± 168 33-36m/33u "drey verschiedenen"/35u "Ein Umstand"/37u "Kennzeichen|Dichogamie" 169 wt (a) How is Loaca in these respects). 5-6m, 7w (a) 35-39m, wb On mechanical theory successive rising of stamens useless 170 23-26m/w this should be not is 35-39m/35-38u↔ 171 1-2m/1u "Stigma|ist", 33-36!/35-36m 172 22-23m/w (a) wb Cover some plants day & night - some by day - some by night 173 20-23m/w B 25-26u "Ob|Geheimniss", 26u "nicht entdeckt", 28u "als|kann", 41x 182 11-17w this & snowdrop can have not be impreg. except by insects 184 22u "ein|Dichogamist" 186 5-7u±, 9u "männlich|Dichogamist" 187 26X, 27x 188 wb Martagon enclosed seeded - hence Spr. cannot see thinks exception use of Nectar & 6 stamens - ! | can, occasional intermarriage 189 29m/x 190 32-37m/32-24w nectar impreg. not easy 199 29-

34w a feather hyacinth 200 31-32u↔ 201 wt feather-hyacinth 203 7-12m/7u "Dass|befruchtet"/10-11u "und|Krone" 204 39-45m 205 wb Berberis more than anthers might on stigma 207 23u "also wahrscheinlich", 24u "Insekten", 25u "staubvolle" 209 4x, 6-8m/6-7u "die|Geschlechts", wb↔ 2 May 61 210 1u "Schein|männlichen", 22-23u "Wind|Stigma", wb♣ associated plants must be in same predicament wb/1-7w Dioecious plants are produced where self-impregnat. too easy??? Hence is it that so many trees each having so many flowers all dioecious?? See to this for my theory 211 25-32m, 41-44m/43-44u♣ 212 2u "immer|Dichogamie", 21w (a) 25u♣, 27-28u "Trauben|viel", 28u "Strauchs", 31-32m, 35-36u "eine|Krone", wb (a) Horsethorns probably dichogam ♣ 213 3-6m/4u "mehr|Zwitterblumen", 5w (a) 14w (a) Veratum nigrum has many male flowers 214 14x 216 23u "männlich-weiblicher", 45X 219 1-2m 220 33u "die|weibliche", 45X 221 4u "Nachtinsekt" 223 10x/w from p.1 to here 225 wb stamens ready first saw Bees impregnating 226 25w (a) 25-26u♣, wb same 229 40-41m/41u "mechanische geschehe", 42u♣, 43u "angezeigt" 230 25x 231 2x 232 14u "Befruchtung durch" 233 28-42[...] 234 32-34m/33u "Dichogamie|findet" 238 11x, 15u "von|berührt" 240 5-7m/w (a) 25x, wb (a) This, as I thought, appears like case of self-impregnation.- 243 26-27w Dichog. 244 16u "Fliege", 16-17u "habe|angesehen", 22u "jungen", 23u "hineingekrochen", 26u "eine|Blume", 44X 245 16-18m, 19u "Dichogamie", 45X 247 15x, wb | found this Dichogam. June 2d 1861 249 24w (a) 24-25u "das|Stigma", 32u♣, wb & yet Editor of Annales des Sc. says impreg. before opening 252 zb 255 31-32m/u "ihrer Einrichtung", 41x 258 17u↔/?, 24-27m, 33-35m/?!/w no 37-38u "Nachtinsekten|nicht" 259 38-40m/38u "als Nachtblumen", 43u "sondern|Loch"/42-45w Humble Bees bite holes 260 5-9m/5u "weiblichen"/6u "weiter", 6u "männlichen"/7u "zwanzig", 34-38m/36-37Q 44x 261 37x 262 15-17m/16-17u "Spergula|Dichogamie" 263 6u "männlich|Dichogamist" 264 5-6m, 8u "dichogamischer Einrichtung" 266 4x, 7-8m, 15-16m, 16u "Käser|andere", 24-26m, 25u "zuerst|Dichogamie", 35-37m, 35u "denn|Pistill" 268 18x 269 35x 270 6m, 7x 272 29x, 31-32m/u "denn|können" 273 5-7m, 6u "Bienen befruchtet", 6u "wahrscheinlich", 9u "leicht weglassen", 18x 277 17x 278 13-15m/14-15u "sie|sind", 31x 279 22-23u "Blumen|Artheren", 23-25m, 39x, 41x 280 3u↔, 4m, 6-9m, 21-22m, 28x, 30x, wb Bees biting holes

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287 6-8m 289 12-13m, 20-23m, 32x 295 wt/1-19w Repeatedly shows that impregnation is not by mechanical act; such movements appear chiefly to favour insects 15u "mechanischer Befruchtungsart" 296 26u "Ameise", 30w saw ants impregnate 305 7u "Auch|Dichogamist" 307 29x 308 5-6m 309 6X 315 23x, 31-32m, wb hole cut. 316 5m/u "häufig besucht", 12x, 28x 317 25-29m, 3x, 32x 319 42-45m/43-44u "Staub|abstreifen" 320 1u↔, 13u "Bienen", 14-16m/16u "sondern|Horn", 24-26m, wb Bites holes 321 32x 323 36-37m/36u "weiblich|Statt" 324 23-26m 325 1-2m, 12x, 44m 326 22-24m/23u "sie ein" 327 3x 329 wt Nothing in class to show Dichogamy 335 4x 336 20m/20-21u↔, wb Lindley thinks in Pelargoniums this is effect of culture 341 26-28m 342 3-4m/u↔ 343 24-28w Skimmed 344 40x 345 6x 346 26-29m/29u "zwischen|sind", 43-45m/45u "älterer Blume" 347 14u "Um|vermuthlich", 23x 349 23x 350 16u "scheint", 17u "Dichogamie", 30x, 32x, 33u "Saftblume" 351 31x, 33x 352 15-17m/16u "keinen|gefunden", 29-30m/w (B) 36-36m/w (a) 40u ↔, wb (a) In Gardeners Chronicle humbles were said to bite base of Bean-flowers 353 4x, 6a "tinctoria" saw Humble at Shrewsbury sucking flower 9u "keinen", 11x, 12u "keinen Saft", 16u↔, 21x, 23x 354 7-8m, 8x, 31x, 37-38u↔/38x 355 42u "vermuthlich|Befruchtung" 356 wb He knows of Honey on the stipulae 357 13x, 29-31m, 29u "oberen", 30u "Loch", wb Holes 358 5-6u "dass|waren", 6-11m, 13-20m/13u▲, 29-31m 359 26-44m/32-40w Kidney Bean 42w (a) wb (a) Does not mention Bees always going on one side 360 3-6m, 8-9u↔, 27m, 28w K 27x, 29x, wb K bites holes 361 42x 363 2x 364 14x 365 14-28[...]/15u "Saftblumen", 30x 366 23x, 24w = Helminthia 25x 367 17-27m/17u "des|Scheibe", 21w seeds 21-23u "Die|besetzt"/Q 24-25u "Seite|besetzt", 27x 368 15x, 24u "den|besucht" 369 14x, 19u "Bienen ungemain", 38x 370 26-31m/28u "wenn|Befruchtung"/30-31u "sondern|sind", 36x, 47x 371 17-18m, 28-29m 373 7x 374 10x, 27m/Q 30m, 41-43m 377 3x, 5-37[...] 379 27u "von|Insekt", 33-35m, 42u "Insekten", 43u "nützlich", 44u "schädlich" 380 13x 381 3-6m/3-4u "geschlechts|saftleeren", 15-17m, 36x, 38x 382 28u "Insekten geschieht", 29-33m 383 12-16m/12-13u "Sie|Zwitterblumen", 32-36m/w (a) 39-41m, wb (Q) a most curious case of abortive organ being made useful, like marsupial bone in some male marsupial animals 384 1u "Blume hineinschieben", 11u▲, 19x 385 27x 386 3u "männlich-weiblicher", 4], 6] 388 29m, 37-38m, 45X 389 34u

"vollkommen trocken"/w (a) wb (a) like that of Kalmia - I have no doubt this is case with Allen Wedg plant wh does not seed 390 11-20m 391 10-12m/11u "bestaubt", 11u "nothwendig|Theil", 21-22m 394 6-9m 395 3-9m, 39x, 40x 397 6-8u±, 16-17m, 35-37m/w (a) 40-42m, wb (a) as I have seen 44-45m/w wb no 400 5-8m/w (a) 13x, wb (a) From Henslows account is common to genus. But I believe at different periods 402 4x, 34X/u "Bewegung machte" 403 10-11m/11u "es|wollen", 19-21m, 23-25m/23u "niemals"/24u "Saft|angetroffen", 38-39m/u "inwendig|ist", 44-45m, 44u "Scheinsaftblume", wb I am nearly sure nectary of Butterfly covered with growths 404 wt Cannot be deceptive for insect has at once to fly to catch florets 1-6m, 7-21w p.418 Aristolochia clematitis 14u "Osterluzen", 32a "Morio" fresh winged 35-36m/35u "Scheinsaft", 41u "beweist Orchis", 44-45m/45u "nur|Samen", wb Little flies often on stigma can stigma secrete sweet better 405 1-8m/1u "26"/2u "42"/2-5u±, 9u "wohlriechendes"/w Habenaria, Butterfly orchis certainly 26u "der Saft", 27w nectar 35u "das|vortrefflich", 36u "Nachtblume ist" 406 5-7m/6u "mit|versehenen", 12-14m/14x/u "Serapias|verdeckt", 16x/w Listera 24X/u "trockner", 28-30m, 41X 407 8-11m/10-11u "denselben|vergebens", 12-14m/12u "ähnliches|Insekt"/13u "zwey Staubkölbchenpaare", 18m/a/u "ähnliches"/w 3d 19-22m/20u "ablecken konnte", 29u "jeder|Zeit", 36-38m, 37u "abzulecken", 40m, 43-45u±, 45m, wb Would succeed only by stickiness of stigma 408 20u "oder|ankleben", 27-28u↔, 38u "Absicht", 38-40u±/40m, wb X otherwise he would have caught a third hair 409 6u "wieder", 7u "an|Kopf", 8u "einen|Käser", 10u "Kopfschmuck", 17-21m, wb X saw act of impregnation by Hymenopt 411 25w One of the Ophrydiae) Lind Epipactis 26X, wb = Ep palustris - I think this - certainly this No or Cephalanthus ensifolia - this latter I now believe 413 31-34m, 42-45m, wb He does not really understand this flower 414 10-11u/w with Insekts 12-21m/14-15u↔/18-19u "weil|habe", 22-45w He probably examined only flowers which had gone off wb he forgot to look whether any sticky contrivance to anther He overlooked the spherical rosetta 415 21-27m/w Saw fly with pollen mass on Back 30-45m, wb Remarks about spiders making nets on plants which afford nectar 418 7x 419 17-18u "Alsdenn|seiner", 20-21u "Alsdenn|geöffnet", 28-29m, 42-45m 420 12-16m, 45X 421 32-34m/33u "zuweilen|zehn", 38u "vor|kleinsten", 44-45u "dass|ansetzen" 422 28u "Muth-

massung", 34-35u "dergleichen | habe"/35-36u "dass | bestimmt"/34-40w so let flies escape or go to other flowers? 423 2-36w All this passage a priori reasoning V. vulpa 41u "schliess | theils", 42-45m/45u "vielleicht | glatt", wb If the flies were really imprisoned - this would be strongest case except perhaps Zostera of self impregnated. remember Figs 424 wt Nothing, for he could not find nectar in Beans 1-4m, 23-24u "dass | ansetzen" 425 wt ♦ X Why do so few flowers, then, produce seed which he has insisted on as explained? 17m/u "jedemal", 38-40m/40u "sondern | Art" 426 5-8m, 8-10m, 38-39m 427 12u "muss | leicht", 23-27m/23a "Zustand" of ripe pollen stigma 46-48m 428 26u "nicht | verwelkt", 37-39m 429 9-11u ↔, 12x, 14x, 21x, 34-35m 430 17x, 24u ▲, 25u ▲, 27u "kleinen Fruchtknoten" 431 wt ♦ According to my notions all associated plants ought to be essentially dioecious (as single trees are) 4-6m, 15-16u "so | finden", 24-26u "Die | an", 28x, 30x, 36u ↔, 38x, 40x, wb The ● is perpetuated like insects-plants Most plants - seeds are perpetuated like wind - dioecious plant 432 1u "keinen Saft", 12u "Stigmatel | gross", 14x, 16x, 27-28u "unansehnlich | Krone" 433 2x, 4-12[...], 14x, 40-42m/41u "die | voller" 434 17-18m/18u "so | Stielen", 44x 435 2-22x/14-15u "Die | grösser", 24x, 34-35u "die | weiblichen" 436 34x, 39-41m/40-41u "vielen | weiblichen", 42x 437 4x, 17u "Irrthum", 18u "die | männlichen", 30-31u ± 438 24x 439 25-26u ↔, 42-45m/43-44u "sehr | wird" 440 18u "Lütschen", 20-21u "ganzen | Körper", 22u "aber | Theile", 26u "keine Blätter", 29u "weit | Stiel", 43x 441 2x, 4u "männlichen", 5u "weiblichen", 10x, 12u "weiblichen", 26x, 28x 442 24-25u ↔, 27u "längeren | sitzen", 33u "aber | vorhanden", 38u "einmal | weise", 39u "welche | hervorgebracht", 44x 443 3x 444 11x tab.i z tab.xx w Speak of it as seed (acherium) It is calyx which differs Tussilago is superflua Picris aequalis

STAINTON, Henry Tibbats *A manual of British butterflies and moths* 2 vols.; London; John Van Voorst; 1857 [CUL, GD]

(markings presumed to be by GD)

STEBBING, Thomas Roscoe *Rede Essays on Darwinism* London; Longman, Green & Co.; 1871 [Down, I]

NB O/

STEENSTRUP, Johann Japetus *On the alternation of generations* trans. G. Busk;

London; The Ray Society; 1845 [CUL] beh, ct, em, fg, gd, in, mn, oo, sx, t, ta, tm, y

NB1 It is clear in each successive stage of development, that the young are formed from what he calls germs, little aggregations of cells, & that these go through regular gradations, in each stage; I do not know how they can be distinguished from ova-Jun. 63/so my notion on ♣ difference of true generations & buds destroyed.-

NB2 Abstracted March 1857

p.1; p.2; p.3; p.6; p.13; p.23; p.25; p.31; p.43; p.45; p.71; p.96

F.W. Fish almost normally have Trematoda within eyes

112; 113; 114

1 20-23m 2 31-35m 3 23-27m, 32-33m 4 19-22? 6 32-37m 13 20-23m, 30-31?, 32-33? 23 27-29m, wb so Medusa does not pass through state of Polype ♂ Owen 24 wt/1-27w This comparison of polyp-formed nurses 1-7w ♦ with neuter Bees very loose indeed! [The nurse is a compound body & larvae are not formed by simple section - wt/1-7w ♦ (which I imagine are more like Medusae than the Medusae larvae) 7a "or" a 31-35m/w This shows power of division at all periods wb I do not think propagation at any time of life by division odd 25 4-6m/5-6u "belongs | other" 31 30u "perfect | Medusae", 34-38m/35u "their" 43 1-3m 45 11-14m 46 17-20m, 38-40m, wb I cannot anywhere see that the foster generation is seminal 71 6-8m/7u "originally from" 92 16m 96 29-32! 113 1-3m, 16-18x/!, 17m/u ↔, 18u "also | sex", wb X Because males with aborted organs wd not have the proper instincts → 114 5-6m, 7-10w ♦ (CD?) connected with end 10-13m, 13-37w - analogous to common metamorphosis & hence the bud-like system of generation returned 16-38w ♦ The generative system supervening later in life ought 115 14-25m, wb Termes are Neuropterous insects

STEENSTRUP, Johann Japetus *Hectocotyldannebsen* Kjöbenhavn; Bianco Luno; 1856 [Down, I]

STEENSTRUP, Johann Japetus and LÜTKEN, Christian Frederick *Bichagtil Kundskab om det aabne Hans Snyltekrebs og Lernaer samt om ... parasitike Coprepoder* Kjöbenhavn; 1861 [Down, I by Steenstrup] ø

STEPHENS, James Francis *Illustrations of British entomology* 2 vols.; London; Baldwin & Cradock; 1828-29 [CUL, on B]

STEPHENS, ENTOMOLOGY

vol. 1, 5 22w p27 24w p74 6 33-35m, 40-41m
7 1-30m, 30m/u↔, 31-42m 8 1m, 26u↔, 27m/
w Brinston Butterfly 10 18w clouded sulphur
24 41w Wood-white 27 2w Black-veined
White 28 20m/u "12 Cynthias" 30 10w Heath
fritillary 32 23w Small fritillary 33 21w Plantain
fritillary 37 3w Lesser silver spotted fritillary
39 22m/w Great fritillary 40 17w The Great
Fritillary 42 4w The dale common 37w The
great Tortoise shell 43 32w The lesser
tortoise shell 44 15w Peacock 45 4w
Camberwell beauty 46 7w The admiral 47
23w Painted lady 50 11w The purple emperor
52 4w White admiral or admirilla 54 23w
Speckled wood 55 6-7w The Gt. Argus or
Wall B. 56 14w The Grayling B. 57 26w The
martial White 58 27w The Gatekeeper 59
18w The meadow Brown 60 8w The Ringlet
64 38w Scarce Heath 75 29w The Brown
Hair Streak 76 18w Purple Hair Streak 78
17w The Green Butter. 79 22w The Copper
81 8w Large Copper 85 5w The Azure Blue
86 4w Bedford Blue 87 14w Argus Blue 88
26w Chalk Hill Blue 89 36w The Chifden Blue
91 29w The Blue B. 93 26w Silver studded
Blue 94 27w Edged Brown Argus 95 13w
White-spot Brown 97 19w Grizzle B 98 12w
Dingy skipper 100 7w Chequered skipper 101
15w Small skipper 32w Large Skipper 102
19w Pearl skipper

vol. 2, 2 wb L. nocturne p86 Semidiurne
p140 35 25-27m

STEPHENS, James Francis *Illustrations of
British entomology* vols. 3 and 4; London;
Baldwin & Cradock; 1829 [Down, on B]

STEPHENS, James Francis *A manual of
British Coleoptera* London; Longman, Orme,
Brown, Green & Longman; 1839 [Down, I to
FD]

(*markings presumed to be by FD*)

STEPHENS, James Francis *A systematic
catalogue of British insects* 2 vols; London;
Baldwin & Cradock; 1829 [CUL, pre-B]
gd, v

(*untranscribed w: names of places where CD has
seen the species listed*)
(*some w not CD*)

vol. 1, 2 7w, 12w, 18-20m, 31w Hope 39-40w
3 7m, 13w, 25w, 38w 4 1-2w, 8w, 25w, 29-
30m, wb 5 26m 6 11-12w 7 8m, 16-17w 8
15w, 32w 9 14w, 23m, 34w 10 8-9w, 12m, 19-
20w, 30m 11 15-17w Hope and Thompson
27w, 32w 12 2-3w, 12m, 22w Hope 32w 13 1-

3w, 8m, 16w, 18w, 20w, 29m, 35w, 38-39w 14
5w Waterhouse 8m 15 10-11w, 14w, 21-24w,
31-32w 16 13m, 21m, 32-33m, 40-41w 17 11-
12w, 20-21w, 26w, 31-32w, 36w, 41m 18 6w,
7-22m, 14w Waterhouse 24w, 40-42m/40w A.
Cooper 43w Mr Waterhouse 19 14-16m/w,
37-39m 20 7-9w, 15w, 21m, 26m, 34w, 37-
38w, 42w 21 1w, 4w, 11w, 23w, 27w, 32w,
41w 22 3w, 6w, 10w, 25-26w, 39-40w, 23 5w,
11w, 16w, 19m, 24w, 34w, 37w, 39w, 40w,
41w, 44w 24 15w Mr Waterhouse 9m, 16w,
21m, 26-27w, 32-34w, 38w 25 6-8w, 32w, 41m
26 9m, 16w, 19w, 22w, 31w, 33w 27 1w, 7w,
19w, 22w, 26w, 32w, 38w 28 1w, 5w, 8w, 9-
11m/9w, 16w, 18w var. 20w, 26w, 29w, 36w,
38w, 41w 29 5w, 21w, 23w Hope 26w, 41w 30
10w, 18w Hope 30w, 31w, 33-34w, wb
Waterhouse 31 13-14m/13w 32 14w, 34w,
37w, 43w 33 34-36w 34 1w, 6w, 15w, 18w,
23w♦, 29-30w, 36-37w, 40m 35 18w, 27-28w,
30w, 34w Waterhouse 40-42m 36 18-19w 37
19w, 21w, 23w, 28w, 32w, 34w, 37m 38 1w,
13w, 15w, 18w, 29w 39 11-12w, 27m, 34w 40
31-32w 41f w 42f w 43f w 44f w 45 9-10w,
22w, 35w 46 25w 48 32-34w 48f w 49 4w,
12w, 15m, 19w, 23w, 30m, 35w, 39w, 44m 50
5w Hope 7m, 10-11w, 13m/w, 18w, 24w, 28w,
34m, 39w, 43w 51 6m, 19-20w, 21w, 24m/w,
28m, 30-31w, 34-36w 52 11w, 18w, 21m, 29m,
36w 53 14m, 26-28w 54 32w, 37w 55 5-6w 56
41m 57 27w, 30w 58 30m/w Hope 59 11w,
20w 60 4w 211 ↑20m 221 ↑19m, ↑14m, ↑6m
222 3m 223 1m, 6m, 15m, 24m, 27m, 31m,
34m 224 16m, 25m, 33m 225 4m, 26m, 32m

vol. 2, 28 11-14z, 27m 28f w 37 wt Moths

STERNE, Carus (i.e. Ernst KRAUSE)
Werden und Vergehen Berlin; Gebrüder
Borntraeger; 1876 [CUL] ♂

STERNE, Carus *Werden und Vergehen* 2nd
edn; Berlin; Gebrüder Borntraeger; 1880
[Down]

STEUDEL, Ernst Gottlieb *Nomeclator bot-
anicus* Stuttgart & Tübingen; J.G. Cottae;
1841 [CUL]
sx, sy, wd

NB p.112
Poinsettia Cyanophyllum Hot House Plants
Azalea anaena
Hibiscus (Abutilon) allied to Viscus (Hooker)
Rudgea Rubiaceae dimorphic

part 1, 5b 48m 95b 10m, 18m, 20m, 26m,
32m, 37m, 41m, 46m, 48m, 52m, 54m, 58m,
59m, 63m, 65m, 68m, 72m, 77m, 78m, 83m 96a
2m, 5m, 12m, 18m, 22m, 25m, 26m, 28m, 31m,

37m, 47m, 50m, 53m, 58m, 64m, 66m, 72m, 80m 96b 5m, 7m, 12m, 13m, 15m, 22m, 33m, 37m, 39m, 42m, 47m, 49m, 50m, 53m 112a 50m 118a 35-37m/35u "hypogaea" 256 zt 450b 73m, 74m 451a 1m, 32m, 33m 494a 14-15m/14u "uncinatum" 494b 82m 495b 43m, 64m 496a 3m, 6m, 59m 496b 45m 507a 29-32m, 34-37m, 45-50m, 53-58m 507b 7-12m 559a 61m 601b 6m 677b 67m^s/u "cinereum" 678a 35-37m^s/35u "Endressii" 678b 10m 679b 20m/u "Richardsons", 66m 681b 50m/u⁺ 766b 80-84m
part 2, 51a 74m, 75m 51b 8m, 14m, 26m, 63m, 83m 52a 4m, 54m 52b 26m, 27m, 43m, 62m, 71m, 74m, wb 14 94b 75m 106a 30m, 32m, 57m, 60m 325b 39m, 63m, 75m 326a 75m 326b 18m 386a 58m 391b wbc 395a 64m 590a 26m, 45m 748b 13m

STEWART, Dugald *Philosophical essays* 3rd edn; Edinburgh; 1818 [ED, CUL.1900]

<probably CD> 415 ↑10-6m 416 ↑12-10m, ↑2-1x

STONEHENGE (i.e. John Henry WALSH) *The dog* London; Longman, Green, Reader & Dyer; 1867 [CUL]
br, cs, he, sl, ta, tm, v, y

NB ♦ Reversion in 3 & 5 generations - 173 Reversion

175 Breeding in & in

♦ Shows how soon Bull-dog form is eliminated-

179 & 183 good on crossing Bull-dog & Greyhound

Period of adulthood in dogs - 187 - Periods of adulthood

188 Breeding in & in; 196

223 form of young animal- cannot be selected

Reversion Close interbreeding Crossing, elimination of character Period of adulthood

Q₂ Form of young ♦ Dogs

118 6-15m/7-9"... 173 18-27m 174 1-13m 175 13-17m 177 1-4m 179 7-17m/10u⁺ 181 4w child, 1st yr 182 1w grandchild 2d 183 1w grgrchild 3d 2-4m, 5m, 6-8m 184 1w grgrchild 187 16-19m 188 10-14m, 17-20m 189 1-5m, 15-22m 190 2-4m 223 2-5m, 14-16m

STRASBURGER, Eduard *Sur la formation et la division des cellules* revised edn; Jena; Herman Dabis; 1876 [CUL, I] ♂

STRASBURGER, Eduard *Über Zellbildung und Zelltheilung* 2nd edn; Jena; Hermann Dabis; 1876 [Down]

STRASBURGER, Eduard *Zellbildung und Zelltheilung* 3rd edn; Jena; Gustav Fischer; 1880 [Down, I]

STRAUSS, David Friedrich *Der Alte und der neue Glaube* 2nd edn; Leipzig; G. Hirzel; 1872 [Down]

104 11m

STRICKER, Salomon *Handbuch der Lehre von dem Geweben des Menschen und der Thiere* 5 parts; Leipzig; Wilhelm Engelmann; 1868-72 [Down] ♂

STRZELECKI, Paul Edward de *Physical description of New South Wales and Van Diemen's Land* London; Longman, Brown, Green & Longman; 1845 [CUL, I]

f, fo, gd, h, is, mg, no, se, sp, ta, ti

NB Abstract March 57; 143 Van Diemens long an isld for coast elevated 100ft 143 so that animals cannot have passed from one isld to another, recently

56 ♦

254 Proteaceous leaf Bulinus & Helix

296 Van Diemen Carbonifer series Morris

302 Diprotodon Marsupial. Pachyderma Fossil to 312 (not important)

314 List of Animals & birds common to Australia & Van Diemens Land

347 Sterility of one race of Mankind with another.

352 number of natives Van Diemens Land

143 23-26m 254 2-16m (Darwin, R. Brown, G.B. Sowerby) 270 8w 1 271 6w 2 272 1w 2 7w 3 14w 4 21w 5 273 5w 6 17w 7 274 5w 8 275 20w 9 New genus 276 13w 9 25w 10 277 7w 11 17w 12 25w 13 278 5w 14 12w 15 25w one same 279 7w 16 28w 17 280 10w 18 281 6w 19 282 7w 20 26w 21 283 18w 22 284 4w 23 20w 24 285 5w 25 28w 26 286 5w 27 23w 28 287 9w 29 288 2w 30 28w 31 289 8w not new 22w 32 290 4w 33 291 10w or 34 296 1-3m 301 34-37m 302 9-12m 303 26-28m 305 3-4m, 31-33m, 34-37m 306 31-32m/31u "marsupial" 309 32-35m 310 32-35m 311 22-30m 312 9-14m 314 wt x means common 23m 315 9x, 18x 316 1x, 7x, 25x, 29x 317 1x, 6x, 8x, 12x, 14x, 16x, 18x, 27x, 30x, 33x 318 4x, 15x, 18x, 20x 319 9x, 14x/?, 16x, 32x 320 10x, 23x, 33x 321 3x, 5x, 7x, 12x, 14x, 22x, 28x 322 2x, 14x 323 8x, 23x, 25x, 27x, 32x 324 15x, 20x, 28x 325 5x, 8x, 13x, 17x, 19x, 21x, 23x, 25x, 27x, 29x, 31x, 33x 326 3x, 5x, 8w not 16x, 21x, 27x, 30x, 32x, 34x 327 2x, 8x, 10x, 13x, 15x, 17x, 20x, 22x, 25x, 29x, 31x 328

STRZELECKI

1x, 4x, 10x, 12x, 17x, 20x, 23x 24x, 28x, 30x, 32x, 34x, 36x 329 1x, 3x, 5x, 7x, 9x, 11x, 13x, 15x, 17x 347 1-8m

STURM, Carl Christoph Gottlieb *Über Racen der landwirthschaftlichen Hausthiere* Ebberfeld; Büscher; 1825 [CUL]

beh, cc, ch, cs, dg, h, he, hy, in, or, phy, rd, sl, sx, t, ta, tm, ud, v, wd, y

NF This book shows that any laws can be made out, in accordance with authors own observations on such ill defined points as resemblance to parents &c- The only way & that poor is to take indifferent peoples statements & from such statements build facts. Reason for quoting & for authorities

NB p15 to

SB □ 9x

16 Rule of ant. part taking after father NQ

82 On weakening of cows maternal instincts Q

85 Q In districts where cattle worked, it is well known young are more easily broken in - so in Pampas Horses) Compulsory instinct.

104 NQ Horns always after Merino Ram: one cross from Horned Bull gave Horns to Hornless Herds, (because a part previously lost, so tendency to return.- (N.Q. in Ch. 9)

107 Attention quicker or slower according as we take male or female of H & cross it with B.

67 drawn back neck in alpine sheep like Alpine kinds

120 Selection

ii 1-9m/w does not always quote his authorities 5 4-12w longer a variety exposed to any condition greater the change & then harder this change to vary 7 8-15w Head most important ♦ sure race-character amongst intellectual animals 15 3-6m/wt/1-14w general forms of heads of domestic races especially differ from each other, even in horses, & even in cows 16 14-17m/13-26w Father gives heads, & mother hinder parts is general rule. Some exceptions do not destroy the rule! 23-24m, 26u "Daubenton", 29m/a "Landschaf"/wb Sheep crossed with Merino ram head & fine wool on anterior part of body take after father - case given in p18 & in p19 with Birds anything can be proved! 17 1-30w His laws hold to hybrids as well as Mongrels 18 7-8m, 13m 19 wt Hofacker ○ gives many cases of changes in colour in Foals as they grow 2-18w Muscovy ♣ drake crossed with common duck follows same law 2u "türkischen", 7-8u "Jungeähnlich", 10-14m/11-12u ↔, 15-16u "Kopfes von", 25-27w

& crossed geese & crossed pheasant 20 1-7w foals from old stallions have old looking heads!! Bosh. not in men = 10u "Im | Bande", 11u "Maulthier", 13u "Maulesel", 27-28m/27u "Alle | haben"/28u "Mutter | dem" 21 1-2m, 3u "Kopfes | Glieder", 21-22u ± 22 2-8w Size of head varies much in bulls compared with size of body 23 9-19w Eyes & ears vary much in races of cows & horses 24 8-10w Horns vary in individuals of same race 17-25m, 21-26w ! Quoted more curled the wool the more the horns wb introduce in relation to teeth & pairs 25 8-12w The hair on head often characteristic 15-19w one race of sheep with woolless head another with head covered with wool 26 wt X Can convert one race into another most preferably by crossing of the male 1x/w ♦ Can 30 wt N.B These enumerations of differences merely show that all parts differ - 31 1-2m 32 wt Fig. wrong 42 30-33m/28-33w/wb No authority for sheep in S. Sea loosing wool 47 8-12w Cabbages change forms 48 wt White Cabbage seed planted in Naples gave Black-Kohl but generally cauliflower?? 2-13m/8u/w ≠ 15-22m/16u "mir"/20w xa wb x (a) Says from own observation clearly made out that the naked huskless barley especially in wet year of 1823 always degenerates into common 49 1-13m/5w (a) wb One ought not to infer that climate causes these variations, but only that they cease being persistent under new climates 50 19-20m/? 53 19-24m/w Says Cattle taken to E Indies decrease in size in few generations 54 26m 55 26u "brasilianischen"/26-30m/w Brazilian (Rio Plata) proverbially best 57 16m, 24-28m/w Portuguese cows transported to Brazil give better milk 58 12-26m/12-21w quantity & character of milk varies in diff. countries 28-30m/w milk varies in different years 59 15m, 16-22w candle manufacturers prefer Russian tallow 60 wt X he attributes this to the effects of climate but Youatt shows it is in breed & can be got by selection 3-9w Much more tallow in Holland races, than in Tyrolese 9x 61 18m 28-29u "dass | hat"/w of Men what wd Malthus say? 67 wb Remarks that true sheep have drawn back neck like all Alpine animals, wh is quite lost in lowland sheep - Mem Levington Sheep - 68 3m 74 3-14m/w says all animals living in mountains as sheep, goats & pigs are less fruitful than in low countries 79 14-15m/u "Consuetudo | natura" 81 23-29m, wb instinct of period of propagation has varied in all ruminants 82 14-25m/w says cows from long generations habit do not care for their calves being taken

away directly here. 27-28w/wb have lost maternal instinct 83 1-7m/w says he has observed great differences in cows himself 19-20u "während | duldet" / 9-27w The Merinos will let about any strange lamb suck them, because Spaniards kill weak lambs & put strong one to them; hence individual Maternal instinct is destroyed. 84 13-27w says the acquired instincts of dogs are easily lost, so are natural ones, as burrowing & wildness in Rabbits 85 18-21m/18-26w it is well known, in districts where oxen are used for draft they are easier broken in - 27-30m/27u ↔, wb good case of compulsory instinct 99 28u "Kartoffeln", wb many races of fruit & Potatoes have risen from crossing! 100 11-16m/w Merinos originally a crossed breed 101 10-13m/w Father chief, especially in mind 13u "nur | beträgt", 22u "neue Mittelrafe", 23u "Typus | Vaters" 103 1-6m/w Father chief?? 21-24m/21-30w Hair, horns & c are most easily altered by crossing - other parts more difficult 104 5-13w curly hair from alpine bulls transmitted to first cross 16-26m/w/wb so with Merino rams, even in parts of body which have no hair in the mother: in one case length of tail not increased, but covered with wool 105 5-10m/w always has horn of Merino Ram 11-18m/14-21w A I think this is because lost part; or rudimentary 21-29m/w Hoof takes after father in Oxen & Horse wb (A) In herd of invariably hornless cattle for many generations, one year of war the hornless bulls were lost & horned ones were used, & first year 9 out of 10 calves had horns 106 15-16u 107 3-7m/w alterations slower according as sexes of different breeds are crossed 6u ↻ "friessischen Ochsen", 12-16m/Q ↻ 109 wt Memory 3-8m, 5-6u "Kunst fertigkeiten", 6-7u "Raphael's, Mozart's, Dante's" 110 11m, 29-31u ↔ / 21-31w/wb as many years as teeth require so many generations for new race!! 111 18u "dem 6ten", 19u "oft" / w variation 112 wt in crossing head after father & in succeeding generations the change travels down the Back! 4-6m 113 1-8m/4-5w instance of above! 16-19m/17w A wb A Has already shown that attention through father is so much quicker, as this does not depart much from original race 115 wt / 1-8w A says to produce new race (viz to make a Merino breed come out of country sheep) it is very disadvantageous to commence crossing very unlike breeds, better begin with a half-bred & so go on step by step. A 1-20m 117 26u "gemeine Veredlung" / 25-28w selection with crossing 30u "individuelle Veredlung", wb

what we call selection without crossing 119 6-10m/w good milking tendency goes by father: curious - 18-21m/w instance 120 15-26m/w Quote English selection best means least requires great knowledge & a fixed forelook on stocks of cattle 27u "Ductilität" 121 10-14m, wb says particularly necessary to know influence of Father & Mother in this kind of selection - this I doubt

SULLY, James *Sensation and intuition* London; Henry S. King & Co.; 1874 [CUL] beh, r, t

NB Expressions; 29 to 36 goodish
17 16-21m/w What can I have said 29 7-39m
30 38-41m 34 24-32m 36 14-24m/6-23w This wd apply only to social animals

SULLY, James *Sensation and intuition* London; Henry S. King & Co.; 1874 [Down, I; 2 copies] ∅

THE SUPERNATURAL in nature London; C. Kegan Paul & Co.; 1878 [Down]

THE SURVIVAL London; Remington & Co.; 1877 [Down, I by publisher]

SWAINSON, William *The cabinet cyclopaedia, natural history: A treatise on the geography and classification of animals* London; Longman, Rees, Brown, Green & Longman; 1835 [CUL, S] ad, beh, cc, ex, gd, is, mg, oo, no, sp, sy, t, ti, tm, wd

NF1 Read Kirby on Geograph Distribution of Insects

N.B. European Plants on Himalaya agrees with idea of great zone

∞ Swainson has written in the Geographical Dictionary

There is a great deal of nonsense talked about perfection of groups & c as far as I can discover; some families have mingled characters & varied habits, others confined characters & peculiar structure.-

NF2 ↻ Chas Darwin

p.8. Each country is said to have an original breed of own domesticated quadrupeds.-

p.12 General aspect of forms from different countries

p.17 No large animals in Madagascar

p.21 waders peculiar to Europe

p.22 Parrots confined to particular Isls -

p.24 soft billed birds best characters taken from-

p.26 Many genera in Europe

SWAINSON, GEOG. AND CLASS.

49 2 Lions
 50 Malacca birds peculiar
 55 European birds go to Asia not v versa
 58 North Australia like Africa
 69 Mexican Ornithology
 106 Australi genus in S. Africa
 110 Madagascar
 115 Australia & 118
 NB I see gallatores greatest range among birds

Antelopes in North America

p107 Barn Owl S. Africa

SB □β

8 says neither temp – food, foes &c account for local distribution – good to quote him as an example of ignorance – something must check – See about nightingale in Bechstein. 12 show how climate is given up. What a contrast between Java & Madagascar N. Guinea. New Zealand & N. Caledonia as far as is size of Mammals.

21 Waders greatest ranging Birds

50 Analogy of S. Asia & Africa (Probably much extinction in Tropics series before glacial period)

111 on relation of Mammals of Madagascar & India

3 34–38m/w Motacilla – nightingale 7 19–31m
 8 7–18m, 35–39m 12 1–6m 17 wt New Zealand Caledonia New Guinea contrasted with Sumatra &c &c & England 4–9m/5m/u "absence | Madagascar", 11–16m 21 15–29m 22 27–35m/32–35m 24 22–25m 26 11–16m, 21–39m 27 1–13m, 30–35m/w because better known? 29 7–20m/10–11o 31 35o/u "perfectly naturalized" 35 zb 39 29–30o 48 5–6o, 12–13o, 23–38m 49 22–39m 50 24–30m 51 1–10m/w like Elephants driven down 55 41–43m 58 2–7m, 9–11m/?/w Brown 69 28–36m 72 8–9o 81 8–10o 87 20–24o 92 7–9o 103 35–38o 104 wt Monkeys even in Cape 35°! 1–2w N. America 5–11m 105 30–38m 106 21–31m, 38–40m 107 31–39m 110 31–39m 111 2–18m, 31–39m 114 29–33m 115 1–21m/20–24w Mem Brown on Birds 116 1–13m/8–11!/4–8w Opossums make nests 118 2–28m 119 18–26m, 35–37o 243 wt/1–3w Every word in this page will serve for the Caracara – an aberrant Eagle 1–36m 245 wt/1–3w It would appear that some circles unite many characters & varied adaptations others more confined 4–7m 357 29–36m (F. Cuvier)

SWAINSON, William *The cabinet cyclopaedia, natural history: The natural history and classification of birds* 2 vols.; London; Longman, Rees, Orme, Brown, Green &

Longman; 1836–37 [CUL]

beh, ch, ds, gd, ig, no, sp, sy, t, tm, v, wd

vol. 1 NB 166 Monkey noise a call note

31 Expressions p.31 ♦ Crests ♦

♦ 29 Head ornate

I do not allude to call notes *

167 on singing of Birds to

185 Nests

29 26–39m, 37u "Guinea-fowl", 38u "have | horns" 31 10–11m/11u "danger | anger" 72 fig.w angle too ac little too sharp too coarsely shaded 166 4–15m, 27–32m (Buffon) 167 8–9u "autumnal | robin", 13–14u "exerted | where", 18–25m 168 7w cranes 10–13m, 15–20m, 112u "of perchers"/wb swallow 169 5–7m, 9–13m 170 21–26m/21u "swallow", 30–36m/w cawing a tone song 174 35–38m/35u "Insessorial" 177 23–30m 185 31–37m

vol. 2 NF 11 Is Falcunculus cristatus a shrike? Vanga a crow?

SB □β

11 Falcunculus. Australian Shrike tears off Bark & hunts for insects; do well to insert in Ch 8 on Transition, when I treat Bird becoming like Woodpecker

112 Vidua, widow Bird of Cape wd suffice for Ch. 6

5 13–18m 6 8–15m/w This should be considered in the Fissirostrial type 10 wb It is like Echidna & Histris having spines 11 30–39m/31–33w Examine this Bird wb N.B. XX It is not difficult to see how all types would be repeated. because all spring from one stock & same circumstances. which makes order, would make same number of representative wild forms 14 4–8w what difference 6–10m 15 1–20m/4–8w thoroughly unphilosophical 307 10–15m 308 11–15m

SWAMMERDAM, Jan *The book of nature* London; C.G. Seyffert; 1758 [CUL, pre-B, S Charles Darwin 1827]

title page ⇌ Josiah Wedgwood to Erasmus Darwin, to R.W. Darwin to Charles R. Darwin to William Erasmus Darwin 1858

A present from my ingenious friend Josiah Wedgwood to Erasmus Darwin F.R.S.

⇌ (CD) This book I wish to be given to George

part 1, 125b 35–41m 132a 3–8m 217b 14–22m

SWANK, James Moore *Statistics of the iron and steel production of the United States* Washington, Government printing office; 1881 [Down]

SWINHOE, Robert *Narrative of the north China campaign of 1860* London; Smith, Elder & Co.; 1861 [Down, I]

SWINHOE, Robert *Notes on the island of Formosa* London; F. Bell; 1863 [CUL, I]
beh, cc, gd, gr, ig, is, sx, t, ta, tm, v

NB Introduction p.29

Ibis p.12; p.47; 57; 75; 86; 103

p.2 to 5 Zoolog Proc

Formosa Ornith Ibis P 44 Female assuming late Plumage of Male; 50♦ Petrocinala; 68 Oriolus do do – but rarely; 131 & 132 Squacco Herons

SB □β ⚡

Introduce Ibis p.29 general character of Fauna of Formosa– distance from China p.12 Ibis – grades of differences & variation in Birds of Formosa

p.47 example well-worked out in Lanius

57 do in Garrulus

75 Drymoeca – less marked vars

86 Wagtail more complicated vars like British – conditions of life

103 Centropus do.–

Zoolog. Proc.

p.2 to p.5 general characters of mammals, also to slightly differ in characters of colour slight vars, some distinct

Good for Variation – Geograph. Distrib.– and effect of Conditions of life.–

Introduction, 29 34–56m

Ornithology of Formosa, 12 11–25m, 26–28m

13 11–13m 44 ⚡ 23–28u±, 27–35m, wb Ibis Jul

1863 p.22 47 1–11m, 13–20m 50 11–16m 57

17–27m 68 23–28m/26u "green | spotted"/29u

"This | much" 75 16–19m 86 5–30m 103 2–6m

131 10–13w sexes alike same places 24–

32m/27–28u "splashed | very" 132 16–20m

Mammals of Formosa, 2 1–4m, 44–47m/46u

"generally darker" 3 5–9m, 14–15m, 17–22m,

27–33m, 43–46m, 48–50m 4 1–6m, 10–19m 5

29–31m

SYME, Patrick *Werner's nomenclature of colours* 2nd edn; Edinburgh; 1821 [CUL]

sx, tm, v

NF ♦

Beak of female; ash grey males nearly black

Legs & c exact ● orange – few

●

Soles of feet yellow, skin of beak with very

faint ● legs partly ● shape of feathers

becomes same – lower mandible & part of

upper ● grey

TASSO, Torquato *Gerusalemme liberata* 2 vols; Firenze; 1821 [CUL.1900]

3 "vi".m, "viii".m 4 "x".m 8 "xxiii".m 10 "xviii".wτ 21 "lxi".X

TAYLER, John James *Christianity* London; Williams & Norgate; 1868 [Down]

TAYLOR, John Ellor *Flowers* London; Hardwicke & Bogue; 1878 [Down]

NB O/

TAYLOR, Richard (ed.) *Scientific memoirs* vol. 1; London; 1837 [CUL]
che, mhp, t

NB Nothing October /56/

vii 25m (Ehrenberg) 224 6–10m♦/7–8"...", 9–

10z, 22–26m, 27–45m 225 5–9m, 11–15m, 15–

21m, 33–38m/33–34u "the | multiplicity" 227 wb

The whole Universe a life, the plant a

crystal, a life – i.e. his definition, but what

commonly called life, a unity producing a

different class of complexity than other

unities.– Good idea– to show life only laws

like universe 234 35–42m/37–39?, wb Is there

more unity in zoophytes 236 15–16u "utterly

incapable" /?/9–17m/w Mem. plants gain habits

25–28m/? 240 16–19m/18w Zoophytes

411 14–38m

TEALE, Thomas Pridgin *Dangers of health* London; J. & A. Churchill; 1878 [Down]

TEGETMEIER, William Bernhard *The poultry book* 11 parts; London; Orr & Co.; 1856–57 [CUL]

cs, he, v, wd, y

part 1 NB O/

part 2 NB O/

part 3 NB p.47, p.48

47 26–27m, 27–28m/Q 48 10–12m, 10u

"the | quill"

part 4 NB Cuckoo Cochin⚡; 53; 56

52 31–33m/33u "Cuckoo" 53 26–28m

part 5 65; 66; 72 ⚡ Correlation of Eggs and

plumage; ⇔ 76

65 3–5m, 32–37m 66 35–37m/w like wild 72

8–10Q, 10–14m, 36–37m 76 25–28m/Q

part 6 NB 86; 87

86 1–6m, 38–40m 87 6–11m, 12–15m

part 7 NB 89; 95 good Reverses

⚡ 2 [Q?] non ♣ sitters producing sitters not

so with me

98; 99; 100 spur often on Hens; 93 related

Characters of Spanish not shown early

TEGETMEIER, POULTRY BOOK 1856

It would be good to cross 2 distinct hen-tailed breeds & see if tails wd not come – Cross 2 breeds of which chicks are not barred & see if not come barred.

89 7-11m, 36-39m 90 11-14m 93 1-5m 95 17-21m, w Reverse Q 20-21m/21u "sits|steadiness" 97 24-25m/w Andalusians 25-29m/27u "them|weeks" 98 5-7m 99 1-3m/Q, 41m/u "is|sharp", ↑1→ 100 1-2m/1u "set|leg", 2u "that|softer", 37-41m/39u "markings|reason"

part 8 NF Plates of Ptarmigan NB 102; 111; Comb if not clipped fearful vantage ● fighting

101 ↑9-8m/u↔/w in same sub-breed 102 13-15m/w very different from other breeds 17u "hens|former", 19-20m, 30m 103 14-16m/25-27m/w a relation between Hens & Cocks ↑11-10m/m/→/wb I think a Cochins Cuckoo yes p.53 & Dorkins (I think I have seen a Cuckoo Spanish at Anerly ↑9-5m/w loss of character 106 ↑16-10m/w Boldness 111 ↑16-15m

part 9 NB 115 to end; 123; 133; Comb 123. Sexual selection.

SB ↔

p.123 Pheasant attached to single Hen.

124 Hybrid Pheasant & Fowls

– 133 crossed Hamburg good motherings.

115 ↑13-11m 116 13-15m, ↑9-7m 119 9-11m, 26-29m 122 ↑17-13m, ↑14-13m 123 2-5w It is an ambiguous variation 21-22m, ↑12-11m/↑11u "some|favourite"/w – Selecting Bird ↑3Q 124 3-6m, 7-9m, 10-11m, 14u "extraordinary wildness", 14Q, 15u "tails very", 16u "and|was", 17-20m, 19-20u "whilst|pheasant", 19-21m/w Prepotency Q 21u "entirely black", ↑14u "colour|dark", ↑14-4w Different race of Fowls unduly O affects hybrid with Pheasant shows Pheasant not preponder in colour Q 125 ↑8-5m/↑7-6u "that|nest"/w Q ag death of embryo ↑4-3m 126 8-12m, 9-13m 129 13-14m 130 ↑7-4m 131 5-7m, ↑12-10m, ↑6u "three|varieties" 133 ↑7-4m/Q 135 5-6m, 6-7Q 136 8-11m, 14-15m, ↑18-14m, ↑8-7m, ↑7-4m/↑7u "Cuckoos", ↑6-5m, wb Spangling runs through several breeds

part 10 NB several pages marked

Comb 154. relation of sterility & Hen-tailed Sebright Bantams.

142 9-12m 148 ↑5-2m 150 10-13m, ↑13-10m, ↑9-4m 153 ↑6-1m 154 5-9m, 13-15m, 16-18m 156 9u "assume|tinge", 11-12m, 18u "two|here", 19-22m, Comb 23-26m/24u "for|years"/Q

part 11 NB Comb 162 Chicks of silky Fowls

Q-

⇒ 163 Silkiness not transmitted to offspring plate "White Aylesbury Ducks".w Lemon Beak 158 18-21m, ↑6-3m 159 18-20m/19u "Spangled Bantams" 161 wt 161 11-15m/13-15m, ↑9u "its|hue" 162 1-3m, 12-14m, ↑17-13m 163 11-14m 164 12u "Some|like", 13u±, ↑10-5m 165 12-18m/Q 172 ↑5-3m

TEGETMEIER, William Bernhard *The poultry book* 15 parts; London; Routledge; 1866-67 [CUL]

beh, br, cs, f, fg, gd, he, hy, in, or, phy, sl, ss, sx, ta, ti, tm, v, wd, y

part 1 NB O/

part 2 NB Marked & referred to old Pages

40 ↑4m 41 ↑3-2m 42 19-20m 46 1-2m, ↑13-11m/↑12u "consume|grass"

part 3 NB ♦

Cochins produce many O Cocks

p.49. New

p55 & p.58 Q Brahmas crossed Breeds now true for Cochins & Chiltern greys a large var. of Malays.– Himalayan Rabbits

p72 Q Crossed birds after moulting not true.–

Reversion in individual Birds

49 14m/u "pectoral", ↑2-1m 55 11-16m 58 ↑6-1m 72 ↑3-1m plate "Silver Polish".w

Black Poland with white white-Poland with black Silver Poland Golden Spangled Poland

part 4 NB strong shells 78

Malays very small comb & wattles 76 new

♦ 79 Interbreeding Q

73 1-2Q, 9-11m/Q 76 ↑13-10m 78 15-17m 79 1-6m/w Hens →/25-30m, 17-21u±, 23Q/a "fact" says 24a "necessarily" cause 24c "the|who", 25-26"...", 25c "breeding|in", 28-30"...", 81 7-13m

part 5 NB Copied

♦ 97 Old Cocks getting yellow Hackles Reverse in individuals

p102 Q in ch. 24 Spanish Fowls originally ♦ Mediterranean origin

97 4-7m, ↑1-13m/↑17-16u↔ 102 8-12m, ↑10-8m/w Tender ↑3-1m/→ 103 2-5m, ↑19-18m/↑18u "immense|face", ↑5-1m 105 ↑6-2m 106 ↑3-1m ♦ 107 14-16m, 16m 119 17-20m

part 6 NB 123 new. form of sexual selection

♦ 128 Black & white Games not breeding Q.

♦ Comb 135 Interbreeding Game

Comb spurs extra on Game breeds.

121 11-12m, ↑10-8m/↑18u "early|precocious"

123 17-23m/Q, 25-26m 124 6u "neck|stray", 8u "whole|and", 9-10u "wings|powerful", 10u

"thighs|muscular", 18u "plumage|like", 24u

"beak|massive", 26u "The spur", 27u "dense|leg", 28-29m 125 ↑3-1m/↑2u "are|savage" 128 23-25m 131 ↑12-9m 135 1-6m, ↑14-12m/Q 137 3-6m 139 ↑8-4m, ↑7c/a "an" An ↑7"...", ↑7a "bird" as ♣ Mr T's poultry works
part 7 NB p.165 Pheasant male; p.155; 157; 165,167 Hybrids

150 ↑18-12m 155 4-7m, 8u "pairs|hens", 8-9w Hens selected 11u "Golden Mooneys", 14-16m, 19u "hens", ↑4u "the|small", ↑1→ 156 20-22m, 29* 157 ↑17-14m, ↑13u "year|feathers", ↑12-9m 158 13-18w As also produced by crossing probably reversion - 17u "they|pencilled", 17c/a "8" 2 & 8 17-20m 163 ↑13-7m 165 ↑18-1m, ↑18u "the|single", ↑17u "affection|common", ↑13"...", ↑13-11u↔, ↑10u "entertain|to", ↑8u "artifice|anything", ↑6u "sooner|takes", ↑2-1u "Extra-ordinary wildness" 166 ↑9u "Silver|Hamburgh", ↑9-8w Pheasant male ↑7-5m/↑6u "close|pencilling" 167 19-22m, ↑14-12m, ↑9-7m

part 8, 172 38-40m 173 20-25m/w no too young 30-32m, 35-37m 175 2-5m, 7-10m, 22-23m, 23-28m 181 26-27m 184 18m 185 24-26m, 37-41m 191 9-12m

part 9 NB 204 Houdans

209 33-36m/36u "and|horned", ↑1→ 210 1-5m, 26-29m

part 10, 219 26-29m, 32-33m, 40-41m, 43u "are non-sitters" 222 9-10m/9u "bright blue" 224 3-7m/4u "produced|had", 14-17m 231 33-40m 234 40-42m 236 1-4m

part 11, 248 1-5m, 11-13m 250 19-25m

part 12 NB 269 Turkey 271 277

Fertility 280, 282 eggs Peacocks Q

285♦

269 14-23m (Baird) 271 20-23m (Baird) 277 28-30m, 36-38m 280 18-20m 282 3-5m 285 12u "five|eggs"

part 13 NB O/

part 14 NB O/

part 15 SB □β 1

The Poultry Book

p.47 & 48 Cochins - O middle-toe very long.- ⇒ p.41 & 42 tail very short - primaries very short.

p.46 Cuckoo Cochins p.46 Cochins graze much- 57♣ 49. Pectoral muscles little developed

65 Sykes on Fowls imported from Deccan Pigeons from Aegypt breeding at first (as did my African Fowls)

72♣ Malays 81 eggs variable in size & colour (u) Q♣ 78- chicken Q feathers slowly

p.76♦ 97. Cuckoo Dorking Cock, remarkable for having nearly same coloured

feathers in both sexes.

86♦ 102. & 107 Spanish- tender - p103. immense comb in both sexes. 87♣ 103. Shape of Skull, affected by Comb 88♦ 89♦ 105 Two strains of Spanish; one from Holland.- Q 106 get white patch at different periods (u)

♦ 90 p107. About Spanish Fowls not sitting p97. R

93 in Spanish Fowls great uncertainty in getting the corded white face

♦ 95 p.119 Two non-sitters produce sitting chickens. p.133 do R

X 97 Spanish Audubons p121. get secondary male characters very early: crow at 6 weeks Q

99♦ 123 Pedigrees of Game Fowls extend ♣ 100 years

X 100. 124 Spur often present in Hens of Game.- (& savage)

100 Colours differ in cocks of several sub-breeds of Game; more than Hens. X but p.131 Hens (p.102) also differ much

193 131 Cuckoo Game

X 103 131 A Game sub-breed with Cocks & Hens alike

111. 139. Comb a fearful vantage to foe. curious like injury for Beauty sake!

116 Pencilled Hamburgs ♣ described by Aldovrandi - X Cocks not pencilled. 119♦ 150 non-sitters

123 Spangled Hamburg - ⇒ p155 2 sub-breeds underg to Pheasants

123♦ 124♦ 165 Pheasants selecting particular Hens to pair with

⇒ 165 & 167 stronger - like Hyaenas

♦ 124 Young Hybrid Pheasants "Extraordinary wildness" Reversion.- R

126 167 First crosses of breeds of Fowls & Hybrid Pheasants very large size

129 2 ♣ p.155 sub-breeds of Spangled Hamburgs

X 130 Hen-tailed Cocks p154 do strong generally not very fertile; [but Hen-tailed game are said to be so p.102]

135 172 Polish Fowls at least 200 years old

136 172 Difference in top-knot of Cock & Hen Polish.- Hackles in Cocks correlation comb only rudimentary - wattle & Beard congenitive - Nostril ● 175 not so open; inter-maxillary bones absent.- ♣

⇒ 173 Blumenbach on the Skull - good

⇒ 181 in some breeds wattles, in some beard.-

⇒ 175 Correlation of Skull & Plume

⇒ do form of comb

p.136 Cuckoo 185 Polish: Silver & Golden

TEGETMEIER, POULTRY BOOK 1866

Spangled.

⇒ p.188 Sultans – p.191 Ghoudkas–
p.158 Bantams, length of feathers on leg –
Breed nearly extinct 159 Spangled Bantams
p161. ♣⇒ Breeds of Silk fowls p.162
Degenerate in this country: Chickens Q very
pretty canary-yellow – 163 224⇒ Silkness
not transmitted, but colour of skin & bone is
transmitted.

165. Ringless Fowls producing tail-feathers –
never true to colour.–

over

(over)

172♦ 209 Creve-coeurs. large toothed
2-horned comb.

150♦ 241 Origin of Sebright Bantams –
complex cross.

◆⇒ 156♦ 248. White Bantams, when
mature tend to assume yellow colour & Q⇒
this very hereditary – Reversion.– – so with
Black-Bantams when 2 or 3 years old.
Reversion.– R⇒

⇒ ♦ New Geol 204 Houdans described

⇒

210 Advantages of crossing Fowls

219 Guelders, Comb mainly a rudiment; Cuckoo Guelder – a sub-breed of polish. no
top knot

224 Crossed Silky Fowls

231 good case of Reversion, without a cross

♦ 234 ♣ combs Immense Comb

236 Weight of Poultry & Ducks

250 Bantams with feathers on legs & 2 outer
toes longer than wing feather Ch. 25
Correlation of Growth

TEGETMEIER, William Bernhard *Profitable
poultry* London; Darton & Co.; 1854 [CUL, I]
beh, cs, sl, v

NB 17; 18; 24; 27; 28; 32; 37; 40

SB □β

27 Black Cockins produced from Buff &
White – Cochins never fly

36 White lappet very uncertain in Spanish
Fowl – (Selection)

17 28–30m 18 13–18m, 20–22m, 29–32m 19
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34 24–30m 35 4–7m 36 5–8m, 12–16m, 19–20u
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wt golden Hamburgh 2–6m, 17–20m 41 6–
8m, 12u "Creoles | grays" 42 3–6m

TEGETMEIER, William Bernhard *Pheasants
for coverts and aviaries* London; Horace Cox;
1873 [CUL, I]

cs

SB See to; p47♦ scent; 112–114♦
crossing♦; ♣

24 9–13m 47 5–12m 92 37–40m 93 18–23m,
24–27m 113 26–34m 114 2–11m

THOMAS, Cyrus *Acrididae of North America*
Washington; Government printing office;
1873 [Down]

NB 25♦

25 11–14m

♂

THOMPSON, J. *New, correct and complete
ready reckoner* Gainsborough; H. Mozley;
1805 [Down, pre-B]

NB *et*

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Ireland* 3 vols.; London; Reeve, Benham &
Reeve; 1849–51 [CUL]

beh, br, cs, ex, gd, hy, ig, is, mg, oo, or, no,
pat, sp, sx, t, ta, tm, v, wd, y

SB1 ix; xix; 122; 136; 138; 208; 307; 309;
311; 329; 339; 341; 366; 373; 407 good
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Poultry first part merely amusing; Index
Corvidae Rare birds dull

SB2 □β

ix Disease of Birds in England compared to
continent & Ireland comp. to England. Odd
against migration p22 Sea Eagle preferring
Black Fowl– p39 Peregrine Falcons getting a
mate when one killed – Eyries well known –
Ch. 5

xix on increase of Missel Thrush Ch 5
(p.122)

136 Q Thrush odd variations in place of nest
& materials of

307 Carrion crow races in Ireland 208
different variety of Tomtits in Ireland &
England

309 Cross with Hooded

330 Q On Magpie changing place of nest
from persecution – tame in Norway Q

366 On American Cuckoo in Ireland–

373 Kingfisher American do 407 Swallow &
Bittern

(over)

⇒ viz by leading the Bird to be constant in
one or the other Method.–

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39 13–19m

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341 1-3m 366 5-14m (Temminck) 373 16-20m
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85,8; 98; 103; 122; 133; 146; 164; 172; 228;
247; 256; 272; p314; p328

SB2 □β

11 In Islay half Rock Doves chequered
15 Flight of Carrier Pigeon
49 Cases of grouse breeding in confinement
61 Decrease of Partridges, even to local
extinctions, cause very obscure 314 Rails at
same time

65 Q Different Habits of Partridge of
Scotland & Ireland in rising quietly or scream
69 Q increase of Quails & of those staying
to breed 70 do Q

122 NQ our shore birds know Equestrian
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not afraid of Train

146 Q Herons breeding on the ground

172 Q American Herons in Ireland at time of
Migration in America, which was case with
Cuckoo

247 Q Breeding of Woodcocks in Ireland-

256 Q Case inexplicable Probably would not
cross 254 thought to be lighter natural colour

Q

272 Crested Snipes var. several shot.

328 Q Waterhen not covering eggs in a safe
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11 17u "in Islay"/16-20m/w ♦ Ireland 32-35m
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102; 110; 323; 441; 457,8; 461,2,5; I have
read only 1st vol. of Yarrell

SB2 □β

31 Origin of Domestic goose - variable
(good) p.44 Domestication of Grey Lag: or
Parents

63 Q Migratory instinct wearing off in 12
years in wounded geese

102 Division of flocks of Wigeons &c into
distinct flocks (Ch. 6)

441 Extension of frequency of Starling of
late years, after loss.

457 Hybrid Blackbird & Thrush (intermediate
young)

458 Various Hybrid Swans to 462

465 Ages of Birds Ch. 5

♦ 39 & 70 Hybrids Ducks & Geese

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22-27m (Yarrell), 29-32m (Selys-Longchamps)
462 6-10m (Westwood, S. Moreton) 465 33-
35m 467 12-14m, 16-17m, 19-21m, 24-25m,
27-28m, 37u "fifty-one years"

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Upsala; Ed. Berling; 1869-70 [CUL, I]
ad, af, sp, sx, sy

NB a generalised group of spiders with
radiating affinities & small genera, very
distinct - p41

135 Blind Spiders in caves

♦ 205 Sexes

41 2-9m 135 13-15m (Keiserling) 205 16-21m

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of European spiders* Upsala; J. Lundström;
1870-73 [Down, I] ⚧

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tration of the sexual system of Linnaeus* vol. 1
[Down]

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NB 115 to end
On Expressions
116 recognises Expressions instinctively
O/

iv 6-7m, 10u, wb <not CD> v 8m, 9m, wb <not CD> vi 20m, 29m vii 9m, 17m, 28m, 31m, 33m, 49m

∅
116 23-35m

TIEGHEM, Philippe Van *Traité de botanique* 4 fasc.; Paris; F. Savy; n.d. [CUL, S] che, ct, fg, phy, tm

fasc. 1 NB p61,2 Bloom; p155; -85 Fluids for absorbing Light; 91 Constituents; 96; 98; 122 Frank Bicarbonate; 138 read to 60 fig.m 61 11-22m 62 1-5m 86 1-8z 91 24-30m 96 23-29m, 40-47m 98 40-46m 99 16-23m, 48-51m (Sachs) 103 23-25m, 26-28m, 40m 123 35-48m (Sachs, Guillemin), 41-44m/43u "cupro-ammoniacale" 126 14-17m 138 3m 147 2m 155 1-5m, 7-8m, 42m (Sachs)

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fasc. 4, 490 4-5m/5u "leucite"/w or Aleuron! 492 11-19m, 28u "condense | protoplasma", 43-46m 493 8-14m 494 9-12m 498 fig A.m, fig B.m, 18-19u "partagent | protoplasma" 500 40-45m 505 20-21m/21u "latex | Euphorbia" 524 35-37m/35-36u "paraissent | réserve" 526 27-29m 528 41-44m 529 29-34m 532 18-22m 574 34-46m 596 5-10m, 13-18m 598 28-32m, 41-45m 622 1-6m 624 7-10m, 19-25m/19-20u ↔ 627 8-12m

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NB O/

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NB 345 large number of rarest plants, compared with common in Middlesex 345 15-23m

∅

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NB1 p16♦

NB2 p16

SB1 p.18; p.89; p.151; p.152; p.160; 170; 178; 236

SB2 □β

16 3 weeks between blossoming of highest & lowest Cherry-tree

89 case of Fox carried by Eagle & escaped alive Goat 90 children

151 3 vars of Bears - Black feeds more on vegetable. 152 Brown attacks Goats

160 Cattle in Spring know the Bell for turning out for Summer Q

178 Wild sheep in Alps - Bergamesque peculiar Breed N.Q.

236 Ibex or Steinbock very different on Alps & Pyrenees

96 Chamois common to Pyrenees, Caucasus, Carpathian

16 3-7m 89 16-28m, 35-38m 90 27-36m 91 3-6m 151 20-23m, 26-27m 152 8-12m/9u

"while | brown" 160 31-37m/33-34Q 170 22-26m 178 5-9m, 29u "Bergamesque" 179 1-9m

236 23-27m

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vol. 2, 269 ↑14a "implying" no

TUKE, Daniel Hack *Illustrations of the influence of the mind upon the body in health and disease* London; 1872 [CUL.1900]
beh, em, phy, t

SB All on Expression, except p.282 on imagination of Mother

remarks sensation via the epigastric region from many emotions long ago observed.

p.29 30 75 88 98 135 136 141 154 159 223 244 261 263 269 271 273

282 - Effect of imagination of mother on foetus

340 345

29 6-7m/w He experimented on himself 8-10m/Q 30 3-5m/4u "sensory ganglia", 11-16m 75 4-5m 88 ↓w | err when | speak of retching from Habit or resulting tone - imagination is cause. 89 15-22m 98 ↑5-1m 135 3-7m, ↑12-6m 136 ↑19-16m, ↑12u "burning shame", ↑9-7m 141 8-18m 154 ↑10-3m 159 16u "Pride", 18u "elevation | head", 17-20m, wb Does a man making himself tall - account for position of Head - He is ready for action - 223 5-12m 244 ↑4-1m 261 2-12m/? 262 ↑18-9m, ↑8-1m 263 2-6m, 13-17m 269 8-18m 271 ↑19-16m, ↑15u↔ 273 ↑12-9m 282 ↑16-3m 340 18-24m/w shows how different emotion is from will - like reflex action 345 ↑14-10m 347 17-23m, ↑14-10m, ↑4-2m 350 5-12m

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sh, tm

87 ↑4w↔ 118 ↑10-9w↔ B> 129 16w↔ Horse Luck 136 4m 138 32m 140 39m 141 32m 142 47m 143 31m, 36-45m 144 5-9m 145 47m 146 24m, 31m 147 55m 148 13m 149 27m 150 4m 154 3m, 27m, 40m 156 2m 157 21m 159 1m 161 3m, 16m, 39m 162 9m, 32m, 51m 163 7m, 26m 165 15m 167 36m 171 37m, 52m 173 33m 174 17m 177 2m 178 5m, 40m 179 41m 184 ↔ 30m/w *Odostomia* 32w 1 41w 2 46w 3 53w 4 wb * Shell spiral produced, mouth contracted subangular generally distinct from, in body short & furnished with teeth 185 ↔ 7w 5 22w Sym: 30w 9 39w do 186 ↔ 8w 6 16w 7 23m↔/w 8 30w 9 39w 10 46w 11 187 ↔ 1m/w * *Planorbis* 22m↔/w 1* 29m↔/w 2 36w 3 45m↔/w 4 52w 5 wb Shell simple, spiral, depressed, spines lateral mouth oblique 188 ↔ 3w 6 10w 7 16w 8 191

18w↔ Sym: 26m, 42m 192 ↔ 4w Sym: 11w do 17w do 24w do 36w Sym 43w do 50w do 193 ↔ 1w do 8w *Symnaea* 33m/w *Symnaea* 34w 1* 41w 2 47w 3 wb * Shell ornate conical mouth entire longitudinally oblong the rt lip joined to the left at the base & folding back on the pillar 194 ↔ 1w 4 7w 5 15w 6 21m/w 7 28w 8 41w 10 195 ↔ 1w 11 196 6m, 21m, 40m 197 1m, 35m, 42m 198 6m 201 4m, 50m 207 ↑11w↔ 208 22m, 24w Fecal orifices turned one way 29m 209 23m, 28m, 52m 210 12m 211 39m 212 ↑29-28m, ↑23-22m, ↑18-17m, ↑13-12m, ↑7-6m 213 36m, 52m 214 11m 215 26m, 33m, 38m, 43m, 45m 216 15m, 31m/w of Lamarck 37m, 41m 217 14m, 30w Chelata of Lamarck

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h, no, v

NB 35 Number of races of man made by various Authors

35 7-16m (*Buffon, Kant, Hunter, Virey, Blumenbach, Desmoulins, Bory de St Vincent, Morton, Pickering, Burke, Jacquinet*), 7u, 9u, 10u, 12u, 13u, 14u, 15u (numbers)

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beh, t, tm

vol. 1 NB Expression

p.150 153 voice tones of; 167 do; 169 pleasure only in air Greenlanders turn up nose in contempt or horror; 27

16 15-21m, 28-31m 150 29u "accompanied"/w (a) wb | shd say the sounds cause the form of face 151 6-9m 153 21-34m 166 21-30m/28u "whine of" 167 24-37m 169 15-19m

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beh

NB Expression

41 opposition in signs p38 - Opposition p51

TYLOR, MANKIND 1ST EDN

& 53 – Gestures Kissing rubbing noses &c 62 ♦; 54 foreigners talk by gesture
Nodding do gestures
6 15–18m 35 21–25m 38 4–18m 41 26–30m 45
12–17m 51 18–27m 52 26–31m 53 2–8m 54 3–
21m 62 1–4m

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beh, h, t

NB1 p45 snapping fingers; p52
Expression; 38; 41; 44 Book; 47; 48; 52; 69
p272 Excellent on Progress with Mankind –
& similarly of mind – Referred

NB2 ●

38 5–9m, 14–22m 41 23–35m 44 29–31m, 38m
45 15–17m, 16–25["..."], 24–28m, 34u
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23–29m/23u "pleasure\greeting"/24u "rubbing\
other's"/29u "pattings\Fuegians" 52 16–21m 53
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"with fingers", 36m (Lieber) 275 31–32m (G.J.
French) 276 16–23m 372 3–38m, 19–20z 373 1–
20m

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cc, cs, dic, f, fg, hy, ig, mhp, phy, sp, sx, t, tm, v, wd

NB1 Not abstracted nor is Lecoq

NB2 160 Williams vessels of Cruciferae

SB Vol I ⊗

Everything without red cross is about cross-fecundation

p4 D; 17 – wind D; ♦ Look over Marks; 21.D; 24.D

♦ to 58 (from now I shall skip largely)

⊗ All used about Crossing

74D.

143–151 Fumaria D

156 Cruciferae

Law of Variation 159 X⊗ 160 D 163 200 D

Dimorphism 308 X⊗ Violets

do – 316 X⊗ Reseda

x 322 X⊗ Drosophyllum allied to Drosera

D 329 Polygala D 388; D 347; D 350; D

355; D 364

Sagina 377 X⊗ dimorphic?

D 383

Used ♦ 400,403 Linum

407 Malva D

♦⊗ 408 Do

493 Acer D

518 521 Pelargonium D

523 528 D

542 X⊗ Noli me tangere Dimorph

Dimorph

544 X⊗ Oxalis

563 – Dictamnus D

572 587

⊗ very poor Book

⟨over⟩ 24D

⟨D indicates "dimorphism"⟩

vi 25–28m (Cassini) 4 17–21m 8 21–37m/w C.

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36m 20 30–37w opening of anthers 31–40m

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vol. 2 NB p371 Lythrum

SB □β ⇔

Vol 2 Vaucher

21 & 22 Rhamnus - dimorphic or polygamous

42 Leguminosae Dichogamy &c

64 Spartium Dic.

82 Ononis dimorphic

90 Nat. Hybrids

188 Nectar-glands Vicia - Dimorphic Vicia

194 Lathyrus. Dimorphic & good gradation

204 Phaseolus - Dic.

213 Lupinus 2 sorts of anthers

225 Arachis dimorphic

225-299 Dioicous Legum. Dic

327 330 333 Epilobium &c Dic

339 allied genus D. Moth caught by proboscis

370 Lythrum Dimorphic

535 Saxifraga Dic.

558 563 565 to 571 Umbellifera Dic

610 611 624 627 Flowers of Ray & centre in Umbellifera. Law of Relations; in relation to Daucus - central flowers at 613, 614

644 Adoxa central flower, form from position

682, 693 Crucianella. Dic.

702 Galium sexes separate

732 Scabiosa dimorphic

11 18-28m, 21u "dioiques", 33-36m, 33u

"femelles" 21 13u "dioiques|avortement", 14u "hermaphrodites", 23-24m 22 8-10m 42 41m/w Legumin 65 19-22m (Koch) 82 28-33m 90 5-12m 106 19-29m/28u "filets|neufs" 110 31-35m/32u "renflent|ferment" 111 1u "Globosum", 2-3u "les|les" 188 10-18m, 31-37m 189 7-11m 194 7-11m (De Candolle, A.P.) 204 15-19m 205 39-41m 213 10-15m, 39-41m 224 34-36m/?/35u "fleurs infertiles" 225 15-22m, 36m 226 5-8m 227 34-38m (De Candolle, A.P.), 37-41m/39u "vers|arbre" 229 2-4m 231 20-21m 327 21-22m (Koch), 25-30m 330 13-17m, 20-23m, 28-34m, 35-39m 331 35-38m/37u "ouvrent|soir" 333 16-20m 339 8-13m, 25-27m 368 34w Read 369 30-32m/31u "où|et" 370 30-38m, 34-40m 371 1-12m, 4-12m, 22-24m 381 15w Read 535 13-21m 558 8-16m 563 9-21m 564 4-7m 565 6-9m, 24-28m, 34z 566 34-37m/35u "la|sessile" 568 8-11m 571 25-29m 610 13-15m 611 6-10m (De Candolle, A.P.) 613 22-26m/23u "et|rouge" 614 13u "ombellule|ordinairement"/w see p.611 624 16-19m 627 9-13m, 14-17m, 18-22m/18-19u "la|femelle", 33-39m/34u "femelle centrale" 630 38-40m 636 33-38m 644 25-33m 682 20-24m, wt Rubiaceae 693 7-12m 702 31-40m 703 41m 705 10-11m 732 30-36m, 37-41m

∅

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300 Compositae. Dichogamy

307 Lobelia fertilization a dioicous form D

309 Goodenia References good D

387 Asclepius does not believe is D.

396 Apocynum D.

399 Vinca D

402 Menyantes Dimorphic

413 Dic.

454 Dimorphic

461 Echium dimorphic

461 Pulmonaria do

466 Myosotis palustris do

518 Digitalis Dic

576 Mentha dioicous

578 Lycopus do

584 Salvia manner of fert (subsid) Dic.

596 Origanum 599 Thymus 603 Satureya

611 Melissa 687 General Remarks on d.

723 Hottonia dimorphic 724 ♦ Lysimachia ♦

738 Primula dimorphic 741 Soldanella dimorphic?

☞ In former Volume about Lupins with 2 coloured Stamens?

3 3-4w Not read to p.299 300 12-16m, 34-38m 301 4-7m, 9-13m 307 3-8m, 27-31!! 309 5-7m, 28-32m 387 22-27m 399 6-8m, 13-15!!/m, 30-33m 402 6-11m 413 27-32m 461 21-

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35 Atriplex

complex sexual case gradation

521 ♦

very imperfectly skimmed, but as much as it deserves

521, 522 on relation of fertilization to position of nectar Dichogamy

35 12-27m 434 15-17m 521 2-11m, 15-18m 522 30-34m

VEITH, Johann E. *Die Naturgeschichte der nutzbaren Haussäugethiere* Wien; W. Braumüller; 1856 [CUL]

cs, dg, gd, geo, or, sl, sp, tm, v, wd

NF Veith

title page wt Reith ♦ Veith 11 29-36m/31w (a) wb (a) races produced by selection deteriorate when neglected 15 24-25m/u "weil theilt" 24 24-29m/w wild horses of central Asia 28u "ohngefähr gewöhnlichen"/w small 33u "Ihre kraus" 25 1u "lohbraun", 2u "isabellgelb mäusegrau", 9u "weissliche", 10u "behaarte Pamer", 12u "Kumurah Bergpferd", 13u "das Sardiniens", 14-16m/w doubtful whether really wild 17m, 27u "dunkelbrauner silbergrauer" 29 wt How little we can trust geological evidence shown by the 2 Americas 1u "werden Hauptstämme", 11u "dunkelbraune Pferd", 3-17m/w I daresay from Smith 20-25w Remarks cannot be traced 31 11-13m/12u "lange Mähnen" 33 wt I remember lately seeing that English horses had beaten Aegyptian 10u "Sie Stammältern" 34 12u "noch gemeine"/w Dray Horses 20-21w India Pony still different 22-25w But new Forest Shetland & Welsh Ponys have different appearance 26-28m/w English Pony 35 20u "Neapolitaner", 21u "schweren Kopf", 22u "Höhe gerichteten", 27m, 33u "sardinischen klein" 36 7-15w nothing particular 37 13u "abstehend hängend"/12-19w Great heavy horses 38 16-22w Germany nothing particular- 25w Northern horses tow.- 39 4u

"russische", 7u "lange Mähnen", 8u/wt, 11-14w These crossed by Eastern Horse 15u "liefländischen", 21u "Ukraine", 25u "domische Kosakenpferd", 26u "Ganaschen"/w lower jaw 31u "polnische"/w very distinct 35u/wbt 40 7u "Bachmatten Podolien", 16-17m/16u "sehr haut" 41 6u "edle ungarische", 28u↔, 34-35m/34a "Paarung"/wb i.e. Neapolitan-Spanish 42 11m/u↔, 12u "in Slavonien", 16u "böhmischen Pferde", 18u "fleischigen Augen", 19-20u↔, 27u "Steiermarks", 31u "Salzburgs", 33u/wt 44 10-11m/10-14w never have white spot on forehead 48 32-33m/u↔ 52 30-32m 55 13-15m, 18u "Die race", 19u "spitzigem Kopfe", 21u "hohen Beinen", 32u "Das Würzthaler" 56 1-3m/1u "das Vieh"/w 3 30-35m/33w 6 57 3u "England"/3-5w England not counted 20m, 26u "Holländer", 33u "friesischer" 58 3u "Tütische", 8cæ, 10-11w Short Horn 17u "Alderney", 18u "aus stammend", 20u "fette Milch", 25u "grosse scheckige", 30-31u "Hintertheil Schwein-wurzel" 59 wt could these all arise from few crosses? 1u "Simmenthaler Saanervieh", 5u "Tiroler", 18u "eine Maul", 19u "Ohren", 22u "Schweizer" 60 1u "Vorarlberger", 7-10w sub-vars 17-27m/22-25w sub-vars 29m/29-35w So above does not include crossed races in his opinion.- 64 26-27u "Alpenketten Nordasien", 27-28u↔, 33-34u "Früher heimisch"/? 65 1u "Sardinien getroffen", 2u "jung zähmbar", 4u "Gebirge Nordafrika", 6-7u "im Armenien" 67 10-12m 68 31m/w Felt 33u "gemeine Landschaft" 69 5-7m, 14u "Lüneburger Niederungen", 16-19m/16w 3 25u "ungehört hohen", 30-33m 70 5u▲, 11u▲, 12u "abstammend", 34-35m 71 22-24m 72 5m, 11-12m, 31u "hängenden Ohren" 73 3-4m 78 9-10u "hat Zitzen", 22u/wt 80 21u "grosse kleine" 81 2-4m, 9u▲, 10u "konstant", 11-12u "Das Ähnlichkeit", 18u "durch Kreuzung", 21-22u "China vor", 27u↔, 31u "Russland" 85 25-27m, 27-28u↔ 86 5-7m, 19u▲/w setter 25u "selten Haare"/w spaniel 26u±, 32w Newfoundland 87 1-2!/2u "kegelförmiger Ohren", 4-5w Greyhound 14-15w Cattle Dog 22-23w short snout hanging ears & jaws 25w Terriers 28w Pointer 88 5-6w Danish Dog 14-15w Pug 17w Bull-dog 27w Mastiff 32-33w St. Bernard 91 10-12m/11u "maniculata Rüppel", 19-21m/19w Tortoise shell

VERITY, Robert *Changes produced in the nervous system by civilization* London; S. Highly; 1839 [Down]

33 21-25m 34 1-3m 134 3-12m

VERLOT, Jean-Baptiste *Sur la production et la fixation des variétés dans les plantes d'ornement* Paris; J.B. Baillière; 1865 [CUL, I, FD]

cs, dic, f, fg, gd, he, hy, in, mhp, mn, or, phy, sl, sp, spo, sx, t, ta, tm, v

NB 4 & 5 Sports; Hybrids; 14 *Cytisus adami*; 22; 28; 31; 46 Hybrids; 54; 56 Colour of flowers; 59; 63 panachure; 61; 71,2; 80 & 88; 84 very good; 90; 92

SB1 □β ↷ (not CD but dictated by him and with corrections in pencil by him)

Verlot ↷

p.4 & 5 Bud variations – good ↷

11 Hybridization, ↷ facts on *Bryanthium* Genera

14 case of *Datura* illustrating *Cytisus Adami*

20 ✓ ↷ *Leptosiphon* Polemoniaceae ↷ case of crossing naturally

28 & 31 Vilmorin on selecting greatest duration

30 causes of variation – age of see ♦ ↷ & time when gathered

32 ✓ ↷ Individual plants of same variety alone having power of transmission

34 individual dwarf *Ageratum* sterile

38 ✓ ↷ case of dwarf *Saponaria* with no power of transmission

39 another dwarf with strongest power

42 Macnab on different effect on offspring of pollen from diff't anthers ↷ of different size ↷ in *Rhododendron*

46 on crossing Tropical & temperate *Amaryllis* case like *Rhod. Arboreum*.

54 inheritance of purple beech & of purple barbary. ↷ Used in Ch xi

56 principle of the 3 colours in flowers.

59 white flowers very rarely vary into other colours

63 & 66 Vilmorin on ↷ origins of ↷ stripe of striped flowers being case of partial reversion. Good. I shew also from crossing. ↷ I think partly used

SB2 (as SB1)

↷ Copy of Dichog Next

66 ✓ ↷ Vars of *Convolvulus*, *Antirrhinum* & *Nemophila* naturally crossing good as I know the 2 former are self-fertile

71 Do on dianthus

72 | ↷ some plants *Tomatos Pimentos* & c said never to cross naturally

72 Cases of corellation of colour of flower & seed Q ↷

74 White spotted leaves inherited ↷ partly Q

80 Hose & hose primrose sterile

84 Stocks producing mostly double plants quite sterile & a few single-flowered plants

by which race is propagated, illustrating production of neutral ants. ↷ Used

85 Old seeds positively said to produce most double flowers ↷ not since disputed

↷ (CD) Bears also on selection, knowledge of vars

86 case of gardener who cd distinguish 150 vars of *Camellia* when not in flower

88 4 cases of monstrous flowers which can be inherited & therefore are not sterile

SB3 (simile)

89 & 90 On Peloria of *Linaria*

92 Var. *horrida* of common Hawthorn ↷ (used)

93 on inheritance of weeping trees

94 Exaggeration of fastigate habits in seedling Irish yew

♦ ↷

4 22-27m/23-25w sport 27u "une famille" 5 15-22m/17-18w sport 11 27-33m 14 14-22m (Naudin) 22 19-25m/w crossed naturally 28 19-33m 30 24-28m/25u "moins récemment"/ 26u "recueillies sur"/28u "plus tardives" 31 12-18m 32 7u "Vilmorin", 8u "plantes semblables", 9u "même même", 11-24m/16u "semence nombre", 18u "tandis autres", 20u "dans descendance", 22-24m/1-24w individual plants transmitting colour vars 34 8-11m 38 17-24m/w non-inheritance 39 6-10m 41 5-7?/ 7u 42 12-18m (Macnab) 46 8-14m, 21-24m 54 13-35w Purple Beech degree of inheritance 55 17-19m (Bertin)/Q/18u "et variété" 56 6-12m 59 11-18w white flowers rarely vary vary into coloured 23u "rose Robinia" 61 3-37m 62 wt The striping is by seminal generation in Vilmorins case by bud-var with tulips & ● in carnations wb Galesio & Lecoq & self with sweet peas show it can come by crossing 63 wt I suppose care was rather to prevent the white flowers from being crossed – p.66 care was taken with flowers when one striped wt Simple Reversion with crossing 1-6m, 2-6m, 7-30w ♦ Perhaps I ought to allude to Vilmorin under Tulips done 7-12m/9-12m, 12u "qui par"/10-15w see p66 15-17m/ u↔, 27-32m (Vilmorin)/27w read 29u "manière graines", 36-37u "par blanche" 66 1-3m, 10u "cultivé distance"/11u "Nemophila insignis"/8-14m/w yet self-impregnated 21-25m, 25-28m 69 24-27m 71 4-7m 72 3a/u "Piments", wt ↷ I suppose Pimenta on Jamaica true of the Hills 3-4u "Aubergines mélangent"/4-5m/3w ↷ Both *Solanum* 27-36m/ 15-34w correlation of colour of flower & seed. 74 28-35m/28-29m/14-30w inheritance of spotted leaves 75 1-5m, 6-10m, 15-22m/w inheritance 76 8-12m, 32-34m/Q ↷ 80 21-

VERLOT

24m/w Monster sterile 84 10u "Quarantaine", 11-13m, 16-22m, 16-18u "se|simples", 20-21u "par|simples", 23-24u "si|doubles", 1-25w excellently good case illustrating selection of neuter ants 33u "Cheiranthus|quarantaine" 85 10-24m/w old seeds produce double flowers 86 22-26m/22u "Camellia"/24u "150|inspection" 88 8-15m/8u♦/10-13w Monster inherited Calendula 17-19w Monster do 25-26w Monster do 29-31m, 32-34m 89 2-4m/3w neuter 24-26m 90 14-16m, 25-28m/25w Linaria 92 28-30m/Q 93 19-20w weeping trees 22u "Fogus pendula", 23-26m/24u▲/25u "à|forme", 34m 94 2-6m (Macnab), 32m/u▲/25-34w Exaggeration of character

VIARDOT, Louis *Libre examen* Paris; A. Le Chevalier; 1871 [CUL, I]

VIARDOT, Louis *Libre examen* new edn; Paris; A. Le Chevalier; 1872 [Down, I] ⌀

VIARDOT, Louis *Libre examen* 5th edn; Paris; C. Reinwald; 1877 [Down, I] ⌀

VIARDOT, Louis *Libre examen* 6th edn; Paris; C. Reinwald; 1881 [Down, I]

VIARDOT, Louis *Libre examen* (a fragment starting p. 97) [Down] ⌀

VINCENT, Charles W. *The year-book of facts in science and the arts for 1875* London; Ward, Lock & Tyler; 1876 [Down]

VIRCHOW, Rudolf *Cellular pathology* trans. from 2nd edn by F. Chance; London; John Churchill; 1860 [CUL, I]
af, ch, che, ct, em, fg, he, in, pat, phy, sp, sx, t, tm, v

NB O/♦

♦ How can 2 widely separated ends of tendon be rejoined by ♣ proliferation of cells from either end – or does connective tissue between tendons then change – No doubt he wd say yes

↳ Sp Theory p334 Mammary glands & sebaceous glands, identical in nature

⊕ 442 give up Nisus formativus

SB1 ↳

14 a body represents a social arrangement of parts every element having its own special action

18 an enormous mass everywhere of minute centres of action

27 plastic matter given up – no structure starts de novo

39 everything formed by proliferation.

important m.s. note

50 cellular view not established for all structures

60 no morbid growth really new

66 Hairs found in Brain

83 early single bone-corpuscle really possesses conditions of nutrition peculiar to itself

123 affinities between definite tissues & definite substances 126 example of do – organic poison & disease

129 great importance shd be given to specific action of the elements of the tissues

155 a pus corpuscle cannot be distinguished from colourless blood-cells

162 Fibrine not excretion, but local formation

187 & 219 cancer spreads by absorbence to

♣ near glands but actual cells not absorbed

– Smallpox can be given by volatile matter & does not require a pus corpuscle.

233 speaks indirectly of all the tissues of body including blood cells building themselves up directly from the Embryonic formative cells of the ovum.*♦

245 on single cells in single skin papilla being diseased & growing into a condyloma

284 whole body consisting of vast number of centres of action –

SB2

294 Woorara poison special action on nerves, & in Bernard, some other book, but such cases are not specialized from single cells

390 & 392 Filmous exudations do not occur in all parts, not in Brain or liver, formed by adjoining parts, with exudations from blood

396 Rejects Blastoma; believes in continuous development of tissues from tissues

398 & 406 connective tissues as germs of the body

399 ovum a cell

400 Two principles, proliferation & division of cells (& endogamous growth within cells less important than latter)

402 subordinate differences in proliferation of cells in morbid structures.

404 Formative cells of embryo exactly alike whether a muscular or nervous element will proceed from them – so they change. & must be impregnated with gemmules

410 In cancer in Bone, the cancer-cells are the indirect descendants of the cells of the Bone.–

SB3

412 cartilage-cells may be converted in medullary or osseous, or back again – changes all ♣

412 fat-globules can pass into cells
 414 with cartilage & bone we can always trace direct descendance of cells from cells, but with changed nature
 421 Pus can be traced back to the elements of preexisting tissues, generation by generation.
 422 Cartilage into bone, into marrow, into granulation tissues & into pus – (NB ♣ these latter changes depend on conditions, & not on gemmules, why not former changes? see MS notes on broken bones
 426 In formation of Bone a series of permutations & substitutions
 431 Cartilage can only calcify, when it becomes bone it is transformed, the chondrine changing into gelatine
 439 In repair of bones connective tissues become changed into bony tissues
 441 every new formation has its origin in preexisting cells – no new acceptions to body – Give up Nisus
 445 Pus young tissue with dissolution of intervening matter
 450 indifferent formative cells, which might become pus, mucus, or epithelial cells.
 SB4
 453 granulations in every case arise out of tissues
 454 galls & morbid growth show that gemmules not reproduced for change – so change colours of parrots' feathers
 Muller about Polypoid growth peculiar to each part
 460 every single epithelial cell & c leads a sort of parasitical existence in relation to rest of body – so distinct in each cell
 463 All new formations are at first of similar ♦ same nature
 484 allude to dermoid growths in the orang which produce hairs, teeth & sebaceous glands
 SB5
 Virchow
 function of nucleus
 14 an individual consists of cells
 18, 27, 38 The eye only epidermis for Origin
 99 do
 39 important M.S. notes
 50; 53; 62; 64; 66; 68; 83; 101; 123; 126; 128; 155; 162; 164; 187; 219; 223; 245; 284; 294; 334 Sp. theory; 441 Species Theory; 442 Sp Theory; 445 to 463; 484; 487 All references to Pangenesis except two
 SB6 ♦ The independent life according to V. ♣ of each cell or cell-territory ♣ accords well with each cell procreating its own gemmule – making its own offset

xxiii 24m/u "The|continuous" 11 1-6m 14 6-14m 18 13-16m, 15-16m 27 9-12m, 15-21m, 34-35m 38 19-22m 39 wt/↓w/wb But remember action of pollen on Mother plant: here we have proof that male element can affect cells during proliferation 14-16m (Remak)/15u "proliferation", 20-26w yet many produce gemmules at each age, but of what use? 20u "proliferation", 23u "exception|lymphatic", 24u "belonging|organs", 27-30m/27-28u "when|divide", wb the question is whether a new cell formed from gemmule in opposition with another might not be confounded with division or proliferation 50 7-11m/1-21w♦ & Paget says muscles, nerves & Blood-vessels are not formed in ♣ effused lymph. – 8a "the" internal 53 1-5m 60 6c "physiological"/w natural 20a "every" newly formed 21-24m 62 1-4m, 22-26m 63 35u "of|structures" 64 2-3u "consists|business", 3-8m/6-7u "Heterotopia|loci"/w see p.66 66 23-32m, 30-32m 67 9-12m, 15-18m, 25u "epidermic", 26u "tumour", 27-28u "structure|epidermis", 31u "sometimes|parts", 32u "epidermis", 33u "of lymphatic" 68 17-20m 83 17-18m/17u "single|corpuscle" 99 24-27m 101 34-35m, wb Elastic tissues 123 15-18m/16-18u "certain|constitution" 126 17-23m, 21a "substances", 20-27w no doubt organic substances poison of Hydrophobic for salivary glands. – 28-20m/w Blister-Beetle 31-35w Poisonous Fishes wb Small-pox on skin 128 23-26m 129 17-20m, 24-26m 155 25-31m 162 12-18m 164 21-25m 165 2-5m, 33-35m 187 7-15m 219 10u "corpuscular"/w or cancer-cells 12-17m, 19-22m/w of cancer 30-33m 223 18-22m 245 1-5m, 6-11m/7a "papilla" though so minute 11-12m/11u "acuminate|condyloma" 284 4-10m 294 32-36m/w special affinity of organs pulsates○ 334 17-22m 335 17-19m 338 28-33m, 33-35m 339 10-15m 390 22-23m, 28-31m 391 4-7m, 35m 392 8m, 10-11m/11u "p.162", 14-18m, 31-35m 393 4-9m 396 2-6m, 21-23m 397 21-25m, 27-35m 398 7-11m, 14-17m/14-16u "substitute|germs", 26-28m, 33-35m, 35u "connective" 399 3u "connected framework", 10-15m (J. Müller, Schwann) 400 1-4m, 7-9m 401 17-18u "endogenous|cells" 402 18-20m, 30-35m 403 8-19m, 21-25m 404 12-17m 405 11-14m 406 1-6m, 19-23m, 29-32m 407 1-6m 410 33-35m 412 8-10m/8"... 413 1-5m/5...", 17-29m, 18c "in"/u "nuclei|them", 21-33w i.e. do not generate fat 32-35m/33u "may|fat", wb if this be so many gemmules may pass into cells – it certainly appeared in intestines & liver that fat passes into & out of cells 414 15-19m, 16-19m/16u "proliferation" 421 28-

VIRCHOW

34m 422 2-26m, 18-21m, 23-26m/23-25w/wb what a change of nature must have included gemmules; or it is rather chemical, can hardly be chemical as at any age such changes supervene in broken bones.- 425 13-17m/16-17u "intercellular substance"/17u "artilaginous", 19u "calcification|ensues", 24-27m 426 12u "permutations|substitutions", 25-31m 431 31-35m 439 2-4m, 16-19m, 20-23m 441 30-34m 442 wt/1-2w I must give up Nisus formativus 1-8m 445 9-12m 446 12-14m 447 11-14m 448 18-23m 449 29-34m 450 12-17m 453 16-19m, 25-27m, 30-32m 454 5-8m/wt/1-21w Galls & morbid growths shows that cells may be modified, without new gemmules by morbid nutrition or stimulus ♣ 455 15-17m, 25-27m 457 8-11m, 29-31m 458 25-27m/17-27w this looks like gemmules 459 1-5m 460 26-35m, 26-28m 462 29-30m 463 1-9m 484 19-24m/22-24u "produce|ovary" 487 4-8m, 19-26m 488 2-6m

VIRCHOW, Rudolf *Über einige Merkmale niederer Menschenrassen am Schädel* Berlin; K. Akademie der Wissenschaften; 1875 [Down, I]

h, r

5 1-3m/1u/3u, 15-18m, 16-19m

VIRCHOW, Rudolf and HOLZENDORFF, Freiherr von *Sammlung gemeinverständlicher wissenschaftlicher Vorträge* 1. Serie; Berlin; Carl Habel; n.d. [Down, I by Theodorus Müller] ♀

VÖCHTING, Hermann *Beiträge zur Morphologie und Anatomie der Rhipsalideen* Leipzig; 1873 [Down, I] ♀

VÖCHTING, Hermann *Botanische Abhandlungen aus dem Gebiet der Morphologie und Physiologie*. 3. *Der Bau und die Entwicklung des Stammes der Melastomeen* ed. Johannes Harnstein; Bonn; 1875 [Down, I] ♀

VÖCHTING, Hermann *Über Organbildung im Pflanzenreich* part 1; Bonn; M. Cohen & Sohn; 1878 [CUL]

26 14-16m 27 26-30m 28 9-12m 34 13-16m 57 15-17m 67 4u "krautige", 26-28m 79 19-21m 86 19-22m 91 36-37m 99 36-37m 107 12-22m 169 4-8m 172 13-17m 175 7-10m, 32-33m 180 10-12m 189 15-17m 199 26-28m 200 19-20m 201 19u "Stachel|Weiden" 202 24u "Hollunder", 25-27m 203 2-5m/3u "irrig", 27-28m 209 23-24m 211 1-5m, 21-26m 213 4-7m, 12-15m 215 15-21m 233 20-29m 242 14-19m 244 11-15m/12u "Anstösse" 247 27-30m

VOGT, Carl *Lectures on man* ed. J. Hunt; London; Longman, Green, Longman & Roberts; 1864 [CUL]

he, ig, sp, t, ts, v

NB ♦ p.45; 395 Turf-swine; 397,8 Cattle; 399 Sheep good; 400 Barley; 355 Herr on do; Used p.452-453 Transitions 454 457; 458 good 468

SB □β

♣ 452 on intermediate forms between the classes & between species.

♣ 454 Do

♣ 455 gives Agassiz blunders on first coming in of various classes

411 Even purely bred black Cats whose pedigree is known for some generations have kittens fairly striped at birth

♣ See back of Page on Transmission of Characters

♣, ♦ 121 Negro pelvis

♣ (not CD) p.45

(Species Theory)

C. Vogt

81 23u "head|rounder", 24u "jaws|skell", 25-38m, 29u "type|skull", 37-38m, wb over 82 18-24m 88 table.m to lines 1, 5, 23, 27, 29, 31, 33 90 22-29m, 30-38m 91 15-19m, 32-36m 121 33-36m/36u "cuneiform, lengthened" 127 9-11m, 12-15m 129 12-14m, 20-22m 133 14u "self-consciousness" 137 15-16m, 18-22m ♦ 150 6-9m, 6u "gap|diastema", 9-10u "tooth|chimpanzee" 151 5-8m 189 5-9m/5w Child 222 27-32m 290 36-38m (Lund) 355 10-28m (Rütimeyer, De Candolle, Alphonse) 356 26-32m 395 28-32m 396 1-3m, 7-10m, 34-39m 397 4-6m, 17-19m (Rütimeyer) 398 2-7m, 11-12m (Owen), 18-22m, 27-30m, 37-38m 399 2-5m/4u ♣, 8-11m, 12-15m/m/m/w Sheep 15m, 23-24m, 28-31m 400 30-31m 411 7-13m 421 19-21m/? (Rengger) 431 34-37m 452 16-38m 453 6-31m (Andreas Wagner) 454 26-34m (Gaudry) 455 26-39m (Agassiz) 457 27-33m 458 19-26m (Lovén) 459 8-12m 464 21-31w Orang developed Gibbon 465 2-3w developed Macacus 12u "mandril", 17-21m (Gratiolet) 467 1-2m 468 7-20m

VOGT, Carl *Lettres physiologiques* Paris; C. Reinwald & Co.; 1875 [Down]

NB read to p. 83. May 3d

VOGT, Carl *Mémoire sur les microcéphales ou hommes-singes* Paris; 1862; including

QUATREFAGES DE BRÉAU, J. *Comptes rendus des séances de l'Académie des Sciences*

64 (1867): 1-5 [review of Vogt] [CUL, I]
af, beh, dg, ds, dv, geo, h, he, hl, ig, pat, r,
ta, ti, tm, v

Quatrefages, NB 2; 4

title page ↗ Quatrefages on Vogt on Man
(important) ⇨ All used

2 22-27m, 29-33m 3 3-6m 4 6-13m (Gratiolet),
17-20m, 27-30m, 35-38m (Vogt) 5 8-11m, 22-
24m, 28-31m

Vogt, SB1 □β ⇨

This will come under Arrest

Vogt on Microceph; & Quatrefages on Vogt

Add Vogt to names of those who have
declared descent of man

50 on Prognathism pithecoïd of Microceph -
in Anthropomorphic apes the intermaxillary
bone disappears very early

54 curious correlations of frontal sinus &
muscular force & degraded state & age in
man & apes

56 crests for jaw muscles in Microceph & old
apes

59 Skulls simian, faces human

73 ages at which last molar or dens
sapientiae appears

79 Apes born with relative larger skulls or
brain than Man

125 126 idiots case like endowed with less
surface ⇨ of brain than simiae ⇨ but more in
mass

168 good. Desor no dom. animals imitate;
notorious that monkeys do - so do savages
so do grt. microcephalic idiots - Imitation no
doubt plays a most important part in
education

176 idiot, when Brain excited near death,
recalled old recollections so do animals,
remember without thinking of them.

184 are very fond of climbing: one does not
doubt the Theory of lambs, & kids frisking on
a tiny hillock as alpine animals, but every
one wd laugh at passion in Boys for climbing
trees being remnant of arboreal Habits.-

SB2 □β

197 summary on Skulls & brains of
Microcephalous

199 on parentage of man - from a form
lower even than Ouistitis

Quatrefages

p.3 argues that man not descended from
Anthropomorphous but I think Vogt expressly
admits this.

p.4 admits Gratiolets view of no real affinity
between Anthropomorphous apes - Blyth
admits also.- says man not descended from
one ape. but that all apes & man descended
from a common unknown type - quote

Quatrefages - but this implies so much
convergence I cannot admit - probably the
split was taken way back

SB3 Vogt p.169 Micro tendency to imitation
to extraordinary dgree

171 Micro dumb

Small skulls - yet development of frontal
sinus - prognath going dumb - good
strong tendency to imitation, eg fond of
climbing

p.197 convolutions of brain simpler

198 Prognathus effrayant

184 strong, very active, jumping &
gambolling - grimaces - go up stairs on all
4s

185 Versatile - attention never long to
anything - intelligence below that of animals

20 30u "docteur Behn", 31-32m/31u "treize
ans"/32u "en rougissant" 21 4-6m/5u "oeil
une" 26 30-32m 27 1-2m/1u "en tête"/2u
"d'une suivants"/3u "accentuer fortement" 50
8-10m, 16-18m 54 20-21m, 22-23w
correlation 25-27m, 27-28m 56 1-6m 57 21m
59 1-3m 73 10-12m 78 6m 79 6-11m 124 13-
17m (Rudolf Wagner) 125 11-13m 126 4-9m
127 3-4m 156 25-31m/27w correlation 160 3-
6m 168 27-31m 169 1-3m, 6-8m, 20-24m, 26-
27m/26w Savages 176 3-10m 184 25-28m 185
13u "versatilité", 22-24m 191 17-22m 194 17-
29m (Rüttimeyer) 197 2-11m/9u "requius", 27-
30m, 32m 198 2-4m, 20u "prognathisme
effrayant" 199 30-32m 200 1-3m, 15-17m
(Lartet), 19-23m

VOGT, Carl Über die Aufgänge der
Organismen Hadelborn; Ferdinand
Schöningh; 1870 [Down]

VOLZ, Wilhelm Beiträge zur Kulturgeschichte
Leipzig; G. Teubner; 1852 [CUL]

beh, br, ch, cs, ex, gd, h, hy, is, mg, oo, or,
no, sl, sp, t, ta, v, wd

NB ↗

77 Goose 78 Duck Antiquity

NB2 Many important marks; marked from
here p137; p226; p230; p232; p264; p371;
380; 400; 455

NB3 p.99; ⇨ Dates of Authors; p392 ♦

SB □℞

7 Bischof ♣ see beginning says seeds stick
to water Birds

47 X ↗ Mixing of races forbidden - 3 Moses
19.19 shows was attended to & done

76 x ↗ Polycrates of Samos had done much
to improve cattle (which cd only be
selection)

VOLZ

78 age of Fowls well made out – Duck not known tame in Aristotles
 80 X^s Alexander chose best Indian cattle to send home
 91 Sheep & Goat in Ctesias time larger than in Europe
 99 X^s increase in number of varieties of Plants & Dates
 115 History of Dog – sheep dogs shd be white
 114 x^s Sheep in Columellas time improved by cross
 137 Ducks introduced in Germany from Rome. Anas Enten
 226 increase of animals in S. America
 229 2 breeds of cattle in Brazil
 231 Newfoundland not fd in N. England when discovered
 400 Alpine cattle generally small Q

5 39–40m (Brown)/39–45w 13 plants in W. Africa from W. Indies are there any American genera? 6 16–20m/w Siebold says Mays washed ashore in Japan 1200 years ago 43m (Link), 44m (Siebold) 7 wt No precise facts in regards to distant migration 3–8w Bischoff seeds hang to water-Birds. Look to this 4–6m, 9–13w Have any water-Plants hooked seeds – 16–21w cases of distribution of plants in own country by animals 29–30m/w so first Rose transported No precise facts 8 15m, 23u▲/22–29m/w It might be questioned whether these species not created during period of agriculture 10 27m 12 wt/1–10m/w Flowers of potatoes same on Ms of Chile, as in plains of Siberia 10–16w Cereals same in Aegypt old & new 16–22w onion from mummy hand grew!!! like present 32u "Blumenkohl", 32–35m/w Cauliflower ? introduced 16 13 13–20m/w Citron changed since time of Palladius 35–42w 1500–1600 only wild Tulips now 5000 kinds of Tulips 17 wb N.B as many, even most Camels? Sheep cd not run wild, or all domestic animals have run wild, whereas many vegetables in their present recognisable forms as wheat, probably wd become extinct with man: it shows plants most altered. To some extent it may be that plants more diffused & everywhere better stocked.– C.D. 19 23w Barley 25–26w Origins not known of these 25w Rye 25w Wheat 25u/wt, 26u/wt, 27u/wt, 41–44?/m (Dureau) 21 34–36w Sheep never run wild 22 19–23m/w Camels run wild in S. Siberia 23 11–15m/w Places where wild Horses said to exist formerly 24 wt/1–17w Reichenbach has an astonishing theory that races of Dog get like

the animals they pursue. Quote perhaps for folly 1–20m, 29u "wussten"/28–32m/w The Greeks had not dogs with hanging ears? 25 7u "948"/7–10w Cats previous in this year 41u "Truthühner"/w Turkey 26 wt Hens known in oldest times of Aegypt 1m, 2–4m/2u "Hesiod | Testament", 3–4w Hens not mentioned 19–20m/17–22w old Aegyptians distinguished wild & tame geese 29 30m 35 31m 46 20–27w Moses speaks of Cinnamon so common very old 30m, 33–35w Peacock "Kings" 43m 47 1–5w Horses brought by Soliman from Aegypt 10u "Abraham"/11u "Tauben"/10–13m/w Abraham Pigeons 26–27m, 39m, 42m/w Pigeons 46m, wb Mixing of races forbidden: this shows formerly done or by other nations 48 wt The antiquity of races is very important in showing how very slow variation is – Horses have varied since 2–6m/w 2 races of donkeys in Abrahams time Hence have varied since 11–13m/w Pigeon let out of ark 14–16m/14–19w In old Testament hens not mentioned 32–33w wheat barley spelt 49 11u↔/w Leek Onion 18–23w Wine olive figs pomegranate 50 24w almond 51 2–7w Plums Pears Quince Trees 56 8u "Schafe | Kameele"/7–9w Sheep Camels Ass Cattle 13–14w In old Aegypt no Buffalo 14–18w horses like Dongola 16–25w horses in Moses time but their cultivation not that ancient apparently 57 wt Terrier 1–5m/3u "Windhunden | Arten"/w Greyhound 16–17w Geese Pigeons 58 1–2w 2 kinds of Barley 69 10m 70 29–31m/w Grafting attributed by Athenians to Eumolpus 73 6m 75 16u "Theophrast"/18u "Kopfsalat"/16–17m/16–22w 2 kinds of cabbages cabbage lettuce vars of Lettuce in time of Athenians 76 wt/3–6m/1–7w Polycrates of Samos had done much to improve breed of Oxen 17m, 25–30w Horses of Phidias, fiery, simple but noble 32–38w mules in Homers time Swine do 77 8–17w Great Molossus dog from Albania in Alexanders time 26–27w Hunting dogs & Grey-hounds X 37w Goose 38u "Homer", 42u "noch | bekannt"/41–42w/wb Fowls not known to Homer or Hesiod, but later wb X certainly strong argument that so little done in last few 1000 years, compared to what must have been done before 78 wt/1–8w Athenaus says imported from Persia. Hence not Europe – age well made out of Fowls 1–3m/m (Homer), 4–6m/w Duck not tame in Aristotles times in Greece 16u "Perlühner"/21u "Pfauen"/14–26w Peacocks & Guinea-fowls in Aristotles times – (Perhaps extinct again in Dark Ages. C.D.) 79 wb Aelian 222 after Christ 80 5–10m/w Alexander chose the

best of the Indian cattle to send to Macedonia to improve the Breed 7u/wt 81 18-25w Elephants tamed long before Alexanders times in india 84 6u/wt 85 17-23w North China native Land of Silk Worm 88 38-43w Peach not common in Theophrastes times 89 1-5w in Lucullus times sweet cherries in Europe 26u▲/26-28w mentioned by Strabo & Aelian 38m, wb All these facts impress on me that at one period there is limit of amount of variation. 91 5-13w Times of Ctesias sheep & Goats larger in India than Europe 98 20-33w Spread of Fruit Trees 99 tab.w Increase of varieties 30-33m, wb p.79 Aelian 222 after Chr. Dates 100 5-7w Roman Pears 107 5m 109 38w Savoy 110 1u "Krauskohl"/w Cabbage 1-4w Broccoli 5 kinds 7-13m/7-8u▲/8u▲/w Romans 9u▲ 113 3m/u "Plinius | Rosen"/w Roses 114 wt/1-15w Spanish sheep celebrated for wool in Columellas time improved by cross of N. African 25u "man"/w Ferretts 33a "nicht"/29-30w un??? 30-33m/w arose in time of Roman Emperors 32m/w (a) 34w Nictures wb (a) Our present beloved races of Dogs not known to Graecians & Romans, as clear from Monuments 115 wt A.D. 79 Herculaneum & Pompei buried in Pliny's time 1u "Herculaneum | Stabiä", 1-4w all belong to rough spitz-Dogs 2a "Pudel" Spaniel & Poodle 2-3w first in time of Augustus 3u "Schoos", 5-7w Lap-Dogs as large as squirrels 9u "Schäferhund"/w Sheep-dogs 38-43w Sheep dogs white not to mistake for wolf Q 117 30m 128 17-27w Caesars time English great Dogs & Horses taken to Rome 26-29m 137 28-31m/w Ducks introduced from Rome 226 6-11m, 18-21m 229 33-37m, 35u "sehr verschiedener", 36u "unterscheidet | wenig", 45m 230 39m, 40u "allein | geblieben"/39-40m/w sheep have not run wild 231 37-45m/w Newfoundland not f in New England when discovered 232 42-45?, wb Das Ausland a Periodical 264 14-21w not received from almond 22-26m/w new maize 371 23-25m/w S. Sea isld 26-29m 380 17-22m 400 26-30m, 41-45m/42u "Berg vied"/45u "Simmenthaler | Freiburger" 455 38-39m

VRIES, Hugo de *Over de Bewegingen der Ranken van Sicyos* Amsterdam; 1880 [Down] ♂

VULPIAN, Alfred and CARVILLE, Henri *Canille Leçons sur l'appareil vaso-moteur* 2 vols.; Paris; Germer Baillièrre; 1875 [Down] ♂

WAGNER, Moritz *The Darwinian theory and the law of migration of organisms* trans. James L. Laird; London; Edward Stanford; 1873 [Down] ♂

WAGNER, Rudolf *Elements of the comparative anatomy of the vertebrate animals* ed. Alfred Tulk; London; Longman, Brown, Green & Longman; 1845 [CUL] em, phy, rd, sp, sx, sy, tm, v

NB March 27 - 46

Read as far as p.130 & marked thus far - & I do not think worth reading further-

SB ☐✕

4. Hairs even in Ant-eater & Ornithorhynchus (good remarks on Skeleton & bones)

43 gall-bladder

36 Narwhal 1 large tooth, the other small

60 on great diversity of foetal envelopes

70 Skull of Birds

73 Cervical vertebrae so constant in mammals variable in Birds

78 Rudimental bones in Birds

98 Tongue ↻ rudimental

109 On Trachea differing much in allied species & between 2 sexes of same species

124 on stages in rudimentary state of right ovaria in Birds

217. On Electric fishes.

4 8-14m/w any relation to absence of teeth?

5 6-11m/w what a different order from true

relations ↑11-8m 6 ↑11-9m, ↑1u↔ 7 ↑11-

10m 10 3-4m, ↑7-4m 14 8-10m, 14-16m, ↑3x

15 3-8m 16 15-19m, 20-22m, 23-24m/24u

"to | wanting", 27-30m 17 11-13m, 18-20m 18

10-13m 19 ↑8-6m 21 ↑10-9m 25 ↑14-13m,

↑12-11m 26 ↑15m/u "but | of" 32 7-9m 35

↑14-13m 36 14-16m, 18x, ↑10-8m, ↑7u

"molar | fall" 43 ↑11m 44 ↑2-1x 45 8-9m 46

10-11m 48 ↑21-21m 49 4-5m 50 2-3m 55 4-

6m 58 3-7m 59 15-18m 60 8-10m, ↑12-6m/m/

w strange! 68 14m, ↑5-2m 69 ↑10-9m 73

↑10-8m, ↑8u "the Swan", ↑7u "also 24"/x/w

(a) wb Yet very constant in Mammalia? 75

↑19-11m 76 12-15m 77 6u "Trochilus,

Cypselus" 78 16-18m/16u "rudiment", ↑19-

16m, ↑14-13m, ↑8m/u "wanting | Emeu" 79

16-18m, 20-22m, 27-29m 92 ↑20-15m 98 16-

20m 109 ↑13-9m, ↑5-1m 110 ↓m, ↑13u

"convolution | the", ↑11-7m 114 15u "Anas

semipalmata", 19u "both | Grus", 23u "in |

extremity", 24u "the sexes" 117 2u "male

Mergansers", 10-12m 124 ↑21m/u "right |

rudimentary", ↑19-18m, ↑17-9m 125 1-2m

127 6-8m 132 ↑18u/c/w✕ 217 ↑21-20u "order |

Fishes", ↑18-17u↔, ↑8u "Narcine | Torpedo",

↑6u "Form | Eels", ↑5u▲, ↑1u▲

WAGNER, Rudolf *Zoologisch-anthropologische Untersuchungen I* Göttingen; Dietrichschen Buchhandlung; 1861 [CUL, S, I] ds, gd, sp, ts

NB 51 (Quote Baer as believer in change) 34 1-4m 44 13-17m 50 ↑9m/*, *wb* I believe in X Vol of St Petersburg Memoirs see p.44 apparently 1859 Memoirs of the Imp Acad of Sci in St Petersburg. 51 ↑3-1m, *wb* V. B to whom all zoologists feel so profound a respect in M.. about yr 1859 expresses his conviction, wholly grounded on the facts of geoph distribution, that forms, now perfectly distinct, have proceeded from a single parent-form

WAITZ, Theodor *Introduction to anthropology* vol. 1; ed. J.F. Collingwood; London; Longman, Green, Longman & Roberts; 1863 [CUL] beh, h, pat, sl, sp, ss, sx, t, ti, v, y

NB ♦ Too dull to read; 135 Blushing SB1 p287 When I speak of antiquity of Man, I might add as shown by the branching off of languages & by their very formation ♦ p305 sexual selection good man. ♦♦ When I speak of evidence of theory of N. selection – add ♦ "the progressive advance in organization – & diversifications of structure & host of other such points–" SB2 *(over; some gone over in ink)* Waitz Anthropology 208 Virey makes 2 species of Man viz Negro & all others 198 Agassiz changed from 11 or 12 to 8 species 209 Differences of Negros – very variable race of man. 224 on variability of skulls in same race 227 on different classifications of men no two authors agree in manner of grouping ♦ 96 Beard 99 Colour of Children, when young ✓✎ ♦ 105 Negros fat Buttock beautiful; 107 foreheads of Peruvians 113 Excessive Mortality in children young in Australia 124 ✓✎ Yellow-fever of Negros – doubts on 238 ♦ Feet of Chinese small 266 Capacity of crania in relation to intellect. When speaking of what races have in common, I ought to insist on all having the art of articulate Language 275 All races adorn themselves – quote ✓✎ 291 Belief in an invisible power I might quote York Minster. No Devil in his country

iv 18-26m/18-19w I ought to read v 21m/w I have read vii 25-31m, 31-37m viii 3-5m 90 18w I have read whole section 96 16-20m 99 20-32m (Camper) 105 26-30m 107 13-17m (Morton) 113 5-10m 124 6-32m 135 3-13m/7-9u "shame", 14-22m (Roth, d'Orbigny, Spix, Martius), 21-22m 198 7u "distribute | twelve", 8u "eight" 208 14-17m 227 1-22m 238 4-8m 266 5-8m 275 1-3m 278 21u "invisible", 24-25u "invisible | which" 305 1-3m, 10-11m, 12-14m, 19-20m, 24-25m, 26u² "rosy | flowers", 34m, 35m, 37m, 39m

WAKE, Charles Staniland *Chapters on man* London; Trübner & Co.; 1868 [CUL] beh, h, v

NB1 It would be useless to discuss – the possession of general ideas, abstraction, & the various forms of consciousness, as hardly two writers ♦ use those words ♦ in exactly the same sense; or, ♦ have come to any general agreement on difference between Mind of Man & Animals– Nor do we know what a wise old animal fully awake & not occupied thinks about.– These points ♦ must be left under our present state of knowledge. Apparently we shall come only to a definite conclusion, when it is admitted from other evidence that the mind of Man has been developed from ♦ mental powers possessed by a quadrumanous animal – All too abstruse for me.–

NB2 ♦ Man Used; Carpenter Man differs in degree 79; Self-consciousness 81; Spiritual perception criteria of 97 Man; On high art in languages of –101 Savages; Hottentots most distinct 172 from Negros; 199 Frizzled Hair in Americans 205

79 11-29m (Carpenter, Brougham) 81 17-21m (Mansel) 97 16-17u "spiritual | ideas" 101 24u "on | acquaintanceship" /24-27m (F. von Schlegel), 30m 102 7-10m (Du Ponceau), 23-25w Monkeys use stones 172 6-12m 199 3-16m 205 9-10m, 16-18m, 20-23m

WAKE, Charles Staniland *Chapters on man* London; Trübner & Co.; 1868 [Down]

NB O/

WALDNER, Heinrich *Deutschlands Faune 2* parts; Heidelberg, C. Winter; 1879-80 [Down, I]

WALKER, Alexander *Intermarriage* London; Churchill; 1838 [CUL]

af, beh, br, cs, dg, em, f, fg, h, he, hy, in, mn, or, phy, sp, sx, t, ta, ti, tm, ud, v, y

NB1

◆ Put the case to Sir J. Sebright of two half breed mongrels exactly like each other being interbred – will offspring not be then constant – Ask his opinion of Walkers Book –

◆ Ask Mr Ford whether he has ever matched two half bred animals which were closely alike & yet the offspring varied –

◆ Progeny of hybrid plants stable

◆ In all crosses of varieties, according to Mr W offspring ought to take in form after male What has Mr Blaine written p.271 Mr Hunt p.290 & Mr Thacker 291

NB2 It is singular twins being so like, & yet between two litter in Man, or in litters so unlike

◆ Experiments.– To cross some very artificial male with old female – according to Mr Walker, the former ought to preponderate in body – according to Mr Yarrells theory ♣ the father ought either in first breed or permanently.– Cross half breed with some other breeds – to see whether grandfather will appear – Cross two 1/2 breeds exactly similar.

NB3 24; 61; 107; 112; 118; 120; 124; From 139 to 144; 152; 163; 175; 177; 182; 202; 205; 209; 210; 214 to 243; 258; 266; 270; 244; 275; 276; 281; 282; 290; 299; 301; 303; 309; 312; 322; 361; 362; 377; 379; 396 – on Hermaphroditism

SB1 Argument against Mr Walkers law – The intellect & instinct in a cross-breed comes from both parents, as in shepherd dog &c &c – now one would have thought if one parent gave one part & one another, nothing would be so little divisible as the thinking faculty–

SB2 □β

24 Capons are female castrated

140 Hereditary fingers & toes

205 Knight on cross of Drayhorse & pony

161 Knight says long faces go with long limbs – Hard to get head of Greyhound on Bull-Dog

206 do says the male in Hybrids overrules female in giving form

209 A well-bred animal will give preponderance 216 do

223 Wilkinson says he has seen breed between long & short horned permanently made

228 Knight believes in breeding in & in ♣ – Walker sums up authors Ch 3

243 do – put pollen of 2 colours on female & both kinds when produced not mixed

244 Bitches more inclined to pair with one

Dog than another p.276

275 effects of imagination on offspring

299 Knight thinks keeping cattle under different circumstances prevent it of in & in 362 on advantages of crossed races of Man 377 Accoucheurs state hands of labourers infants larger (disuse)

SB3 (4 pages) ♣

I reject Mr Walker's theory of one parent giving (see p.150) one series of organs & ♣ the other a different set.– because

(1) the propagation of plants. as we see in their crossing &c &c. is closely similar to that animals, now, in plants we cannot ♣ separate the organs into any two analogous divisions – ♣ In plants, according to Mr K either father or mother can give "excitability" (& I daresay other similar case could be gathered) now excitability or constitutional peculiarities would scarcely be given in one system of organs.–

2d The kind of argument in favour of it, are such as Phrenologists advance. (one series affecting muscle & another their supports, ie only in the face) – does not hold good in my experience. or rather a double answer might be given

When different variations cross, the offspring take ♣ the locomotive system from the male, because, the male has greatest desire for the female being very

(over) different – according to this, this law, would be quite interfered with in ♣ a case where the ♣ ova were impregnated by the semen of the male, as in fishes & frogs, & yet we know that mule fishes occur, & that it is not necessary in insects or fish that male should see female.– Moreover, how in cross of black & white man. & different varieties of dogs come there to be litters ♣ of puppies some taking after mother & some father.– Again, there seems to be as much law (& as doubtful) in crosses of plants, the greater desire of the male is absurd – Again in some cases, the cross-bred offspring vary much. (as in passion flowers described by Sabine) here then no certain law appears to prevail. Again Mr. W. admits the offspring of cross breeds. p.220 revert, & explains it by. one having the system of

(over) one parent, & another a different one – yet by his "law of crossing" all will have locomotive system of male, & hence the possibility of this Heterogeneity depends on ♣ male being less vigorous than female.– (& this is next thing to assumption. for if other wise would have been recognized in human race)

WALKER, A., INTERMARRIAGE

How will Mr. Walker laws explain plants which show traces of 3 parents as in plants i& -? animals as ass & Zebra & horse ♣ & c of gardens - This will overthrow his system: no because he allows. (p.301) that one series modifies another! here is cause of error!

He bases some of his view on axiom that "organization is ♣ indestructible" (p.224) how have our varieties been formed?!!

Law of Breeding in & in

Female always giving locomotive series.- probably invented to explain the loss of secondary character in the male, but is not this more probably effect of infertility. which likewise affects the female.-

<over> I must think there is no difference in laws of resemblance to parents in species, varieties, & individuals -

24 4-8m 107 8-19m 112 25-28m 118 11-23m
120 4-8m 124 24-28m 125 1-10m 139 14-28m
(Réaumur, Carlisle) 140 11-28m/22a "this"
great Q 143 5-13m/6-9w This must be case
of jumping one 144 19-27m 152 24-29m/w ♣
Colour f. has form of father - 160 26-28m
(Knight) 161 1-14m/2-4w Law of symmetry
163 19-23m 164 4-14w Analogous to
Renngers descriptions of dogs in Paraguay
& Horses & Cows 18-23m/w do not go back
- yet not fixed, like species 165 17-19?? 175
10-22m (Clarke, Lewis) 177 9-26m (Knight)
182 5-11m/8-9w See p.191 191 12-19m 202
13-22m/w How will this apply to Plants &
cases where impregnation is external 205 wt
He would thus doubtless explain the effects
of Arabian 1-5m, 6-10m, 11-15m/w this is
absolutely different from some other authors
206 9-18m, 11-13m 207 1-11m 209 1-28m,
20-28m 210 5-8m, 24-25m 211 1-2m, 4-5m
212 1-3m, 17-21m 213 7-13m/w according to
Mr W. theory, whole bird ought to resemble
19-20m/20m/u "the|vital"/20-22w I do not
see proof of this 214 2-29m 215 1-6m, 19-
20m/!!, wb As yet no notice whatever is
taken of litters, where one puppy is of one
kind & another of another,-! 216 8-14m, 11-
14m, 15-26m/18-21w I do not understand 217
11-21m, 21-28m (Sebright) 218 26-28m 219 1-
8m 220 wt Surely not if C exactly resemble
D, yet these will vary I presume, according
to views of Knight & Co. 3-5m, 5-7u "for|
occur"/6-8m, 7-15w so that on this depends
the possibility of heterogeneous offspring
accounting for reversion wb But yet in these
crosses I thought the male always
prevailed.- The offspring of very wide
crosses, when male certainly does

preponderate, ought to be uniform 221 wt If
halfbred animal is crossed with some distinct
breed, the character of grandfather will
reappear, now here breed age surely must
be an element ♣ is case true?? 15-20m/w
but here I may assert that time comes in as
element 222 wt Now this is question in point
1-6m, 10-12m/w (a) wb Is this not explicable
on the idea of breeds ♣ time asserting the
permanency in future generations. the cross-
bred animal its characters perfectly, the mule
not at all 223 19-28w between breeds of
equal antiquity the tendency to vary would
be less - 224 3-11m (Knight), 27-28!/u
"Organization|indestructible", wb What is
origin of all our varieties!! 226 7-14m 227 5-
25m (Sebright)/6-14w is not vice versâ. They
degenerate because they lose productive
powers 228 5-6m/?, 25-28m 229 wt The
converse of the law ♣ ill effects of breeding
in & in holds in Plants.- namely crosses
being more fertile - therefore effects of
desire of male nonsense 6-8m/!!!, 9m, zb, wb
Plants & Fish &c!! 230 1a "female" young or
female 231 13-20m, 20-28m/24-26u↔ 232
24-26!!/25u "excitement", wb plants & Fish
233 27-29!/29u "excitment|power" 234 20-
29m, wb I would rather trust the Practical
Sense of Sir J.S.! 236 22-26m 237 22-27m
(Sebright) 243 15-21m 244 5-6m 258 8-12m
266 8-15m/9-10w Dr Holland 270 6-13m (De
Candolle, A.P.), 6-28m (Pritchard, Good) 271
5-27m, 4-5??/5u "Blaine", 13-15m, 18-28w
This is the opposite of the case I want - I
want new variety 275 12-23m 276 6-8m,
17u⊕ "pug|spaniel"/w Blaine 18-28m, 24-
26m 277 9u⊕ "female setter", 11u⊕
"mongrel", 17u⊕ "refused intimacy"/17-26m
280 27-28m 281 23-26m/"..." 282 3-9m 290 6-
8?/7u "Mr Hunt" 291 15u "Mr Thacker" 299
1-14m 301 6-13m (Wilkinson)/!!! 303 4-6m,
11-22m 309 1-13m/w 3 solutions may be
here given 312 wt surely same law to
ordinary births, not to crosses 1-5m/w dogs
in litter 9-10m/? 322 14-16m 328 1-4m/w
Kangaroo!!! 361 3-21m (Prichard, Pallas) 362
4-17m (Moodie) 363 1-23m (Hancock) 377 12-
17m 379 4-7m/4-13w about Stallion broken
leg see Mr Knights facts on this head I think
it is in part where ♣ discussed 396 8-28m
397 6-14m 398 13-17m

WALKER, Francis *Monographia Chalciditum*
London; Hyppolitus Baillièrè; 1839 [Down,
I] ♂

WALKER, John and Charles *Atlas of the*
British Isles London; 1837 [Down]

WALLACE, Alfred Russel *Contributions to the theory of natural selection* London; Macmillan & Co.; 1870 [CUL]

beh, fo, h, he, hl, pat, ss, sx, t, ti, v

NB1 350; intelligent power 356 & 359

NB2 113 a female mocking Diademas Butterflies

205 Instincts of nidification

♦ 225 Man

229 mistaken instinct

221 Song of Birds acquired confirmed by Hon Herbert, I suppose in his edition of White – see L. Jenyns

♦ 353 Santals wd not break their parole

204 *wt* Female Ants leave the nest & cannot have seen but very little of the Work done by the Workers & yet have offspring It is wonderf. 205 *wt* Cuckoo – Tanagrella 4–8w The last female Bee which is hatched 14–15w cocoons of Butterflies *wb* Solitary Wasps Spiders 214 8–29w Think of influence of Language Antiquity of Man Brazil & California 219 9–11m/10–11u "simple | hereditary" 221 14–19m (Herbert) 225 1–28w A Man does not make a canoe or arrow-head without practice – so differs from Birds – all a fallacy 229 5–13w mistaken instinct 292 15–30m/17–21"... "17c19–22m 293 7–19m, 22–30m 294 7–15m 336 19–21m/4–30w Yet it must be added that some extremely ancient skulls were fairly well developed 29–30m (Lubbock, Huxley) 338 23–25m 340 3–5m 342 1–23w There is all the difference in the World between an instinct (ie not hereditary habit) & intellectual act 343 *wt* It is brain here & not use of hands 3–6m, 9–11m/10–11u "his | disproportionate" 344 20–26m/16–29w If we look to detail to usage of hair above the lips, over whole body 346 21–29m/6–29w Under sexual selection – like injury for Horns of Stags 350 6–11m 351 24–28m/w incitable/ incidental *wb* Perhaps specify thus *wb* He who can count & reason & do the rest *wb* No new faculty 353 11–15m 356 12–15m/! 359 7–8u 371 *wb* I admit the possibility but I do not see the necessity or evidence in interference for the production of man as distinct from the production of lower animals.

WALLACE, Alfred Russel *Contributions to the theory of natural selection* 2nd edn; London; Macmillan & Co.; 1871 [Down, I]

WALLACE, Alfred Russel *The geographical distribution of animals* 2 vols; London; Macmillan & Co.; 1876 [CUL, I]

cc, ex, fo, gd, geo, hl, is, mg, oo, no, sp, t, tm, v, ve

vol. 1 NB ♦

463 poverty of insects & inconspicuous flowers

Frogs ice – salt-water; Galaxias – without further evidence your view on which provides complications; Bates – T. del Fuego; Poverty of insect life; Aromatic leaves as a protection like thorns

NB2 p.9.

I can hardly believe in connection between Africa & Ceylon see p.328 Blandford?

Capital remark on head of Argus How plain a char is when once explained!

Explanation of Java admirable

426 Mammoth in Timor

References

I am very glad of your somewhat changed views of the wonderful Celebes

SB 1

Geograph. Distrib.

p.9 to 34 Means of dispersal.

p.20 Migration

p.36 Whole book on Distribution, so I will not give Pages.–

p.346 Argus Pheasant – Head not ornamented

p.463 Poverty of bright flowers corelated with Poverty of insects

9 32–35m 18 15w Tortoises 20 34–38m (Serres) 21 9u "moderate widths"/w Berents 24 30–37m 36 9–11m, 12–15m 37 12–18m 43 10–14m/w Canaries C de Verde?? Volcanic Etna? 32–37m/32w Axell Blytt 52 1–5m, 5–8m 53 19–26m 56 17–22m/w no they must have 57 21–26m 59 5–6u "Madagascar"/?, 11–12?, 16–20m (Günther) 76 *wt* No look at depth 118 6–13m/11u "animals"/13u "Miocene" 150 4–23m, 25–32m 151 1–5m 157 9–12m, 25–28m 158 24–29w cd Man have destroyed the largest 31–37m/w yet higher animals change quicker than low 162 28–32m 163 15–18m 167 33–37m 168 12–17m 174 14–19m/w Antarctic Land 175 33–36m 206 28–30m 207 1–11m, 14–21m 208 1–7m, 9–18m, 17–25m 209 1–12m, 15–27m, 29–36m 210 10–13m 211 22–28m 212 16–21m, 25–28m 218 34–37m (Wallace) 263 27–30m 265 29–37m 268 26–28m 269 22–26m 273 12–15m 274 4–11m 277 8–14m, 16–19m 278 11–14w Madagascar 1000 miles long 15u "lost continent"/? 279 11–14m 280 7–9m 281 9–13m, 14–16m, 24m, 34–36m 282 8–20m, 28–30m, 33–36m 283 1–9m, 23–24m 284 7–12m, 16–25m, 29–33m 285 1–5m 286 1–13m, 22–26m, 33–37m 287 1–3m/?, 11–15m/?, 28–34m, 34–37m 288 34–36? 289 20–26m, 28–35m 291

WALLACE, GEOG. DISTRIB.

11-14m, 18-19m, 31-36m 327 1-4m, 18-24m 328 1-7m, 8-14m, 18-27m/w A continent since Permian times 340 9-14m 341 14-34m 345 7-11m 346 1-4m, 32-36m 352 25-37m 357 29-36m 358 12-24m 359 17-22m/w ? during Miocene more tropical & this cd have made a larger tropical Land 30-35m 362 22-31m 391 33-37m 395 10-19m (Wallace) 400 12-26m, 19-29m, 30-34m 401 11-23m, 30-37m (Günther) 402 13-19m 403 7-28m/w The one fish may have kept long to same species 406 6-14m 413 4-12m, 19-26m 416 19-28m, 33-37m 417 23-25m 419 27-36m 421 28-31m 424 7-16m 425 1-4m, 27-37m 426 24-28m/w Mammoth 436 16-20m 438 4-15m, 35-36m/w Flora! 440 15-19m 442 1-2m 446 3-7m, 24-29m 447 6-11m, 12-23m, 26-34m 448 27-39m (Günther) 449 10-14m, 16-19m 452 31-41m 453 23-33m/w ♦ May they not have in 454 27-34m 460 27-37m 461 1-11m, 25-37m 462 25-34m 463 1-18m, 35-37m (Hooker) 464 8-13m

vol. 2 NB1 (draft of letter sent 26 June 1876)
References Forel - Hooker Great care with which you have worked the Southern part of S. America - I suspect you argue too strongly on the necessity of a large area for the development of many forms.- So many species of same genera on many volcanic islands in inviolated valleys seems sufficient 122 Error??

252 I doubt, though I agree with Principle 265

359 Error

I like much the discussion on the distribution of Land-shells

Axell Blytt paper

NB2 All marked on Geographical Distribution.-

p.205 N. seals in Baikal

465 Distribution of F.W. Fishes

7 25-31m 20 22-37m 21 2-17m (Günther) 23 26-31m, 34m 26 34-37m 35 6-10m 38 27-37m 42 6-26m, 29-31m/30-31u "not forms", 34-37m 44 21-33m, 34-37m 45 1-5m, 26-37m 47 22-26m 48 8-12m, 17-19m, 30-32m 51 4-10m 57 26-34m 59 4-10m, 22u "100 fathom", 32-37m 61 26-31m 62 25-30m 65 4-9m 66 27-32m 76 3-9m 79 10-15m/14u "of Anguilla" 80 2-9m 81 31-33m 82 1-5m 83 1-8m 121 35-37m 122 1-6m, 11-17w ! Edentata Mastodon Horse Tapir Tertiary! 123 12-16m 154 11-16m 155 10-15w ♦ why not separately described then 162 4-9m 205 28-35m 252 6-13m/? 265 10-11m 321 32-33m 323 26-31m 341 26-30m 359 6-7m 370 22-29m, 27-30m 371 2-5m 386 17-21m, 23-27m 387 25-30m 392 18-23m 423

1-6m 430 9-11m 432 8-13m (Günther) 465 2-8m, 11-13m, 25-28m 466 1-12m, 28-32m 467 1-7m 484 3-18m, 34-37m 487 16-25m 496 12-16m/wt/1-17w several other such cases of semi-tropical or warm Eocene Antarctic found 500 6-14m 503 1-5m, 9-11m 523 26-30m/w ♦ by 524 33-37m 525 1-8m, 12-17m, 23-35m 526 1-8m 537 12-28m 546 5-15m, 16-31m 548 19-26m 549 11-16m 550 31-36m

WALLACE, Alfred Russel *Island life* London; Macmillan & Co.; 1880 [CUL] gd, geo

NB ♦ p46; 88 ● Percentage of C. of Lime in Chalk; 68 have long thought so & so other to Günther

166 great amt of Denudation 207 Tylor on Denudation; 251 Means of Distribution; 262 do; 294 do

46 2-5m/w Viti New Caledonia New Hebrides 68 9-15m 72 15-19m/? 88 7-12m 89 21-41m 166 29-33m 172 29-33m/29u "the water" 199 26-38m 207 1-5m (Tylor), 35-36m 208 19-22m 250 28-40m 251 21-41m 262 12-24m 294 3-9m, 24-28m 295 5-12m 345 2-13m 403 19-22m

WALLACE, Alfred Russel *The Malay archipelago* 2 vols.; London; Macmillan & Co.; 1869 [CUL, I]

beh, fo, gd, geo, h, mhp, oo, or, sl, sp, sx, tm, v, wd, y

vol. 1 SB1 □β

Vol I Wallace

19 23 to 24 Origin Geographical Distribution

♦♦ 29 Mem Institution

49 Pitcher-Plants insects

♦ 87 Orang throwing missiles

183 & 184 Alpine Vegetation

222 Distribution

225 do♦♦

245 -248 453 Birds -transportation of seeds

318 Distribution to 327

418 Megapodius instinct

427 Distribution to end of Chapt

♦♦ 428 Pigeons with racket tail

441 ♦♦ Vars. in Outline of wings of Butterflies in Celebes.-

♦♦ 468 Kingfisher do do

♦ 433 Barbirusa Defence 435

♦ Penny Encyclop p246 Vol 23

SB2 over ♦♦

splendid Eulogia on Rajah

How interesting plants of Borneo ○ wd be

Timor splendid case

On Subsidence directly due to pouring out of Lava - Reports Habits

✓ Sonodiacus

Caterpillars Hairy – Jenner O Hair

⇒ Style very good

Celebes splendid

Babyrusa organ of defence I presume lower canine not developed

Sevalik miocene fossils –

18 1-2?, 20-22m 19 11-21m 21 18-25m 23 3-10m/12w Origin 14-18m 24 21-25m 26 24-26m, zb 29 13-20m 49 11-15m 60 1-2w/fig.w
 Gunther do not believe story 87 11-17m/13-16".../12w/14a 183 22-26m 184 11-16m, 19-25m 185 1-3m 222 20-26m 225 15-20m 226 12-21m 245 1-3m 248 1-6m 318 18-26m 319 16-26m 320 2-12m 321 11-25m 322 14-23m 323 18-21m, 23-24m 325 10-16m 327 5-8m 329 17-23m 418 14-21m/w may it not be argued that large egg necessary to develop young Bird so perfectly? 419 11-15m 427 17-24m 428 20-22m 429 13-14m, 19-20m 431 22-26m 432 9-11m, 12-18m 433 24-26m 434 2a "eyes"/1-4w with the tips in-curved so that they cd not possibly be used as weapons 7-9m 435 7m/wt probably originally weapons 11-13m/"...", 14-16m/m/w How about the lower 437 13-18m 438 16-17m 439 19-22m 441 fig.m 443 7-9m, 19-22m 444 7-15m 445 wt More probably round – reflects on connection with Africa of Sevalik fossils. 9-15m (Sclater) 453 9-11m/10u "crimson mace", 12-14m

vol. 2 NB cc

SB1 □β

◆ p.43 Man – a small colony lose its language and yet impresses its character to certain extent & may increase into large nation.– 49 do

103 Tropical fruits have all been improved by Selection

141-142 Distribution – Pigs swimming

◆ 150 Casuaris females sitting alternately ??

◆ 178 & 207 Man

◆ 203 Birds of Paradise seasonal

◆ 252 do Dance

◆ 255 Man 445-453

276 failure of instincts in Insects boring trees or sticking in holes

◆ male fighting Beetles

290 Distribution

295 Flowers not fine in Tropics

◆ 306 Man beauty

◆ 314 Sexual characters Diptera

◆ 388 Paradise – skim through Chapt.– 399

431 Distrib, 435, 436

SB2 (over)

◆ you make sometimes feel young again as

if I was once again collecting specimens

p150 ask Casuaris

I am astonished you ever returned alive

◆ 236 ✓ for Western read Eastern

255 Savages males self-ornament – do they care for admiration of women? or of other men, for presumably not exclusively self-admiration ?

◆ Distribution

◆ 295 number of insects no need to be conspicuous.

◆ 315 ✓ like Elk – do you not mean Moor or fallow Deer 399 ask

43 14-16m, 19-21m, 22u "Malay|language", wb if a small colony ● native language ● 48 18-20u± 49 16u "Orang Sirani", 21-23m/u "with|stocks" 103 16-24m 141 9-15m 142 1-9m 145 12-16m 146 3-13m 150 4-6m 153 3-11m 178 13-17m, 25-26m 179 4-5m, 8u "twisted beard", 13-15m 203 16-20m 207 11-15m 236 15c/w 252 17u "dancing-parties", 21-26m 253 8u "are|lover", 11u "striped|the", 13u "then overshadowed", 14-15u "emerald|throat" 255 16-17m/w self-variety 276 3-13m, 23-26m 277 1-6m, 8-11m 290 7-23m 291 20-23m 295 9-15m/7-23w so many insects no need to be conspicuous 296 6-14m/7-25w I think Humboldt remarks Tropical plants not so social 297 26m 298 5-15m 306 1-3m 314 12-14u↔ 315 1-3m, 4u "elk"/?, 13-16m/14u "None|any" 390 11-12m/12u "feathers|colour", 14u "across|forehead" 391 1-2m, 17-18m, 18-19u "effect|moultings", 23-26m/24-25u "assumed|season" 393 4-9m 394 24-25m 395 1-2m 398 5-8m, 9-12m 399 1-19w ◆ variety of colour 9-22m, 21-22w I do not see & I wish I did see it the connection between variation having been first a long ago selected & ♣ then appearing at an earlier age than more recently selected variations. I can see, why an increase in the length of feathers, which has to be fully formed & then added to in length by variation & then further modified, shd appear later in life 405 8u♣, 17-20m/19-20u↔ 406 5m, 6u "black|colour", 11-12m 407 7-12m 408 9-12m 409 2-4m 420 9u "eighteen" 431 19-26m 435 7-10m 436 18-22m 445 15-16m 453 1-6m/3w 456 455 8-13m ◆ 456 15-18m 460 7-10m/w like a herd of animals

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WALLACE, TROPICAL NATURE

NB 59 Mimosa

59 31-32m (Pfeffer) 60 4-8m 61 6-11m (Bates)

WALLICH, George Charles *Eminent man of the day* London; John Van Voorst; 1870 [CUL]

WALTERSHAUSEN, W. Sartorius von *Untersuchungen über die Klimate der Gegenwart und der Vorwelt* Haarlem; De Herven Loosjes; 1865 [Down] ♂

WALTHER, Alfred and MOLENDO, Ludwig *Die Laubmoose Oberfrankens* Leipzig; Wilhelm Engelmann; 1868 [CUL]
gd, is, oo, sp, t

NB1 218 Intermingling in range of mosses
224 Even close species of mosses do not live close together; the Struggle for Life, being severest between nearest forms - good!

263 translated to end

265 gives cases against M. Wagner's Isolation

218 22m 224 4-10m/w close species do not live together 264 21m, 30-35m 265 9-25w
Argues against M Wagner Not result of isolation

WALTHER, Friedrich L. *Der Hund* Giessen; G.F. Heker; n.d. [CUL, pre-B]
beh, br, cs, ds, gd, h, tm, v, wd

NB ♀ This only useful for ancient History of Dogs Q

March 29 1857

Find out what classics translated

Athenaeum London Library

Aristotle; Pliny; Xenophon ♂; Varro

Columella; Oppianus; Treviranus

I doubt whether any use

40 Greyhounds do not bark

48 Dogs of ancients ♂

31 Bechstein first remarked about skin between toes

39 Animals of Corsica speckled

I doubt whether any use

4 31-35m 5 6u "Varro"/6-9w In Athenaeum

"Rei Rusticae Scriptorum" 7-8m/8u "Columella"

6 31-35m 9 13m (Linnaeus), 17u "22", 19m

(Linnaeus) 12 10-12w ears very variable 21-

22m/w Lungs of swift dogs very ♣ large 33-

35m/w 10-8 nipples latter more rare 16 7-

13w Crossed with these 20 37m (Azara) 21

33-34m 23 7-11m, 14m, 15-17w 2 dogs in

New Zealand 26m, 31m 26 23-26m/24u 28

18m, 19-20w Spaniel 33-35w Carrying Dog

29 9w Poodle 17u "Herrmann" 30 27m 31 2-5w always slaving mouth 11u↔/9-11w webbed feet 14u/wr 34 ↑10w our Bull Dog 35 30-32w Claw on hinder feet 37 15-16w Pointer 39 36-38w Animals of Corsica oddly speckled 40 1u "Hühner | Hunde"/wt/1-5w Men, hounds, hens black on coasts of Guinea! 18-21w Danish carriage dog 25-28w Greyhounds do not bark 41 16-18m/w Persian greyhound 28u/wr, 29u "Hasen"/w like Hare 42 5-6w naked dogs 28-30w terriers 43 24-30w Carver says only 1 dog amongst Americans 32u↔ 44 3-7m/4u "1622"/2-10w Newfoundland dog not found there in 1622 46 30-32w 2 dogs Chile 48 2-9m/wt/1-11w talks of impossibility of recognising dogs of ancients 14-19m/12-20w doubts whether they could have been kept pure. 22u "400 Jahre", 27-33m/w 2 kinds of dogs described 28-34m, 34-36m/34u "350"/35u "3-4" 49 24u "Melitäischen"/23-25m/w Pliny mentions quite a little dog 34-35w & Indian Dog 50 21u "ex | cane"/25-26?/14-29w I see that Aristotle ♣ attributed Dogs to crosses with wild animals! whether correctly may be doubted? 51 17-19m/17u "ersten Jahrhundert", 19-22u♣/w 12 Dogs 30m/w 2d century 33-36m/w many breeds 52 7m, 9-11m/w which variety in Dogs 21m, 30-31w 1 36w 2 53 1w 3 4w 4 6w 5 8w 6 8w aids in Hawking 10w 7 12w 8 13w 9 55 10w 10 17w 11 58 19w Charlemagne 23u "Molossus"/w Bloodhound 60 16-22m/w only few hounds in Germany at this period 69 10-14m 70 4-5m, 11-13m, 20-26m/13-27w long legged & long snouted thin haired dogs in hot countries, short legged thick haired in cold countries

WALTHER, Friedrich L. *Das Rindvieh* Giessen; G.F. Heker; 1817 [CUL, pre-B]
br, cs, f, gd, geo, rd, sx, t, tm, v, wd

NB p.17 p.113 Book; Nothing after p.150; (Very little) ♦

SB □β

30 Humped cattle with hump much larger in Bull than Cow

31 Horns in Iceland

Bring fruitful offspring with common cattle

3 16-17m/w wild nothing known 25-26m, wb same as Aurock 6 31-33m/w Grt humped Ox in Alexanders time 12 25-27m (Buffon), 31-39m, wb thinks the Aurocks may have crossed with our cattle. By Buffon they have crossed 15 29-34m, wb I presume all these breeds are different but are not here described 16 18u "Hochbeinig"/17-20w long-legged with outstanding horns 17 8-10m, 11-

12m, 29m, 31-32m/u↔/w See Next Page 18
 18-22m/19-20w♦, 21-22u "ungemein sind" 19
 24-25m 20 21w 32 26 †w White aurochs or
 Ladrones three wild Cattle of Scotland
 mistaken for 29 wt (a) Pallas theory that N.
 America & Europe one united island &
 wrecks of old land 5-16m/9w (a) 30 1u/3u/4u
 (place-names), 11-13m/5-16w Oxen a hump,
 cows very little Breeds with common
 subherds with a Bump 17-18m/17u "Beiträgen
 IV", 30u "fruchtbare Junge"/27-32w lose
 hump in other climates!! Breed with common
 cattle 30u±, 33m 31 14-16m/w Hornless in
 Iceland commoner than Horned 17u±, 20-
 24w Mem how different from sheep of
 Iceland 26-31w Aelian remarked on herd of
 hornless cattle 31-32m, wb in S. America
 when crossed with hornless, calves no horns
 wb very odd considering rudimentary when
 contrasted with sheep 54 25-38m/w 2 Indian
 Oxen described one with long mane 55 4-
 5m/w 3d kind 57 19u "Aegypten"/19-23m/21u
 "Cameelen" 61 3u "50"/4u "Vierzig"/1-6w
 Varro 50 Books on Agriculture 66 4-9m/w
 Italy several Breeds in Columellas time.- 73
 14-20w Romish cattle very different from
 those of N. Land 22m 83 1-6m/w cattle
 curious Thuringia 90 23m 113 8m, 9m

WANDERINGS through the conservatories at
 Kew London; Society for promoting
 Christian knowledge; n.d. [Down]

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 investments* London; E. Wilson; 1852 [Down]

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 London, 1870 [CUL.1900, I]

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 history of the Mammalia* London; H. Baillièrre;
 1845-48 [CUL, I, S]

af, beh, cc, ds, fo, gd, he, hl, ig, in, is, oo,
 rd, sp, sx, sy, tm, v, wd, y

SB1 □✕ (at end of part 22)

p.32 p.52 p.54 p.66 p.68 p.106 p.111 p.144
 p.161 p.187 p.188 p.190 p.202 p.452 XX
 p.467 463 469

SB2 □✕ (at end of part 22, several sheets)

p.2 All Marsup. out of Australia & N. Guinea
 belong to sub-genus of Phalangista Cuscus,
 which is not fd in Australia, but is in New
 Guines. In N. Guines 7 species in 6 genera
 p.3 Talks of ranges,- 1 species ranges from
 Ambyona to New Ireland! introduced I shd
 think about 1400 miles from Ambyona to N.
 Ireland, about same as to Timor

p.3 species nearly allied generally do not
 inhabit same district

13 Stonesfield marsup. cannot be arranged
 in any known group of recent marsups.

18 on greater amount of difference in low
 orders

23 28 31 on relations of Montremata

47 var. or species of Echidna in Tasmania.-

53 slight rumination in Kangaroos

56 Eye-lashes only in diurnal Kangaroos

61 Rodents with Marsupials ♣

87 Kangaroos on Barrow Isd 30 miles off
 Mainland-

109 Echymis, hairs varying to species in
 same genus Gradation₂

(over)

131 var. of Kangaroo in Tasmania

183 Macropus Brunii of N. Guinea
 approaches in many respects anatomical
 to the N. guinea genus Dendrologus, a new
 Guinea genus - cd only be accounted for by
 descent

194 var. in molar teeth.

204 local vars. from W. Coast

232 Gigantic Diprotodon & Nototherium of
 Owen between Rat Kangaroo & Wombat

244 Fossil Wombat very close to recent

256♦ 265 certain small teeth varying in
 species & individuals

277 Cuscus purchased from natives by
 Lesson

293 302 vars Tasmania

310 Phalangista with skin some way
 between legs giving character of Petauruses,
 no habit to explain use

318 Curious analogy to flying squirrels even
 to form of tail in different realms○

(over)

343,4 Rudimental teeth in Tarsipes variable

424 Doubtful Tasmanian Species How much
 more distant N. Guinea than Tasmania; not
 then climate comes into play

537 Cuscus chrysorrhos in N. Guinea - list
 of Marsup. of N. Guinea

538 East & W. Australian districts have only
 8/60 in common (compare with N. Guinea &
 Timor) - S. Australia hardly only few peculiar
 9/20 peculiar to Tasmania Thylacinus & a
 sub-genus peculiar to Tasmania, but both
 fossil in Australia

(over)

Rodents beginning at Part xii

32 Fossil Lagomys Northern genus in
 Corsica & Sardinia

52 Lepus variabilis in N. of Alps, almost in
 Middle Europe

54 Thinks same species with Irish ♣: It does
 not appear that L. glacialis

WATERHOUSE

106 p111 marked variations in populations of Hares (161 in Cavy)
 141 Brazilian Hare approaches most nearly to N. American Hare – inhabits Bolivia as well as Brazil – & p144 very close to Cave Hare of Brazil, identical except size – Came during glacial period & so the Antelope
 452 When a species has ♦ is characterized by maximum development that part is most subject to variation. Q
 463 Nepal Porcupine breeds domesticated
 467 vars of Java Porcupine, there & in Sumatra & Borneo
 477 Porcupine Fernando Po & Sierra Leone

vol. 1, 2 19–23m 3 wt All caught & solidly native p277 wt do. p283 esteemed a great delicacy 5???, 6m/w Temminck 9a/c "Cavifrons"/w Orientalis V.p.279 Some make this a distinct section of Genus 12u "seven species", 14u "six distinct", 20–23m, 27–30m (Müller)/28w when? 4 6m, 25–31m 5 6–8m! 6 24–25m 10 28–30m, 31–32m 11 1–6m 12 8–11w (wait for explanation) 13 3–5m, 18–22m 17 4–7m, 12–14m, 18–21 18 1–3m, 4–5?, 12–19m/14–15?, 16–19m 20 1–2m 21 25–28m (Owen) 23 1–2m 28 4–6m 31 9–11m 32 26–28m 40 13–14m 42 17–18m 47 20–21m, 28–30m 48 19–23m 50 16–17m 51 6–8m 52 5–7m 53 12–13m 54 22–23m 55 9–13m, 13–17 56 3–5m 61 5–7m 64 23–24m/w (a) wb I thought Gould said there were different varieties at the two places 69 8w 1 8w 2 22u/22u/25u/25u (numbers)/23–28w proportional variation in breadth of teeth 35–37m 70 9–11m, 18–20m 72 11–14m (Gould) 74 30–32m 77 1m 87 3–5m 90 13–15m ♦ 93 32–33m 109 9–12m/w case of series in same genus 28–31m 110 6–9m 113 1–2m 125 29m/u↔, 32–33m 126 32–34m 131 8–12m 135 30–31m ♦ 138 28c "ear"/w tail 32m, wb same total length but parts vary 148 9m, 10m, 12m, 13m/10–16w smaller, yet longer tail, & longer from nose to ear 17m 150 11–14m, 22–23m 155 20–22m 158 3–5m, 6–8m 159 25–26m 160 29m/29–32w specimen longer yet tail shorter 162 30–31m 163 36m, wb ear less in larger specimens 166 6–8m, 25–28m/23–31w yet a former species was described as inhabiting rocks 170 6–7m, 16m/m, 19–27w similar variations; age may have something to do 172 30–32m/w representative? wb NW Coast 180 30m 181 9–11x, wb X Gould has this work in Dutch– will there be any tables of the Mammifers 182 21–22m 183 3–5m, 7–9m, 19–20m, 22–23m 185 1–4m, 5–9m, 10–15m, 16–19m 186 22–25m 194 33–35m 202 25–27m 214 13–14m, 16–19m 215 tab.m 216 1–3m, 7–10m 218 18–22m 226 24–26m (Ogilby) 232

30–34m (Owen) 256 20–23m 262 11m/u "protected|eyelashes" 265 11–15m 267 8m 275 4m, 6–8m (Temminck) 277 4–6m 279 17m/u "Timor" 286 33m 287 8–17w I have often observed all parts do correspond in X size, when a specimen is extra large 290 32–33m 291 4–5m 293 6m, 7u "specifically" 295 26–27m, 32–33m 302 14–15m 308 25–27m 310 13–15m 312 3–18w there seems no habit to account for skin from sides of body to legs 313 4m/u "of|the", 8–10m 318 15–19m 323 9–10m, 30–31m, 35m 332 26–27m 343 13–18m 344 24m 347 14u (numbers), 16–18m/m ♦ 355 2m, 22–23m 356 15m, 19–20m 387 12m 403 1–2w generic character 3m ♦/3–4u "The pouch" 417 26–28m 418 15–19m 424 10–13m 429 28m/28–29w/wb species appear nearly all distinct here. V. how many genera 432 10–14m, 30–32m 438 7–9m, 10m/?, 12m 443 5–6m (Gould) 444 1–2m 451 1–4m 482 4–6m, 5m, 7m 484 2–7m, 3m, 4m 493 1–2m 518 4–7m 529 25–27m 534 30–32m 537 13–15m, 15–21m, 25–27m 538 3–7m,, 8–9m, 13–16m, 18–22m

vol. 2, 3 9–10m 10 19m 12 31u "supra-orbital process" 13 1m 32 4–6m/4u "Corsica", 15–16m/15u "Sardinia" 34 19–38m 35 14u "supra-orbital", 27–32m 36 5u "square|middle", 7–11m 39 16–17u "ears|point" 41 22–23m/23u "black|above", 25u "brownish colour" 43 11–12m ♦ 45 10u "with|externally", 13u "The|along" 46 6–7u "with|apex", 12u "tail|above" 48 26u "with|apex", 34–35u "black|margin" 49 27–28u "apical|black" 51 34u "Winter fur", 35–36u "upper|yellow" 52 4–6m, 10–11u "tail|surface", 30u↔ 53 1u "and|ears", 4u "with|ears" 54 4u "and|above", 16–29m/22u "surface|greyish" 55 zt, tab.m 57 8u "with|black", 10u "tinted|surface" 58 6–8m 60 11u "dense fur", 12u "surface|colour", 24u "upper|black" 64 14u "tail|above" 66 wt/1–6m/w The argument against variation must be extended to all these cases 5–6m, 10–12m 67 12–13u "which|black", 32–34m 68 4–9m, 11–12m 70 23–24u "externally|extended" 72 20u "ears|externally", 23u "pencilled|above" 74 30–31u "with|externally", 32u "tail|above" 82 1–2u↔ 83 10m, 25–27u± 84 20–21u "tail|black" 86 7–8u "margined|black" 87 35u "externally|patch" 93 11–13m 96 34u "are|and" 97 7u "on|colour" 104 20–25m 105 7u "soles|ears" 106 3u/5u/5u/9u/9u (numbers) 110 13–17m 111 21u/25m/u (numbers) 116 18–22m 144 21–26m 177 10u "3"/w In fig. 12 187 tab.w proportions different 188 10–20m (Rengger), 17–18m 189 11–19m, 26–28m, 29–33m (Rengger) 190 31–34m 191 9–12m, 14u "previously domesticated" 192 15–18m, 27–33m

(Rengger) 202 4-10m 203 8-10m ♦ 217 10m, 18u "10" 296 25w ♦ where is it found. 452 9-11Q 17-19m, 19-24m/Q 453 5w ● 463 30-32m 467 8-17m 469 3-7m (Gray) 477 5m

WATERHOUSE, George Robert *The naturalist's library; Mammalia, vol. 11: Marsupialia* Edinburgh; W.H. Lizards; 1841 [CUL, I] af, sp, tm, v

NB 67,8; 81; 84; 86 to 105 from 200 to 251 only skimmed nothing 253; 263; 266; 284; 306; 313

SB □β

68 Owen on marsupial Bones in Reptiles & arteries in Marsupials like them
84 Analogous var in stripe in other species of Opossum Q

49 6-8m, 14w New Ireland 27m 50 8-10m 67 23-26m 68 16-18m (Owen) 81 15-22m 84 11-15m/13-14Q 28w see 86 29-30m/Q 86 3-5m/Q 89 29m 96 1-3m 105 15-17m 135 26-27m (Gould) 253 3-4m 263 19-20m 266 23-25m 267 19-21m 284 wt l see some squirrels in Zoolog. Gardens have flattened tails like the flying squirrels 8m 306 6-7m 313 19-32m 314 13-14m, 28-30m 323 6-8m

WATERTON, Charles *Essays on natural history* London; Longman, Orme, Brown, Green & Longman; 1838 [Down, S of Matthews]

WATSON, Hewett Cottrell *Cybele britannica* 4 vols. and part 1 of supplement; London; Longman & Co.; 1847-60 [CUL, I] cr, gd, geo, no, phy, sh, sp, t, tm

vol. 4 NB 397 misprint; 123 introduced Plants

SB ♦

Forbes I quite agree Alpine & recent of glacial sea-shells only good parts - You always write with such vigour & spirit that I am carried along with you over dryest points. - i.e. thanks O

Reconnectibility ♦

Value of Groups very good; I was so glad to see you praise Bentham's paper.-

62 curious coincidence in idea with what I have written

I am glad you praise Alp. D.C.

SB2 p16

175 It would be easy by this Table to calculate distribution by the 112 countries of census in larger & smaller genera. Take one

of old lists with names. In order to see whether the most diffused species are the species of larger genera (see p.438)

Pages marked not abstracted

¢¢

16 12-17m, 20-21m 19 13-19m 20 19-21m 25 5-11m, 19-24m 31 30-34m 32 18-20m/? 33 1-7m 40 29-32m 42 3-13m 44 12-14m 45 1-3m 46 8-13m, 13-15m 47 6-10m, 16-18m 49 1-2m, 7m 62 2-11m 78 2-12m/4-7w American plants 80 11-19m 105 26-32m 123 3-7m, 7-9m 156 18-22m 159 11-13m 160 22-25m 171 2-4m 175 2w p.231 42w 1 9w 4 10w 131 12w 2 13w 100 14w 1 16w 1 234 2u "38 sub-provinces"/w counties 278 20-30m (Bentham, Babington), 29u "to 320" 279 23-27m, 24-30m, 28-29m 280 32-38m/36u "partly fallacious" 285 zb 357 1-8m 359 1w No of species 2w World 368 27-39m 387 18-34m (Bentham) 388 4-22m, 20-25m 389 5-7w Doubtful British species 397 1? 399 13-18m, 27-32m/31-32u "relative decreases" 401 30-34m 403 29-34m/31-32u ↔ /34u "The orders" 404 10-13m (Lindley), 21-27m, 28-30m 405 4-6m, 14-20m 412 21-24m, 25-30m 413 25-33m 415 20-22w & rate of growth 25-31m 417 6m, 30-32m 423 7-20m, 28-29m 424 5-10m 426 21-28m 435 17-23m 436 1-6m, 28-34m 437 19-25m 438 24-28m 440 7-10m 461 21-25m, 30-33m 462 1-4m, 5-8m 463 21-25m/21-23m/"...", 27-29"..." 464 21-31m 465 12-17m, 18-23m, 24-27m, 27-30m 466 5-8m 468 15w ● 470 30-32m 474 9-20m, 22-26m 475 5-11m, 13-15m, 19-21m, 27-34m 476 16-19m 486 2m → 487 3w 1 4w 2 5w 8 7w 3 8w 13 9w 19 10w 4 11w 6 12w 26 21z 519 15-31m 525 30-34m (Lyell) 526 8-9m (Lyell), 22-23m

supplement NB1 p32 On infinite multiplication of species

p118 Definition of species & groups & Babingtons Remark that species cannot be defined

NB2 The 2 lists, which have the same species repeated from N. & S. Britain, must be worked when I consider commonness & size of genera - But there will be difficulties, as I believe the universal ranges are omitted, & some of new species inserted. I must well consider what to do-

116 19-27m (Babington) 117 5-10m (Babington) 118 10-13m, 20-23m (Linnaeus)

WATSON, Hewett Cottrell *Compendium of the Cybele britannica* 3 parts; London; Thames Ditton; 1868-70 [CUL]

ex, gd, no, oo, or, r, sl, sp, t

WATSON, COMPENDIUM

Part 1 NB 13 22 37 38 42 50 52 54 57 60
75 (p65 Formulas explained)

p69 Littoral plants

♦ 1836 Pamphlet wonderfully ♣ striking excellent sketch of my views

♦ 54 Misnomer Origin of species in same way that a pug dog owes its origin to man

♦ 54 I quite agree no evidence except no explan^o shown

♦ I have discussed indefinite increase in number of specific forms in 3d Edit p.141

SB □β ∞

p.13 on manner in which each species dies out in horizontal range.

p.22 - trespassers are more usual downwards than upwards on Heights.

37-41 Terms for aggregates of super sp.

57 On convergence of forms

60. Definition of Naturalised Plants.

75 on Flora of Greenland v. Hooker.-

2 ↑15-10m 13 ↑14-6m 22 ↑13-8m 37 10-12m,
↑1→ 38 6-18m, ↑14-1m/w 1st Edit of
Handbook *wb* see p.41 41 1-5m, ↑1→ 42
↑11-5m 43 1-3m 49 ↑15-12m ♦ 50 ↑4-1m 52
↑10-5m 54 1-4m, ↑8-4m 55 ↑18-9m/w I have
discussed this 3d Edit p141 57 6-15m 60
↑14-6m 65 ↑8-1m 69 ↑12-1m 75 7-17m, ↑12-
6m, ↑1→ 76 1-8m 92 "55"- "Zones".m, "56"-
"Zones".m 96 "72"- "Zones".m, "Littoral".m,
"72*"- "Zones".m 103 "110".m, "111".m,
"113".m 105 "124".m 107 "131".m 111
"142".m 120 "174".m 128 "210".m 132
"228*".m 142 "274".m 154 "311".m 167
"361".m 185 "444".m 186 "448".m 187
"450".m 192 "471*".m 193 "476".m 194
"478".m

Part 2 NB 225

225 "624".m 229 "641".m 233 "657".m 235
"664*".m 248 "724*".m (all three) 250 "731".m
266 "794".m 281 "858".m 288 "894".m 289
"897".m, "898".m, "899".m 290 "900".m 291
"905".m 292 "911".m 294 "918".m, "919".m
295 "920".m, "921".m 296 "924".m, "925".m,
"926".m 297 "927".m, "928".m, "929".m,
"930".m 300 "940".m, "940*".m 304 "954".m
306 "961".m 307 "969".m, "970".m 335
"1096".m 340 "1115".m 346 "1135".m,
"1137".m, "1137*".m 351 "1153".m 352
"1154".m, "1155".m 353 "1160b".m 359
"1183".m, "1184b".m 360 "1188".m 361
"1190".m 365 "1208".m 368 "1218".m,
"1217".m 372 "1235".m 380 "1263".m,
"1264".m 385 "1285".m 387 "1293".m 394
"1323".m/w all but 1 of "1324".m, "1324*".m
395 "1325".m, "1327".m 399 "1340".m 404
"1362".m 405 "1365".m 406 "1369".m,
"1371".m, *wb* End 413 "1397".m

Part 3 NB O/

⊗

WATSON, Hewett Cottrell *The geographical distribution of British plants* 3rd edn, part 1; London; printed for the author; 1843 [Down]

⊗

WATSON, Thomas *Lectures on the principles and practice of physic* 2 vols.; London; John B. Parker & Son; 1857 [Botany School]

WEBB, Henry *Dogs* London; Dean & Co.; 1876 [Down]

WEBER, D.A. *Der Taubenfreund* 2. Auflage; Leipzig; G. Basse; 1850 [CUL]

beh, br, cs, f, fg, hy, oo, v, wd, y

SB □β

41 Fancy Pigeons must be taught to field

42 The more noble pigeons keep separate from others

43 Some crosses Q

6 17-20w 12 feathers in tail normal 22w (a) *wb* do not tread on sole 13 5-6w Fantail 26-27w Turbits or Owls 32-34w seldom more than one young 36w Caporetin 14 5w Powter 22-23w Turkish with curved Beak 26-33m/28m/29u "Pagadette", 30-34w will breed together Carrier 39-41w Runt Spanish 15 1-5w Romish Runt, like Spanish 9-15w Barb (allied to Turbits) can cross with own & Fantails 13-16m/14u "aber|unbrauchbar"/w (a) 19w Tumbler 26w Trumpeter 31-38w Moon Pigeons so called for great fertility 34w (b) *wb* (a) Barb & Fantail have useless eggs *wb* (b) This new kind to me 16 wt/1-7w M Brent says a high bred swallow.- is mostly meant by this But the description is applicable to short-footed Tumbler - Riedel gives same account. copied from Bechstein Brent calls it a Magpie Tumbler but possibly not pure.- 4w (a) 12-15w shell-tuft behind head 19-21w Swallow Pigeon 27-32w ● Turn like Tumblers 36-41w Stripe from head along body *wb* a Carmelite apparently most like almond Tumbler in shape, so low as to walk nearly on Belly. 17 14-17m, 32m 28 12-18w Snuff to destroy insects Powdered quicklime 20u/wt, 36m 30 26m, 35-37m/w (a) *wb* some think Pigeons pair after colour & I think White Trumpeter took first to White Fan-tail 32 wt House pigeons lay oftener than Field Pigeons 35 7m, 7-9w 4 to 6 months for the pairing 27m 36 5-7m, 5-11w choose for purpose - thin, reared in spring 22-24m/w Fertility of field Pigeons lasts longer 41 wt

(a) must not be hybrids, as their eggs are infertile though Birds themselves Bigger 10w (a) 32-34m, wb The house or fancy Pigeons (with few exceptions) will not go to field to feed. Much truth to learn there 42 34-38m, wb the more noble pigeons keep separate from others.- 43 7-15w Fantail & Turbit Turbit & Caporetin Carrier & Runt Runt & Carrier

WEDDELL, H.A. *Voyage dans le nord de la Bolivie* Paris; P. Bertrand; 1853 [CUL]

WEDGWOOD, Hensleigh *On the origin of language* London; N. Trübner & Co.; 1866 [CUL, S]

beh, h, hl, pat, t, v

NB 2♦; 14♦; 61 CD fear like cold; 63 astonishment open mouth; 75 disgust spitting good; 76 pride - good on hard breathing in anger; 79 to pout; 91 Origin of no. Who is Charma; 139 Lubbock; ♦ No Explanation of abbrev: Chapter on top of Page.-

2 17u "a generation"/w generations & c 7 wt N.B. Savages of T. del Fuego power of imitation & repeating words & so Australians wt/1-26w/wb or like lowest savage. But is it not possible that Man's intellectual power was lower before improved by use of language 16-17u "to ourselves" 10 7-26w/wb would you call senseless gabble of Idiot instinctive?? Instinctive scream, when attacked would blend into shout for assistance 7?/u "instinctively" 14 6?/u "instinctively" 41 6-8m/w p.45 45 16-17m 61 5-7m 63 18-20m 75 11-14m 76 9-17m/14-15u "swelling/pride" 78 25-26m 79 1-3m 83 13-17m/? 139 1-12m 154 12m/u "there"

WEDGWOOD, Hensleigh *On the development of the understanding* London; Taylor & Walton; 1848 [CUL]

beh, h, t, v

NB p126-133.-

126 22-27m, wb The dog is social & man is the leader of the troupe 127 19-24m, wb will not apply to savages, comes in, but not the ♦ original cause 128 25-27m 131 8-11m 133 12-18m

WEDGWOOD, Hensleigh *A dictionary of English etymology - On the origin of language* 2nd edn; London; Trübner & Co.; 1872 [CUL, S]

beh

NB1 37 Shudder, cold, disgust♦ Horror; xlv disgust, spitting

Mr W Hensleigh ♦

Ugly Rage; from state mind

NB2 xlv♦; Smacking♦

xxxvii 10-27m, 17-19m xlv 37-43m

WEINLAND, David F. *Über die in Meteoriten entdeckter Thierreste* Esslingen; G. Fröhner; 1882 [Down, I]

WEISBACH, A. *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859: Anthropologischer Theil, 2. Abtheilung, "Körpermessungen"* by K. Scherzer and Eduard Schwarz; Wien; K.K. Hof und Staatsdruckerei; 1867 [CUL]

af, h, ss, sx, tm, v

NB 265 Feet of Chinese women

270 Negro does not approach Orang

SB p.218; 231 width of mouth an Orang character; 232; 234; 236; 239; 243 -245 265; 269 sexual selection; 270

title page author.u, title.u

ø

216 11-15m, 17u "Unterschied | beiden", 18u "65 Millim", 20-23m/20u "218 | grösste" 218 fig.wt, 3-5m/3-14w♦ Height of men more variable than women & before shown that the difference between sexes differs in different races. 231 7-11m/w width of mouth Orang character 232 15-17m/15u "Weibern | nicht" 233 28m 234 4m/w Back-bone 236 27-29u "dem Orang"/w circumference size♦ of thorax 36-39u± 237 1m 239 23-25m/23u "ändert | Völkern"/24u "viel | Weibern"/36-41w In many points proportions of men & women different. 243 19-22m 245 3m, 39-44m 247 12-14m 252 11-16m 265 14-16m/w slenderest feet round instep 34-37m/35u "unter | kleinsten" 267 12-14m 269 6u "wovon | Jochbreite"/4-7m/4-12w Bears ♦ on sexual selection on greater variability of male. 270 wt/1-4m/w no one race in all parts nearer Orang 23-26m/24w Translate wb It seems that negros do not approach to Orangs in length of Arms, - ♦ for his legs are likewise long.

WEISMANN, August *Beiträge zur Naturgeschichte der Daphnoiden* 2 vols.; Leipzig; W. Engelmann; 1879 [CUL, I, S]

em, fg, phy, sh

vol. 1 NB p149 in Part III - he shows that summer eggs are nourished by a fluid secreted from the shell-cavity & are not in more water

WEISMANN, DAPHNOIDEN

69 19-34m 70 1-3m

♂

149 20-27m 151 11-17m, 24m

WEISMANN, August *Studien zur Descendenz-Theorie*. I. Leipzig; Engelmann; 1875 [CUL]

cc, ds, em, fo, he, phy, sl, sp, ta, tm, v, y

2 \uparrow 10-5m/w slight season difference \clubsuit more common 4 1-15w The caterpillars differ but feed on same food & are all mingled together \uparrow 7-4m/ \uparrow 15-1w The differently coloured caterpillars produce the same form of Butterfly 5 1-5w 2 colours not adaptation to conditions 6 \uparrow 20-12w under sides of wings differ very little- \uparrow 7u "direkten", \uparrow 3-2u "Temperatur | Entwicklungsdauer", \uparrow 6-1w Dimorphism due to direct effect of conditions 7 7m 8 wt Temp. during pupation affects colour of Butterflies. by experiments 9 1-15w Temperature did not make a complete transformation 12 6-7m/u \leftrightarrow 14 1-8w Summer form is a newly acquired form, & cold causes avitism & return to pristine winter forms 15 \uparrow 12m 16 10-15m/1-15w effects of climate cumulative like a poison \uparrow 15-10w bears on climatal variations, which are slow. 23 1-15m/w Explains Marcellus & Papilio on same principles but reversion easier \uparrow 7m 27 \downarrow w Thinks great heat will cause atavism of the Porima-Vanessa as well as cold *wb* \leftrightarrow over 28 \downarrow w Thinks shaking causes reversion - It comes to what I said, anything which disturbs the organisation. 29 13m 30 11m, \uparrow 15-5w The so called alpine & arctic var. is the parent form. 31 \uparrow 10-5w Winter-form much less variable than summer form 33 11-20m/w if the same species thus split we must expect it in distinct forms \uparrow 6-1m/w distinguishes climate & local variations *wb* These cases may be compared with the Polar-Bear always white & Ermine white only in winter- 34 15-20w Thinks this a new definition of Climatal variations (applies to Birds in U. States.) 35 8-10m, 9u "var. Bryoniae"/w a climatal var. & season dimorphic \uparrow 15-13u \pm 37 \uparrow 9-3m \clubsuit 38 5-10m/3-15w 1st question to decide whether change of climate acts by accelerating or delaying period of \clubsuit development. Birds in U. States answer this.- 39 15-17m/w the result he concludes of higher temp 40 1-4m, wt The change of colour & males depends on Nature of organism & not on the warmth 42 19m 43 2-15m/w argues that nature of organism far more important than the exciting cause 11u \leftrightarrow , 17-23m/w quotes me

to above effect \uparrow 8u "im | schwarz", \uparrow 7u "im | schwärzer", \uparrow 5-1m/ \uparrow 8-1w But in Birds the nature of change seems more alike in many species- 44 \uparrow 12-8m/m/w Warmth has affected one sex more than the other, so with Birds in U. States. see last Edit. of Descent. 45 1-4m/x, \uparrow 10-7m 46 \uparrow 6-1m/w Caterpillars of season - dimorphic alike 47 \uparrow 4-2m/w inheritance of corresponding sexual generation 48 6-12m/w New law of inheritance, well-known in asexual generation \uparrow 20u "cyclische Vererbung", \uparrow 16m, \uparrow 12-11m/u \leftrightarrow 49 \uparrow 20-14m/w climatal vars., but no season dimorphic vars: exist 56 \uparrow 6-1m 59 1-3m/wt I think he means that sexual generation has been lost & is parthenogenetic for intermediate generations 69 wt A Crust. \circ with summer & winter eggs the latter alone undergo a regular metamorphosis 1-10m, \uparrow 14-10m/w We see here a passage from metamorph to none \uparrow 8-3m/w think it direct result of climate??? 70 4m, \uparrow 10-3m/w Divides cases, as I mentioned, into whether or not, the embryology is different 71 3m 73 \uparrow 17-14m/ \uparrow 6-4m/w as 74 \uparrow 12-8m 75 1-4m 77 12m 78 7-9m/8-9u "die | Variabilität", 10-11m, 16-17u \leftrightarrow /w applies to this particular case \uparrow 12-9m 79 \uparrow 13-8m/w This is same in Jaeger \uparrow 7-3m/w allows doubts about Hilgendorf 80 3-15m/w His theory of isolation referred to \clubsuit Because variation not quite identical in 2 stations in relative number. 81 \uparrow 8-1m/w All variation due to changed conditions, but does not directly depend on nature of conditions. 82 13-16m/w each species has different history & so is differently acted on by conditions differently from other sp. \uparrow 4m 83 1m, \uparrow 10-9u "gerichteten | Askenasy's" 84 3-14m, 14-20m, \uparrow 11-10u "sie | Reize" Plates figs 1, 5, 10, 11, 12, 13, 16, 17: w \clubsuit (and whether summer or winter form)

WEISMANN, August *Studien zur Descendenz-Theorie*. II. Über die letzten Ursachen der Transmutationen Leipzig; W. Engelmann; 1876 [CUL, I]

ad, ds, em, he, tm, v

NB1 All book marked

p.55 56

In first part shows use of coloured stripes & ocelli of caterpillars.- In 2d & very important part - shows that that caterpillars, pupas & imagos all vary independently - & that when one stage varies more or differently in 2 groups the difference always stands in relation to conditions to which stage

subjected - Flies - & 2 groups of Hymenoptera best cases.-

good evidence of Axotl being reversion

NB2 68; ♦ 72 for Letter

all marked wonderful book 277 last mark

xiv 5m 55 24-27m 56 10-16m 68 14-15m, 28-32m/23-32w I have said do not appear in young 69 12-17w stages of ammonite like stages of same caterpillar 33-38w thinks not selection He & I inheritance 72 wt/1-18w Does not allude to rule of inheritance at corresponding ages, but after earlier But why I know not 27m/u "Bildungsgesetze" 73 1-3m 79 2-13m, 25-29m 80 12-14m 81 13m 85 29-34m 86 wt very unsatisfactory on some ancestor 2? 87 32m 89 14m, 28-32m 92 1-4m 94 3m 98 5m 101 10-19m/11-13w Effects of eye-spots 29m 103 16-29m 106 3m 116 6m 120 18m 142 18-22m/14-21w If developed according to phyletic instinct Kräft 149 5-9m, 15-17m 150 34-37m/34u "drei|einen" 151 1-4m, 6-8m, 10-12m, 21-24m, 29-30m 152 1-4m 153 13m, 14-23m/23-37u± 154 14-16m/11-19w i.e. caterpillar or XX imagos of allied species constant or variable 155 14-15m, 28-30m 157 5m 159 4-10m, 37-38m 160 1-4m, 9-11m 161 30-32m 165 20m 167 13-23m, 25-28m, 29-32m 170 18-20m/17-22w no characters in common of larvae of Butterflies 171 5-7m 173 32m 176 3-8m/5-6u "in|stehen" 177 22m 182 9-11m/10u↔, 14-15u↔ 183 29-30u "diel nicht" 184 7m, 17-20m, 17u "blos", 18u "Raupen varietäten", 21-25m 185 9-14m, 34-38m 187 12m 188 wt/1-6m/w which determines greater variability of one stage than other 24-28m 191 21-37m/22-27w All this deserves full consideration 36-38m 192 33-38m 198 20m 200 22-30m 201 26-28m 203 4-15m, 20m, 22-30m 209 6m 210 11-15m, 12-26m, 15-26m, 28-38m 212 12-18m 214 6-13m 216 8-24m 219 11-20m, 36m 220 1-5m, 18-20u "so|aufgeben" 221 26-30m 223 32-38m 224 7-24m 225 3-9m 227 wt I have read this essay before except the appendix p.273 273 22-26m, 34-36m, 37u "verwerthbar| muss" 274 17-20m, 21-24m 277 26-30m 280 15m

WEISMANN, August *Studies in the theory of descent* trans. R. Meldola; London; Sampson Low, Marston, Searle & Rivington; 1880-82 [Down]

part 1 NB 101-107

106 12-30m 107 1-30m 109 14-25m

WEISMANN, August *Über den Einfluss der Isolirung auf die Artbildung* Leipzig; W. Engelmann; 1872 [CUL, I]

beh, cc, cs, ds, em, fg, fo, gd, geo, ig, in, is, mg, oo, phy, sl, sp, ss, sx, tm, v

SB1 □✕

Weismann Einfluss der Isolirung

p8 p12 p41 on the Hilgendorf case of Planorbis - periods of variability succeeded by constancy - (Mem. Forbes case in Purbeck Birds) p.137 good arguments against M. Wagner

p.20♦ 42 on manner in which these forms of Planorbis become constant.

p.45 In a variable colonist to remain constant many individuals must immigrate

47 about drying of eggs of Apus & revival

48 Isolation by itself does nothing

51 Periods of variability long, yet shorter than those of constancy

52 My argument M.S. against periods of variability

p.54 Lays greatest stress on difference in results when a variable or constant species is a Colonist

p.55 Protective resemblance of butterflies 65 case of constant butterflies in separated areas during Glacial period.-

(over) p.67 p.74 He calls it amixie the non-crossing & accounts for very local forms by the same proportion of variation not occurring in one stocked by very few individuals - I shd think slightly different conditions wd likewise influence the propagation of varieties.- The difference these gained wd never exceed the amt of individual differences in species in question

p.76 cases of extremely slight differences in different countries of Lepidoptera - many♦ most species do not present any local vars.

p.85 Effects of crossing slight & slow except in locomotive organisms

95 97 102 Does he not ignore effects of conditions long continued - p102 good argument against.

107 local form of butterflies have never spread from Corsica to mainland of Italy

106 Cause of richness of endemic forms on islands in part due to fact when once formed not spreading to other areas

8 5-17m 12 21-26m/19-20w see to Forbes case 14 18m 15 6-30w argues wonderfully well about these species & their distinctness 16 17-19m (Hilgendorf) 18 23m 20 11-21w differently coloured vars of Caterpillars 21 14-15m 22 12m (CD) 26 31m 32 3m 40 28-31m 41 1-6m/w slowness of change 28-31m/26-30w most important 31-33m 42 wt/1-19w different individuals vary in different ways & all lead to the same end - like what I have

WEISMANN, ISOLIRUNG

said of Giraffe in the Descent. 1-2m, 13-19m, 20m, 22-23u "vollzieht|werden", 32-34u "sondern|aus" 43 2-3u "sondern|oxystomus", 5-7u "Verschmelzung|kommen", 10-11u "durch|Individuen", 26-28m/27w (a) wb constancy lost when all individuals fail to cross 45 12u "sehr|Individuen"/10-16w thinks cause of constancy lies in colonies consisting of several individuals 28-32m/30w (a) wb (a) Thinks individual differences overstated (?) 47 30-32m (Siebold)/30w (a) 33u↔, wb about the drying of eggs of Apus 48 18-28w Islands where some forms changed & some identical shows isolation by itself does nothing 27-28u↔ 49 18m, 29-31m 51 wt a species remains constant till some cause induces variation- 3-8m/5w (a) 18-27m/w Evidence of Periods of variation long, yet shorter than those of constancy 31-34m (Hilgerdorf) 52 wt A difference in result whether a variable or constant form in the colonist is new 24m/4-26w The species which remain for long periods & in many countries (& whole genera) variable are opposed to periods of variability 54 wt/1-3w i.e. without selection or any new tendency to variation, supposing the new arriver to be already variable- 1-8m, 32-34m, wb says very difficult to prove what are purely morphological characters 55 26-28m, 27-32m, wb cases like Kallima 56 31m 58 wt/1-9w asserts the dark colour of wings of female Blue Butterflies is certainly a protection 1-9m, 9z, 9-10u↔, 11m, 11-12m, 11-24w I think because his wings have been coloured blue the female has not this habit because her wings are brown 60 16-19m/19u "Satyriden", 27m 62 wt/1-30w He considers Secondary Sexual characters as morphological or indifferent, but I doubt, for so would be primary sexual characters 34m 63 2u "Vanessa|Sardinien"/2-5w case not due to his scheme 5-15m, 13-22m 64 26u♠/29-35m/w trace of mark in V. ichnusa 65 9-14m, 15-17m 67 11-15m, 30u "Amixie", 31-32u↔ 70 5-9m/9m/10-12m/4-17w he assumes taste of female wd remain constant.wd be affected by momentary colour - We have cases of local vars of Birds in which males alone differ. 20-27m/24-33w have I not case of male Moths like female in Shetland islands 72 8-14m/w 2 Sulphur-Butterflies with female alike 74 wt/1-25w on his peculiar view isolation cannot make a greater amount of difference than the extreme varieties of parent species - but may be aided by S. Selection 1m, 5-7m 75 12-17m, 13w conclusive 76 17-26m, 6-25w very slight

differences in different countries 77 1-12w Cases of absolute identity ever since glacial period 11-16m, 12-30w/wb the greater no of species of Butterflies do not present local vars. 82 1-2m 85 4-26w On effect of crossing very slow, in slowly moving organism - true - he ignores greater vigour of crossed offspring 91 24m 95 16-22m/wt/1-21w But how does he know that the black female not due to directly external agencies 96 21-29m 97 wt I think so if cause of variation preponderant 5-7m, 8u↔/w (a) 9m 100 8m 102 wt/1-28w important that the many local vars of V. cardui in America due to S. Selection because such are not found in other parts of world & the same argument applicable to direct action of conditions. 103 11-13m/12-13u "als|Stammart" 104 2-7m 105 25m 106 26-29m/w in islds 107 19u "Corsical Sardinien", 24-29m/25u "italienischen"

WEISMANN, August *Über die Berechtigung der Darwin'schen Theorie* Leipzig; W. Engelmann; 1868 [CUL, I]

cc, ch, cs, dg, gd, he, is, mm, oo, sl, sx, t, tm, v

NB ♦ Causes & Law of Variation most important

All marked

p26 Nägeli to 30

11 21m 12 5-9m/wt/1-9w Caterpillars coloured alike Moths different 13 10m 16 15-22m, 32-33m 17 21m, 32-34m 18 6u "Eil Larvenhaut", 26-28m/29-31m/u↔/23-31w Why on doctrine of Plan do the shoulder girdle & pelvis fail in snakes 32-33m (Dohrn) 22 20m 24 19m 26 8-12m, 8m, 14-16m/w degraded organisms 23-33w trifling characters constant - External influences kept constant by crossing 24-29m, 30m 27 3-4m/19-29m/1-33w I think this means that "morphological" characters are the results of what I call the definite action of conditions - I do not feel quite satisfied with this - free intercrossing cd perhaps keep ♣ the characters, which are not in use, free from fluctuations.- 28 21-22m/19-23w a cat will vary differently from a dog. 23-26m/wb So the Laws of variation (as well as inheritance) will prevent the same form being produced by two distinct forms- 29 wt/1-5w In Variation under Dom. I have been strong on N of species ● 6-8m/7u "Variationsqualität"/w good 16-20m ♦ 30 wt/1-17m/w This is justly directed against what I have vaguely said of indefinite variability - in all cases the variability, within a large circuit, is definite & thus certainly

overrides the power of selection 32 23-26m/1-26w my objection that an isolated form could cross at first 33 wt (a) Truly remarks that of offspring, crossed with parents, some wd inherit the new variation & some wd not, but the latter by natural selection wd be the less favoured 3-7m/5w (a) 28-34m (M. Wagner), wb Thinks much of Sexual Selection 34 28-31m (Hilgendorf) 36 3-6m/5-7u "Jedem|grün"/3-11w 2 or 3 forms of Caterpillars I shd have thought more variability 10u♣, 11-12u↔, 18-22m/w isolation by itself does not cause change 39 8-16m/w Plants & insects later developed on Mountains & so do not cross with same species on the plains 18u♣, 19-20u "die|Stynge"

WELLS, William Charles *Two essays* London and Edinburgh; Archibald Constable; 1818 [Down, pre-B, ED]

WESTWOOD, John Obadiah *An introduction to the modern classification of insects* 2 vols; London; Longman, Orme, Brown, Green & Longmans; 1839-40 [CUL, S] ad, af, beh, ci, em, f, fg, gd, ig, in, mm, mn, no, oo, or, rd, sl, sp, sx, sy, ta, tm, v

vol. 1 NB Change of Habits in House Crickets

SB1

◆ 427 Mantis fight
437 Saltatoria 3 Families
439 Crickets
440-442 males chirping noise
445 fight◆ & attract females
450 Gryllidae
◆ 452 Both se
453 both sexes
457 Locust act by Femora
- Pneumora anoth case
◆ The use of Limb perhaps stated
?? (p447. Male of one cricket veil. use not stated)

SWestwood Vol. 2 Secondary sexual Ch. Orthoptera

SB2 □β

104 Variation in Females of Dyticus - Also case of analogous var.?
144 Case of analogous variation
167 Violent Battles in Lucanus Males
164 Definition of Typical form
343 5 species of Cionus taken on one plant of Verbascum
396 Coccinellae uniting, but producing sterile eggs

408 Forficula few species, wide ranges

447 So Male Crickett

413 wings not developed in certain species of orthoptera & Homoptera

SB3 □β

447, 445 after p.456 I will look out for peculiarities to see if variable in single species

75 22-23Q 104 12-15m (Bonelli)/Q 25-28m
144 4-10m/Q 8-15w difference in sexes hardly a variation. 164 1-5m, 5m 172 29-33m, 37z 184 6-13w of the few cases of differ known two being same group some are splendidly coloured 15-17m/16u "Linnaeus|Fabricius" 187 6-11m, 18u♣ 212 24-27m/25u♣ 217 21-25m 236 27-30m, 36-41m (Latreille) 340 30-35m 343 22-25m/w Hard to see how selection cd make them 396 9-14m 397 37-39m (Dufour) 405 13-16m/15u "rudimental"/w wrong 406 15-18m 408 34m (Audouin, Brullé) 37m (Serres) 410 22-24m (Serres) 411 16-17m/16u "rudimental|wings" 413 10-15m 416 16-22m 421 12-13m (Hummel) 427 32-36m/36u "resemble|fighting" 437 1u♣, 13-19m/18u "crepitaculum", 20u "foramina" 439 6-10m, 24w Crickets 442 9-13m/9u "fig. 54.7"/w ●, 15u "underside", 20-24m, 30-32m 443 37-38m 445 3-6m 447 25-28m, 36m, 37-39m/w does this vary? 450 21-24m, 26-27w Grasshoppers? 452 9u "side|like", 10-11u "which|stridulation", 22-24m, 27u "two|14", 35u "Linnaean Transactions", 37u "fifteenth volume", 38u "been|Donovan", 40u "as|mile"/37-40m (Guilding) 453 1-5m, 6u "exists|covers", 7-9m/8-9u "of|which", 11-13m, 15u "Lehmann|Sensibus" 455 30-37m 456 10-11w Locusts 457 25-29m 458 1-6m, 8-12m/9u "large cavity"/11w probably 13-15m (Latreille, Linnaeus, Burmeister) 460 30-34m/32u "known grasshoppers" 461 13u "gayest|insect", 14-17m, 15-16u "posterior|being", 30u "Pneumora", 33-35m/34-35u↔, 38-39u↔ 462 1-5m (Charpentier)

vol. 2 NB1 ◆ 313; 402

NB2 These marks refer to many abnormal parts, which, if required, might be hunted up to see whether variable - I have put X to them

12; 15; 24; 37; 67; 80; 82; 88; 98; 109; 119; 147; 150; 154; 158; 160; 172; 224; 232; 237; 252; 254; 261; 279; 281; 311; 312; 319; 321; 324; 326; 329; 333; 342; 344; 340; 352; 354; 358X; 356 to 389X; 406; 422; 431X; 432X; 444; 454; 469 & 478; 481; 483X; 499; 502; 508; 514; 524; 526; 541; 557; 559; 567; 578; 574; 575; 473 Reduvius stridulating; 213 & 214 Mutillidae; 465 Homoptera

WESTWOOD

SB1 □β

40 Suppl Phryganea do Palpi differ in different species?

213 Mutillidae female destitute of ocelli

SB2 □β

12 Affinities of Termites

14 on their habits

15 doubts about pupae walking

24 Nemoura species in same genus with or without branchiae

67 do in Phryganea

88 Classification by habits alone fails 262 do
88 Ichneumons use ovipositor as organ of defence & secretes fluid 150 do

89 antennae very variable differs in number and form of joint, in various species & in sexes of same species

98 varieties in imago from differences in food (Ch. 7)

109 20 parasites on a saw-fly

119 All wood-feeders vary in size. Allude to Wollastons cases of molluscs of 2 sizes & Birds in note

147 Ichneumons avoiding vital parts of caterpillars

224 Strange diversity of neuters amongst Ants

232 Slaves ♣ only neuter pupae taken

228 Curious variation see F. Smith Pamphlet 155 on - ch 4.

237 On minute characters very constant through whole order - good sentence

261 On resemblance of some Flies parasites on Bees to Bees.

279 Important on diversity of workers in Hive bees. occasional workers Q

311 In Butterfly 34,650 facets on eyes

321 Allied insects generally fed on allied plants (showing how same character goes in genera

324 on single species not having some very abnormal character not sufficient to render character unavailing

342 Definition of typical

344 Cases of Butterfly with many relations

346 & 348 On Caterpillars of same genus differing greatly 352 & 386 & 294 do

◆ 406 & in Habits

524 in Diptera

356 Nymphalidae are polymorphous

359 Caterpillar attaching fruit to tree by silk-thread. (Difficulty) 381 do Q

380 Males of Bombyx flying swiftly

382 two crysalises in one cocoon in relation to something about silk worms

384 Parthenogenesis - males alone in 3d generation

SB3 □β

422 Musical instrument of male Cicada hard to understand by Selection

37 good on Libellula noticing bright colours -
428 Projection varies in the different species in Fulgoridae

431 Development of wings in Homoptera

454-469 & 481 Important Ch. 7

444 Retrograde development in Cocci: females lose artic. of body & limbs

526 Males of Tipulae fight Ch. 6

541 In Tabanidae only females blood-suckers - Males on Flowers

6 16-23m 8 11u "Isoptera", 11u "single| Termes", 11x 12 5-7m/6u "economy", fig.w Pupa fig.w Neut fig.w Neuter ◆ larvae Neut 13 21-23m/w wide rangers 14 16-18m/16u "closely|each"/18u "called|Latreille", 24-28m/u "under|head"/w Neuters 25u "from|Po", 32-34m/33u "very|resembling" 15 13w Analogy 14-16m/16u "lose|off", 31-36m/33x 16 9-10x, 18x, 40x 21 28-30m (Curtis, Lucas) 24 4-11m (Pictet) 25 5-10m 26 27-33m 35 14-17m (Ashton) 37 9-10m, 21-25m (Newman), 25-27m/25u "In|males", 27-29m 39 29-31m (Réaumur) 44 11-12m (Dufour) 67 30-33m (Pictet) 77 17u "of|valves", 19-20m, 23-27m/z/ 26u "retroserrated spiculae", 28c "latter"/w sheath 29-30m/30u "articulated|internal", 34u "spiculae", 34-35u "serving|internal" 78 8a "some" male 9x 79 35x 80 17-20m 82 12-14m, 14-17m 83 35-36m, 36-39m 88 wt Some evidence that formed, like corporeal structures, by selection.- ◆ not particular 1-3m, 2-8w These agree with corporeal structures 38-40m (E.W. Lewis)/Q 89 1-2m/Q 98 20u "Dahlbom"/19-21m/w first rate authority 109 18-20m 117 10-17m 119 19-20m 147 17-19m/18u "feeding|matter" 150 27-32m/30u "painful irritation" 154 26-28w variable 28-29m 158 33-37m 160 4-10w like cirripedes 8-11m 172 4-7m/w variable 181 14-16m, 24m/24-25u "compels|abortive" 182 20-23m (St. Fargeau) 183 25-27m/26x/u "bee|makers" 205 8u "jaws|burrowing" 206 8-14m 209 10-17m 212 22-28m (Strickland, Bakewell) 213 4-6m/Q/5u "latter|wings" 214 12-17m (Goureau) 217 11-12u "whence|abortive", 13-14x, 14-15u "which|wings" 218 4m, 5-6u "but|middle"/w workers 19-20x/u "the|eyes", 23x 219 34-35u "especially|habits", 38-39m/x 220 2x 223 29-30m/x, 33-35w transition to Hive Bee 36-37x 224 7x, 8-9m/9x, 16-19m/19x, 25x/u/22-26w Different genera 2 workers 28u, 31-46m/34u/w 4th genus 38-40m (Huber) 225 32-41m (Wesmael), 32-38m/33u/w 3d gen 35-36x, 35u "immense|sphere", 38u "almost inactive", 39-40m/39u "only|honey" 228 16m,

29m 229 5x/u "tribes|species" 230 19-20m/u "in|species" 231 1x 232 21-22x/21u±/18-29m (Huber), 34u "neuter pupae"/35x 233 22x, 25x, 27-29m (Lund), 28x 234 11x, 32x, 33x 235 6x, 10x 237 28-30w folding of wings 238 7x, 30-36m♦, 37-40m (Jurine) 246 22m/20-22w Kirby says clear nest 247 1x 252 25-28m 253 4w Hive do 6u "constructing|nest"/w♦ How then had neuter & lost them? 254 7x/u "females|alone", 10-16m/10-11u↔/15u "cuckoo"/14-15w How arise 255 27x 260 38-39x 261 36-38m 262 2-7w Is there any case of Bee occasionally parasitic. 15-21m 264 10-11m/10u "These|all"/11u "and females" 268 8x/u "solitary working", 9u "great|this" 269 4x/u "Bees|Trigonis"/w See Dict Class 271 21z 272 28-34m, 30-34w Ch. 8. like webbed geese Q 278 38m/u "50,000|queen" 279 3u "distinguished|secreting", 23-24u "their|pockets"/w see Kirby 32-40m (Huber), 34-41u±, 34x, 36x, 39x, 40x 281 8x/u "Unlike|hive", 10u "two|organs", 13u "pollen|posterior", 14u "the|joint", 15-16u "presencel nest", 28-32m, 29x, 36-39m, wb Disappearance of these pollen plates interesting 285 22x 286 27x/28x/w vide this 287 3x/u "neuters|being" 311 37-39m (Geoffroy) 312 19-25m 313 7-9m, 13-16m 317 34-35m/34u "Zygaenae|wings" 319 6-8m, 13-15m 321 28-32m (Loudon), 33-38m 324 29-34m 326 7-8m (Boisduval) 329 15u "seven"/14-16m (Newman), 31-36m 333 11-13m/13u, 38u♦ 335 4-5m 342 34-37m (Boisduval) 344 29-35m 346 32-37m/34a "Papilio" p.348 348 24-31m 352 9-17m 354 7-12m/2m 356 8-10m/w Nimphalidae 358 10w (variable) 11-13m/x 359 5-8m/6u "the|of", 15-19m (Westwood), 15-17z 368 21-25m, 27-33m 376 37-39m/38u "twilight|considerably" 380 1-5m/w which family with rudimental mouth 23-31w It does not appear wingless 26-30m (Stephens), 29-31m/m 381 23-24m, 26-29m 382 35-36m/34-39w happens with silk Worms. 383 8u "Memoir|Trans."/w Read 384 4-12m/12u "pocket|collector"/12-13w Bombycidae 16u "Davis|4", 24-26m, 35-36m 386 15u "prominent"/7-16m/8-13w larvae differ more than Moth 30-32m, 32-33m/33u "species|wings", zb 387 17-19m, 29-30m, 32m/a "genera" wonderfully zb 389 25-26m/w wings variable?? 390 18-21m 391 17-18z 392 36-37m/37u "which|fly" 393 1-2u↔, 2u♦, 3u "pluvial|patches" 394 22-27m/w Mem.-Crustacea metamorphosis of 396 8-11m/9u "occasionally|vertically" 397 19-24m, 32-34m 400 15-19m 402 25-27m 406 2-6m 416 15x, zb 419 6w bristle-like 8x/w 4321 10w 444 11w Coccidae 12w Aphidae. Physillidae &

Aleyrodidae 421 7u "the|three", 10u "antennae", 11u "seven joints", 12u "6"/w or 422 15u "legs|not"/w for jumping 17u "males", 19u "the base", 20u "abdomen", 21u "insertion|legs", 23-28w How arrived at by selection 26-28m/25-31m/Q (Réaumur, Goreau, Solier), 35-39m 423 12-13m 427 5c/u↔, fig.x, 7u "legs", 8u "general|leaping" 428 3-5m, 5-7Q 10u "varying|species" 430 10-12m (Merian) 431 10a/u "species"/w of Delphax 13u♦/12-14w are some species winged & some not 14-21m, 24u "antennae|jointed" 432 2u "last|seta", 5u "ocelli|number", 5c "in number", 17-22m/w ? variable in individuals 435 11u "antennae", 12u "ten joints" 438 5u "antennae|jointed" 442 29-30u "broad|wings", 34u "antennae|jointed" 444 5-9m 454 16-22m, 23-29m 469 4-7m, 10-11m, 14-16m, 18a "condition" ie with rudiments 20u "destitute|rudimental", 22-25w like some plants with 2 sorts of Flowers 37m (Westwood) 473 17-18m, 23-25m, 31-34m 481 32-36m (Curtis, Linnaeus) 483 9-10m/x/w variable 499 2-5m/3u "proportionate" 502 10-13m 503 16-21m/w a discussion of several pages on this. 508 7-19m (Latreille) 514 7-9m, 17-20m 524 fig.w all these larvae one family 526 7-8m, 20-22m 541 3-5m 555 33-35m (Linnaeus) 557 36-38m (St Fargeau) 567 20-23m, 24-25u "thus|Ichneumonidae" 571 3-12m (Jenyns), 35:40m (Owen, Hope) 588 w (list of orders of insects and number of subvenient species) Synopsis of the genera of British insects, 1 8w p.30 10w p.8 11w Stirps 2 p.4 5 zt 8 23-24m 21 26-27m 22 27-28m, 30m 45 1w Antenna long 20w Antennae short 49 23-25m 51 21-23w p79 Aculeata

WHEWELL, William *History of the inductive sciences* 3 vols.; London; John W. Parker; 1837 [CUL, S]

beh, cc, ch, cr, ds, geo, h, he, ig, mn, oo, no, pat, rd, sy, t, tm, ud

vol. 1 NB 17; 54; 80; 119 curious; 136 good sentence; 169; 238; O Feb/58

xix 18w R 17 18-21m/w Herschel's craving - How acquired? 51 11-14m/w one does♦ can conceive such ignorance 54 1-3m/1-5w curious with respect to origin of language 80 3-14m/9-10? 119 8-10m 122 13u "1461"/13-15w How was this calculated 135 11-12m/w V. p.122 136 18-21m 138 14-16m/15u "ready|times" 169 13-18m 238 8-25m

vol. 2 NB 127; 177; 287 good; 438; 482; Feb/58 O/

116 11-17m 127 13-22m/w/wb May conclude from this body of Man requisite. Hence

WHEWELL

political state of country Great influence of science hence dark ages as in Spain 177 11-17m 180 7[...], 18-19[...], 25[...], 30[...], 181 1[...], 13[...], 14[...], 183 m 244 1-10m 287 25-31m 438 11-15[...]/m 441 11-22m 482 30m 483 1-6m

vol. 3 NB 188; 265; 321; 322; 324; 342; 352; 354; 369; 374; 379; 390; 397; 415; 419; 436; 448; 452; 456; 458 et sequitur; 466; 471; 472; 574; 576; 578 read whole Chapter; 582; 620

SB □β

Vol 3

189 374 Definition of classification p374

321 on natural Classification Linnaeus rules

324 very good

342 do. very good.- 352 do

459 Eyes of Cephalopoda discussed by Geoffroy in his *Principes de Phil. Zoolog.* p.55 1830

468 Maintains that every organ has some use

188 24-31m 189 1-2m 255 12-19m 263 30wε
321 8-23m/10-22w This is strictly applicable to family likeness - though rules may be estab to guide observer as ∞ vary least or most 25-26uε "latent | instinct", 28-29m, wbε when such expressions are used, it is certain there must be some great hiatus in our knowledge 322 2-7m, 15-20m/w what is this but to say, that every character is variable ● Linnaeus 22w V. p.324 24m, wb when Published? 324 13u "but | impossible" / 11-14w surely not always - Elephant? Man? 325 3c "organization of life" / w descent 342 wt Systematic naturalists are the heralds of Nature 7-8u "study | only", 7-12w What organs abortive? What least subject to change? use of each part 13-17w The relations consequent on one part, or organ changing 18-24w Trifling resemblances independent of external causes of slight weight wb importance of organ is not the rule in species, or even genera. : only the red band on the *Furnarii* and *Synallaxis* of S. America. Consider the Trogons of world, whether ∞ there is not more 352 17-28m 354 18-23m 369 5-22m 374 9-26m 379 15-22m / 17-18u "Philosophy | Life" 390 1-4m/3-4w see p.400 5-7m 397 8-12m 400 26-27m (Harvey) 401 1-3m (Harvey) 415 11-25m (Grew and Malpighi) / 15-18! 419 9-12m/9-22w why not as well as the skin of the hand know how to grow properly, all live fresh again? or tree produces same buds 436 15*/u "five sepals" / 16u "five" / wb * Preponderates in all Dichotiledons - & in Radiata - (?) Mem.

Agassiz - Quinarian arrangement - 3 - in Monocotyledons 441 21-30m (*De Candolle, A.P.*) 448 12-15m, 29m 452 18-31m, 30-31m (*Jenyns, Clark*) 456 5-14m/6-8w Mammae in Man 7-14m/8-12?/9-10?/12-14m 457 11-15m (*Geoffroy St Hilaire*) / w Clearly wrong 458 wt rather, the function gives rise to the structure 459 15-21m/w How singular that so different a series should have arrived at same end. 461 3-7m 462 3a "play" / wt thus qualified is correct. Owing to external contingencies, & numbers of other allied species & not owing to mandate of God 463 1z 466 1-8m, 30-31m / ? (*Cuvier*) 467 4a "made" / 2-4m/w born & altered 4a "offices" / 4-5m/w under changing circumstances 30-31m (*Cabanis*) 468 3m / wt Shrivelled wings of those non-flying Coleoptera?! wt In every science, one may trust that every fact has some relation, ♣ to whole world 3u "use" / w relation wb In every animal, final cause or adaptation is applicable to far greatest proportion of structure. For otherwise it would be pressed 470 1-3m, wt/1-19w All this reasoning is vitiated; when we look at animals, on my view. 4-18m (*Kant*), 18-20m 471 wt/1-2w When a man inherits a harelip, or a diseased liver is this adaptation as much as Bullfinch to linseed.- doubtless it is in one sense, but not that in which these philosophers mean. 472 13-15m/w appears to me rather far-fetched 473 1a/u "possible" / wt/1-3w with innumerable other animals striving to increase 4-5u "those | it" 543 1-5m 574 1-25m 576 1-12m 577 1-31m 578 25-32m / 27?/28u "constantly" 579 15-17m/16u "additional assumptions", wb These are not assumptions, but consequences of my theory, & not all are necessary 580 27m (*Cuvier*) 582 22-25m/23u "his | beauty" 610 7-15m/10-12? 620 1-5m

WHITE, Gilbert *The natural history of Selborne* 2 vols.; London; C.& J. Rivington; 1825 [CUL, S]

af, beh, cc, ch, fg, h, he, mg, oo, or, sp, sx, t, ta, ud, v

NB1 Modifications & migrations of species of same genus shows great diversity in habits See end of 2nd vol for Classified Index

♦ p169 ●; p277 *Furnarius* boring holes

NB2 p126; 139 Many birds do not pair; 169 allied species similar habits; p246; p255; p256X; p272X; p278; p292

126 17-23m, wb Good instance of punctual migration wb D'Orbigny case of memory of time 139 2-19m/8-9Q/11u "cock | hen", 23-24Q

169 2-10m/3-6w In S America same fact 246
15-24m/15-19m 255 1-5m 256 6-17m/7-8w
Lin 14 272 1-7m/w like my bird boring holes
278 6-26m/7w p.773 292 12-17m 320 1w
Swallows

vol. 2 NB comparison with man good
comparison with old animals gnashing their
front fangs

p6; p8; p9; 10; p54; p56; p92; p110; 117;
p119; p120; p124; p207; p296; p310

SB Letter 29 - On Partridges

139 On Birds when one shot, getting soon
mated Q

246 on singing of Birds, due to rivalry

256 on wren hiding mouth of nest

272 Martins nests continually washed down

vol 2

8 on capons hovering or brooding over
chickens

110 some notes of own on instincts

117 Barley in Hawks stomach from W.
Pigeons

119 Chinese dogs not relishing meat Q

120 sporting Dogs refusing Partridges &
N.Q.

6 1-18m 7 6-20m 8 1-4m/2-3u "hover|hens"/
1-9w dormant instincts in every male,
account for a difficulty in origin 7-9m/?/9u
"Mr. Lisle" 9 9-12m 10 wt This must be
reason, instinct would have led hog to have
waited for boar 1-5m 54 1-10m 55 15-16z 56
wt cause of straight lines easy to keep
direction recollect FitzRoy idea of sounding-
noises to hear the line when not see it 1-2m
57 15-22m 92 15-19m/15?/u "miscellanies" 110
wt Habitual action, like instinct does not
vary, indeed difficult to vary much bitter
experience to cure tricks yet curable. so
instincts can be altered.- wt habitual desires
& actions go together in Man.- eating dinner
Instinctive desires *wb* Habitual desires -
appetite at certain times *wb* Instinctive action
Habitual action - in sucking both must be
brought into play *wb* Instinctive when origin
cannot be traced in life of individual 111 wt
in an habitual action, consciousness of
desire which must be preparatory, obliterated
wt/1-11w It is not more wonderful that a
desire should be hereditary - than that
memory itself should be hereditary. or that
taste, mental thought should be so 7-24w In
Man an habitual desire may become
instinctive or hereditary. ambitious man
ambitious children - civilized man. civilized
children 13-16w It is transmission of thought
through egg 15-19m, 17-21w X- that
cuckoos should know so much the

impregnated ovum should be mathematical
20-25w the mind has only cause to sleep
20-25w because circumstances do not vary
wb Man scarcely any instinctive actions.
Many desires, & therefore many habitual *wb*
animals having ♣ many instinctive few
habitual actions? 117 14-18m 118 12-19m 119
15-20m, 20-25m 120 20-25m/21w good 121
wt If effect of being beaten as seems most
probable a most curious instance if not yet
an acquired instinct!- 1-4m, 3-6"...", 7-11m,
14-21m 124 1-3m 207 8-13m/11w reason *wb*
nothing short of it would make them run out
of doors 259 15-17z 265 zb 296 2-16m, 18-
21m 310 16-19m/17u "Montagu|xxx"

WHITE, Gilbert *The natural history of
Selborne* new edn by L. Jenyns; London;
John Van Voorst; 1843 [CUL, I by Jenyns]
beh, mg, phy, sx, tm, y

NB p47 on chaffinches sexes in flocks
p53; p69; p91; p112; p130; p137; p143;
p173; p214; p236; p348; p204

SB □β

Mice using tail slightly as prehensile Brehm
Thierleben says same of monkeys

69 Snakes using Dung Heap to incubate in
NQ

112 on a cat habitually taking to water

137 Differences in migration within England
NQ

140 Both male & female swallows have
forked tails - but males the longest

143 Grey or Hooded Crow very rarely builds
in England

214 On tough envelope to Dung of young
Birds, due to inaction Q

215♦

348 On Birds near cotton-mills using cotton
for nest. N.Q.

354 Dogs lose taste for flesh. Q

Letter 16 Martens building in exposed
situations Q

47 21-32m (Thompson) 53 21-27m 69 18-23m/
18u "of|heap" 82 28-29m 91 17-21m/19u
"protract" 130 30-34m 137 28-30m 143 28-
32m 173 24-30m (J.E. Gray, Yarrell) 204 23-
32m/29u "Mr. Blackwall" 205 30m 206 27-33m
215 23-26m 216 6-8z, 22-29m 217 9-13z 236
21-30m (Robert) 348 24-32m (Thompson) 354
9-14m

WHITNEY, John Dwight *The auriferous
gravels of Sierra Nevada of California*
Cambridge, Mass.; University Press; 1879
[Down] φ

WHITNEY, William Dwight *The life and growth of language* London; Henry S. King & Co.; 1875 [Down, I]

NB 139
139 2-6m

WHITNEY, William Dwight *Oriental and linguistic studies* New York; Scribner, Armstrong & Co.; 1873 [CUL, I]
beh, t

NB All on language
285; 287

No sound argument that Man cannot think without the use of words – 296– Quoted

353

354 Uses of unforeseen Used \hookrightarrow

How far Language consciously invented
Used \hookrightarrow

(many markings presumed not to be by CD)

246 26-27w chesnut 285 15-28m 287 22-27m
296 31-35m 297 1-8m, 1-24"..."/12-17m/12-
22m (Max Müller), 20-24m 353 11-25m, 32-
33m 354 20-25m, 33-35m 355 6-8m

WICHURA, Max *Die Bastardbefruchtung im Pflanzenreich* Breslau; E. Margenstern; 1865 [CUL, I]

ad, br, cc, ch, cs, f, fg, gd, he, hy, ig, in, mn,
no, pat, sp, sx, tm, v, wd, y

NB1 ♦ the most striking case given of constitutional weakness of Hybrids

NB2 ♦ p22; p43 Variation under Domestication; 89 do – Look over – allude to theory of non-accommodation – will not do if *Primula* & *Linum* are sterile.–

SB1 □β \hookrightarrow *(mostly dictated by CD)*

Full Abstract Max Wichura

24 Willows have great power of combining into complex hybrids; he has united 6 species into one hybrid.

28 Thinks Gärtner's reversions due to parent pollen: Naudin's results point to opposite extreme. Does not Gärtner say that cultivated vars. revert more than wild species? Does this not account for difference between Naudin & Wichura?

see Book p. 2

29 The 6 fold hybrids cd not live –

31 Says generally that Hybrids are not so strong & healthy.–

30 Gradation in sterility of Hybrid willows which in extreme point of scale ends in death of young plants

35 Gradation in potency of pollen.

38 pollen gets worse & worse in offspring of Hybrids inter se & in (p.39) the more

complex hybrid.

41 Luxuriance in hybrid willows is by no means the rule rather than reverse.

SB2 *(as 1)*

42 Cases of weakly hybrid willows

43 Believes in Kohlreuters view that luxuriance of hybrids results from sterility, false from mongrels –

43 & 44 Number of individuals of either sexes modified in hybrid willow. There are more females & see p.63.

50 Never saw a prepotent type & therefore doubts Gärtner.

56 variability in hybrid willows when hybrid pollen used; uniformity when pure pollen used.

58 & 66 diff't kind of hybrid willow found wild

64 Gives proportion of hybrids to pure species in different districts – in some places more hybrids than pure plants –

65 Ingeniously explains how they abound on certain spots from rapid Germination ϕ of seed –

80 gives case of species very like each other yet do not unite easily.–

SB3 *(over, CD)*

Gärtner p.474 & 582 on Reversion occurring chiefly in cultivated Plants – Naudin who used cultivated plants goes to one extreme & ♣ Wichura who experiments on wild willows goes to other extreme

SB4 *(as 1)*

83 Explains sterility of hybrids by combined organization being ill-fitted for conditions. I give this view p.288/3rd ed. of *Origin*; but contradicted if offspring from homomorphic unions are sterile.

85 Explains increasing sterility of successive generations of hybrids inter se by interbreeding like I do.

85 The crossed *Triticum* & *Aegilops* which increased in fertility had 3/4 of *Triticum* blood.

89 cultivated plants which vary most often have irregular pollen and seems to think there is some analogy between variability & hybridism

92 Cultivated plants like hybrids, are in a state of dis-accommodation & he gives Kohlreuters view on this point

10 13-14u \leftrightarrow 11 14-18m 22 *fig.m/w* 6 species compound into one. 24 14-17m/11-17w In Willows great power & tendency for production of complicated Hybrids 27 9-10m (*Gärtner*)/w 4 generations implied for Reversion 16u "*individuelle*", 13-17w Propagation of individual peculiarity in a

Hybrid 28 wt/1-5w Thinks reversion of Hybrids due with Gaertner's experiments to pollen of either parent - I daresay Naudin's reversions are largely due to his plants being cultivated 3-6m, 27-28m 29 17-18m/17u "sechsfachen"/18u "die|Grunde" 30 9-13w Gradation of sterility 16u "aber|in" 31 5-11m/10u "aber meist"/6-8w gradation in number of seeds 15-16u↔/?! 35 24-26m 38 6-11w pollen gets worse & worse from hybrids inter se 39 12-14m/12u "Zahl"/13w mingled 41 8-9m/u "doch|Regel", 21-23m/21-22u↔, 25-26m, 30-31w dwarfs from weakness 42 wt/1-21m/w cases of weakly Hybrid willows did not produce flowers 43 1-9w believes in Kohlreuters view that luxuriousness of Hybrids results from compensation for sterility 20-22w Relation of sexes modified in Hybrid Willows 17[♂], 20u[♂] "Zahlverhältniss", 21u[♂] "als|Arten", 29-30u[♂] "Differenz|bedeutende" 44 3-4u "mehr|weiden", 8-13w more females! under nature Hybrid females very abundant 9u↔, 12-13w 1/10 males females 16-17u "unter|befand" 50 8-16w never saw a prepotent type in willows & doubts of Gärtners statement 52 9m 56 17-22m/17-18u± 58 14-17m/16-17u "66|ihren" 63 10-12m 64 6-7m/u↔, 9-13m, 34u "einzelne" 65 1-3m/1u "zusammenwachsen", 2-6m/w more Hybrids than pure parents!! 9-28m/10-20w Explains how these numbers come from willows vegetating only in bare places 80 10-12m 82 21-25w common mule 24u "eine|Bastarde"/24-25m/? 83 9x/wt X I give this view distinctly p.288 3d edit of Origin 10-12m/10w Clever 15-25w no Hybrid exactly fitted for place in nature - contradicted by species from different climates forming Hybrids 84 wt/1-5m/w More different the parent species the more imperfect the Hybrids 85 2-11w This is my view of interbreeding causing sterility in successive generation, but too rapid 28-29m/29u "Die|begreift" 89 8-19m/w Plants which vary have often irregular pollen - I think some connexion between sterility & variability 92 8-29w Cultivated Plants like Hybrids are in a state of disaccommodation.- 33u "Die|wird" 93 1-3m (Koelreuter), 21u "dass|Accommodation", 22u "Fähigkeit|Varietätenbildung"

WIESNER, Julius von *Das Bewegungsvermögen der Pflanzen: eine kritische Studie über das gleichmässige Werk von Charles Darwin* Wien; Alfred Hölder; 1881 [CUL, I] cc, mhp, phy, t, y

NB ♦ 60 I think ♦

8 I do not understand; 11 no; 34 no; 80 no; 78 Georges translation; 158♦ George; 122; 126; 162; 211

(by GD) What you say p.485 almost justifies Wiesner

SB ∞ Pots 2, 4, 8, 12, 16, 20 ft (for 4 hr) in 2d 1/4 3d 1/16 4th 1/36 5th 1/64 6th 1/100 of the light received by the seedlings in the 1st Pot

3 23-27m 8 12-22m/1-21w do not understand whilst struggling itself accommodation wd stop 9 4u "beschränkten Masse" 11 19u "alle", 19u "Circumnutation", 19w no 20u "Reizphänomene" 24 1m, 17-20m/18u "nicht|Zusammenhang"/w no 30 13m 60 23u "Krümmungsfähig"/w no 66 32-34m/32u "nicht heliotropisch" 68 17-20m/17w Weight can 69 8m 71 1-5w loading very good 73 2m 78 zt, 23-30m/17-29w I do not understand 81 1m 122 10-31w But will not Cotyledons place themselves horizontally in the dark 123 8-10m, 18-21m! 124 8-10m 125 7m 126 wt/1-17w It ought to be tried again. Whether Cots. (with hypocotyl fixed) bend in proper measure to bright light. 33-35m/18-35w In my study, when hypocotyl. bend itself Cots. were horizontal, but when with same light Cot fixed the Cots bent in proper measure 127 3-14m/w I cannot quite follow 20-31w Do all Cots rise if kept in dark? 162 wt It does not explain lateral mvmt. 5-11m/1-11w This does not apply to 2 triangles 205 ♂ 22u "Fast alle", 23u "sind|bewegungen" 211 23-27m/?|26u "verkümmern|sterben"/w no

WIESNER, Julius von *Elemente der wissenschaftlichen Botanik: 1. Elemente der Anatomie und Physiologie der Pflanzen* Wien; Alfred Hölder; 1881-89 [Linnean Society of London, I]

WIESNER, Julius von *Die Heliotropischen Erscheinungen im Pflanzenreiche* Wien; K. Gerolds Sohn; 1878-80 [CUL, I]

WIGAND, Albert *Der Darwinismus und die Naturforschung Newtons und Cuviers* 3 vols.; Braunschweig; F. Vieweg & Sohn; 1874-77 [Down] ♂

WILCKENS, Martin *Form und Leben der landwirtschaftlichen Hausthiere* Wien; Wilhelm Braumüller; 1878 [Down, I] ♂

WILCKENS, Martin *Grundzüge der Naturgeschichte der Hausthiere* Dresden; G. Schönfeld; 1880 [Down, I]

WILCKENS, Martin *Die Rinderassen Mittel-Europas* Wien; Wilhelm Braumüller; 1876 [Down, I]

NB Skimmed too difficult O

WILLIAMSON, William Crawford *On the recent Foraminifera of Great Britain* London; The Ray Society; 1857 [Down]

NB xi
xi 2-11m
♂

WILLIAMSON, William Crawford *On some of the microscopical objects found in the mud of the Levant and other deposits* Manchester; Gillett & Moore; 1847 [Down, I]

WILSON, John *British farming* Edinburgh; Adam & Charles Black; 1862 [Down]

NB Colling, Ellman, Bakewell

WILSON, Owen S. *The larvae of the British Lepidoptera and their food plants* London; L. Reeve & Co.; 1877 [Down, S] ♂

WINKLER, Tiberius Cornelius *Descriptions de quelques nouvelles espèces de poissons fossiles des calcaires d'eau douce d'Oeningen* [Down, I]

NB O/

WINKLER, Tiberius Cornelius *Des tortues fossiles* Haarlem; Les Héritiers Loosjes; 1869 [Down, I] ♂

WOLLASTON, Thomas Vernon *Insecta Maderensia* London; John Van Voorst; 1854 [CUL, I]
gd, oo, no, sp, tm, v

SB1 Cossyphodes a Blind Insect in Ants-Nest common to the Canaries lsd with wings obsolete & Bates says Prelaphidae are blind but some have yet wings & fly & are f. in Ants-Nests.

SB2 □β Genera marked Woll. & so I presumed endemic
(list of genera and number of their species; totals calculated)

(untranscribed words are numbers of varieties listed under each species) xxxva 11w, 15w, 22w, 34m, 37m, 40w xxxvb 7w, 11w, 16w, 21w, 25w, 29w, 39w, 45w xxxvia 4w, 10c "var β", 17w, 18m, 33w, 42w, 45w xxxvib 4m, 16w, 25w, 34w, 42w, 47w xxxviiia 2w, 10w, 19c "109 spinipes, Woll.", 19w var a 30w, 33m, 35m, 42m, 44m, 54w xxxviib 4w, 8w, 15w,

27w, 31w, 32m/?, 33w, 36w, 37m, 38w, 40w, 42w, 45w, 47w, 49w xxxviii 6w, 9w, 12w, 17w, 20w, 28w, 31w, 34w, 37w, 40w, 44w, 45-46m, 47w, 50w xxxviii b 3w, 6w, 7m, 9c "var β", 12w, 14w, 15m, 17w, 20w, 34c "206 | Woll"/w e var 35w, 37w, 42w, 47w, 49w, 51w xxxixa 2w, 7w, 8m, 9w, 10m, 15w, 16-17m, 18w, 21w, 24w, 29w, 31w, 32m, 43w, 45m, 46w, 47m, 48w, 53w xxxix b 4w, 7w, 13w, 15w, 30w, 35w, 37w, 43w, 46m, 47w, 49w, 50m, 55c "281 | Woll"/w var α 56c/w var. β xla 7w, 12w, 14m, 17w, 18m, 20w, 21m, 23w, 25w, 27m, 28w, 33w, 36w, 43w, 53w xlb 3w, 7m, 8w, 13w, 17w, 19w, 21w, 22w, 23m, 24w, 26w, 27m, 28w, 32w, 35w, 39w, 43w xlia 4w, 13m, 15w, 17w, 19w, 21w, 30w, 43w, 45w, 49w, 50m, 51w xlib 2w, 4w, 5m, 6w, 8m, 11c "370 | Woll"/w var α 12m, 14w, 15c "var β", 17w, 20w, 22w/?, 24w, 26w, 29w, 31w, 35w, 36m, 39w, 40m, 42w, 46w xliia 3w, 21w, 25w, 30w, 33w, 36w, 43w, 46w, 50w xliib 4w, 6w, 7m, 10w, 27w, 35w, 37w, 39m, 40w, 45w, 48w, 50w, 52w, 54w, 57w xliia 4w, 7w, 9w, 17w, 20w, 22w, 26w, 28w, 31w lxii b 1m, 2w, 8w, 9c "var β", 13w, 19w, 21w, 28w, 29m, 30w 21 1-2Q

WOLLASTON, Thomas Vernon *On the variation of species* London; John Van Voorst; 1856 [CUL, I]

ad, af, beh, br, cc, ch, co, cr, cs, ds, dv, em, ex, gd, geo, ig, is, mg, mn, oo, rd, sh, sl, sp, sy, t, ta, ti, tm, ud, v, wd

NB How are Birds? in size measure wings of Swallow

4 11-14m, 12-19m, 22u "namely | creation" 5 11-12Q/u "a | stability", 14m/Q 15-16m, 25-27m 16 12-15m 24 13-14m/13u "240", 20-23m 27 25-29m 29 15-18m/Q 30 25-29m/Q 31 2-9m/Q 20-25m/Q 22u "Europe | Madeira", 26u "Sweden | Canaries", 27u "insect | cosmopolitan" 32 11u "the thesis", 12-16m 33 1-9m/7-8w why not a true species 12-19m 34 7-12m (Westwood, Kirby), 23-27m 35 20u "small", 21-23m/22u "of itself", 29!/u "legitimate variation" 36 2-4m, 17-22m, 23u↔ 37 11-17m 38 1-2m, 6-8Q 9-14m, 26-29m/w Glacial Inst 39 10-15m/Q 18-23m/Q 40 10-14m/11-12Q 16-20m 41 4m, 5-6Q 6-9m, 15-18m, wb Do not forget changes in larval condition.- as causing change in Mature 43 26-29m/Q 44 1-3m/Q 45 1Q 4-6m/w How odd 15-16Q 23-25m, 28-29m (Westwood) 50 21-24m 54 25-26w Great webs, action on the larvae? So in plants, according to Decandolle) 26-28m 55 2-7m 57 14-16m/Q 26-29m/Q 58 2-8m 59 1-5m/3u "so | colour", 10-12m/Q 23-25m (Hardy,

Bold) 60 wt Q 2u "the change", 12-14m/12u "southern shores", 22-26m 61 wt Q 4-6m, 13-19m, 27-28m 62 7u "ornamented typically"/6-9m/w variation analogous Q 63 3-6m, 8Q 9-12m (M. de la Ferté) 64 wt/1-4m/3-4u±/1-6w Q How curious the impossibility of creation & variation producing same end. Capacity in one case & not in other to adapt itself or be acted on.- 8-17w You have a vera causa, but you invent another.- 65 3-4w do not understand 11-20w It is begging question to attribute these to soil. 14-18m, 18-29m/22-29w/wb May be the result of something of use, or indirectly connected. 66 21-29m 67 1-5m (Curtis)/w This common & important 68 6-14m, 21-23m 69 1m, 3-7m, 12-18m, wb Here the forest seems the active cause 70 1Q 13-18m/16-18"... 71 1Q 22-23m, 25u "constant |atmosphere", 29u "diminution |area", wb reduces isolation to these - & interbreeding 72 11-13m/u±/7-12w Java Sumatra America? 73 15-20m 74 1-4m, 10-12m, 19-20m 75 wt It is very important that the linking forms are often rarer; by Mr Wollastons account, these the extremes: hence easily exterminated. wt How far are intermediate links produced by crossing? If so they wd cease when species made 5-8m, 19m 79 13-15m 81 20-21m/w (a) wb (a) Thinks decrease of wings increases size in some instances & It makes up for isolation which tends to reduce size 82 8-9Q 10-13wcc, 19-20m/w why 25-30m/Q/u/w 17 83 6-10m/w & p85 8-10u±, 14m/Q 84 5-6w Balancement 6-10m, 23-26m, wb But how cd it have gone over low lands, certainly hotter, than present Madeira. Applies to Balea pencosa, & ! 85 wt With this I can hardly believe, that intermarrying can decrease size.- May not greater powers of locomotion be regained for apterous insects 13-14m, 15-18m/15u±/w (2) Q 20w (3) Q 24-26m 86 3-5Q 27-29Q 87 12-16w Can this account for absence of thalerophaga lamellicornes 14-16u "if|certain"/Q wb♦ Why not allude to greater propor 88 5-8m, 16-20m/20u "are|elsewhere", 20w opposed to 89 1-2m, 2u "external|form", wt This cannot be interbreeding ∴ probably in all cases some other relation.- 90 wt/1-15w It wd be well to put the case of 2 isld were united, there wd be largely intermediate forms: or indeed ♦ the variation prevented. Just as varying exceptionally slow, so a few crosses wd help to check it. 96 6-8m, 10-13m 97 24-28m 98 19-29w/wb Wings, I suppose last developed organs, can that bear on their variability? 99 wt Insects may seldom be able to fly so

decrease like ducks or silk moths come into play, aided by selection. Analogy of wingless Birds, cd lead to former belief. 101 18-23m (Westwood, Spinola), 29m 102 1-5m, 20-26m 103 1-6m, 16-17m, 22-24m 104 25-26u "size|colour", 26-27m 105 12-13u "two|states", 23-28m/w so in Birds 106 17-19m/w so in Ploceus & Icterus 109 4-6m 115 12-14m/? 116 9-15m/? 117 6-8m/?/u "with|powers" 119 13-15m, 14u "once continuous", 15u "slowness"/w hypothesis 120 13-16m/? 122 19-20m 124 6-9m, 10[...], 16-20m 125 10-14m, 11-13m/w think of confined mammals & Birds 25-27m/25u "Its|rarity" 126 23-24u "the|regions"/w Lyell 128 10-14m, 12-16m 129 3u "Sir Charles"/w No 5-9m, 14-16m, 18-20m, 23u "occur|state", 20-25m/w (not differently associated with other organic beings. 130 11-12u "extreme|progress", 14-15m 131 5-6w & some appeared 8-10m, 11-31m/11w variation 13-15m/w (a) 17w♦, wb (a) We shd not expect much change in sea-shells within such a period. 132 1-12m/8-9Q 13-21m, 27-29m/Q 133 9-12m, 14-18m, 18-22m, 18-20m, 21-22Q 134 wt/2-9m/1-11w Both these wider spreading & varying species: must do so to have local vars. wb All amount of differences, simply called species, when great (and formed by selection) & called vars, when small & intermediate not found 135 wt Did a creative spirit blow from S. to N.?! 9-11w unintelligible to me, except a mutation 12-18m/13u "that|tract"/?/16u "identical", 22-23m/23u "aborigines" 136 15-16m, 25-27m 137 22-29w i.e. that some ♦ Madeiran insects have got into S. Europe 138 wt Yes when it was cold, there wd have come a different set, even if current always the same 4u "distinct epochs"/? 139 12u "genera"/12-14w What have they to do with land 141 9-11m/!, 12u "generic areas"/12-14w but not points 14-15u "on|planned"/wb no explanation it is mere assertion of fact 143 26-28m 144 14-17m/w sure & certain witnesses 147 10-19m (Kirby), 27-31m 148 2-5m (Lyell) 153 10-14m, 15-17Q 26-29m/w/wb Probably often renewed like Alpine Plants wb These cases opposed to struggle for existence 155 9-10m, 26-28m♦ 158 14-15?/u "first|instincts" 163 19w hypothetical 165 17-22m 166 wt/1-9w Breaks influence greatly as shown in groups by enchainement 9-24w ie branching whether or not extinction 13-16m, 19-22m 168 wt/1-25w Probably a species ought to be described animal-Vertebrate-Mammal-Carnivore-Canidae-Canis familiaris 170 19-24m♦ 171 9-26w All much too Metaphysical

WOLLASTON

Nothing to me - 27u♦, 22a "position"/wb in affinity or geograph position 172 9a "cannot"/wt He means always have been!! 11-23w Shows the effect of studying insects in comparison with Mammals 14u "accident", 15-19m 173 20-23m 174 9-16m 175 6-12m, 20-24m 177 wt/1-9w How good to make genera when new rising comes on.- 13w new 14-25m/w most genera in isld he attributes to extinctions but does not apply to cases like coral islds.- 20-25m/wb so A. de Candolle in Plants, but he applied it to very distinct plants - so in Birds 178 29-31m 179 24-26!, 25-27m, 25-26u "convinced|demarcation" 185 6-7Q 10-12w same as A. Decandolle 186 5u "most mischievous", 28u "monstrous", wb you may doubt when I doubt, but if you go one step further you will be eternally d—d, quoth the Priest. 187 19w Canary Birds 22u "cultivated plants/21-23w flowers! Rices 188 6-9m, 14u "absurdity", 17u "unsound", 20-23m, 20-29w/wb why then created? Do you know these conditions well enough to say why one is rarer than another. Yet quite ignorant of the Life of larvae. 193 3u "traces|design"/3-6w Flowers Canary Birds Fancy Pigeons 8m

WOLSTEIN, Johan Gottlieb *Über das Paaren und das Verpaaren der Menschen und der Thiere* Altoma; Hammerich; 1836 [Down]

118 wb O/ Rubbish.

WOODWARD, Samuel Pickworth *A rudimentary treatise of recent and fossil shells* 2 parts and supplement; London; J. Weale; 1851-56 [CUL]

ad, af, ch, ci, ex, fo, gd, geo, hl, is, mg, oo, no, sh, sp, sx, t, ti, v, wd

part 1, 61 9-11m

part 2 NB p.271 good

↪ Relation of Extinct & living genera S. America

167 26m/u "Phosphorax, Webb", 28u "Sandwich Ids" 168 30u "Cryptella, Webb", 31u "Canary Ids." 169 11u "Canary Ids." 170 19u "Philippines" 271 10u "Miocene|Patagonia"

Supplement, NB ♦ All; p.336 Sexes of Tunicata

p.439; p.454; p.486

336 19-21m 348a 3-7m, 13m, 20m 348b 9m 349 21-23m, 38-40m 350 38-40m, 44-45m (Forbes), wb Read 351 wt X In sense of typical representing structure of whole group, it comes to commonest form have widest

ranges - aberrant form extinction, is quite applicable to this view 8-10m/1-21w as aberrant probably here means widely different, must have been produced by extinction 9-10x/20-32m 352 16-20m, 21-27m (Swainson) 353 3w In Tropics? 26-30m 354 wt/1-9w are these not also Cape? 4a "sea" about 30. p.363 3-5m, 8-9w Never mind 21-22u "Red Sea", 24u "Cape" 355 15-17m (Forbes)/16u "subject|form" 358 wt If Boreal inhabited arctic region, there wd have been more continuous coast land, in fact quite continuous land. 3-5m, 6-8m, 43-51m (Richardson) 359 23-29c/25w↪ N. Zealand Chile 26m/u "Mesodesma", 27u↪ "Boreal", 26u "Crepidula"/w is f only wild in Tropics 361 43-46m 362 27-28u↔/27-37w What endemic. None 37u "83|the" 363 1-3m, 9u "about 30"/40u "74", 20u "200|extinct", 22u "The|Sea", 38u "common|Indies", 39-44w 44 being common to Atlantic & Red Sea 364 6u♦, 8-9c/w↪, 9w S.P.W. 28u "part|Caspian" 365 18a "shells" living I suppose 367 12-13m, 23u "200", 24u "11|common", 25u "whilst|the" 368 wt Strange so few ♦ wt/1-15w are these found in Tropics with cross seem good case wt/1-12m/w All doubtful according to Woodward 18-22m, 39m (Cuming) 368a 8x, 9u "Red Sea", 13x, 14x, 15x 368b 7u "Red Sea", 8x, 11x, 13x, 15x↪ 369 18-22m, 26u "74", 32-34m 370 42-44m 371 16x/u "Solonella"/w↪ & nowhere else America & Medit. 17u "Panopaea"/w↪ Confined to & Australia W. Africa♦ 18u "Monoceros", 19m, 20w no- 26w Falklands p378 27a/u "Modiolaria trapezina" Falklands p378 28w book in Index 372 19w During glacial 21-23m/21-22u "same|found" 373 4-8m, 33-34m, 37-39m 375 10-13m, 29m (Cuming), 34m/u "Litoral|common" 381 14-18m, 23-24m 382 3-6m, 15-19m, 19-22m/w in Land & F. W. Mollusca 383 10-11m, 33u "74", 34u "water|4", 38-39m (Deshayes) 385 29u "Spain|Syria", 33-37m/34u "mountain"/36u "has|46"/37u↔ 386 5u "peculiar|snails", 14u "and|Limaces"/9-18w ? p.383 only 74 British 19u "132", 20a "The". 3 20u "section|limax", 22-25m/w Saline, Marine, very little water 28-29u "11|Santo", 34-35m, 36-41m, 40-41m (Wollaston), wb♦↪↪ 387 wt↪↪, wt Vide p486 Suppl Fossil Landshells 1-6m, 2m/u "(132) 111", 3-4u "5|11", 6-19w as Sicily has 3 peculiar Limaces, these are probably introduced 13u "Ancyclus fluviatilis"/11-13w introduction & only 2 F.W. Shells 16-17u±, 22w living 64/132 fossil 22-34w Santo 42-43m (Wollaston) 388 1-5w Looks so.- 8u "Only 13"/10u "and|viz"/8-11w more modern group 1-17u "80|Limax"/

w 60/80 perhaps 18u "these|peculiar", 19u "and|Indies", 20u "Physal|", 21-22m, 43u "trunks of", wb Canaries 389 10u "Limax Ascensionis", 18-22m/19u "The|species", 26-27m, 27m, 36m, 45-46m (Sowerby) 390 wt/8-12m/1-15w Hooker says Ferns at Ascension are W. Indian 28u "similar"/w not identical 391 21-22m/21u "section|Madagascar", 38-40m/38u "The|peculiar" 392 24m, 34-35m 393 25-28m, 30-32m 394 16-19m 395 2-5m (Mousson), 38-40m 396 29-32m, 30u "peculiar", 33-34u "two|bitentaculata", 36-40m/37u "Melanopsis|type", 40u "Vitrina zebra"/wb 2 Vitrine ♣ in fact naked 397 15-17m/16u "those|islands", 31-34m/31-32u↔, 35-37m, 40-42m 398 4-6m, 13-17m/15u "one Limax", 18-26m/18-19u "the|multispiral", 21u "Helices|glabrous", 34-38m, 41-44m (Humboldt) 399 33-38m 400 41-42m (Waterhouse) 401 42-43m 402 5-7m/6u "4", 12-14m 403 1-4m, 30-32m!/u↔, 40-41m 404 4-6m 405 19-38w See range of these Genera &c 27-28m/w↔ N. Bolivia & J Fernando 30u "least|shells", 30u♦, 35u♦, 36u "Spiraxis"/wb↔ sub. gen W. Indies. Mexico 407b 31m 408 28u "close"/26-29m/w so successions of Life 30-31m 410 26-31m/29z 411 wt on questioning how many forms are this kind 1-4m/w evidence? 11-14m/w ? compare to sea shells? 14w This is contradicted by changes in islds 15-16m, 16-19m (Forbes), 20?, 22-25m, 26w Where means of distribution are Mundane 39-40m (Lyell)/wb but not these sea-shells - that is not known 412 8-11m (Forbes), 14-16m, 18-21m, 31u "some|larger", 36-38m 414 wt ↗ Capital Table But only some of the genera 1a "of" some large 4u "Litnites" why italics †w There ought to be a line for each genus 34-36w why both given 25-36w♦ How few began in Tertiary per 415 wt See my Table 1a "of" all? for he speaks of 85 in next Page 9-16w Begin in Tertiary wb♦ 62 It wd be curious to arrange these like last table †w↔ (each line numbered) 416 1-25w Other Tribes Cirripedes now must replace other animals. 13-15m, 16-19m, 20-25m/?, 26-30m, 34-36m 417 wt/fig.w/ 1-12w Hence reduced organisms now flourish, & so it is with Fish: take place of lower animals from some advantage 4-6m, 5u "classes|testacea", 9-10m, 10a "typical", wb Most evenly balanced. 12-15m 418 23-24m, 31-32m 419 wt I shd say an ideal archetype was that form from which in imagination all others cd be made with parts changed 1-3m/ 3u "their|archetypes", 4-5m, 26-27?, 30-32m, 33m/w end 37-41m 420 1a "extent" compared to Land Mammals 2w ∴ if not changed, they

will be widest rangers 26-28m, 29u↔ 421 5-9m/9u "White|rusticum"/wt/1-10w a very long Journey for them by Mediterranean 21u/u♦/22u/23u♠/19-21m/18-25w Are these American. wb↔ Monoceros America ♦ except M. Zebra ⊕ No ↔ Pseudo olive W. America (but fossil in Europe) only in Eocene.- Solenella America 422 15-17m 439 40-42m 454 11-15m/m, fig.m 486 28-32m

WRIGHT, Chauncey *Darwinism: an examination of Mr. St. George Mivart's 'Genesis of species'* London; John Murray; 1871 [Down] ∅

WRIGHT, Chauncey *Philosophical discussions* New York; H. Holt & Co.; 1877 [CUL, I by editor Charles Eliot Norton]

NB Excellent book

v 5m (Spencer), 9m, 15m (Lewes), 16m (McCosh, Tyndall), 19m

WUNDT, Wilhelm *Grundzüge der physiologischen Psychologie* 2 vols.; Leipzig; Wilhelm Engelmann; 1880 [Down] ∅

WUNDT, Wilhelm *Nouveaux éléments de physiologie humaine* Paris; F. Savy; 1872 [CUL, FD]

(markings presumed to be by FD)

WÜRTEMBERGER, Leopold *Studien über die Stammesgeschichte der Ammoniten* Leipzig; Ernst Günther; 1880 [Down] ∅

WÜRTEMBERGER, Leopold *Studien über die Stammesgeschichte der Ammoniten* Leipzig; E. Günther; 1880 [CUL, I] ∅

Key to symbols used in Part one

with the title:

- CUL book located at Cambridge University Library
 CUL.1900 book donated to CUL in 1900: full list in *Cambridge University Reporter* 15 June 1900 pp. 1079–80; we have included only those annotated.
- a
 Down book located at Down House, Kent
 (other locations are in Cambridge unless otherwise stated)
 B book known to have been on board *Beagle*
 pre-B book owned prior to *Beagle* voyage but not known on board
 S book bears CD's autograph
 I book bears inscription to CD

b
 notes and slips:

- NB note written on back cover of book
 NF note written on front cover of book
 SA (pp...) sheet of notes attached between pp. . .
 SB sheet of notes pasted into back of book
 SF sheet of notes pasted into front of book

c
 type of marking:

- m* score-mark in margin; *md* doubtfully intended score-mark
 (eg 14–16*m* means 'score-mark against lines 14–16')
- u* underlining
 (eg 21*u* "*organs* | *mind*" means 'underlining in line 21 between the word "organs" and the word "mind"')
- w* word(s) written by CD: *wt*, at top of page; *wb*, at bottom
- d
x CD places an 'x' or 'X' in the margin
o CD places an 'o' or 'O' in the margin
 (other kinds of shapes are reported as accurately as possible)
- z* drawing or other marking
c CD crosses out part of text of book

e
 other symbols:

- ◆ deletion: neat scoring through
 ◇ word(s) erased or faded
- ♣ deletion: word(s) obliterated/errors corrected
- τ CD translates text of book
- ♠ CD writes/underlines a species-name in the text
- ↑↓ whole margin
- ∅ some pages uncut
- ↻ nondescript brown ink
- ∞ pale ink
- ◆ dark ink
- () transcribers' editorial brackets
- β smooth mid-blue paper
- ℞ rough grey-blue/mottled paper
- ⇒ pencil
- ⇒ brown or reddish pencil
- ⇒ blue or violet pencil
- £ CD's editorial markings on text of book
- ✂ comment cut or damaged e.g. in rebinding of book
- Ⓢ comment damaged because page ripped away
- u↔ whole line/sentence underlined
- u± more or less all of passage underlined
- ↑ count lines from bottom of page
- ℓℓ calculations in margin
- word(s) illegible
- ◐ part of word illegible
- uncertain transcription
- h

CHARLES DARWIN'S MARGINALIA

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*I dedicate this book to
David Kohn who sighted the fish in the first place;
Peter Gautrey who kept the nets in perfect repair, while
Nick Gill struggled to land what turned out to be a whole shoal.*

M.A.D.G.

CHARLES DARWIN'S MARGINALIA
Volume I

Mario A. Di Gregorio
with the assistance of
N.W. Gill



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*Laudata sii, Diversità
delle creature, sirena
del mondo! Talor non elessi
perché parvemi che eleggendo
io t' escludessi,
o Diversità, meraviglia
sempiterna . . .*

GABRIELE D'ANNUNZIO

'LAUS VITAE'

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In the first place I should like to thank wholeheartedly the three people to whom this volume is dedicated, and without whom it would have been impossible. David Kohn conceived the original project – though no-one anticipated the gigantic proportions to which it would grow. Nick Gill, my valued friend and collaborator, has worked as research assistant, general editor and ‘typesetter’, performing technical feats that baffle me utterly. Peter Gautrey, recently retired from the Manuscripts Room of Cambridge University Library, was always a superb source of warm and knowledgeable support: to this true gentleman, generations of Darwin scholars are deeply grateful.

It is also a pleasure to record our debt to the staff of the Darwin Correspondence project, especially Ann Secord, Janet Browne, Marsha Richmond and Stephen Pocock, who continually sustained us with encouragement and much valued advice and experience. Frederick Burkhardt kindly allowed me to take from the first volume of the *Correspondence* the list of books Darwin had with him on board the *Beagle*.

In the early stages my research was funded by the British Academy and later by the Royal Society, for whose support I am duly grateful. The work took us to Down House, where we greatly appreciated the homely efficiency of Philip Titheradge. It is also a pleasure to thank the staff of the University Library, particularly Janice Fairholm of the West Room, and Arthur Owen for granting special privileges of access to the manuscripts.

Last but not least, I should like to record our enormous debt to all the staff, temporary and permanent, of the Manuscripts Room, superintended by our friend Godfrey Waller, and graced by the ever-helpful Jayne Ringrose, and Margaret Pamplin, who found it in her heart to laugh benevolently when my assistant, who shall briefly be nameless, tipped an entire trolley of priceless books and pamphlets across the floor. "Were *they* in alphabetical order?"

M.A.D.G.
Cambridge
December 1989

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text 1-895

Part two: index and conceptual concordance lxiii ff

Epilogue

prologue and introduction

prologue

Some time ago David Kohn had the idea that it would be beneficial to have some kind of outline catalogue to Charles Darwin's marginal annotations. A long story and a number of years later, something rather more complex at last sees the light of day. Like all good stories, ours grew in the telling, and this volume is now intended as the first of three which will provide a complete transcription of the marginalia and a classified map of the whole corpus of annotations. The 'long story' by which the original germ has become a projected multi-volume set has involved the gradual addition of new layers, during which the bare catalogue became first a partial transcription and then a complete one, hence now entitled 'Catalogue and transcription'. By a parallel process, what started as a brief conceptual record of the principal content of the annotations in each book eventually gave birth to the huge document which forms Part two of this volume. We felt that the term 'conceptual concordance' would designate our purposes in Part two readily enough; further explanation is given on p. xviii. Finally, however, we concluded that our readers might be unnerved at the thought of a text of this density not having an 'index', and so the hybrid title 'Index and conceptual concordance' was eventually fixed.

The process has thus in essence been a continuous amplification of an at first very narrowly defined objective – almost echoing CD's request:

"Clean well the pencil marks.– Keep Book Clean. Write smallish on one side, number your pages." (see p. 227g)

We can fairly claim to have done a little better than that, given the latter-day wonders of camera-ready copy.

CD's instructions here were in fact originally issued to one of his amanuenses, probably Mr Norman, a shadowy figure for whom we came to feel a considerable sympathy. The ground level of our work has been just about as pedestrian as his, in copying everything out to provide the 'Catalogue and transcription' which forms Part one of this volume. At least in Part two, and more especially here in this Introduction, we have the luxury of spreading our wings a little into the realms of interpretation; such joys were not to be for the hapless amanuensis. "Mr Norman end here" (390c), CD instructs whenever the interesting bits seem about to begin.

Having established the foundations of our role, we headed off towards finding our material. The principal locations of Darwin's annotations are the margins around the text of the books, separate sheets or 'slips' of paper, and the front and back inside covers of the books. These different locations, we believe, constitute different layers of annotation emanating in the main from different occasions on which CD paid attention to a book. The 'slips' are now mainly found stuck or pinned inside the back cover – though we believe that is not where they spent the prime of their working lives. The quality and the colour of the paper used for these slips vary, again probably implying different bouts of attention. We have seen fit to distinguish three broad types: smooth blue paper; rougher yellow-mottled grey-blue paper; and the rest (mainly nondescript white or greyish paper). We report the material from these various locations in the following order: notes and/or slips inside the front cover; notes and/or slips inside the back cover; slips attached anywhere else in the body of the book; marginal marks and comments in the body of the book.

As to our presentation of the material transcribed in Part one, we have provided a 'Key to symbols used in Part one' on the sheet at the front of the book. The key is hopefully self-explanatory; the only further detail which needs mentioning is that each *column* in Part one is numbered, and is referred to as if it were a page.

So much for *our* code-marks; CD however has some of his own. The capital letters "Q" (for "quote") and "NQ" (sometimes apparently for "not quote", sometimes for "note quote") are frequent. There are also other much more occasional letters, such as "H" (for heredity or inheritance), "S" (for selection), and "D" (usually dichogamy). But others are less fathomable: e.g. brown or reddish pencil crosses: "X means used for 1st volume", he says at a certain point (122c) – but does this apply generally? As with the mysterious coloured ticks (or are they 'V's or 'L's?) which pop up here and there, and the 'O's in the margin in some plant books, we have not thought it part of our job as transcribers to decode these marks, and are indeed thankful to be able to hand such puzzles over to the wider company of Darwinists. It is worthwhile, however, to draw attention to the way these marks run through the craggy mass like thin veins of special little crystals, presumably meaning something.

Our fitful involvement over the years in the production of this material, at computer terminals and in libraries, both in Cambridge and at Down House, has included many hours spent in the U.L. archives themselves – a privilege which facilitated our work immensely, despite the curious effects of the changeless bookstack weather. The project has also survived a double bomb scare, a fire beneath the computer centre which put the tapes out of action for many a long week ('on a shelf gathering dust' becomes in these latter days 'on a tape gathering smoke particles'), and the near-arrest of the assistant author in a certain College library where he was mistaken for the key to a missing case (*cf* fn 12). CD's remark to the intrepid Wallace felt at times distinctly pertinent:

"I am astonished you ever returned alive" (842a)

introduction: (i) CD's reading habits

"(from now I shall skip largely)" (812d)

Here we find CD instructing himself to pay only cursory attention to the remainder of the book in question (Vaucher's *Histoire physiologique des plantes d'Europe*). What, more generally, has our reading of his marginalia revealed to us about his procedures in reading the scientific books he owned? Given how systematic CD seems to have been, it is not difficult to build a general picture.

CD acquires a book and begins reading. It does not take him long to make his judgment about the quality and usefulness of the book. If, as was quite frequently the case, the verdict was broadly dismissive, he would usually persist, but less intensively and only in the hope of encountering a handful of useful pieces of data: hence the large skipping, or comments to the effect "only skimmed". During this basic reading, intensive or otherwise, the margin is scored and peppered with comments. At the end of the reading, he would now list out the locations of his more important comments and margin-scores on an inside cover (usually the back cover), occasionally adding brief mnemonic notes.

The book will now probably lie fallow – maybe even for a number of years – until the lucky moment arrives for it to participate in the process of data-collection for a CD publication. At this stage, the list of locations is re-examined, and a new, shorter list made on a separate sheet of paper of the most important locations, now with details in the form of long-hand notes about the information to be gleaned at those locations. "I will cease extracting", he says at a certain point (668f), reinforcing our growing impression of him as a kind of intellectual dentist. We have the strong feeling that he hardly ever reread the book itself – a feeling underlined by his exceedingly rare self-instruction to "Read second time" (545c), which would scarcely make sense if he usually did this anyway. However many years later he returned to the book, he was confident that he had already 'extracted' everything of value.

The separate slips containing the vital gems at this point reach the prime of their working lives: we imagine those relevant to the publication in progress now collected in a heap (or in CD's systematic case, no doubt a pile) on the writing table, being finally reviewed. It is at this stage, we presume, that the code-letters "Q" or "NQ" are entered on the slips and/or at the original locations in the text against the items he has decided to use. The set of slips, together with CD's own notes and drafts, combine for a while into 'Portfolios of working notes' for the writing of the publication in question. Once the publication has been pieced together, "slips all put in proper places" (572h) – i.e. stuck for any future reference usually inside the back cover of the now fully-harvested book. A slip may take part in this 'cycle' a number of times – its important underlying content, as we shall see later, being the broad theoretical themes invoked by the data recorded on it.

There are of course exceptions to this general procedure – though not, we feel, all that many; and only two are worth noting specifically. The first concerns books that CD read early in his career, where one is likely to encounter inside-cover comments not referred to page-numbers in the text of the book, making recovery of the original data extremely tiresome. The other, more significant exception is the occasional set of slips stuck into the text of a book – these were quite possibly part of the initial thorough reading, and are there to facilitate understanding of the text, especially anything requiring calculation.

It is for the wider company of Darwinists to embellish this basic picture of CD's reading habits. Our brief outline here is but the prelude to analysis of his interaction with his scientific library.

We found one annotation particularly evocative as a metaphor of the contents of the marginalia as a whole:

"I suspect reefs of diff strata in diff parts" (536h)

Apart from reminding us of CD's early involvement in geology, this remark suggests a summary of our hypothesis about CD's main mode of 'processing' scientific reading matter: the margins, end-notes and the slips of various different paper types constitute physically discrete strata or layers, corresponding more or less closely to different bouts of attention. Insofar as these bouts imply an accumulation across different 'layers' of time, the metaphor of geological deposition seems quite reasonable.

In fact the 'layers' concept begins to unlock the inner nature of CD's mode of working with sources: and indeed, we should ideally look upon the whole great corpus of marks and comments not piecemeal, but as a *single* complex laminate – fused layers not only of time and attention, as we have seen, but also of types of *response* to the source-material, and also layers of *themes* reflecting CD's lifelong theoretical preoccupations.

(ii) CD's responses

It is CD's extraordinary single-mindedness, already apparent in his hyper-methodical reading habits, which is reflected in our perception of the marginalia as constituting essentially a single structure. Furthermore, CD had his theory pretty well framed before all but a handful of the books represented in this volume were seriously read. In the main therefore he was not reading to theorise. There are, rather, some half-dozen 'layers of response' we detect in the marginalia.

i) *"Many valuable facts referred to proper places" (159c)*

CD's principal 'layer of response' to a text, constituting the great bulk of the annotations, was in fact data collection, or 'extracting', to revive the CD term we encountered earlier. At first sight, the sheer detail, quantity and range of these 'extractions' might suggest vicarious activity, but that is absolutely not the case. On the contrary, the whole process was strongly purposive – namely, to assemble a vast store of sometimes tiny points of information in order to illustrate and support the Great Theory. This résumé is, as CD might himself have remarked:

"good but too hasty.–" (578f)

We qualify this résumé to some extent in pointing to the existence of *several* 'layers of response'; nonetheless we believe the reader will see that 'our man in the margins' appears more relentless, dismissive and self-regarding than his modulated public persona would imply. In a sense this is hardly surprising – anyone's personal notes are likely to have a greater curtness to them than their finished texts. Nonetheless two impressions may merit an airing here.

CD often judged a book on the sole criterion of its relevance to some aspect of his Grand Enterprise: "After p.109 not one word for me" (675d) he pouts, almost; "This only

useful for ancient History of Dogs . . . I doubt whether any use" (843e–g). There are other not infrequent remarks to the effect that books failing to minister to his need for data are *eo ipso* pointless – his dismissive sign "O/", meaning "Nothing for me", being tellingly close to the copy-editor's symbol for "delete" (which his sign can also mean when he waxes subeditorial, of which more anon). "Erase from memory" might be the late-twentieth-century translation.

The undercurrent of predation here is notable in itself; but the manner of it – i.e. its near-total absorption in pinning the already-formed *Weltanschauung* down to fact – leads to the first of our two impressions: that, from quite early on, CD's mind was no longer really 'open' at the level of high theory (however flexible he remained in respect of subvenient principles).

Our second impression is also connected with fixation. As giants of nineteenth-century creativity, two figures in particular make excellent subjects of comparison – Charles Darwin and Richard Wagner.

"What can I have said" (794c), CD might have been prompted to wonder . . .

We shall develop this line more fully later. The Darwin–Wagner similarity of relevance immediately is the power of their obsession with their work. Anything that crossed their paths was to be assessed for its usefulness in the construction of their creative monuments. This is reflected in Wagner's notorious personal exploitation of everyone he encountered. In Darwin's case everything tended eventually to be pressed into the service of the Theory. Thus the parts of his correspondents' letters not dealing with science were crossed out so that they would not distract from his rereading of the relevant parts. Furthermore, when he wanted to study infant behaviour, he began by watching the behaviour of his own son William, whose development, to cite Janet Browne in Kohn 1985,¹ he followed "as if it were [that of] a barnacle or a primrose". He even had ladies who obligingly made their children cry so he could watch the infants' reactions. These points tend to amplify our view of Darwin's public persona as a certain modulation of the 'inner man'.

ii) "quite opposed to my views!" (111g)

Connected with the enterprise of data-extraction, and accounting for a large minority of annotations, the second 'layer of response' we detect is CD's evaluation of an author and his work. These reactions are usually very forthright, again not infrequently self-regarding: "excellent summary of Whole; approves of what I have said" (239b); sometimes rather patronising: "Most interesting indeed quite amusing" (393g); or "Good Boy" (242b); and occasionally downright rude: "If I want to show what rubbish has been written a translation of this will do.–" (485d). There is plenty of generous praise – "all marked wonderful book" (857a) – but on balance negative criticism outweighs the positive variety.

"Unreadably dull" (738b) represents a quite noticeable type of reaction. CD certainly responded to a degree of entertainment – "2d part funny passage" (217d) – and disliked being bored by an author. CD himself is quite often entertaining in his reaction to an author and his work; naturally we will allow the reader to stumble across these little gems. Our own warped sense of humour detects a tendency towards poisonous wit, especially in putting an author down: "ass prevails – one here", he notes on Lucas' *Hérédité naturelle* (521a), along with a number of other remarks which sound scarcely straight-faced, despite the seriousness with which he took the book as a whole.

However, let us *en passant* charitably suppose that CD's reference to Haeckel as "Hack" (358d) owes more to abbreviation than to denigration . . .

iii) *"World simple"* (541a)

CD is evidently more forceful in his marginalia than in his published works, which are the province of what we might call 'Selection with a human face'. He appears aware of this as deliberate: "I must express things diffuse and with a most wearisome pretence to formulas" (516g), he moans, contemplating the requisites of public style. He has to be so to speak 'the Very Model of a Modern Major Scientist' – but in his inmost self he is perhaps convinced that the world *is* simple, and is quite impatient of all this deference to 'ifs-and-buts'-ism, disclaimers in face of irritatingly incomplete evidence, and opens to the effect 'it is therefore by no means inconceivable that'. CD himself might have thought this comment

"too strong" (425b) –

and it may indeed seem strong in description of someone who after all spent a lifetime reading and writing in meticulous and cautious detail. However, a further example may strengthen the impression; and one basic consideration may help dispel the paradox.

The example is the extraordinary tone of CD's final dismissal of the thrust of "Bronn's criticisms for New Edit of Origin" (181a–182c) – for example "As I cannot justify my opinions in any one single case, so I need not in any.– is as true as it is severe– Though I can in no single instance . . . explain changes yet the structures &c led me to conclusion.–" (182b–c). And that's that.

The consideration is that CD's 'diffuse and wearisome' complaint (and indeed this last quotation) implies that he had seen more fully and more definitively than he felt able to show. Other evidence for this takes us in the first place back to the Notebooks,² and specifically to that point where CD, in some apparent haste perhaps propelled by elation, sets down the finally formulated concepts underlying natural selection. He had held the workings of the living universe in his head with a sense of clarity and comprehensiveness hitherto probably given to no-one. He had struggled with the issues for a long while, but now he knew, and knew that he knew: he had the Key.

One probable lasting consequence of these hard-won certitudes of insight was that CD may never have felt in need of an elaborated methodology or philosophy of science, confident enough in his seemingly natural instinct for the relationships between solid evidence, creative intuition, the need for 'wearisome formulas' of ever wider explanatory power and for physically plausible models of the world. That something like this is the case is evident in the marginalia from the near-absence of our third 'layer of response': comment at the level of high theory.

Most of CD's comments at this level are really quite perfunctory, even when he is assessing work he took most seriously, or work by earlier evolutionists. It is as if from the security of his vantage point he would see others working (like Candolle?) on areas too specific to enable an appreciation of the Grand Process: "he has not the Key" (145b) – or attempting (like Chambers or Lamarck?) to scale the heights with an insufficient database and an insufficient respect for physically feasible mechanisms: "It is doubtful whether Lamarck has done more good by awakening subject, or harm by writing so much with so few facts" (477a). CD by contrast had the overview well before he came to the bulk of his reading, in which he was forcing himself by the systematic procedures we outlined before to acquire and retain the detail. He had no great need by this stage to rehearse his case in defence against the theories of others. Even his comments on the higher principles relating to his own theories are in the main quite cursory and matter-of-fact. "The Natural System," he comments during his reading of Herbert (probably during the 1840s), "seeks to know relationship & does not attempt date of separation" (376e), implying that the notion of descent with modification was already to be taken for

granted, and that any troublesome Grand Concepts found upon the lurk had merely to be pushed into line, or reduced to a purely 'operative' status no longer in control of the debate: "It is succession, not resemblance which makes 'a species'"; and within any one such line of succession "Comes to what I said, amount of difference deserving a name" (630b ; cf 317f). The conceptual pragmatism here sounds almost off-hand. But we should resist seeing it as a kind of opportunistic abdication of the old problems; it is, rather, the considered solution to them. Furthermore, this attitude is applied consistently, in his understanding of scientific method, his whole defence of his theory (see *Variation*, vol. 1, p. 9), his tiffs with Huxley over experimental proof of natural selection, and so forth. Further thoughts around these issues are to be found in Di Gregorio (1981);³ it can now be added that CD's remarks in the marginalia, and the fewness of them, clarify that his largely unargued philosophical position may owe more to feel, instinct and 'having the Key' than to intellectual decision at a philosophical level. Here the marginalia are the crucial bridge between the raw insights of the Notebooks and his considered but inextensively supported comments on method and theory made many years later.

Such, then, is our third 'layer of response', almost missing. In fact, of course, in a different sense it is there the whole time: it resides, as we shall see, in the thick weave of topics and themes underpinning the whole corpus of annotations, and is thus imprinted – "diffuse" indeed, and sometimes even "wearisome" – on every comment. However, the thinness of the layer of explicit 'remarks on high theory' may come as a disappointment to those who turn to the marginalia of a Great Thinker expecting them continuously to overflow with Great Thinks.

iv) "*must be a misprint*" (295d)

CD may have found formulae tedious, but he was by no means averse to a bit of genteel pendency now and then. He not infrequently trips a (living) author up on spelling or other detail; more significantly on misquotation of himself. Sometimes these minutiae are noted down alongside more substantial comments which look like scraps of drafts of letters to the authors in question: "Allow me to point out that you have unintentionally misrepresented me . . ." (223g); "I am glad of your somewhat changed views . . ." (838c); "eheu! date wrong" (537h). Our fourth thin but distinct layer is thus a combination of CD waxing subeditorial, and a scattering of footnote fodder for future volumes of the *Correspondence*⁴ . . .

v) "*What I do not understand*" (471f)

Here we find CD alluding to a fifth 'layer of response', requiring little comment as such – a relatively thick vein consisting of translation and/or close paraphrase of the original text, especially prevalent in German books, but not unknown in Italian or even French books either. In the case of German, this may in part have to do with the tribulations of the Gothic script adding themselves to the trials of the language. But in any event, the consequence for the reader is that the number and density of annotations in a book are no clear guide to the importance either of the book or of the marginalia it contains. Hence our annotation of the title page of Part one, taken from CD's annotation of Candolle: "Upon the whole nothing can be inferred from this list" – a light-hearted motto, but intended as a serious *caveat*. Indeed, any comparison of the entries for Candolle and Gärtner, the latter taking more space, will quickly show that the former is of far greater importance.

vi) Mention of Gärtner brings us to Darwin's Joke, and thus to our sixth layer, 'general wit and merriment'. It is pleasing to note that CD left a few examples of the art of being serious without being solemn – such as the *doubles entendres* attending the 'cross foxes' of p. 705h, the 'high fish' of p. 155a, and the 'boring sponge' of p. 673d – and that he also shows the tendency of the highly creative mind to put things to itself in a radically offbeat way, as with the comment about the 'man cut in twain' (see p. xxix). However, we will spoil the reader's fun of further discovery only in respect of the aforesaid Joke. It is to the effect that Gärtner, despite the name, was probably not much cop as a Gardener. It is actually more important than its flippancy might lead one to suppose: in the first place, it demonstrates that CD was good enough at German to invent a bilingual pun, and thereby lays to rest the myth of his alleged ineptitude at that language. Furthermore, CD liked his Joke. This we know because he chose to share it with the future mildew of the margins not just once, but twice (374c, 277a–b). 'It is therefore by no means inconceivable' (to coin a phrase) that this implies a simultaneous reading of the books in question. CD was sporadically given to dating his comments; following through the more, and less, serious cross-references may thus eventually enable the making of a workable historical map of the whole of his interaction with his scientific sources. As CD himself remarked, albeit in a rather different context:

"light will be thrown on the origin . . . The meaning of this cd hardly be misunderstood, but I can see is not the period of going into details." (358f–g)

vii) Nor indeed of going from the marginalia to CD's private life. Our last layer – another almost absent stratum – consists of very rare and insubstantial glimpses (always assuming, of course, that his rapturous "Flora!" of p. 839c does not address a mistress hitherto hidden from history). There are one or two mentions of (genuine) relations, and the occasional name of a pet or other animal. Most of these references analyse details of behaviour – reinforcing our earlier implication that CD was often unable to resist surveying even the domestic scene with the professional eye of a proto-ethologist.

(iii) CD's themes

We meanwhile must now pass back to surveying the world at large. Having provided a brief description of the strata visible in the mass of the marginalia, we need now to look more closely at our first layer, the 'data-processing' to put it crudely, that forms the bulk of the annotations. It is time to investigate its own internal stratification – the layers of themes and topics – and hopefully in so doing to discover what CD might have termed the

"whole key to theory" (164h).

The major layers we are considering here are the great themes and subthemes that CD pursued (or that pursued him) throughout his career. They function like the '*Leitmotive*' of a Wagner opera, or, to echo Sloan's not dissimilar analogy:

a complex keyboard instrument with several keyboards and registers, these registers each able to act sometimes in solo, other times contrapuntally, and at times in synchronous harmony.¹

A Wagnerian '*Leitmotiv*' has a comparable flexibility; the '*Leitmotive*' interwoven are the

constitutive matter of the whole composition, and they are repeated and evoked whenever logically necessary. None of them is ever forgotten or allowed to drop out. Similarly in Darwin's case:

Some themes and registers form dominant melody lines at various times . . . Other themes function more as a *basso continuo*, often submerged but nevertheless present if one looks closely enough. (Sloan again.)

This procedure enables continuous integration of detail into the whole, and enables detail constantly to refer to the big serious themes – for example the '*Leitmotiv*' of the Dragon in Wagner, or that of comparing wild and domesticated animals in Darwin. It is this which makes the exceptional range of research of a figure like Darwin mentally manageable. It also explains the many repetitions and (in)direct references to other parts of their work that both Wagner and Darwin introduce.

We believe we have captured the essence of this continuous state of inter-reference in the structure of the 'index and conceptual concordance' which forms Part two of this volume. The classification headings used in Part two reflect the themes and topics we detected in the marginalia. There is a relatively straightforward list of names of animals (under the category 'fauna', 'fa' in our code), plants (under 'flora', 'fl'), places (under 'geography', 'gr'), populations (under 'humankind', 'h'), and geological epochs (under 'time', 'ti'); and the document is rounded off with a list of people and works cited.⁵

Interwoven however with these name registers is a classified conceptual index, whose categories were as far as possible inducted cautiously from the annotations themselves, in order to reveal Darwin's '*Leitmotive*'. Work on transcribing the annotations in each book was accompanied by noting down the range of themes and topics in play. A brief cipher was developed for each of these topics, and these are recorded for each annotated book immediately beneath its title in Part one. The conceptual index was then prepared by taking *each individual annotation* and noting down the topics in play there, subcategorising as necessary within the broad categories previously developed, and adding a few new categories relating to CD's other 'layers of response'. The full list of the ciphers denoting these categories and subcategories is recorded on the sheet at the back of the book.

The 'concordance'-like aspect came in when we decided to enter each annotation into the index as a string of topic-ciphers, cross-referenced under each cipher in the string. Thus a statement involving the four ciphers A, B, C and D appears in the document four times, as A-B-C-D, B-A-C-D, C-A-B-D, and D-A-B-C. In this way Part two claims to have preserved intact the entire network of CD's thought.

The resulting document is rather large and very fine-grained. The structure of the entries under each topic-heading is as follows:

A [by itself] [pp.] 1 2 . . .
and [in combination] 3 4 5 6 . . .
infra:
A B C D 5
A C E 3 6
A D F G H 4

(etc).

This arrangement means that those wishing to do battle with the interplay in its full intensity can work from what one could call the 'infra'-structure . . . Those preferring to take their concepts so to speak lying down and one at a time can work with the same references as collected at the head of each entry.

The reader will no doubt be glad that we resisted the temptation to present the whole of Part two in the form of an irregularly branching tree. We did however fall for the idea of using coral- and tree-like diagrams to punctuate our presentation of the way our analysis of topics-in-play breaks the corpus of annotations down into their elementary strands, the '*Leitmotive*' of the Darwinian revolution. Thus those wishing to study the logical interactions of the '*Leitmotive*' as it were medium rare might do worse than start from these 'clustergrams'.

For our part, let us begin our presentation of these interactions at CD's own beginning:

"Diversity of organisms first condition of nature" (582a)

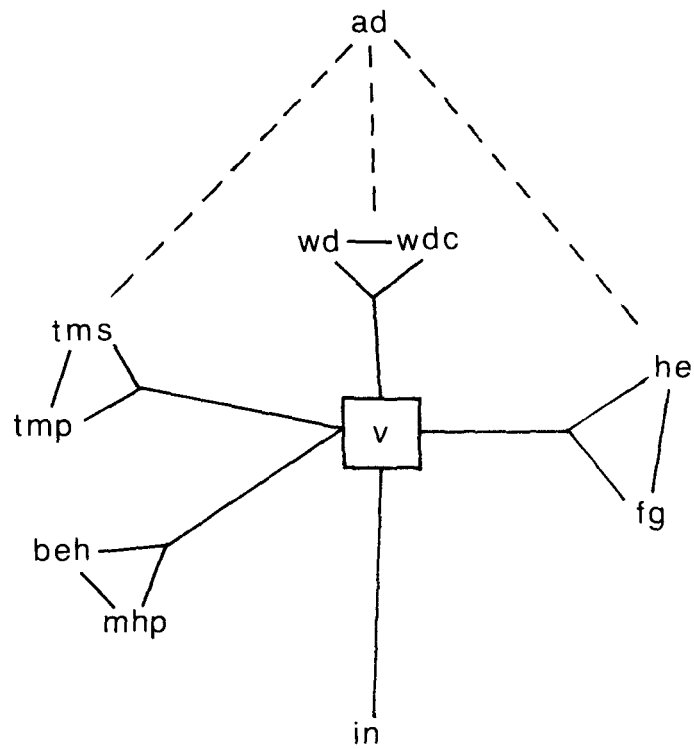
Variation ('v' in our code) just *is*, basic, unargued: "N.B When many pistils, then number variable [when many of any organs apt to be variable; Why. Hairs &c &c vertebrae of serpents" (253d-e). As we shall see further below, this emphasis on the reality of variation is essential to an understanding of the profound change in perspective away from Platonic notions that the 'Darwinian revolution' is all about. Real variation for CD plays something like the role played for Newton by the distribution of matter – the variable density of the universe, to make the analogy sharper.

All characteristics of organisms are subject to variation, the behaviour of animals and plants ('beh', 'mhp'), not just their physical structure: "Great diversity of instincts of Bees of same genus: variable in species also" (74e); "has seen axial twisting vary in same plant" (592c). Variation, as this last extract implies, distinguishes every organism at least minutely from its nearest relatives, and thus the primacy of variation brings the notion of the 'individual' ('in') to the fore: "as individuals differ in some respect . . . several must be experimented on.–" (267g). If, as Mayr claims, Darwin introduced "population thinking", then what matters for him is "variable populations consisting of uniquely different individuals".⁶

Variation occurs both in nature and under domestication, as the first two chapters of the *Origin* readily remind us; thus annotations on variation need to be related to those comparing the variations of wild with domesticated animals ('wd'): "tame cows more milk than wild: organs adapt themselves" (84g); or wild with cultivated plants ('wdc'): "old cultivated kinds tend to vary loose the hereditary quality of goodness" (595h).

This last extract pushes us onwards to take note of reproduction ('fg', for fertilisation and generation), and heredity or inheritance ('he'). If variation is Darwin's 'matter', then heredity, the passing of characters from parent to offspring which holds the chains of beings together, is perhaps his equivalent of Newton's gravity, the unexplained agency holding the chains of objects together. As we shall see below in mentioning pangenesis, Darwin never quite managed to make variation and heredity cohere conceptually – rather as it was beyond the Newtonian mind to conceive of matter and gravity as co-essential. In remarks which seem to show the shutters partly closing on the fully 'open' mind, he insists: "Contrast of adaptation and inheritance" (359f); or again: "Inheritance cannot be cause of variation has nothing to do with it" (514c) – an annotation which effectively sweeps all before it.

diagram 1



In this and the following diagrams we attempt to display some fraction of the densely woven threads of themes and topics constituting the bulk of the marginalia. The key to the topic-ciphers is to be found on the sheet at the back of the book. The diagrams summarise the text immediately preceding them.

"If all species varied equally all wd be in confusion" (430f)

But they don't: variation is itself variable. In the first place, this means that all is not in confusion – groupings of organisms are discernable, which we call varieties, races, species and higher groupings ('var', 'vc', 'sp', 'sph'); and this will refer us eventually to definition and classification, or systematics ('sy'). We have observed CD's pragmatism in these matters already; he pauses to praise Lamarck's scepticism: "good remark how arbitrary the distinction race and species is" (477h).

In the second place, the variability of variation has its own correlates, and brings into consideration the size of genera ('nos') and their wide geographical ranges ('gdw'): "but this is the very point that we are considering that large Families are wide rangers & most convertible [but that it is only a few which are wide rangers; the others changed into species] . . ." (115d–e). The whole time, we perceive in the background the fundamental questions of modification and speciation.

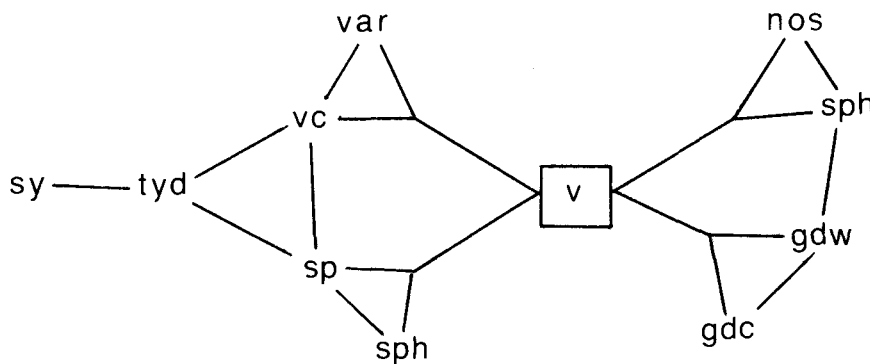


diagram 2

"Malthus and Franklin saw the law of increase in animals & Plants clearly" (562h)

The other basic condition of nature, again implied by reproduction, is 'increase' – our category 'no' for 'number' includes increase and decrease, and in its subdivisions wider concepts such as the 'amount of life'. Increase can be discerned directly in special cases like naturalisation ('gdn'), where introduced organisms ('gdi') at first increase swiftly: "Europe/U. States 716 in 26 years 600 miles of Lat. Many other good facts of rapidity/–" (124d); "Dr D. Owen says newly introduced Plants, first overrun the country & then become scarcer (Ask A. Gray)" (545e–f).

The finitude of any natural context means that there are checks on increase, principally struggle between organisms for relatively scarce resources such as food and space. The basic process of nature is thus increase checked by struggle ('oos'): "ie as far as food & climate (& enemies preoccupation by other species) ie conditions allow species & genera to range, so they will range . . ." (703e); "Beasts of prey destroyed others increase immensely, & drive others from habitation" (703f); "Every one of such species wd

cover ground if no other species present: if rarity here is step to exclusion, then the greater importance of other organic beings is shown" (109d).

The relationships of organism to organism ('oo') are not all directly antagonistic; and these complexities constitute perhaps the central focus of Darwin's world-model. Without a clear understanding of the place of the relationships between organisms in the model, one cannot understand either the notion of selection or the Darwinian conception of evolution. CD likes Hooker's "Good remarks on strife of Plants" (404d); and ponders Haeckel's "good criticism on my theory of struggle for existence – says ought to be confined to struggle between organisms for same end – all other cases are dependance – misseltoe depends on apple" (356b–c). CD also painstakingly wrote notes concerning the symbiotic relationships between insects and pollen.

In the competition for resources, death and destruction do not only visit themselves upon the old; indeed, the fate of the variably vigorous young ('y') (including eggs 'fge', seeds 'fgs', etc.) is in an evolutionary sense more significant, because dead young do not mature to reproduce, and thus their variations cease to be inherited. "<Young monkeys and humans> Cutting teeth die from fever accompanying" (700a–b). Killing ('ook'), predation ('oopr'), and food ('fd') are also of the greatest significance: "Several Pigeons killed by Hawks are white or yellow vars" (430a). External agencies other than disease ('pat', for pathology) complete the picture – the direct action of conditions ('cc'), interwoven with the indirect action of conditions on food ('fd'): "Many wild Pigs die in Hard winters & in very dry summers" (39b, 40f) – some from harsh weather as such, but most from hunger.

These agencies act most tellingly on variations between closely allied individuals and/or species ('spc'), because these are the most near competitors for the same resources: "closely allied species exterminate each other" (629c).

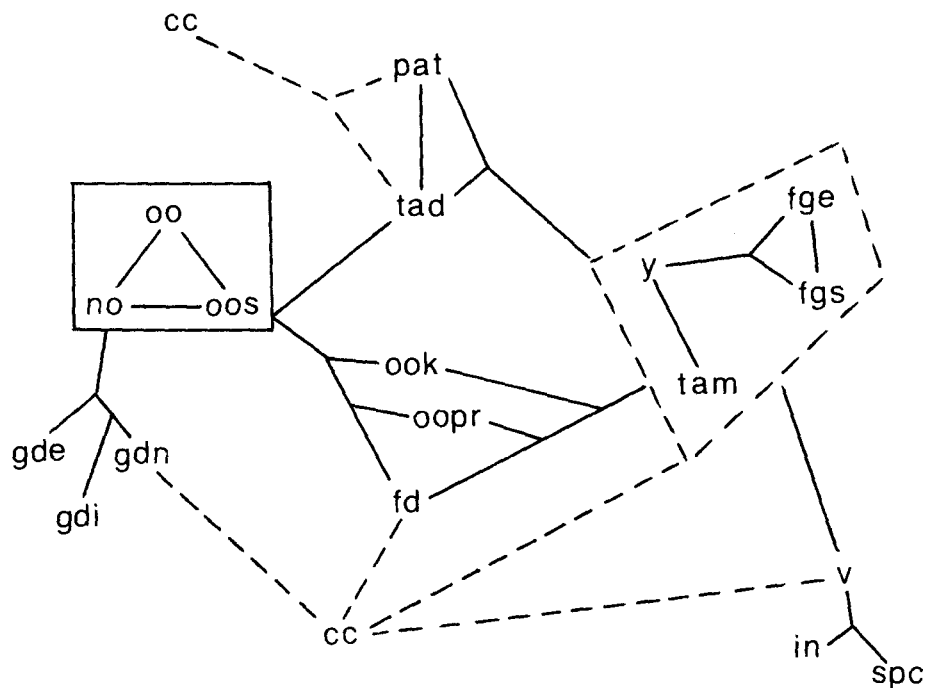


diagram 3

"selection wd act on a trifle" (448c)

The 'mere trifle' of the margins became the 'trifling characters' of chapter 4 of the *Origin*, which are on the contrary of the highest significance, as CD was fully aware in his comment, and in his collection of many details concerning variation in the colour, size and reproductive power of animals and plants ('tmp'). 'Natural selection' ('sl'), the heart of Darwin's vision, invites comparison with the effects and contexts of human selective intervention ('br', 'ooh'), and thus refers us back to the comparison of wild and domesticated productions: "such selection cd never apply to wild animals, as every parent must be adapted to same conditions" (509e-f).

One especially notable set of variations in not-so-trifling physical characters comprises sex differences ('sxd') and secondary sexual characters ('sxch'), leading to the topic of sexual selection ('ss'), and thence to the topics of breeding ('behb') and other social/sexual behaviour ('behs'). "Huia with Beaks different in 2 sexes & aid each other SS" (99b); "Sexual S. use of barb of fishes as exciting organs." "It is clear that characters sometimes go with sex – as sometimes polydactylism &c – Pouting & Wattle, & so if useful to one sex can be selected & returned <does he mean 'retained'?'>" (520c-d). This last point, with its passing mention of deformity, reminds us that some naturally occurring sexual characters, developed in the struggle between members of one sex for the attention or possession of members of the other, invite comparison with artificially produced 'monsters' ('mn'): "a breed of <silkworms of> which females had much finer & not so monstrous wings as in the South" (690g-h).

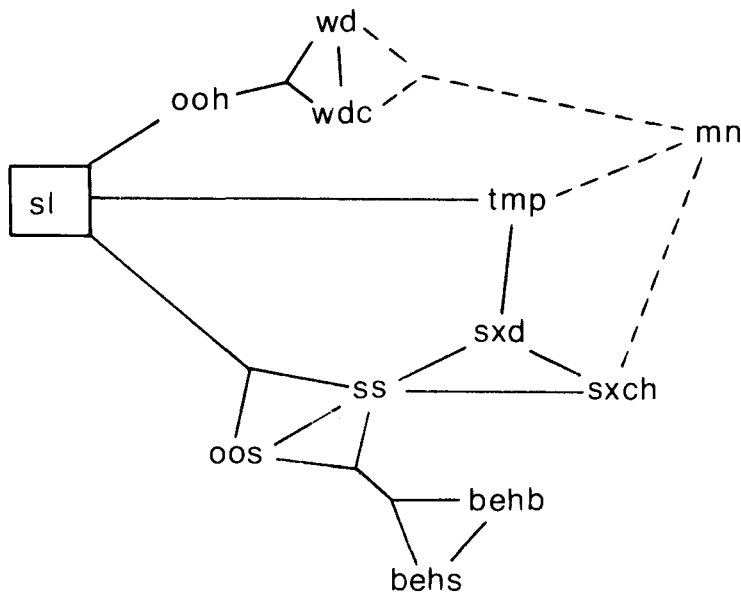


diagram 4

"I fancy not in time" (237f)

Au contraire, time is of the essence. Selective pressures act on an organism all its life – invoking our category of 'organic time and age' ('ta'): "Curious case of quick deterioration by neglect in Glamorgan Cattle showing some selection always going on" (885f). However as an evolutionary process, selection acts slowly over historical and geological time ('ti') – "Slow geological change important because domestication shows slowness" (88f-g) – struggle leading in the case of the less well adapted parts of populations to rarity and

extinction ('ex'), especially again amongst closely-allied forms. "Perhaps a decrease or unfavourable conditions might destroy the intermediate vars . . ." (483c). Selection thus leads to divergence ('dv'); distinctions between populations, sharpened by extinction of intermediates ('ig') as against increase of those organisms in favourable stations ('gds'), permit us to speak of varieties, races, species, etc. This is the meaning of 'adaptation' ('ad') and 'descent with modification' ('ds', 'ts'). "So Porcupine & Echidna Orchis & Asclepias Explanation same, in some degree similar constitution acted on same causes, but in latter case selection comes into play very importantly – Both, however, derived from modified pair" (516g-h).

The existence of 'stations' is independently demonstrated by the observation that broadly speaking a particular spot can support a greater amount of life ('noa') the higher the number of species ('nos') involved. "Much life causes much decay makes strata &c &c & many stations. for different times of year will have species all times of year. good. . . There wd not be many species without stations; yes, how many species can be introduced . . . Creations not easy work thus also shown.–" (110d-f).

It is worthwhile pointing out that CD uses 'creations' here to mean 'natural formations' and does not mean to implicate the Almighty. But equally it is worth pointing out that the facts about naturalised introductions often outstripping endemic and indigenous forms ('gde') (because they are able to colonise untenanted stations) is an important argument against those Creationists ('cr') who maintain that God necessarily made each form perfectly fitted for its circumstances, "because there were localities fitted for simplest animals as well as the most complex. therefore some remained simple, if not created. The incidental good that one race performs to others proves adaptation in Universe." (533g).

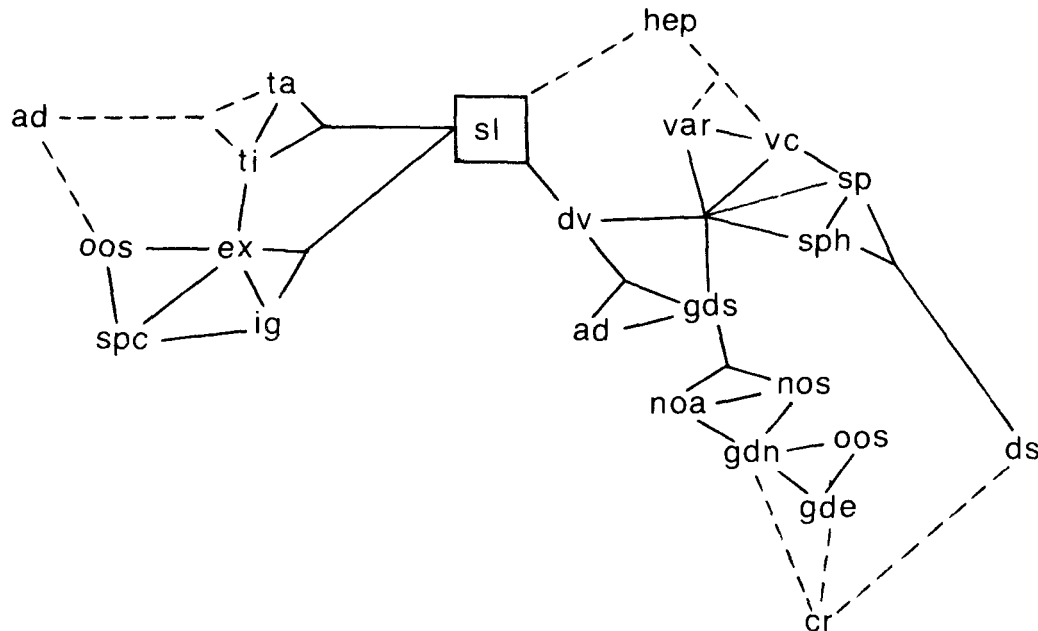


diagram 5

"It is important to observe no selection cd aid Horse in Falkland . . ."

Circumstances favouring selection include high numbers of individuals or species in any sizeable area ('gr') (because of competition); or isolation ('is') (because any variation in isolation is subject to changes specific to the location) ". . . or Horses in Paraguay except

strength of constitution & breeding at diff time of year; but that cd be effected only if a little earlier or later was more favourable" (244f-g). "In this case <isolation> we have fewness of number, sudden change (in organism & external conditions), but on other hand not many to select from.— especially changing island.—" (88g).

Crossing also aids selection: it tends to add 'vigour' and fertility ('phyfl', for plant physiology, and 'f'), whilst inbreeding ('bri') tends to reduce it: "The converse of the law ill effects of breeding in & in holds in Plants.— namely crosses being more fertile —" (836c-d). The subject of crossing takes us also to those of reproduction and transmission ('het'): "one might fancy that in Ass crossed with Horse there is a greater potency of race, & that this potency is transmitted more by male in this case than in others. Niata cow transmits with more force than Bull – Pouter cock & Hen equally" (515d-e); also to the existence of sexes ('sx'), the symbiotic relationships between the habits of plants and animals, and so forth, which together account for a very sizeable number of annotations. "Nectar is sought eagerly by various insects . . . The real object . . . is to ensure occasional cross . . . Think of number of Insects which feed chief on Nectar!" (472e-h, part of an extended comment of considerable range and detail).

"It may be that lower plants have survived owing to having this advantage of separated sexes." (378h) – sex thus being a topic of capital importance in CD's work. It was related by him to variation in his pre-selection theory of evolution (see Kohn 1980).⁷ It then remains connected with his lifelong preoccupation with generation (see Hodge in Kohn 1985), and continually surfaces in his mature reflections.

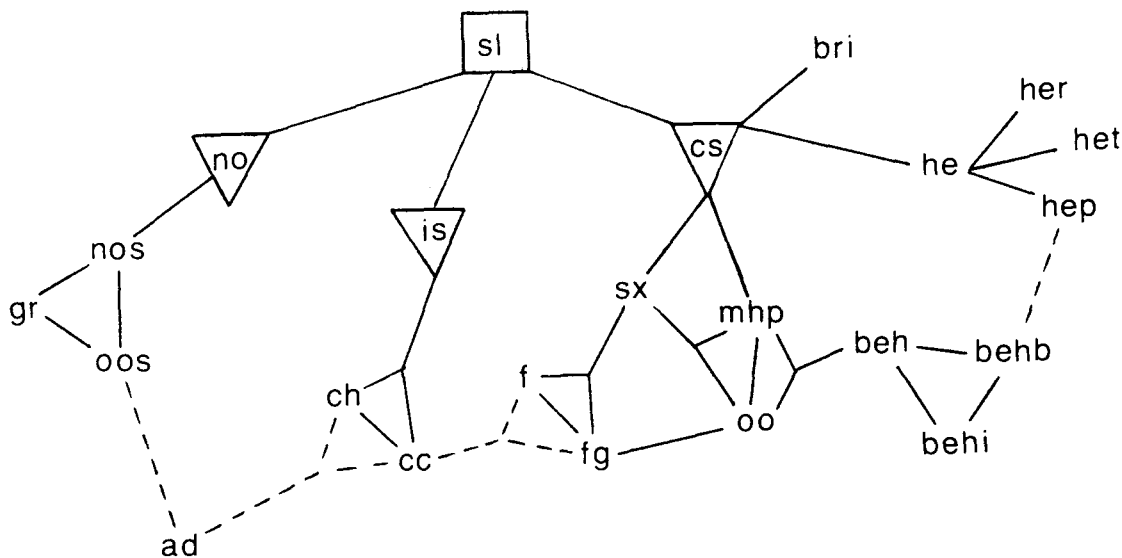


diagram 6

Annotations on crossing and its related concepts are frequently interwoven with those on hybrids ('hy') and the complex subject of relative fertility and sterility, distinguishing the possible mismatch between fully competent organs and instincts in an attempted cross from the possible inheritance by a hybrid of incompetent organs or instincts, or impaired vigour. "In Hybrids crossed with either parent, & thus assuming fertility & the ancestral form, yet fertility variable in such individuals . . . My point that plants often sterile & yet

not unhealthy not touched on.-" (275g-h) "Q for instinct Migratory & Home Thrushes can be distinguished – probably do not cross" (45d); "Certain that Hybrid Canaries & Goldfinches & Siskins will breed inter se [but first young are weak]" (45c).

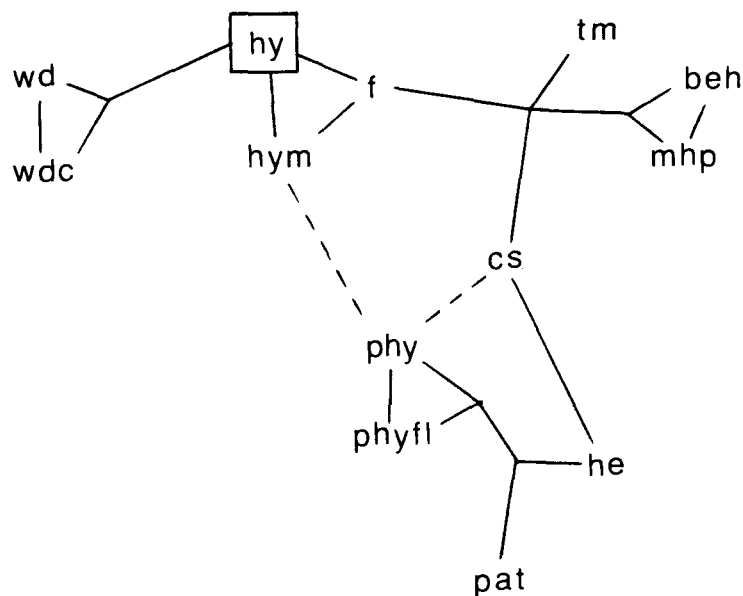


diagram 7

"Much intermediate variability" (632d)

Many annotations concern intermediate forms and gradations ('ig'). Again, as with variation, we are talking of gradations in behaviour as well as in structures – often interwoven: "on the exactly intermediate manner in which apes walk on Hands – good it might have been asked how cd there have been transition between hand & foot?" (97h).

The theory of gradual speciation by descent with modifications subject to selective pressure should in principle be able to show change ('ch') and transition over geological time, and grades of affinity ('af') between 'types' of organisms ('tma'). Embarrassingly, it is often unable to do so. This refers us back to extinction, and the fact that the record left by geological time is not perfect ('ir' for imperfection of record), so that the fossil remains ('fo') will never be able to reveal the whole story: "It is evident thus very few exceptions at whatever stage a genus or Family commences it is continued till it becomes extinct. This being capable of in fact strongest fact I turn against Imperfection of Record. Perhaps only shows no enormously long blank intervals" (673g-h). "How isolated would the elephant be without fossils . . . Mastodon older than Elephas & intermediate in structure of teeth" (649h-650e).

An important subtheme here is the 'succession of types' and their distribution ('gd'): "the succession of the genera . . . would be like showing connection in Geographical Range. so in space & time.- [I did not think of this, till beginning Gasteropods: easy to see to it in other orders] In Fish the law had better be tested by Families" (669g-670b). Another important subtheme in the study of the record is the relationship between shells ('sh'), deposition during subsidence ('se') (partly explaining the imperfection of the record) and thence to to the importance of geology generally ('geo'). It was probably geology that during the *Beagle* voyage had alerted CD to questions of distribution, through which he was able to connect geology with his early training in zoology (see

Sloan in Kohn 1985).¹ His own experience here was vital background to his reading of L. von Buch and the works of J.D. Hooker.

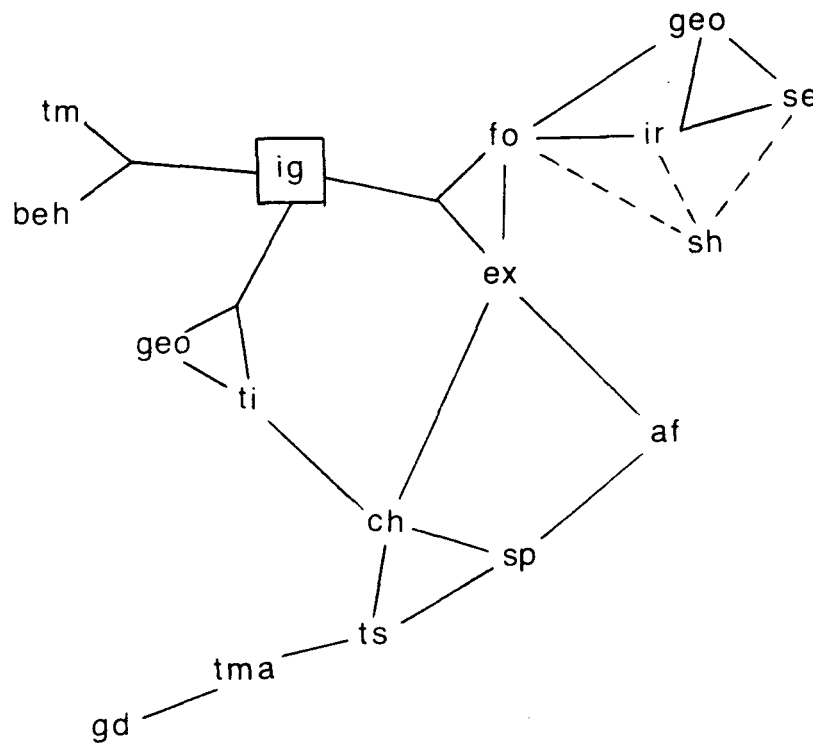


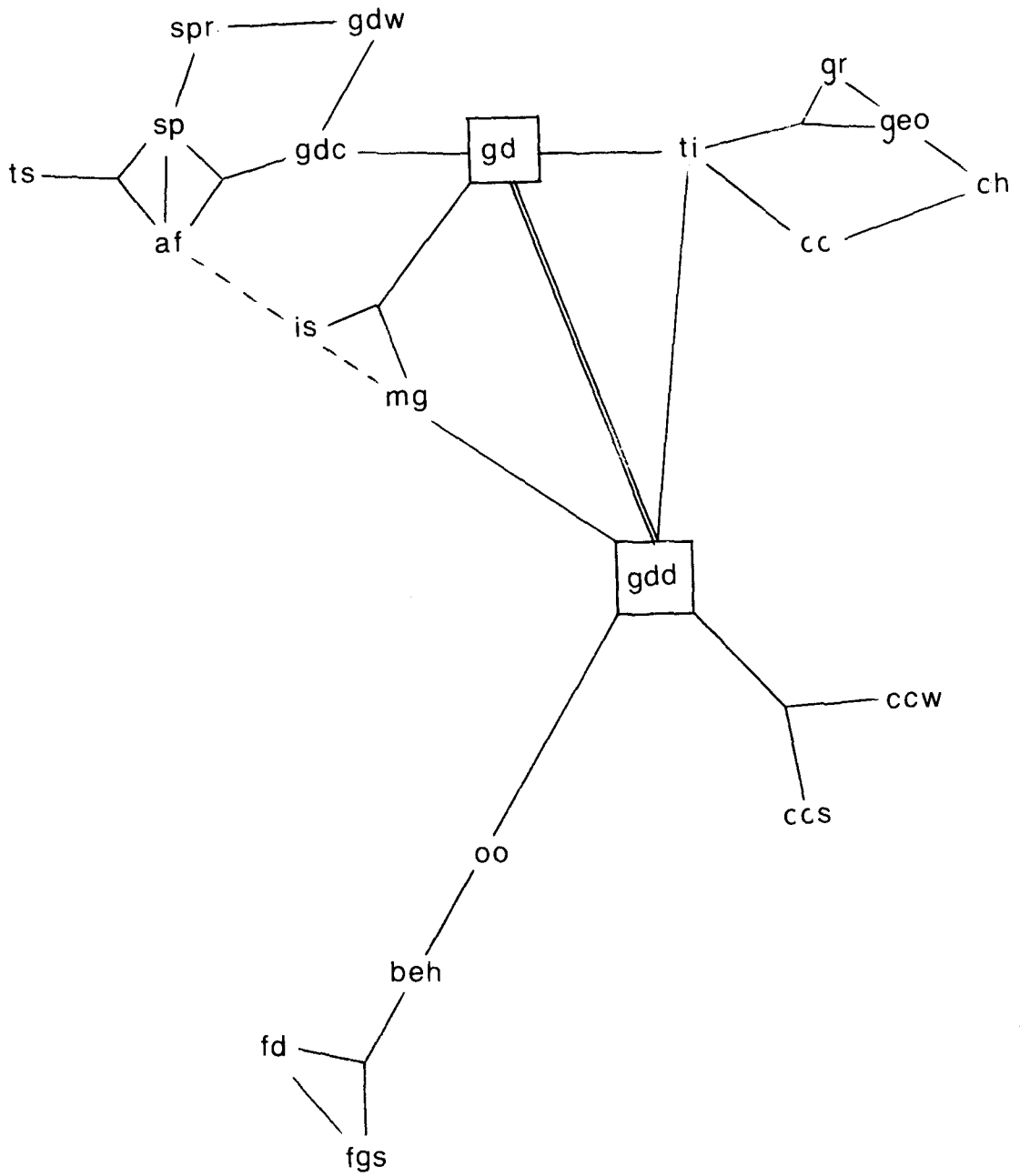
diagram 8

"This is case of animal being smaller northwards" (307d)

The topic of geographical distribution, both as a fact ('gd') and as a process ('gdd'), accounts for a large and very important set of annotations. The distribution of the representatives of common or widely-ranging forms ('spr', 'gdc', 'gdw') displays networks of affinities and reveals the results of geologically ancient community and subsequent transmutation. "Though we cannot explain same species common to Australia & Fuegoe yet the generic connection is in harmony" (391h); "It has always been my greatest fear that there has been so much modification since Glacial that it would upset view.— Some few genera may formerly have been mundane & Tropical & not now so.—" (398b-c). Distribution therefore refers us again to geological time and changes in conditions ('cc') and geographical features — a striking example is afforded in the comparison of glacial-period distribution and that of present-day mountain-tops.

By way of the subtheme of migration ('mg') and its near-opposite isolation ('is'), we are led to consider annotations on the manifold means of dispersion of forms ('gdd'): direct or indirect pressure from conditions; the action of wind and weather ('ccw') on seeds; the movement of animals and their capacity to carry seeds; sea-currents, icebergs ('ccs'), etc.

diagram 9



"Unknown cause prevents man cut in twain from reproducing . . ." (659h)

Halve a worm, and two may leave the scene of the accident; halve a higher animal, and the result is more likely to be two remnants of a very dead original – what does this imply about the principles governing growth and repair? It used to be said that Darwin did not know enough about physiology ('phy') and morphology ('tms') and was therefore left out of the mainstream of nineteenth-century biology (see E.S. Russell in his otherwise fundamental *Form and function*⁸). However, the marginalia do not bear this out. He seems to have been especially interested in many aspects of plant physiology ('phyfl'), since they bear on problems related to adaptation: "Movements become so firmly associated with certain external influences such as light & gravity that the latter suffices to cause the same process of growth or movement" (242e). A considerable number of annotations on physiology concern Helmholtz's consideration of the imperfection of the eye, directly relevant to CD's view of adaptations as non-perfect. Furthermore, there are a great number of annotations in Johannes Müller's *Elements of physiology*: "Plants going to sleep without the stimulus of darkness strongly analogous to a voluntary action from a diffused nervous system" (615a); "in playing a tune are the fingers connected with brain? or cerebellum" (615f-g).

Physiology leads back to heredity through the hypothesis of pangenes and the gemmules ('pan'), whose existence CD postulated. This ill-fated hypothesis developed from CD's interest in the 'gemmules', stimulated in studying *Flustra* under the guidance of Robert Grant at Edinburgh (see Sloan and Hodge in Kohn 1985).¹ He retained this interest throughout his life; it surfaced particularly in *Variation*, and relates in the marginalia to pathology: "on same part attracting same substances, as in Tumours (Pangenes)" (613h-a); embryology and growth ('em'): "Pangenes on embryonic limb grafted & developing itself" (225f); cell theory ('ct') and physiology generally: "many gemmules may pass into cells – it certainly appeared in intestines & liver that fat passes into & out of cells" (822h); and monstrosity: "Double monsters Pang" (614a).

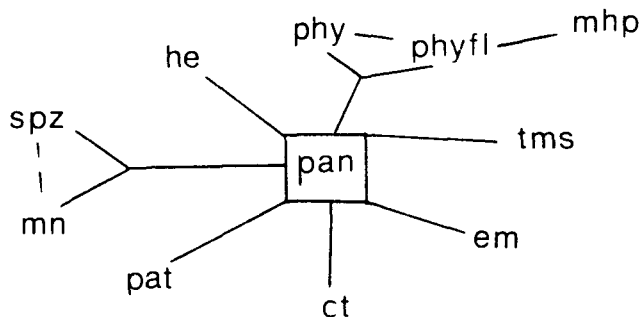


diagram 10

"intimate parallelism between the embryonic, zoological & teratological series" (313b)

Embryological resemblance reveals community of descent. Rudiments ('rd') do so also, by implying one-time use falling into disuse ('ud') through adaptive pressures. "Objects there might <be> 100,000 creations as well as one: I agree <but> then these would not have borne signs of common descent in homologies & embryology & rudimentary

organs." (181g–h). Morphological resemblances and homologies ('hom') demonstrate the affinities of organisms within their 'types': "Tissues of all Vertebrates homologous" (623d).

The concept of descent with modification therefore provides the ground-rules for that holy grail the 'Natural System' – although CD is too cautious to suppose that he could put much flesh on that particular skeleton: "I will not specify any genealogies – much too little known at present" (164a). Although in the *Origin* Darwin avoided arguing directly against what Russell called 'transcendental morphology' (1916, pp. 103–12), the marginalia throw light on his rejection of Richard Owen's Platonic concept of the 'archetype': "I look at Owen's Archetypus as more than ideal, as a real representation as far as the most consummate skill & loftiest generalizations can represent the present forms of Vertebrata.– I follow him that there is a created archetype, *the parent of its class*" (655c; italics ours). This annotation focuses Darwin's philosophical emancipation from the Platonic *eidōs*:

According to [this] there are a number of fixed, unchangeable 'ideas' underlying the concept of variability, with the *eidōs* (idea) being the only thing that is fixed and real, while the observed variability has no more reality than the shadows of an object on a cave wall . . . any commitment to an unchanging *eidōs* precludes belief in descent with modifications. (Mayr, 1964, p. xix).⁹

For Darwin, the 'type' is simply the ancestor of evolving, living forms, and the emphasis is on variety, i.e. the diversity of life, rather than its unity as with Owen.

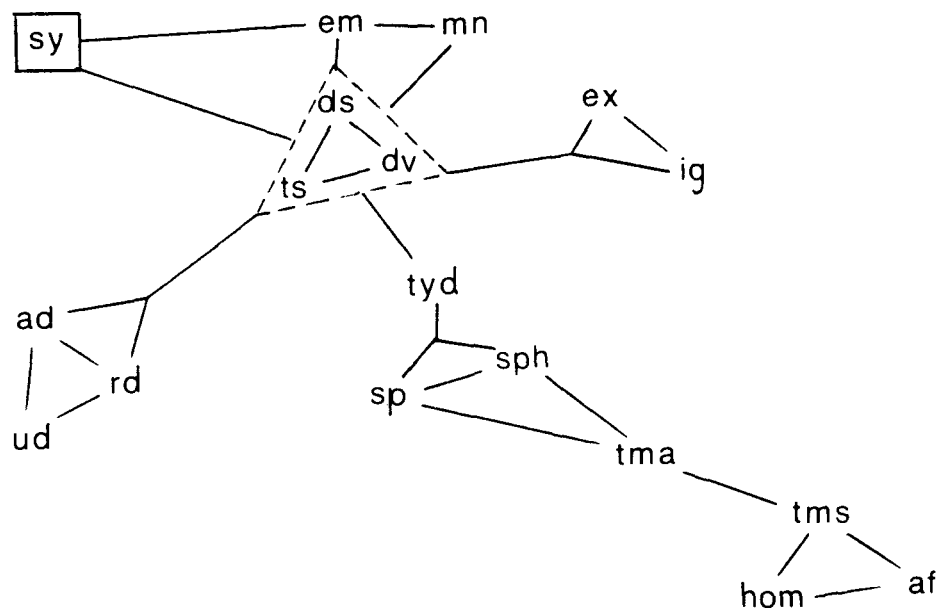


diagram 11

"How like my Book all this will be" (683e)

we catch Darwin musing quietly. The categories and subcategories of the index were, as we said before, inducted from our attempts to classify the annotations themselves. In our overview here of the principal categories and some of their logical interconnections, we have succeeded, as Darwinists and other conversants will have discerned, in recapitulating the ground-plan of the *Origin* (with some input from *Variation*) – i.e. in effect the ground-plan of the Big Species Book 'Natural Selection'.¹⁰ Our categories are, it

would therefore seem, CD's own to a very large extent. "This book is one long argument", CD says (*Origin*, p. 492): our argument was that CD's whole career is one long argument – and it is therefore useful corroboration that there are very few of our categories still left out in the cold, indicating that CD's reading, whether for 'Natural Selection' or not, did indeed continuously revolve around the same 'Leitmotive'. This, as CD himself might have remarked, is our

"Key-note of Book" (424c)

One senses further confirmation of this in a slightly curious way from those annotations in which CD collects material for particular chapters or volumes of his own publications: they all look exactly the same. He says, as it might be, 'use in ch. 5' – but ch. 5 of what? These notes, in not differentiating one book from another, suggest that the manner in which CD *wrote* coheres very closely with the manner in which he *read* – like a practised vintner sampling continually and laying down the selected vintages to support main courses concocted maybe years later. It is as if he experienced his publications as interim extracts from a single, endless conversation with nature.

Those of our index categories not much mentioned in the above overview in fact fall happily into just three groupings: a) reflecting CD's interest in geology and related topics; b) reflecting the reading which surfaced in *Descent and Expression*; and c) reflecting our own attempt to report CD's critical, reflective and other 'asides'. Our last diagram thus completes the analysis:

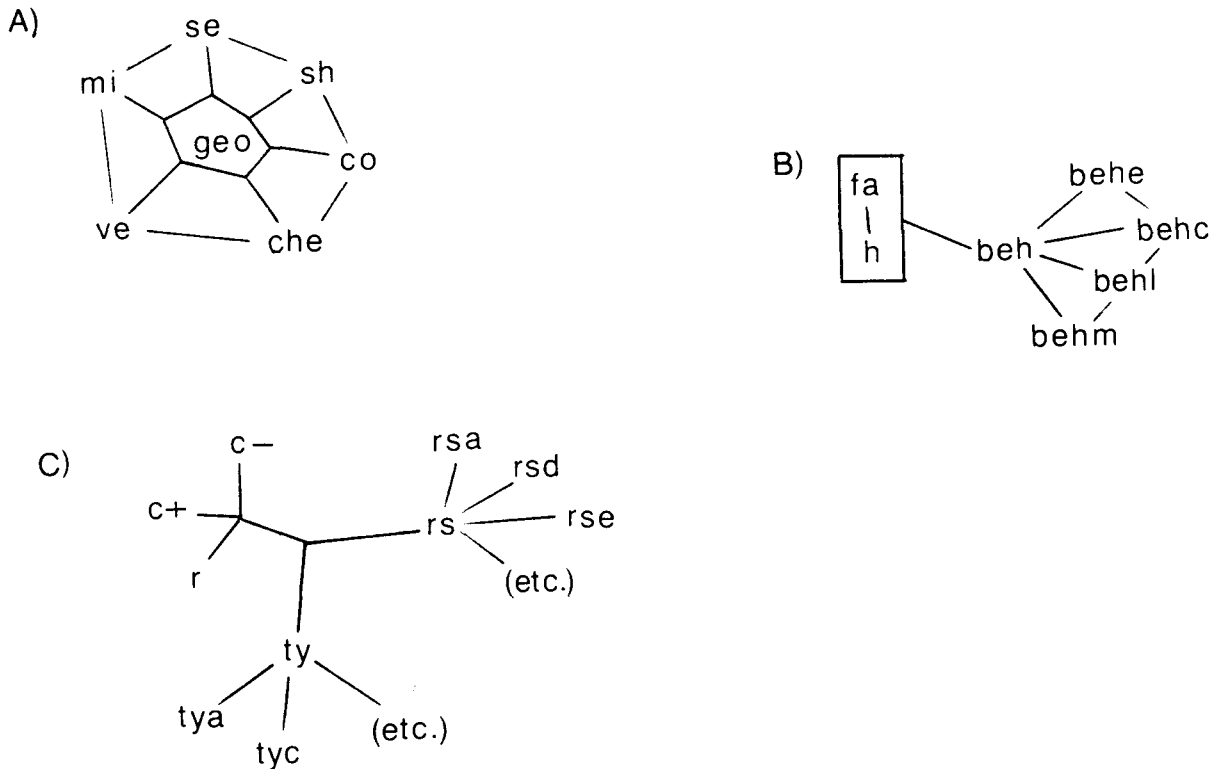


diagram 12 a.b.c

Mention just now of *Descent* and *Expression* provides a cue for us to add a few necessary words about the marginalia concerning humankind. Although there are many annotations around this topic, it cannot be said that CD was primarily interested in ethnology or anthropology as such. Their relevance is very frequently to other matters, principally variation and sex (indeed the greater part of *Descent* is about sexual selection). Humankind is just another test-case for the great Theory: "I am beginning to conclude that it is more difficult to account for small variations of man where there is no adaptation than great differences, where adaptation. Consider cases of Rabbits, mere law of growth . . . Nothing is more odd than similarity of Fuegians and Brazilians. Why puma shd range continent invaried and Monkeys differ in every province . . . I may contrast Man with Monkeys, for on my theory, the Monkeys have varied" (604a-c). Another example is provided by Mackintosh's *Ethical philosophy*; here CD relates conscience to habit, both in man and animals. The moral sense is seen from the viewpoint of what we would call 'animal behaviour' – for example the love of parents for their children is related to adaptation and selection. Such an attitude might be of considerable interest to sociobiologists.

It is instructive to see how CD used the great interplay of themes even in his so-called minor books. In *Contrivances* (1862) CD started with a specific problem, that of pollination. Consideration of this quickly leads to adaptation, and the vast theme of the relationship of organism to organism (insects and orchids). In the background lurk individual variation and the action of selection, within the framework of evolutionary transmutation, the major theoretical problem in play.

The case of worms is even more interesting: one might marvel that someone whose thought had encompassed the most broad-ranging and revolutionary theory in the history of his science should end on such an apparent low – *Vegetable mould* (1881). But even here the 'Leitmotive' are fully functioning. CD began observing the action of worms in 1827, 54 years prior to his publication, and continued working on them throughout his life (see Gould's revealing foreword to the 1985 Chicago reprint). The book is based on the relationship of organism to organism (worms and leaves), and touches on individual variation in behaviour. Last but not least, the action of the worm totally alters the face of the earth through small continuous changes (gradualism): we see the result of the process but scarcely the process itself taking place (geological history), on analogy with an annotation made many years earlier: "The glacier is a stream, though one does not see the streaming" (630d).

(iv) influence of particular authors¹¹

a) CD as part of the British tradition

Darwin's theory was an ecological one. The views of both Wallace and Darwin sprang from the established natural science tradition, rather than the relatively new laboratory biology. The still-flourishing tradition had its roots in the works of Ray and Willughby and reached its height immediately before and during Darwin's youth – such authors as Kirby, Spence, Fleming, Strickland, Henslow, Blyth, Bicheno, Westwood, Jenyns and Roscoe were familiar to and influential upon the young Darwin. Darwin's approach focuses on instincts (like Fleming and Blyth) and the relationship of organism to organism (like Fleming, Westwood and Strickland), and therefore tends to be an

ecological theory in the manner of Strickland.¹² In Ray's *Wisdom of God* Darwin discerned the ecological approach he made his own in the *Origin*; in Ray we find annotations concerning behaviour, adaptation, sex, morphology and the relationship of organism to organism.

The relationship between instinct and acquisition by habit is the main topic to be found in Kirby and Spence's *Entomology*; here Darwin focused on the problem of neuter insects which surfaces in the *Origin*: "one may suppose that originally many queens were ordinarily thus reared and a few workers and the instinct is thus retained" (454g-h). Much is to be found on reason in animals as related to instinct, along with annotations on the struggle for existence, selection, speciation, and distribution.

Fleming's *Philosophy of zoology* also prompted CD to analyse instinct: "it is strange according to my theory that habit which results often of intellectual processes . . . is related to instinct, which analogy of plants leads one to believe to exist, independently of intellect" (232b-c); and "The individual who by long intellectual study acquires a habit, & can perform action almost instinctively, does, that in his life time, which successive generations do in acquiring true instinct:- instinct is a habit of generations,- each step in each generation, being intellectual" (231h-232a) - where CD seems to leave a loophole for backdoor Lamarckism.

Our emphasis on the influence of British natural science requires a mention of Darwin's reaction to Natural Theology, and especially its central tenet of perfect adaptation. CD read and annotated Brougham's *Dissertation on natural theology*; but here the annotations mainly concern animal behaviour and pigeon-breeding. It is in Henslow's *Botany* that he distances himself definitively from 'perfect adaptation': "People constantly speak about every organism being perfectly adapted to circumstances, if so how can there be a rare species breeding power being efficient (food not sufficiently abundant is answer" (369d).

It is clear from the quality of annotation that Lyell was of paramount importance to Darwin's development; in fact Lyell is the most heavily annotated author. Other British authors who had a significant impact on Darwin include Blyth, Yarrell, Blackwall, Newman, Newport, Jenyns, Westwood and of course Henslow; and he had a lot of time for books on pigeon-breeding, whether British or continental.

b) CD and continental traditions

By observing the manner of annotation, we may deduce that CD was confident with French, less so but still conversant with German, and occasionally read some Italian and Spanish.

Only a few annotations are found in Cuvier's *Anatomie comparée*, and all of them concern morphology. There are a few more in *Le Règne animal*, concerning behaviour, sex, speciation, morphology and variation. Darwin also possessed *The theory of the earth* in English. Mentions of Cuvier are often marked in other people's books; but to judge by the degree and quality of annotation Isidore Geoffroy St Hilaire was much more important to him than Cuvier, though it seems something of a 'love-hate' relationship: "Believed in change of species . . . 'Modificateurs ambiants' sur l'organisme'. Yes this is his belief . . . Introduce in Preface" (301h-302a); however: "Remarks on small isld having small mammals . . . forgets Java & Sumatra! I contradict his statements flat" (302d).

CD annotated Milne-Edwards' *Histoire des crustacées*, accusing him in effect of creationism: "How explains this, except by single creations" (581e). On the same page there is an important annotation concerning isolation: "Without regard to anything else - make a Barrier and you will have different species on opposite sides" (581f). Other Milne-

Edwards marginalia, mainly on issues connected with classification, are found in *Introduction à la zoologie générale*: "Law of 'economy of nature' 'sober in innovations' has not recourse to any new creation of organ" (582a–b); "on value of characters in classification" (582g); and "Best way of putting superiority.— though each perfectly (?) (Can young be said to be perfectly?) adapted to conditions" (583a).

As far as Lamarck is concerned, his *Histoire naturelle des animaux sans vertèbres* bears very few annotations. More are found in the *Philosophie zoologique*. Darwin's relationship with Lamarck is very complex, and one should not take the disparaging remarks we partly quoted before as Darwin's only view – ". . . so few facts . . . very poor and useless book" (477a/478a). Basically Darwin charged Lamarck with failure to understand extinction and geographical distribution: "Therefore every fossil species direct father of existing analogies and no extinction except through man!– [Hence cause of innumerable errors in Lamarck]" (478g–h); "Does not pursue this into Geographical Distribution" (480c); but echoes our remark above: "The case of acquired hereditary instincts shows that instincts can be acquired" (478d).

Other important French-language authors are C.L. Bonaparte, especially on the connection between distribution and the struggle for existence; and F. Huber on insect instinct in *Nouvelles observations sur les abeilles*.

The annotations in German-language books are in the main much closer to translation/paraphrase. Gärtner, Kölreuter, Ehrenberg, Haeckel and others are well represented in his library. Gärtner's *Kenntnis der Befruchtung* is very heavily annotated on variation, fertility, hybrids, and the relation of organism to organism, very often interrelated. Many annotations concern contabescence and refer to Kölreuter: "most important compare Kölreuter experiments and Gaertner's" (253b). Some markings concern dichogamy as seen by Sprengel and Delpino.

Darwin read and annotated Haeckel's *Schöpfungsgeschichte*, liking its stance enough to mark out passages "good – for the beginning of my Book" (358d); interestingly, there is no annotational evidence that CD thought Haeckel had gone over the top with his 'phylogenies' – rather CD appears keen to play the same game, despite his public caution about 'specifying genealogies': "I shd prefer supposing that both classes descended from forms more intermediate than Dinosaurs & Solenhofen Birds" (359d–e). Incidentally, Haeckel kept sending copies of his publications to CD, who did not pay many of them much attention. Very often in their inscriptions to Darwin in their books German scientists, including Haeckel himself, wrote 'Sir' or 'Professor', not being able to believe that someone as distinguished as Darwin would not be one or the other – or both.

It is interesting too that there is no annotational evidence that Darwin read von Baer's *Entwicklungsgeschichte*, which is not even in his list of 'Books to read' (see Vorzimmer¹³). But he certainly read Huxley's translation of the fundamental fifth *Scholium*. Other German-language authors of some importance to CD include Nägeli, Nathusius and Rüttimeyer.

The marginalia suggest that two authors who had an enormous impact on CD were Alphonse de Candolle and Alexander Humboldt.

"I must read some Book on geograph distrib of insects or of one great class" (683e–f), CD instructed himself reading Prichard; it seems that that book turned out to be Candolle's *Géographie botanique*, probably the most densely annotated work in the whole library, which seems to have been the catalyst for much thinking around distribution, the struggle for existence, isolation, and consequently selection. The annotations in Candolle are difficult, and this is because Candolle is perhaps the only major work in whose

company CD is for a while noticeably confused and uncertain at a (quasi)-theoretical level; "A species might abound in some spot and yet be rare over all England, but is this so?" (109g); "Here isolation clearly comes into play; but this does not account for smaller range of plants within Cape District." (118g-h); "As far as I can see (which is very little) isolation of area seems to have little to do with confinement of species!! In this family" (118h); "I never shd look at it under this light; yet perhaps agree with Herbert's views. When there only few species, we must suppose either others extinct, or then few only are yet introduced" (119f); "This bears on few species inhabiting 2 areas, where there are many species – does it not come to this, that widely extended species break into varieties and these become species with confined ranges.– anyhow this shows how complicated a question it is" (120b).

By volume 2 he is beginning to recover his usual slightly declamatory poise: "England formerly connected, hence most plants which could live in England wd have immigrated. If any species had been introduced by Birds within the last century, & was not mentioned by old Books,¹⁴ it wd have been thought to have been overlooked.–" (134h-135a); "The more I reflect the more I come to conclusion that antiquity of man one of the most important elements in history of variation.–" (139b).

Finally CD succeeds in 'trumping' Candolle by reference to his own higher-theoretical insights: "He always leaves out struggle with other species.–" (142d); "He looks at extinction as due all to Deluges &c!!" (143h). Candolle has approached the 'right' problems, but lacks the focal concept in the understanding of speciation: without the idea of selection it is impossible to make sense of variation, extinction, isolation, distribution and the struggle for existence as forming a single complex nexus. Thus, as we quoted before: "(always this) he has not the Key.–" (145b).

Humboldt, especially in the *Personal narrative*, got CD thinking about distribution and the relation of organism to organism in the context of isolation, extinction and the breeding of wild and domesticated animals: "Camels abundant in Fortaventura and vegetation different from . . . other Islands – NB Numerous wild asses formerly in Fortaventura" (416f). If Humboldt's almost ecstatic tone excited CD, it seems to have been towards envisioning a raw elementalism incompatible with Humboldt's Panglossian optimism, his falsely a priori harmonious world where adaptations are basically perfect. On the contrary, the raw elementalism is hardly even hidden below the surface: "to show how animals prey on each other – what a 'positive' check . . . Think of death only in Terrestrial Vertebrates . . . Smaller Carnivora – Hawks – what hourly carnage in the magnificent calm picture of Tropical forests . . . Probably two or three hundred thousand Jaguars in S. America What Slaughter! Daily – & as many Pumas" (418f-g).

Thus we end our selection from the marginalia on a rather bloodthirsty note . . .

coda

The basic objective of publishing this 'marginal' material is to contribute to the reconstruction of Charles Darwin's place in his historical and scientific context, and so to facilitate a clear understanding of his importance for modern science. A principal bonus of these volumes will be an enormous increase in the accessibility of CD's primary, unmodulated thinking.

As such the *Marginalia* are expected to be of interest not only to Darwin scholars, but also to historians of ideas, to biologists, psychologists, naturalists and evolutionists alike. The marginalia show Darwin not only 'alone', but also as part of his historical and social milieu, and as a major protagonist at a vital stage in the development of science. In showing us the material Darwin chose to use or discard, and in recording his assessments of other authors, the marginalia reveal more candidly than any other source the nature of the influences upon his thought, and the methods he used in the formulation and application of his theory.

CD himself was well aware of the potential future importance of the annotations he was making in his personal library. For example, he makes certain, in a letter written to his wife Emma, to prescribe that in the event of his death 'some competent person' should receive 'all my Books on Natural History, which are either scored or have references at the end to pages, begging him carefully to look over & consider such passages, as actually bearing or by possibility bearing' on the subject of the sketch of his species theory, which he had just finished (5 July 1844), when the question of its publication in book form should arise.¹⁵

We make no claim to have taken up that challenge as laid down by the Master himself; but it is at least pleasing to feel that he would not have found our exposure of his 'private' scribblings unduly intrusive.

notes

1. Kohn, D. (ed.) *The Darwinian heritage* Princeton 1985
(chapters quoted:
Browne, J., 'Darwin and the expression of the emotions'
Hodge, M.J.S., 'Darwin as a lifelong generation theorist'
Sloan, P.R., 'Darwin's invertebrate program 1826–36: preconditions for transformism').
2. Barrett, P.H., Gautrey, P.J., Herbert, S., Kohn, D., Smith, S., *Charles Darwin's notebooks 1836–1844* (Cambridge 1987); see Notebook D (especially Inside Front Cover) and Notebook E (especially p. 58).
3. Di Gregorio, M.A. Order or process of nature: Huxley's and Darwin's different approaches to natural sciences *Hist. Phil. Life Sci.* 3 (1981): 217–42.
4. Burkhardt, F. and Smith, S. (eds) *The correspondence of Charles Darwin* (Cambridge 1985–).
5. The University Computer has occasionally had ideas of its own – curious rather than disruptive, fortunately – on where to put items in its sorting of the name registers: the ghost in the machine had to leave its mark somewhere, one supposes. The ghost is clearly no fan of Darwinism, to judge by the capricious appearance of the gooseberry among the place names. This is a genuine accident; we only wish we had thought of it ourselves, in its implication that we do after all materialise under bushes of that ilk, rather than by the agencies of evolution.
6. Mayr, E. *The growth of biological thought* Cambridge, Mass. 1982.
7. Kohn, D. Theories to work by: rejected theories, reproduction and Darwin's path to natural selection *Studies in the history of biology* 4 (1980): 67–170.
8. Russell, E.S. *Form and function* London 1916.
9. Mayr, E. 'Introduction' *On the origin of species* (facsimile of first edition) Cambridge, Mass. 1964.
10. Stauffer, R.C. (ed.) *Charles Darwin's Natural Selection* Cambridge 1975.
11. Parts of this introduction, especially this section, are based on a full reworking of Di Gregorio, M.A. Unveiling Darwin's roots *Archives of natural history* 13 (1987): 313–24.
12. Di Gregorio, M.A. Hugh Edwin Strickland (1811–53) on affinities and analogies: or, the case of the missing key *Ideas and production* 7 (1987): 35–50.
13. Vorzimmer, P.J. The Darwin reading notebooks 1838–1860 *J. Hist. Biol.* 10 (1977): 107–53.
14. "old Books": CD had a lively interest in such sources as the Bible, 'classical writers', books on ancient Egypt, and so forth, for information on the antiquity of varieties.
15. Burkhardt, F. and Smith, S. (eds) *The correspondence of Charles Darwin* vol. 3 (Cambridge 1987), pp. 43–5.



PART ONE

CATALOGUE AND TRANSCRIPTION

"Upon the whole nothing can be inferred from this list" (134a)

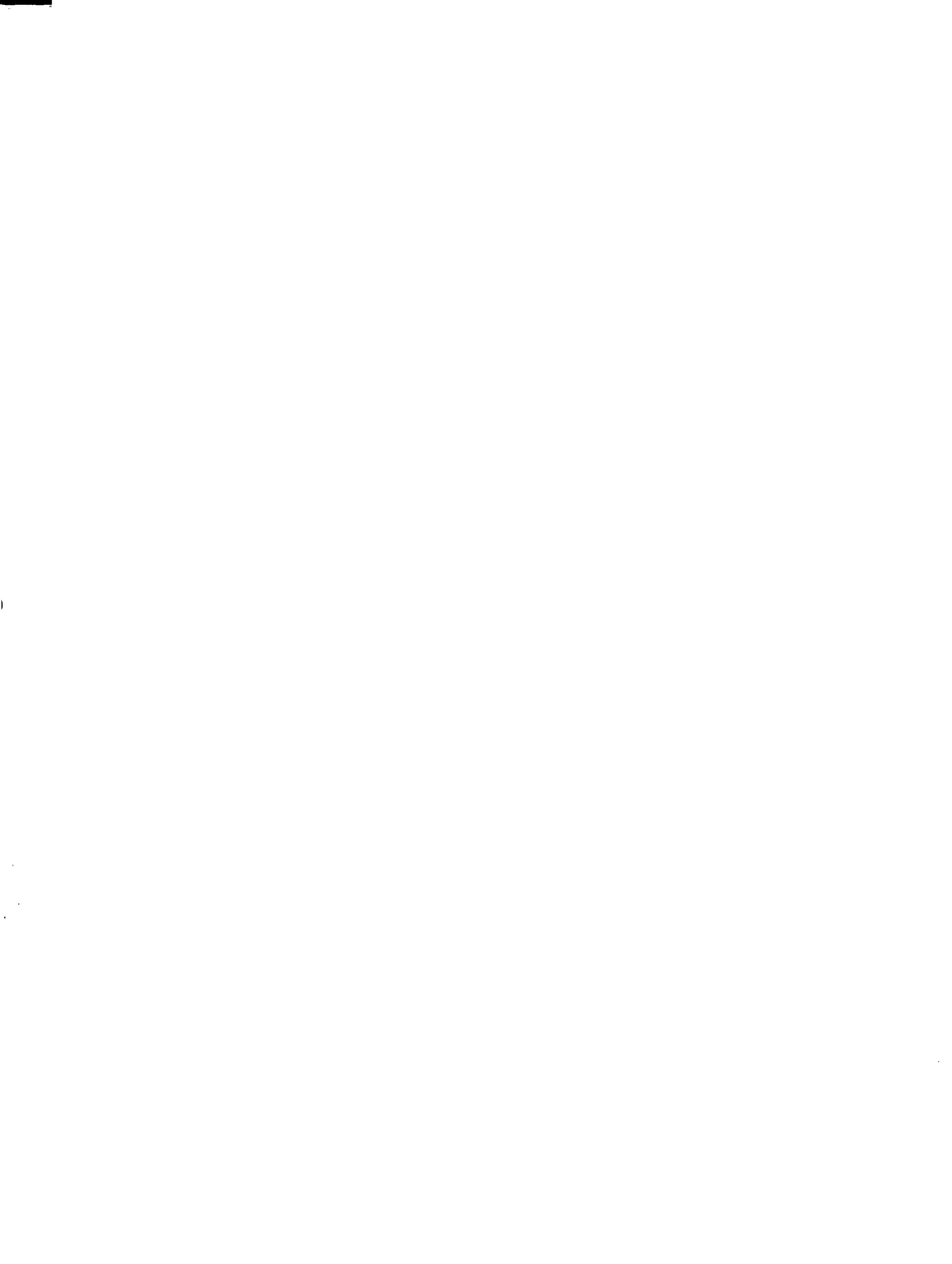


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"You may shorten name" (342a)

Thank you.

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* The annotations in Rolle were reconstructed from Martin and Uschmann *Friedrich Rolle 1827–87, ein Vorkämpfer neuen biologischen Denkens in Deutschland* Leipzig 1969. CD's copy of Rolle seems to have disappeared.

ABERCROMBIE, John *Inquiries concerning the intellectual powers and the investigation of truth* 8th edn; London; John Murray; 1838 [CUL]

beh, che, fg, h, he, pat, phy, sx, t, ta, ts, y

NB1 Origin of shame & blushing, fear & anger mixed??

NB2 It requires much attention to observe in self an habitual action.

Nothing for Species Book

vi 25m, 26m viii 14-16m 2 21-22m/21u "organs | mind"/22u "external | brain" 7 wt/wt ♦ It is clearly common to animals, the dogs ♣ does not doubt, that the smell of a partridge shows partridge there. XX |? 3-6m/w X Is it with animals? Yes. V. p.8 wb XX His master taking a gun, is to the dog a law of nature that he is going out shooting.- he learns this by his own experience.- he learns instinctively, that ♣ |? 8 wt What is cause of difference.- if dogs sees take up hat, it is long before he knows this means to go out of doors.- Association & Causation united somehow. 7-11m/w This applies to animals wb as simple animals must also have causation the conviction of truth may be owing to ♣ simple causes followed by uniform effects, only affecting such beings. 9 4-6m 10 1-4m 12 24-27m 13 4-5m, 8-13w Hope love joy sorrow 8-11m/w sublime terrible pleasure of imagination 14 19-29m/w do not understand wb Is fear active or passive emotion? 22 4-6m/x/u "wills", wb How far can these be simplified? 26 2-5m 27 8-11m/w functions of the nervous system, as gravitation of matter. 17-23m/22x, 19-20m/w 1/2 instincts wb & by these laws, such as of gravity, of crystalline arrangement of particles 28 1-10m/1".../1-10m, wb By Materialism, I mean, merely the intimate connection of kind of thought, with form of brain.- like, kind of attraction with nature of element 29 wt Here organ produces life! - & life & thought intimately related 3-19m, 19-22w ?will my theory apply here? 27w z Generation! 28u "functions", wb Elective Affinity is a thing not analogous to others qualities of bodies, yet is supposed property of ♣ matter, so would I say thought was - from analogy of organs.- 30 1-20m, 21-26m 31 wt/1-9w X From the myriads of animals that have existed We may assume thought as function of matter, & then say, to what function of matter, shall we compare the phenomena of attraction? - This assumption is as justifiable as the other we only know thought, as a phenomenon attendant on

structure, & we only know elective attraction, as function of matter. 18x/w X But why should not matter have such function, as plain facts indicate, as well as they have attraction 32 wt What a poor argument, liver continues to secrete bile, & testes same vivifying semen! 1-3m, 5-10m/!/? 33 wt ♦ a Then animals immortal.- wt xa. As the elective affinity of a salt changes, when its elements unite in composition, so may mind.- 2u "thing mental"/2-4m/w xa 9-29m, 13-29m/22x/wb good 34 1-25m, wb It is sufficient to point out close relation of kind of thought & structure of brain 35 9-13m 39 wt/ 1-11w But some of these impressions may be hereditary.- but they are habitual impressions & therefore ♣ about which there is no consciousness, otherwise, mind could act, without having had perception. & why not? would not simple mind feel lust?- 7-9m/x, 23-29m/25w emotions? 40 8-14m, 15-17m/ 16u, 17-21m 42 wt whether dog first time smells partridge knows there is something there. 3-7m/? 54 18-29m, wb p.59 On other hand by attention perception becomes more perfect, & likewise willing does - 55 1-29m, 28-29m 56 14-17m/1-25w ought this not to be expressed as willing becomes unconscious.- as perception becomes unconscious,- so do impressions, & hence ideas, & actions consequent on these ideas.- wb a person whistles - & tricks are wholly unconscious actions.- great effort of attention to perceive them these acts are only unconscious in the steps 57 wt An action becomes habitual if repeated without at same time, without much attention at first as taking off cover to tea-chest. 66 3-21m, 3-4m, 9-11m 67 zt, 21-23m, wb Is Conscience effect of certain lines of action, useful on the large scale having been done on the less scale 80 3u "marvellous", 4-8m/5u "miraculous" 92 18-20m 93 1-9m, 12-26m 94 1-4m 97 28-29m 98 wt X is not an indistinct idea seldom repeated, because unsatisfactory? 2-3m, 11-12X 99 wt like manner we learnt to repeat at school - I think by same association. 1-16m/8X, 17u "attention"/w repetition? 101 wt Conception of a view or is a perfect instance of association of many impressions 4-11m, 28x/u "reverie", 11-29w X As far as the mind is concerned nearly like sleep. the relations of ideas just past not quite so broken - body different state wb argument for mind working always during sleep wb habit must be associated will.- 104 19u "of emotion"/18-24w Does thinking of vexing thing, bring other

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disagreeable thoughts? 105 18-29m 109 24-28m/x, *wb* Scarcely ever a new thought arises from this process - only old associations 110 11-13m, 19-29m/29w imbecility of age? 111 1-4m, 23-29m/x/wt x I know from experience ♣ memory of many unconnected facts is far most easy to me by such local associations. 114 11-14m/?/14u "are little acquainted"/15-16w what difference? 116 *wt* A dog. when he has had good hunt after any animal in a spot in a hedge recollects it, & always go there with pleasure & eagerness *wb* Horse sweating, when he hears hunting horn in stable. Euphrates if he guessed he was going to race by little water being given him mad with eagerness all night. 117 *wt* Horses wonderful local memory 20-24m 122 2-3m 132 19-24m 134 17-19m 143 *wt* 3 These cases like Miss Cogans, & serve to show that affections of brain will recall facts in ♣ an individual life after long periods.- 1-8m, *wb* 3 These may be adduced as nearly as wonderful a priori as instincts - an habitual action being repeated would be more to my purpose.- 144 14-24m 147 17-29m (Prichard) 148 1-3m 149 1-6m 150 3-8m, 19-29m 151 9-13m/x, 26-29m, *wb* Exactly like my Father's case of Archdeacon Corbet 152 11-15m 154 3-7m, 22-27m/?, *wb* Animals minds are influenced by age, like that of man 155 13-16m/14u "Dr. Beattie", *wb* X What has he written? 156 5-10m, 18-26m 157 11-15m, 19-28m 158 10-13m/[...]/w (1)(a) 14-16m/[...]/w (2) *wb* (a) Does not a bird when it builds its nest, use abstraction respecting place, & softness & elasticity of materials, which are not constant in kind, but only in quality.- 159 1-5m, 10-13m/11w (a) *wb* animals have ideas of colour.- mad horse (?Cline) dread of scarlet. of any kind.- - Smells. do - 161 19-29m 162 *wt* Peacock has idea of beauty?- 3-8m/[...], *wb* Animals sometimes suffer from abstraction. Thus the Casarca which bores through walls, has an abstract idea of vertical surface of hard earth as the requisite, & does not combine, such conditions as imply a cliff of earth 163 *wb*/7-24w When cat pounces & runs after feather, it knows it is not mouse, but does it not use imagination or picture to itself it is.- X → quote Madam Necker. on playing of children- 164 20-22m, *wb* What are the feelings of a dog, when he bays the moon? 165 *wt* When two Male birds are rivalling each other in singing is it not a work of imagination? 167 *wt* Is not imagination, abstraction of several different parts of

several ideas & their unions, instead of as in pure abstraction of same qualities (as colour &c) ♣ several ideas? 23-24m/? 168 27-28m/? 172 1-6m/w common to animals 10-13m 173 1-29m/4-18w very Poor 174 26-28m 175 *wt* If because such combination is observed in an animal, it is called instincts.- there is an end of argument. 1-6m 176 8-14w Yet imagination must be always checked by reason - otherwise dreaming 9-17m, 21u "Reasoning"/22u "reason", 26-27u "Discursive Faculty", *wb* I suspect the Paper in Zoological Journal will be worth study.- 177 3-7m 179 *wt* Perhaps mathematical reasoning does not.- each step there does not require the memory & knowledge of all contingencies,- it is merely to find the step, & then to pursue the deep train.- 4-6m/w requires properly arranged memory XX 181 12-13m 185 12-13m♦, 24-29m 187 17w All Poor 17-23w But yet must be thought over with regard to Transmutation of species theory 191 *wt* Would not simple association of ideas lead to this expectation, which would be believed in till contradicted (which it is not) by experience.- 13-19m/14x, 21-22m/→ [*wb* Surely all this may be resolved into simple fact we trust our memory, until taught to contrary. 199 *wt* A man may wish to jump from a bridge to save another, but absolutely will not let him.- Makes the muscles fall, & heart sink - 4-12m 202 *across whole page.w* See following Pages & Copy all this ↓*w/wt*♦ H believed - pretty world we should be in!- But it could not be believed excepting by intellectual people - if I believed it - it would make no difference in my life. for I feel more virtue more happiness - Believers would ♣ will only marry good women & pay detail attention to education & so put their children in way of being happy. *wt*♦ It is yet right to punish criminals for public good. *wt*♦ All this delusion of free will, would necessarily follow from mere feeling power of action.- *wt*♦ View no more unreasonable, than that there should be sick & therefore unhappy. men *wt*♦ What humility this view teaches ↓*w*♦ A man ♣ hearing bible by chance becomes good. this is effect of accident with this state of desire (neither by themselves sufficient) effect of birth & other accidents: May be congratulated, but deserves no credit *wb*♦ P For wickedness is no more a man's fault than bodily disease!! (animals do persecute the sick as if were their fault). If this doctrine were. H 203 7u "consideration"/*wt* Yes but what determines his consideration?- his own previous

conduct – & what has determined that? & so on – Hereditary character & education – & chance (indepdt of his will) circumstances. 3-8w♦ Changes of character possible from change of organization 11u "desires" "conduct"/w What has given these desires & conduct 13a "agent" but not desired 4-27w♦ When opposed desires are absolutely equal which is possibility. May free-will then decide.– but it must be decided by habit or wish & these all originate as before 15-27w♦ Then why does not act of insanity give shame?? wb According to all this ones disgust at villain ♣ is nothing more than disgust at some one under foul disease, & pity accompanies both. Pity ought to banish disgust.– P→ 204 29"... 205 1-4m/4...", 15-17m/"..." 206 9-12m, 16-20m, wb♦ A man may put himself in the way of above accidents. but desire to do so arises as before; & knowledge that the effect will be good, arises as before. education & mental disposition.– wb♦ One feels how many actions, not determined by will, passion – When the motive power feeble & complicated & opposed we may free will (or chance 209 4-5m/27-28m (Stewart) 210 wt I presume these first truths are something quite distinct from instinctive knowledge. or passion – as fear of death.– sexual desire – pleasure of affection or charity – 1-5m/"..."/w How many of them do animals possess? 212 10-15m 213 9w The following pages – very poor 217 14-17m 218 8-17c/12u "required"/11-14w so much the better! Fee-hunting doctor wb In short that your hypothesis shall be real cause with respect one item at least in group of facts – if it be only possible cause. hypothesis of very poor kind. V. M. le Comte 219 18-20w to 256. wretchedly poor – as far as originality goes 221 3-6m 233 wt Main difficulty of judging probabilities multiplied into probabilities. & the alternatives omitted.– present always, except in mathematical reasoning 1-20m/w again the chance of several independent proofs from probability tending to one end, if not true 241 1-5m 251 8-12m, 10-12m/z/w yes 257 wt X| In insanity, there is belief, though opposed by many of the senses – in dreaming, mainly passive belief from absence of evidence of senses 29m/X, 26-29w drunkenness more ♣ closely allied than dreaming 258 wt no, a vivid thought neither pleasant nor painful but merely vivid cannot be dismissed even by strongest will,– is insanity an unhealthy vividness of thought. 7-8m/u "is|insanity", 9-19w they ought not

to be classed together, ♣ the reality of the thought or absence of doubt in one case being owing to the weakness♦ absence of contending impressions, & in insanity opposed to many present impressions. 17m/ → /wb In Spectral illusions, what is history of kind of impssn 259 wt (a) There is some sophistry here: insane man has perfect consciousness – somnambulism has not.– 2-5m/w a 7-16m, 12-17m, 21-23w 5th Drunkenness Nitrous oxide 260 21-22m, wb It would be worth while to write down every dream 275 wt & double consciousness & likewise many which from repetition have ceased to be objects of conscious memory – namely all habitual movements 8-17m/12x/ 17? 287 16-19m, 23-28m 289 1-8m, 10-19m, wb I have a distinct recollection of solving some geological puzzles in my sleep – what it was I forget, which I am surprised at for I have so clear an indistinct notion. 291 19u "dream"/w ? dream – wb Mem: my father's cases of quick oblivion – 311 wt like the memory after apoplexy in some cases – "Clubs are trumps" ♣ V. ante 1-5m 312 24-29m (A. Comte) 313 18-20m♦ 314 1-4m/2u "pleasure"/?, 8-19w No account is here taken of the consciousness of people, that they are insane 315 5a "is not corrected" can not be corrected in the one case, dreaming, 6a "would." , & in the other case, is so vivid, that external world is almost wholly neglected. 10a "state" partially 10a "will." ; insane people do to certain extent vary, & forget the insane train♦ ideas. 15u "higher states" "mania"/w♦ My father considers the two as wholly different. 27a "some impression has" any impression is 28a "of the mind" by the mind /wb the thinking machinery acting with unequal & praeternatural force 28a "and" accordingly 316 2a "are calculated immediately to" though often rightly perceived (as in D Ashe & in case of man eating porridge) do not immediately 318 14-15m 320 wt Surely as in passion from fatigue, (or fear from sickness) from long habit some object must be fixed on & it scarcely signifies what it is. 2-4m, 26-28m, wb just as passion of the above kind is generally most unreasonable 321 11-14m 330 wt low spirits is to melancholia : : passion to mania – frame of mind in the state & any idea fixed on.– 4-7m/7u "occasional cause", 12a "constitutional peculiarities" diseased state of brain. 349 19-21m 355 26-29m 356 2-12m, 13-26m 357 12-13m 363 1-5m 375 wt if an idea was called up, with this degree of vividness, like a conception – no one would doubt it was a

ABERCROMBIE

concepcion 8-11m/w how completely un-
governed 379 1m/w All trash 431 11-15m 433
2-12m

ABERNETHY, John *Physiological lectures, exhibiting a general view of Mr Hunter's Physiology, and of his researches in comparative anatomy* 2nd edn; London; Longman, Hurst Rees, Orme & Brown; 1822 [CUL; ED; 352pp]

136 15u "trowel"/w a mistake

in same binding:

Introductory lectures in the year 1814 [publ 1821 & 1823]

The Hunterian oration for the year 1819

part of the *Introductory lecture for the year 1815* [publ 1819]

ACÉBLA, Alexandre *Les Impiétés* Paris; A. Ghio; 1878 [Down] ⌀

ACHARIUS, Erik *Methodus qua omnes detectos Lichens* 2 vols.; Stockholm; F.D.D. Ulrich; 1803 [Down, ED]

ADAMS, Andrew Leith *Field and forest rambles* London; Henry S. King & Co.; 1873 [CUL, I by author]
ad, beh, fg, gd, mg, oo, ss, tm, v

NB p60, p69♦

Sexual Selection Birds good- p76♦ Q

Rein-deer Horns - 89♦

139

S. Selection - Birds Wax-wings - 153♦ Q

167, 182, 190, 192

SB ⇔ p.60. Two differently coloured vars. of sable with fur of qualities live in different kinds of wood, & colours apparently of service to them in each case; but both vars. highly variable

p.69. Racoons first expelled & now returning in numbers to cultivated trails.

p.139 Dung of Bears almost made up of seeds - Dispersion.

p183 Birds common to America and Europe & vice versa- depends on winds. during periods of migration

p190 several sp. of duck which occasionally nest in trees

60 15-23m, 30-35m 61 33-36→ 62 11-18m 69
12-20m 76 26-35m 77 6-8m, 9-11m 89 7-9m,
12-14m, 26-27m, 31-33m 139 33-35m 153 29-
32m, 32→ 154 1-5m 167 26-35m (Baird) 168
2-16m 182 26-35m 183 1-10m, 27-35m, 35→
184 1-3m, 14-29m 185 27-31m 190 10-20m
192 20-27m

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NB Pediallariae○ p105 no 105 18-26m, 18-22m, 27→ 106 1-3m, 6-12m, 10u "certain lines", 12-16m 111 1-5m, 4-5m

AGASSIZ, Louis *Address delivered on the centennial anniversary of the birth of Alexander von Humboldt* Boston; Boston Society of Natural History; 1869 [Down]

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gd, or

vol. 1 NB Brehm origin of Cat Isis 1829 VI. p.639, Brehm do on Pigeon Columba Isis 1828 11 p136

3 29-31m 12 11m 157 36-37m (Audouin and Milne-Edwards) 414 28m 416 3m

vol. 2 175 12x, 16x, 20x, 22x, 23x, 26m, 26w P 29m, 29w P 33m 176 1m, 1w P 25w P 26m, 30m 272 "Dufour.2"m 273 11m 276 "Dufour.62"m

vol. 3 NB1 E. Lankester on animals of Sulp. Springs

NB2 Karsten Nova Acta omitted. Vol XXI p.643 - important paper on Distrib of Indian Archipelago

p185 – On the Loves of Ants & Aphides
106 4–6m 153 3–4w Reisen omitted 177
"Hamilton.1"u "Proc. III"/w p545 "3"u
"Proc. III", "6"u "Journ. I", "8"u "Geol. V"/
wb Last Paper.

vol 4 NB p.419 Temminck on Indian
Archipelago–
62 "126"m 186 "Richardson.1"u "1823", "6"m,
"13"m 187 "19/20/21"m, "27"m, "30"m,
"31"m, "Richardson & Swainson.1"u "1831",
"Richardson, Swainson & Kirby.1"u "1829|
Quadrupeds" 419 "20"m 532 "Waterhouse.25/
33/34"m 533 "58"m 534 "85"m 550
"Westwood.22"m 551 "48/49"m 552 "76"m 553
"86/95/103"m 554 "111/117/118/121/122/125"m
555 "135/153"m 590 "Yarrell.23"m 591 "40"m

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vol. 1, part 1: *Essay on classification* n.d.
[CUL, I]

af, cc, ch, co, em, fo, gd, geo, in, is, mn, no,
oo, or, rd, sp, t, ta, ti, tm, v

SB □ β, ⇔

Agassiz on Classification

p.5 My valuation of Groups

10 Agassiz explanation of Rudiments
15 Ambylopsis very remote affinities. p.15
Proteus affinities of
24 Admits the Vertebrata p.31 probably
arose with other types. Well may he say
what changes (p. 24) has 30 years pro-
duced. ⇔ in date of appearance of groups
30 Isolated Fam. of Fishes.– p.42. do Fresh-
water abnormal
37 Admits that conditions do not explain
distribution
38 No class exist without having some
cosmopolitan genera
39 On creation of number of individuals
41 Quotes Waterhouse of representation of
all orders by Marsupials in Australia
44 curious tables of relation of *Scincus* with
no relation to geograph. Distribution
49 Aquatic Animals bigger than terrestrial
53 Same species have lived for 30,000
years or 200,000 years as inferred from
coral-reefs.
58 Chelonians much individual variability
61 On Lungs of spiders not really two kinds.
74. Possible explanation of the strange
Mollusc within Synapta
82 On Classification of Fishes
100 & 113 & 115 On Embryological &
geological Succession 107 to 111 Clas-
sificatory rank & Geolog. Succession.–
102 Lund on succession of Types.

117 On combinations of characters in old
Forms

124 Parasites belong to all orders (no
Strepsiptera)

(line across page)

162 the sentences from Linnaeus about
genera

166 idea of sp. proceeding from single pair
almost given up by all naturalists!

172 On the development of parts in order of
importance: I suspect ♣ importance applies
solely to being important for classification; if
so simple case as might be expected.

225 on degrees of resemblance of embryos

3 9–10u "peculiarities|structure", 12–13m/w
Geograph Distribution? 4 21–25m 5 2–8w I
believe species genera & classes all equally
good or false, as one pleases to call it 9–
12w Botanists far better authority than
Zoologists. 10 11–15m 15 11–12m, 4–26m/25u
"Proteus anguinus"/26u "North|Japan" 17 27–
31m 23 20–21m/w Agassiz himself 23–25m 24
4–7m/!, 36–38m 29 13–16m/14a "Classes" in 4
great kingdoms 16–18m 30.a 33–34m/34u
"Labyrinthici", wb How large a group 30.b
30u "Goniodonts", 31–34m/31u "Chaca"/wb
What? Abnormal? Amblyopsis is so 31 1–4m/
!, 5u "Radiata"/w♦ Planaria 37 1–6m 38 19–
22m/?♦/u "class", 22–24m/23u "majority" 39
32–34m/! 40 15–19m 41 12–24m/21u♦/w♦ no
42 19–25m/20u "Labyrinthici"/22u "Cestra-
ciontes" 43 17–19m 43.a 17–19m 44 3a/2–13w
but is this a natural arrangement? May there
not be parallel differences in different
countries; those in same countries being
really allied.– 45 26–31m 46 8–12m 49 13–15m
53 25–26m 54 8–10m 57.b 32–34m (T.W.
Harris) 58 13–15m/13–14u "seen|identical" 60
9–10m, 18–20!!/19u "tolerable precision" 61 35–
36m/m 65 zb 66 6–11z 67.a 31–36m 74.b 16–
31m (J. Müller, De Bosset, Gegenbaur) 75 13–
14m 82.a 28–38m 85 2–6m 89 1–2m 94 4–8m
100 1–13m, 24–28m 102.a 29–33m (Lund)/31u
"1841" 104 22–25m 107 25–26m 108 22–25m
109 6–13m, 22–29m 110 9–16m, 30–31m/31u
"See|26" 111 29–35m 113 34–36m 114 12–
15m, 27–29m 115 4–9m, 15–17m, 20m, 27–
29m, 30–34m/"..."/31–32u "very|ground"
117 10–14m/14u "Ichthyosauri"/?/w Mere
analogy 22–23m, 25c/w✗ 119 19–21m (J.
Müller) 120 1–7m 121 wt All rubbish 3–4m/w
oldest 12–14w !!Eocene Monkey 32–35m 124
7–10m/w Strepsiptera 140 30–36m 148 4–10m
151 13–18m (Cuvier) 162 1–6m (Linnaeus) 163
27–30m 165 6–10m 166 4–9m, 33–36m 167 19–
24m, 25–26m, 28–30m 169 13– 18m/w
Assumes that these points are not variable

AGASSIZ, NAT. HIST. U.S.

170 31-34m/!, *wb* All this discussion merely shows that no talent can really plainly define principles of Classification 171 6-8!/6u "sub-orders", 12u "sub-families", 15-16m/u "sub-genera", 20-21u "large subdivisions", 23-26m/!, 33-34m, 38m 172 3-5!, 13-17m, 31-35m 173 26-27m/w ● 174 22-24m 175 9-11m, 14-15w but the teeth are in gums 15-17m 189 23-26m/25u "successively limited" 194 3m 195 31-32m, 37-38m 221 26-29m 225 6-7m, 11-12m, 15-16m 225.a 24-26m (Huxley, von Baer, Baden-Powell) 225.b 27-31m (Huxley, Cuvier, von Baer) 228 26-32m

AGASSIZ, Louis *De l'espèce et de la classification en zoologie* trans. F. Vogeli; Paris; Germer Baillière; 1869 [CUL] beh, v

NB 97 ◊ Animals have conscience and soul Man

◆ 106 Love making of Snails

380 varieties See ↗

97 27-37m 99 11-15m (Ehrenberg, I. Geoffroy) 100 1-9m 106 13-20m/13-17[...] 380 3-11m

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ad, br, cc, ci, dv, em, fo, gd, geo, hl, ig, mn, no, or, sl, sp, sy, t, ti, tm, v, y

NB p.406 Scratches

SB1 p.13; p.34; 36; p.141; p.142; p.150; p.154; p.186; p.192 to 200; p.239; p.240; p.241; p.246; p.252; 255 to 377; 398

SB2 □ ☞

1.

33 Gar-pike-Ganoid of F.W. in N. America

34 Another rather ancient Fish in F.W.

36 on lowness. because like Embryo.

150 On analogy of recent of N. America & Miocene of Europe

175 List of F.W. Plants of Lake Superior; I doubt whether any use

187◆ 193 On ant. & post. extremities of the Bat, being alike at early age – so in Birds

195 on relation of embryology to geolog succession.

198 on order in Cephalopods – Nautilus simplest

239 – On entomology of ♣ L. Superior – No. American forms. – a common Fauna with Europe & N. Asia – species different but most close (Mem. Kirby thought same) admit identity in Arctic, & most close analogies in L. Superior.

240 on greater range of aquatic Beetles

247 F. Water animals under similar latitudes are uniform as vegetation

2.

♣252 On embryonic forms fish not deserving a separate class.

255 Ganoids & c in F.W.

257 on impossibility of making groups of equal value

260 Reptilian character of Ganoid, "embodying prospective view of another class"

265 on Families intermediate in character & in space or position.

285. Excellent case of Percopsis of Chalk, which combined characters, which soon diverged, intermediate between Ctenoids & Cycloids.

289. Hardly one Family in which some species are not both Marine & F.W.

292 – case of variability in a Perch, good as for Agassiz

♣317. *Esox boreus* is made distinct by Agassiz

327. Account for uniformity of Salmonidae by uniformity of conditions

352 Range of Cyprinoids p363

374 Are F.W. Fish of N. America distinct (over) 3.

375. On F.W. Fish being analogous with those of Europe & Asia

377 On shoals created as shoals

13 38-40m 33 15-16m, 31-34m 34 4-8m, 16-22w Percopsis p.285 20-23m, 29-32m 36 24-27m, 31-33m, *wb* * an entomostracous animal is lower than cirripedes 141 36-42m 142 15u "any|living", 16u "guidance|man", 17-20m/!/18u "the|lover" 143 18-24m 150 1-6m/!/? 154.a 16m 155.a 3m, 7m, 9m, 11m, 13m, 19m, 20m 156.a 15m, 28m, 30m, 31m 157.a 3m, 5m, 24m, 25m, 27m, 35m 158.a 13m, 25m, 29m, 35m, 36m 151.a 4m, 7m, 8m, 12m, 15m, 16m, 20m, 22m, 29m, 32m, 34m 162.a 3m, 6m, 8m, 10m, 13m, 16m, 18m, 19m, 37m 163.a 8m, 11m, 19m 164.a 9m, 25m 165.a 10m, 31m, 33m 166.a 11m, 13m, 18m, 20m, 24m, 27m, 37m, 38m 167.a 3m, 5m, 11m, 14m, 20m, 22m, 25m, 29m, 30m, 31m, 33m, 37m 175.a 4m, 5m, 7m, 8m, 14m, 15m, 16m, 18m, 20m, 22m, 24m, 25m, 31m, 33m 176.a 8m, 9m, 10m, 17m, 18m, 23m, 27m, 31m, 34m, 38m 177.a 9m, 11m 186 5-9m, 24-27m 187 8-11m, 34-39m 192 25-34m 193 25-28m, 35-41m/→ 194 8-18m, 27-29m/28u "equally|fin", 34-37m 195 29-37m 197 2-6m, 14-21m 198 11-26m 199 6-8m, 10-13m, 31-36m 239 7-14m/7-8w see to Plants 10-12w very singular 14-15w Europe

first cold 14-19m, 23u "many genera", 24u "Europe|Asia", 25m|→, 34-35→ 239* 3-7m, 11-16m, 16-20m/19u "analogous species", 24-27m/25u "equivalent species", 27-31m/w Subgenera 33u "Arctic circle", 35-36u "Wel points" 240 11-15m, 19-22m, 28-31m 240* 32-37m 246 18-23m! 247 26-27!!, 27-28m 249 7-8m 252 wt X It comes to this that arrested development ought not to weigh with difference of full development; I doubt truth 9-18m/?/X 255 22-27m/?/23u "ten|species", 29-32m, 34-37m 257 6-13m, 13-15m 258 1-6m 259 14-21m 260 20-22m, 29-31m/"..." 261 13-17m, 17-19m, 28-30m 262 1-7m 263 32-35m 264 1-4m 265 17-19m, 20-21m/w New Law 15-28m, 32-36m, wb insects wd illustrate this or Plants. Mem. Hooker these are a wandering species is often aberrant 266 11-13m 284 10w F.W. 285 4a "never" with this exception 6-9m/8u "chalk", 10-12m, 14-15m, 19-21m/w I wonder whether this agrees with Müllers classification, as seen in Owen Lectures XX 24-26m/25u "Ctenoids and Cycloids", wb XX if Fish properly classed, whether so related to geologi. formations. 289 22-25m, 24-31m/24-28w opposed 30-33m 292 15-20m, 26-35m/30-35m 293 30-33m 294 19-23m 295 7-11m (Richardson) 297 24-29m 318 2-6m, 9-11m 327 27-30m/? 328 20-24m 329 2-10m, 7-21m, 23-25m, 27-29m, wb The fact of existence proves some advantage in the two types else one wd outbreed the other.- 348 31-34m 352 22w Yes Sir J Richardson 24-28m, 25X, 29-32m/29-30u/30-33w p.353 353 15-16m 363 36-37m 374 7-12m, 19-22m 375 16-17m, 16-20m, 20-21m, 23-25m, 27-30m, wb I think Behring St. must have been land before Glacial epoch 376 12-15m, 21-23m, 33-37m 377 16-22m/17-18!!!!, 25-28m/w Andrew Smith wb argumentum ad absurdum 398 4-9m/w i.e. W. of Lake Superior 31-37m 406 19"...♦, 23u "eastern"/w N 24u "western"/w S 29-34m/"..." 408 wt Why scratches all N. & S. or near it - for any current temporary or permanent from S. wd not tend to scratch.-

AGASSIZ, Louis *Methods of study in natural history* Boston; Ticknor and Fields; 1863 [Down, I] af, tm

NB p.105 Snakes and certain Lizards compared & Lizards and Salamanders Excellent cases of Analogy of Form

105 23-29m 106 9-13m 107 13-16m

AGASSIZ, Louis *Nomenclatoris zoologici index universalis* Soloduri; Jent & Gassmann; 1848 [CUL]

AGASSIZ, Louis *Reports on the Florida reefs* Cambridge, Mass.; 1880 [Down, I by Alexandre Agassiz]

AGASSIZ, Louis and GOULD, Augustus Addison *Principles of zoology: part 1, Comparative physiology* Boston; Gould, Kendall & Lincoln; 1848 [CUL] beh, cc, em, gd, hl, sx, sy, t

SB1 p.5; p.31; 123; 156; 165; 170; 179; 192 SB2□ β Gould & Agassiz

5. On Highness & Lowness.

31. Blind Cavern fishes & Crabs

123 Speaks "if order of formation is in relation to importance" - I infer he think so

106 Male toads carry eggs on Back

157 Admits difference in C. of Good H & S. America, & admits some higher law

165 Arctic Regions not one bright bird or Fish with varied hue proof of action of external conditions.-

179 Rivers of U. States some fish in common, some distinct.

5 21-26m/22u "perfect|proportion", 30-34m 31 21-27m 106 19-22m 123 2-6m, 8-21m/9w (a) 30-34m, wb (a) There is nothing to show this in previous chapter 156 14-21m 157 5-12m 165 4-5m/5u "fish|hues" 170 25-26m, 28-29m 179 25-27m 192 3-10m

ALDER, Joshua and HANCOCK, Albany A *monograph of the British Nudibranchiate Mollusca* parts 1-7; London; The Ray Society; 1845-55 [CUL] em, hl, sh

Part 7

SB

p.25 Larvae in operculated shell

26♦

34 ♣ It is sign of lowness an animal undergoing its metamorphosis in a free state - some mollusca undergo a free metamorphosis & in some it is in egg state.-

25 29-32m 26 13-18m 34 27-31m

∅

ALLEN, Grant *The colour sense: its origin and development* London; Trübner; 1879 [CUL] ad, beh, cc, cs, fg, hy, oo, phy, ss, t, v

NB1 why shd the exercise of certain gustatory nerves by sugar ♣ give grt

ALLEN, COLOUR SENSE

pleasure & the exercise say of the tactile nerve of the tongue give little or no pleasure NB2 Hybrid – Error This is mere cross fertilisation in Aphys p39♦ 39?

Wiesner – coloured scales of tip of short to moderate height

73 Saaf-maal

131 134 ?

like Hook.bug new 186

xi 8m, 10m xii 3m 4 wt/1–17w Fritz Muller years ago maintained that surrounding coloured flowers influenced s.s of Butterflies Self Galapagos 12–18m 39 19–21m♦, 19–20?♦, 23–24?, 26u "essentially" 40 13–17m 41 16w ? Lilies 16u "monocotyledons", 28w Pinks 28u 45 29–35w Hazel and P♦ crimson female flowers 48 3–4m 73 25–28m (Lubbock, Fritz Müller) 131 5–20w I believe specially acquired 18–29m 143 26–32m, 26–28w ValerianO cats 152 5–23w my Copridae magnificent do the splendid Curculid live on flowers 186 1–35m (Wallace) 190 13–14w Peacock!?

ALLEN, Grant *Der Farbensinn* introduction by Ernst Krause; Leipzig; Ernst Günther; 1880 [Down] ∅

ALLEN, Grant *Physiological aesthetics* London; Henry S. King & Co.; 1877 [Down] beh, phy, t

NB 194; 159 appreciation of colour

vii 1–21m viii 1–4m 20 14–28m (Bain) 21 1–11m 22 12–16m, 28–29m 23 1–29m 24 1–29m 25 1–29m 26 1–29m 27 1–28m 36 17–27m 37 1–4m 39 8–9w association omitted 10–13m/?, 11–12m, 19–29m 40 1–23m 42 23–29m 43 1–29m 44 1–29m/19u "nerves\calibre"/w Why? 46 23–29m 47 1–9m, 19–23m 48 11–21m 49 19–24m 67 5–26m 68 1–29m 69 1–29m 70 1–29m 71 1–18m 72 18–29m 73 1–20m 74 1–29m 75 1–3m, 20–29m 76 1–4m 79 25–29m 81 15–28m 82 1–27m 87 12–29m 90 3–29m 91 1–29m 92 1–13m 99 1–23m 100 1–16m 105 13–28m♦ 106 1–20m♦ 108 14–19m 109 26–29m 111 6–28m 112 1–28m 113 22–29m 119 1–11m, 19–27m 120 1–16m 123 19–29m 124 1–15m 125 4–29m 126 1–23m 128 7–13m 150 1–29m 151 1–27m 152 1–28m 153 1–29m 154 1–29m 157 1–26m 159 3–17m 161 18–28m 163 23–29m 164 1–29m 165 1–13m, 25–27m 168 27–28m 169 1–9m 194 12–18m

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vol. 1 NB O/

105 37–38m

vol. 2 NB 201 like Galls

201 10–17m

ALLEN, George James *A report on the Hydroida* Cambridge, Mass.; University Press; 1877 [Down, I by A. Agassiz] ∅

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ARCHIAC, Étienne Jules Adolphe d' *Histoire des progrès de la géologie de 1834 à 1845* vol 1 (1847) Paris; Soc. Géol. France [CUL]

fg, geo, phy

NB Possibility that ∅

X 287 seeds

↪ p.287 Blocks actually transported from Terres de L. Philipe & Graham Land

↪ Self on Mould/223

222 7u "terre végétale", 7–10m, 10...", 15–19m/ 16–17u↔, 21–29m 223 ↑1u "vol\1837" 224 6–7u↔↔ 287 10–20m/w seeds

ARGYLL, (Campbell, George Douglas) *Duke of Primeval man* London; Strachan & Co.; 1869 [CUL]

beh, ds, h, hl, is, t, ta, tm

NB ♦ p60; 66; 70; 100; 130; 162; 165; 172 to 174; 178 to end; Only Man all used I doubt whether low intellectual state & high moral state would ever concur.–

♦ If one of the Lower animals cd reason & he heard that man was ashamed of being a co(descendant)O with him he might laugh with scorn & ask what of ♣ practices →

◆X Degradation of Man In Partricide – Polyandry ♣ Bloody sacrifice Superstitions causing life to be miserable, & abject fear justice by administering poison & other fatal schemes – Despotic government (& abject obedience) with right of life & death)

60 14–15z 70 10–16m 100 1–5m 130 12–16m 131 10–13m/11–12u "acquire|knowledge"/10–16w No an old Rat does all but transmit, & perhaps this How transmit by example? 132 wt ie state in which we now see savages 1–3m 136 wt I must rest my conclusion on descent & not on traces of savagedom.– wt Say animal nature – not necessarily like present Barbarians, 1–4m 139 3–7m 145 10a "use" the fashioning 11u "fashioned|purpose"/w over 147 3–7a/c/m/u/w/x€ 148 4–6m 156 9–13m 162 1a "weaker" or smaller 163 6–7w But not the least civilized 165 6–12m 172 10–14m (Darwin) 173 1–7m 174 14–17m 175 13–17m, wb & for Islds. man obeys usual law of no mammals, in Isld except by boat building races 178 4–6m 180 1–5m, 8–11m, 8–13w No India N. Africa Syria China New Zealand 181 11–13m 182 13–17m 185 2–5m (Lubbock) 188 13–17m 189 9–14m 190 9–13m (M. Müller) 194 4–8m 199 2–10m (Lubbock), 11–17m

ARGYLL, (Campbell, George Douglas)
Duke of *The reign of law* London; Alexander Strachan; 1867 [CUL, S]
beh, he, sx, t, tm

NB1 187; 196; 198 sexual; 203 Argus Pheasant; 206 Narwhal Sexual; Humming Bird tails 246 do; 253; 324, 326 inherited mind; 256 Correlation of Growth
NB2 8; 14; 30; 84; 89; 102; 133; 178
(also attached: p. 590 of *The Saturday Review*, 15 November 1862); ♦To be returned

10 14m 13 8m 14 9–12m 30 19m 84 17m/w see p.285 102 3–5m 133 7–14m/? 136 4z 142 7–8m 171 10–13m 177 6–9m 187 10–11w Wryneck○ Creeper 196 4–15m 198 5–15m/wt/ 1–13w But there is no such thing as beauty, except to eyes of some living creatures 199 24m 200 8–13m 203 5–12m/8u "a sphere" 206 9–16m 212 19–20z, 23m 217 3– 7m 221 19–24m 228 19–23m 232 4–7m 246 6–24m/24u "central feathers" 247 5u "which|the", 7c/w€, 8u "Tufts|of", 9u "greens|violets", 12–14m, 16–19m 251 20–22m 253 7–14m 268 10–13m/w no no 279 17–22m 285 15–16m/w See p.84

ARISTOTLE *On the parts of animals* tr. W. Ogle; London; Kegan Paul, Trench & Co.; 1882 [Down]

ARNOTT, Neil *Elements of physics or natural philosophy* 2 vols.; London; Longman, Rees, Orme, Brown and Green; 1833 [Down]
geo, ve

vol. 1 279 22–28m, 22–29w Volcanoes offer certainly some counterbalance to the effect of running water though perhaps not one equal to it.–

vol. 2, 5 12–15m 10 21m, 30–32m 11 1–4m, 9–18m, 20–25m 19 16–24m 23 22–24m 24 11–13m 25 22–30m 28 3–10m 29 21m 34 21–29m 135 28–29m 198 30–33m 199 1–5m 266 13–16m

ASKENASY, Eugen *Beiträge zur Kritik der Darwin'schen Lehre* Leipzig; Wilhelm Engelmann; 1872 [CUL]
cs, fg, gd, in, sx, v, t

NB p.54

I have only skimmed this Book – too difficult Supports Nageli on everything

4 11m 7 wt Argues against quite undirected variation 1–33w I admit not even individual variation in all directions, as in case of colour of rose – no marked variations is no evidence against some variation in many ways.– 8 21m 27 9m 36 11m 53 9m 54 1–15w Yes if strong tendency to vary 12–16m, 13–26w Plants in distant localities remain the same but they cross within same locality 26–32m, wb variation supervenes only by sexual generation 55 1–26m, 2–24w This all in fact explicable 66 25m

AUBUISSON de Voisins, Jean François d'
An account of the basalts of Saxony, with observations on the origin of basalt in general trans. P. Neill; Edinburgh; A. Constable & Co; 1814 [CUL, pre-B]
mi

NB p180 Lead volatilised into vesicular cavities of Basalt when used as the wall-stones of a furnace
97 18c/w€ 180 1–12m 275 8–13z

AUBUISSON de Voisins, Jean François d'
Traité de géognosie 2 vols; Strasbourg & Paris; Levraut; 1819 [CUL] S: C. Darwin HMS Beagle
co, fo, geo, mi, se, sh, t, ve

vol 1 NF C Darwin
Saussure voyages dans les Alpes Study works of Cordier & Dolimen
Strength of salt water diminished on sea coast – Cocos p43

AUBUISSON, GÉOGNOSIE

The Sandstone craters of Galapagos allied to Salses. (salt & mud) but differs in size & some other respects.— p.189.—

Saussure says laminae & strata of Slates same p291

Cleavage p.297

Proofs from Orbicular structure of movement in particles of Felspar & Hornblende p.308

Globular porphyry p.311

Empty concret. Ferrug. Balls. Chiloe 318

22 (markings signed RF) 28 (some marks signed RF), $\uparrow 15-1m$ 43 5-9m/"..." 61 $\uparrow 8-1m$ 62 $\uparrow 5-1m$ 77 $\uparrow 9-5m$ 86 $\uparrow 4-1m$ 189 $\downarrow m$ 291 $\uparrow 10-3m$ 297 $\uparrow 15-1m$ 298 $\downarrow m$ 308 $\uparrow 17-4m$ 311 3-10m 318 $\uparrow 12-1m/wb$ The \diamond spots \diamond C. of Good Hope 442 table.w 46°-47°lat $wb \lll$ 443 $\downarrow w \lll$

vol 2 NF1 Ma \triangleright Hydrate of iron

N.B. I see the only way of describing Porphyrys & Greenstones, is by describing each base. & each crystal

Beyond secondary rocks, no page marks without reference; excepting the Volcanic rocks & Mineral Veins

Voyage Mineralogique en Hongroi et Pais Bearn

Brongniart Traite de Mineralogie

Breislac Voyage physique en Campana

NF2 \lll Ch. Darwin

Secondary formations

Coal form: 276 Conglomerates

Porph. base to Conglomerate 309 Maclure N. America

Angular concretions of Limestone 346 K. George Sound

Cellular limestone rauchwak 345 angular cavities Coquimbo

Stinkstone connected with 390 gypsum beds Andes

Seashells in salt bed 395

Part of tree silicified 452 part Carbon \diamond

Hydrate of Iron C of Good Hope 456 do 476

Gold watering 479 Valparaiso

Alluvial salt form 483-485

5 14-19m/x/wb X This is remarkable if all rocks are metamorphised 6 1-7m, $\uparrow 13-10m/x$ 7 17-19m 8 2-5m/w Maldonado Portillo V. p.15 16-20m, wb X Analogous to sedimentary beds where quartz sand is alone found pure or lime in masses: What would result from calc. Sandstone? Would calc be removed by Volcanic agency? 15 2-8m/x 25 $\uparrow 4-2m/w$ C of G Hope $\uparrow 1x$ 43 $\uparrow 12-8m \diamond /X$, $\uparrow 5-1m$ 44 13-20m/x, wb It is remarkable no tin in such rocks in Cordilleras.— from Cornwall Tin miners at

Copiapò 47 1-10m/x 48 4-5? 49 5-10m, $\uparrow 7-1m$ 50 $\uparrow 10-1m$, wb two cases.— 66 6x, 7-12m/w Very abundant 72 $\uparrow 10-2m/x$ 73 1-4m 75 $\uparrow 16-1m/x$ 79 wt Not in Chonos \circ grand form 1-3m 80 $\uparrow 15-4m/x/13u$ "quelquefois" 83 6-12m/w Chonos \circ No 85 15-24m 95 $\uparrow 11-1m/x/w$ turn over wb Therefore materials must be separated by some process: & not layers of siliceous sandstone & less pure layers.— 96 1-10m, 15-20m 100 $\uparrow 15-1m/x/wb$ Falkland Isld.— 101 10-20m/18-20m/x 102 1-5m 104 $\uparrow 10-4m/x$, wb Mention in T del Fuego the Lydian balls from Laguna 108 $\uparrow 12-1m/x$ 109 1-10m/w Maldonado 114 $\uparrow 10-3m/x$ 125 $\uparrow 7-3m$ 132 $\uparrow 8-6m/x$ 133 2-5m, 8-15m 151 1-8m/w T. del Fuego 154 $\uparrow 15-3m/w$ Andes 155 1-15m 157 $\uparrow 15-1m/x/w$ False C. Horn 158 1-7m 189 4-8m/x/x, wb Therefore subsequent action purified it.— 211 $\downarrow m/x$, wb X Ponsonby Sound 212 1-15m 223 1-10m, $\uparrow 3-1m$ 224 1-3m 228 $\uparrow 15-1m$ 230 14u "druses" 236 6-16m/12-16m 276 $\uparrow 20-1m$ 309 6-11m, $\uparrow 8-1m$, wb Turn over 310 $\uparrow 5-1m$ 311 1-6m, 15-20m 312 1-11m/6-11m 345 wt Cavities owing to dissolved angular fragments Mem the Coquimbo limestone shows facility or small difference causing redissolution $\uparrow 15-10m/x$ 346 13-22m 347 1-8m 389 $\uparrow 6-3m$ 390 1-12m/3-6m/5-8m 392 1-10m 395 wt It is clear from fineness of sediment that salt beds true deposits, not Subsided salines 12-20m 452 $\uparrow 12-2m$ 456 $\uparrow 10-1m$ 457 $\downarrow m$ 476 $\downarrow m$ 479 $\uparrow 12-1m$ 483 6-20m 484 11-15m/m, $\uparrow 5-2m/m/w/wb$ Mem: How universal this character. Copiapo. Galapagos. Patagonia How far is dryness a general characteristic 485 wt NB At Iquique, the fresh water shows that Nit. Soda is not beneath the surface. 1-6m, 12-16m, $\uparrow 15-1m$, wb The formation of salt is more probable if the Carb of Soda effervesces. & that may as well as Nitrate of Potash. 520 \lll "L'olivine".m, $\uparrow 4-1m$ 523 \lll 1-9m/w Ascension 7u "globules" 526 \lll "L'argile".m/w Cauquenes \circ 528 $\uparrow 4-1m/w \lll$ Galapagos $\uparrow 4-1m/x$ 529 1-20m/wt These Greystones some of the commonest Volcanic rocks 4-7m \lll /m 530 \lll 1-5m/w Ascension 531 10-15m \lll /x \lll /m/x/w \lll Ascension 532 5-10m/x/w A 533 wt In Galapagos & Ascension, in Basalts, or at least dark Trachytes 6-12m/x 534 9-15m/x \lll , 9-15m/x/w \lll Ascension $\uparrow 12-1m/z \lll$ /w A 535 wt \lll Ascension 1-2m/A, 9-18m/m \lll /w \lll 4 Analyses in Beudant 77X $\uparrow 5-1m/m \lll$, wb \lll Felspar 64 May be taken as percentage of Silica Hornblende 44 Augite 50 536 4-8m/w \lll therefore diff. comp. 537 wt (a) Mem The trachyte below wells, decidedly prismatic or irregularly columnar 1-4m, 11-22m/14-17m/w

(a) ↑3-1m, wb Ascension! Phonolite. My felsp. this state 538 wt The basal hills of oldest series, allied to base of Phonolite cones, St Jago 1-4m 539 1-4m, 5-8m, 7-11m/w At SSt Jago, not slaty from force of pebbles neither decomposes 13-14*/u "habituellement", ↑11-1m, wb * Therefore Ascension not Phonolite 540 2-8m/m/w Characteristic of St Helena 6-12w Phonolite same relation to Trachyte as basalt to basaltic lava ↑12-5m, ↑2-1m 542 ↑10-1m/w Ascension 545 ↑10-1m 548 ↑10-1m/↑6-2m, wb Mem Ascension 549 wt I think from these descriptions the Galapagos trachytes, must be very singular rocks. ↑15-5m/x 550 ↑12-9m 552 4-6m/4u "phonolites"/5u "porphyre siénitique", 11-19m 560 15-20m/w Steam cause of vesicles 562 7-15m/13-15m/x 563 ↑11-10m 564 1-4m/wt Does ● say that Sapphire are found at the Galapagos?— 565 1-7m 568 3-8m 569 1-4m, 6-11m/8-11m/x/w Van Diemen's land ↑4-1m/w C. de Verde 573 1-8m 574 15-17! 575 17-21m 578 3-10m 580 ↑6-2m/w T. del Fuego 581 wt Wackes being often amygdaloid & therefore porous explains greater decomposition ↑11-8m 582 1-2m 590 ↑17-1m/m, ↑17-13w Coral Paper ↑13-10w Coral B Paper wb If trachy, where eruption happen, is generally missing, there is less chance of alternations than if subsiding; agrees with facts in Pacific 591 1-15m/w Is this true? 593 ↑10-1m, wb Dolomieu in Voyage to Lipari Isld talks much about effects of Vapour. says deposits crust of oxide of iron or outside fragments. 595 ↑8-5z 596 ↑15-10m 605 1-5m/x 608 1-6m/w St Jago 609 1-6m/w Copiapò wb NB The existence of sea shells on several of the sandstone craters at Galapagos, argument for mud eruptions. 616 ↑17-5m 627 ↑12-1m 636 1-10m 637 3-17m/13-17m 645 ↑8-1m 647 ↑15-3m 648 ↑13-5m, ↑4-1m 649 1-5m, ↑13-6m, ↑4-1m 651 ↓m/w Mem: Yaquito○ Gold Mines ↑7-6!

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beh, br, ch, mg, sp, sx, ta, tm, y

vol. 1, 4 35-37m 5 35-38m 13 36-38m 14 32-37m 15 16-17m, 18-20m, 21m, 22-29m 34 3u "colours | duller" 110 11-18m 113 14-16m 139 12-14m 174 29-32m 175 27u "a | yellow", 34u "fine yellow", 35u "brownish-olive" 193 22-25m, 27-31m/30-31u "equally | sexes", 36-38m, 39u "when | line" 203 4-9m 216 27u "sides | domestic", 33-36m 221 4-10m, 19-21m, 26-

27m, 30-32m 222 18-21m, 37-38m 223 11-14m, 16-18m 229 14-17m 233 wt Male all vermilion 2u "male | them", 8-12m, 15-18m 234 31u "whole | vermilion" 235 2u "light brownish-green" 254 19-20m 257 3-4u "Head | blue", 15-16m 280 15-22m 327 27-33m 352 8-11m 377 32-33m 378 7u, 8-10m/8u "brightest | green"/9u "three years", 11-13m, 14-16m 379 21u "general | blue" 380 2u♦ 389 20-23m 393 16u↔, 21-22m 394 19-22m 396 16-17m 486 16-20m

vol. 2 NB 407 Expression Owl puffing out feathers

SB Vol. 2.— Audubon

p10; 22; 51

55 Jay — attend whether young like old in other jays

75, 79 woodpeckers alternately incubating

87 sexes very different & young not like female

89, 92; 143; 153; 170; About sexes of Birds

195 all Thrushes spotted on breast How in Blackbird

198; 202; 326; 364; 407; 420; 450; 475

♦ 493, 497 T. cupido

509; 529; 538; 545

561 do not get mature plumage soon

10 3-5m/3u "all | resembles", 5u "Young | acquiring" 13 7-9m 22 19-20m 51 23-26m/26u "they | in"/27u "second"/26w sexes alike 55 4-7m, 14-15m/w sexes nearly alike 75 24u "both | incubating" 79 20u "differs from", 26-27m/26-27u "differ | distribution" 87 4-5/10/11m/u (colourings), 14-15w nest in Hole 15/16/17u (colourings) 89 9-17m/10-12w both sexes change 92 6-10m 143 11-13m/w sexes differ & young differ 144 5/13-14/15u (colourings), 20-23m 152 21-23m 170 5-8m, 19-24m 195 19u "female | paler"/w this common to other species 23-28m/23-24w How are Blackbirds? 198 8-10m 199 20-21u "female | eye" 202 23-27m/24-25w Sexes differ 275 1-5m, 1-7m 326 8-10m 327 24-25u "general | with", 27-32m, 29-30u "general | black"/30u "and a broad", 31u "yellowish", 33m 364 1-3m 407 19-22m 420 34-36m 450 16u "young | orange", 18-21m/21u 474 35u "light | vinaceous", 36u "hind | part" 475 1u "neck | blue", 8-9u "lower | red", 16-21m/18u "are", 21-22m 493 1-4m/4u "globular | of", 35-37m 497 21-24m/23u "bird | the"/24u "air | bladder", 26u "muffled", 27u "refils | receptacles", 31-36m, 38u "than a mile" 498 4u "autumn | much" 509 18u "graduated | male"/18-20w so with long-tailed Flycatcher 529 9-14m 538 10-13m 545 12u (colourings), 13-24m/14u/16u/21u/23u (colourings) 560 25-29m 561 32-34m

AUDUBON

vol. 3 SB Vol 3 Audubon

p133 – Young Birds occasionally breeding 4 years arriving at full characters yet sexes alike

p139; 141 do

174 ⇨ changes in Beak & legs of Ibis during Breeding season

210; 213; 250; 258; 412, 416, 419; 552; 614, 616

All about sexual Plumage

2 24–35m/..."/30–32c/34c 133 18–21m, 21u "are|brown", 22u "covered", 26–27m 139 29–33m, 33–36m 141 22m, 30–33m/30u "at first"/31u "begin" 174 29–34m 210 36–38m/38u "sometimes|dress" 211 1–2m, 2–5m, 16–18m 213 18–20m 250 11u "also|speculum", 28u "speculum greyish", 32–34m 258 11–14m 412 18–26m (Bonaparte) 416 10–15m/w change from 15w change later 419 5–7m, 18–20m ♦ 552 1–4m 614 7–10m 616 12–13m

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vol. 5 NB 456 Parasitic Cow-Bird

602 Migration

♦601 Noise to cause alarm Q

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p.11; 63; 176; 183; 210 Jay; 308

Only about Plumage of Sexes

519 *Tanagra aestivalis* female almost as red as male

10 31–35u± 11 15u "upper|tinged", 16u "loral space" 18u "light greenish-yellow", 30–33m/30u "loral"/31u "black" 63 33–37m 176 4u "tints|duller"/4–7m/w other cases 183 2u "part|forehead", 30–31u "bright|extent" 210 10–19m 308 10–11u "broad|eyes", 12u "in a rather", 13u "is|pale", 14u "parts yellowish-green", 24–32m 454 24–33m 519 1–2m 601 12–16m/Q 602 1–6m

AUDUBON, John James and BACHMAN, John *The viviparous quadrupeds of North America* New York; J.J. Audubon; 1846 [CUL]

ad, beh, br, ex, gd, ig, mg, no, oo, rd, sp, tm, v

SB1 □β 34; 38; 40; 59; 62; 67; 77; 131; 143; 146; 191; 193; 216; 218; 220; 221; 252; 266; 268; 272; 304; 358; 265 var in Teeth

♦ 365 Sheep Q

SB2 □β ♀

Audubon's Quadrupeds

34. Florida Rat great diversities in Habits & Instincts in different districts

38 Squirrel, curious manner of avoiding a fall, spreading itself out 40 subject to many animals of prey

59 on terror caused by Rattle-snake – 62 on do

77 gradation in teeth falling out in one genus, permanent & small in another.

Rudiments

131. graduated form in Squirrel & in Habits

143 good discussion of parallelism in diff.

Lat. of Europe & N. American animals

191. Black Rat became rare in N. Am. as in Europe 193

216 Flying Squirrel with additional small Bone, 218 Habits of, 220

269. Squirrels fighting at rutting season (a little lively animal)

272 On Migration of Squirrels

304. On a Mouse becoming domestic & inhabiting Houses.

358. Pigeon which used to breed in communities now by persecution seldom 2 nests in same tree.–

title page ♀ 1846 4 5–7u "marking|numerous" 34 4–12m, 25–27m/26u "hollows", 29–30m/29u "clefts", 34–38m 38 17–21m 40 26–37m 59 2–7m 62 9–15m 67 6–10m 76 29–34m 77 1–5m 109 31–33m 131 16–21m 136 32u "beneath|ruff" 137 1–3m 143 21–40m 146 12–21m 147 4–6m 191 23–27m 193 1–7m 216 30–32m 218 21–25m, 29–31m 220 1–5m 221 19u♀ "three|young", 25m, 25–29m, 33m/u "than|young" 252 19–25m 265 24–29m 266 15–20m 268 ↑9–3m 269 3–5m 272 4–13m 304 6–14m 358 22–27m 365 8–19m/11–12Q

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NB 178 & 180 } ⇨ Different fertility of ass & Horse when reciprocally crossed.

178 24–30m, 30m 179 1–2m, 4–6m 180 16–18m 199 2m, 4m, 11m, 19m, 24m 200 5m, 6m, 11m

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beh, br, cc, ds, gd, no, oo, sx, ta, ti, tm, wd, y

vol. 1 NB p3 Tapir striped when young
p136 Puma curls tip of tail when young to spring & purs like a Cat, when scratched.--
(Copied)

3 3-6m 136 9-13m/10u "extrémité\queue"/11-12w purr

vol. 2 SB1 □℞

p209; 296,298; 306; 319; 332; 339; 349; 359; 363; 364; 368; 371; 376 - 1783-1796

℞ References for my 1st Vol. copied out

SB2 □β ℞

296 Date of introduction & increase of Horses in La Plata p298

332 Wild Cattle Horses in Falklands removing snow

339 on Cardoon & Cattle destroying entire pasture

349 Mares which produce mules get old sooner

359 increase of Cattle in Falklands & dates given ⇨- Introduced from La Plata

⇨ 360 periods at which ♣ Heifers conceive later in hotter country Q

368 Cattle killed by flies

- On natural rate of increase of Cattle in the Estancias

372 Rudiment of Horns in Cattle. descended from Hornless Bull.-

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beh, ex, oo, sp, ti, tm, ws, y

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p.100 - struggle for Existence.

p.165 - Wasps nests - 215 - worms in navels of Beasts

247 - ℞ Young Tapirs striped

375 ℞- Horses

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386 ℞- on some species & others rare of same group.-

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p33 Caracara makes ♣ Vulture disgorge prey Lestris take advantage of natural instinct to disgorge

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327 Habits of Musk Duck

328 Measures of do

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3 20-21m/ 21u "parcourent\grimpant", 22u "dominicain\guêpes", 23-24m 253 wt Philomachus cayanus 327 19-24m 328 26-29m

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fg, gd, oo, sp, t, tm, v

NB1 *Tragopogon porrifolius* (p. 188)

seeds of ray & centre very different

Verbascum 5 stamens differ in length & structure – in *Veronica* only 2 stam – in other Scrophs, 4 & of unequal lengths
Penstemon

NB2 ∞ p. 31 *Subularia*

p. 120 var.; p.301

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120 Similar vars in allied genera

301 *Pinus mughus* in Scotch Bogs a var. exterminated by present vars?

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57 6-28m

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beh, h, sl

SB ♦

☞ Bain Emotions & Will

p.5.6 to under qu.

p.111; 119

127, 129 Expression

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Laughter 247

Moral sense

254 Moral sense

Q² 267 481- good to quote

269 - social instinct apparently denied by Bain

B. seems to think moral sense acquired during life-time - seems to give too deep a feeling for this wd never resist Hunger, Revenge or lust.-

277; 279; 283; 289; 290; 308

p 270 Mohamedan ♣ woman covering her face

♦² 283 imitation of external government !!!

284 obedience (Monkeys slapping their children)

viii 8-10m, 9u "Feeling | misery", 32-33m, 32u "Will" ix 17-20m x 26m xi 13m xii 6m xiii

20-21m xiv 33m xv 23m xxv 30m 5 23-26m 6

wt The love of a mother for her child is a strong emotion, but this is hardly shown by any action or expression, but ready to lead, if her child requires assistance, to energetic or heroic actions. 2-37w a mother may be feeling the warmest love for her child, & yet how is it exhibited? When poets ♣ speak of

green-eyed jealousy they must find it impossible to give ♣ actions & plain characters. Perhaps Bain calls love a Sensation & not emotion.- → No p.37 9-13m, 26u "secondarily automatic" 7 31-33m 8 12-15m 9 12-13m, 34-35m, 36-37m 37 17-21m 54 15-30m, 29m 55 5-15m, 5-9w to make appearance dreadful 56 28-31m 58 28-34m 65 19-22m 67 32-37m/w/wb Dog when going to fight; Birds erect plumage; Lynx sets up its back & spits 73 19-27m 111 32-37m 119 32-37m/→ 120 6-9m, 11-12m, 14-17m 127 25-28m 128 21-24m 129 26-28m 176 34-37m 247 7-29m, 35-37m/→ 248 10-13m 249 7-12m, 13-14m, 32-33→ 250 6-10m 254 26-29m 255 1-2m, 5-11m 267 1-5m 268 26-29m 269 4-6m, 8-9!, 8u "rational appreciation", 22-28m, 29-30→ 270 7-11m, 30-34m, 36-38m 271 7-11m 277 10-14m, 10-11w But what the importance 279 12-14m, 13u "to | pig" 283 10-18m, 20-23m, 22u "performance | social", 26-29m, 36-37→ 284 1-4m, 15-17m, 25-30m 285 3-5!, 4-7m 287 5-11m 289 27-30m, 37-38→ 290 12-18m 308 1-14w so the associated state is advantageous 4-7m, 10-14m, 12u "the blood", 34-35m 309 7-13! 481 18-22m

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 beh, h, phy, t

SB ♦

p 12 Intellect & size of Brain

50 can this bear on sobbing

52 Expression

96 do - theory of -

121 Expression of Man pain; ☉ & such movements wd get mingled with true expression of distinct emotions

BAIN, SENSES

152. ♦ effect of imagination on the body admirable 1
 225 Muscles of eyebrows
 264 Expression
 274 a child twisting tongue about in writing, perhaps connected with idea of speaking.—
 277 V 279 Expression; 288 do; 292–297 do it is expectation of pleasure when ♦ (a dog wags tail before food given him & while eating in quiet) – so when scratched
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 411 The mind is never intently concentrated on a merely pleasant idea
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 ci, no, phy, sp, t, tm

NB1 Cirripedia p.50; p.74; p.144; p.248; p.250; p.253
 p.265 circulation
 p.303 XX cementing organ
 NB2 Sp Theory; p85♦; p189 Rate of Increase in Cyclops; ♦Synopsis Brit Mus 1842; ♦ p.244 Diaptomus with worm-like body full of Spermatozoa.—; ♦ Apus Nebulia Chirocephalus Cyclops Canthocamptus Caligus Lerneocera

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 cc, gd, gr, ti

NB 46 – Alpine plant on Tropical Mtains
 53 – Heat-lovers & cold-fearers
 90 – plants which have become widely naturalised
 99 – certain wide ranging plants
 102 – relationship of S. Africa & S. America & latter with Australia, good
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 gd, gr, is, no, sp, wd

NB Marked Chapter on Distribution
 title page wt Barker-Webb 5 7–9m, 9–10m, ↑15w 14. fam 29. spec ↑12m/x/u "variété | autres" 6 16m, ↑7–3w 17 peculiar? 7 8–9m 8 12–15w peculiar species in W. group. ↑7–6m, ↑3–1m 9 ↑8–2w broken nature of country species abundant in one isld rare in another 1200 ft of = difference of station = ↑1m, zb

12 7-8m 16 4m 17 10m, 12m 22 11-12m/w
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↑3-1m/w X does this mean plants found
nowhere else? Galapagos♦, ↑2x/u "espèces
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imagine di Dio fu anche fatto ad imagine della
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[Down, I]

title page wt (translation of title) 11 w
throughout page (translation of page)

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and replaced by FD] ∅

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plants* London; Harvey and Darton; 1827
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4 20-26m 7 4-9m, 5w Oak 22 13-18m 27 4-
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∅

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I]

cc, che, ct, ds, fg, h, hl, phy, sp, t, v

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I think there is a tendency to plasticity var.
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604 I admit so far

608 I think I am in error

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pat

NB 188 Douglas Spalding; 213 Blind Horse – self; 216 my Horse – Isle of Wight

213 14–17m 215 30c/wæ

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beh, h

NB1 Descent of Man p.27; 31; 53; 100, 102; 109; 110; 112 Expression; nodding & shaking Heads; p27 Concepts

NB2 p111 Gartner

27 4–5u "fell|door", 15–19m, 16–17u "memory|substantives", 18–24w(CD?) one case of only the infinitive mood being retained 29u "is|cut", wb How does this bear on concepts? 31 2–5m 53 12–16m 100 9–10m, 17–20m 101 17–18u "defect|language", 19–22m 102 1–2m, 3–5m, 16–18m, 19–21m 104 8–11m 109 22–28m 110 4u "commonly unaffected", 6–15m, 12–15m, 12–15w 2 cases 16–21m 112 3–8m

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beh, br, cc, cr, f, gd, h, ig, mm, no, oo, phy, rd, sl, sx, tm, v

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52 Male & female butterflies haunting different stations.

55 competition in the Tropics.

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304. local vars. of butterflies

312. Ditto –

20 7–19m, 20–21u "almost|only", 21–26m 21 2u "more|coloured", 3–31m, 3u "females|often", 5u "tropics", 6u "between the", 7u "any temperate" 22 2–10m, 18–22m 23 8–10, 31m 24 10–14m 27 13–16m 30 8–12m, 19– 22m 31 26–29m 51 23u, 29–31m 52 2–12m, 4u "less dense" 53 7–14m, 25u "fig order" 54 1–31m 55 21–29m, 31→ 56 18–24m 68 14m, 15–21m 69 2m 99 10–16m 102 21–26m 182 10–16m 183 5–8m 193 2–6m, 2–3u "paca"/w 2 Rodents p. 202 9–10m, 11–13m 207 23–31m/→ 208 22–27m 210 13–30m 250 23–26m, 29–31u "Locustidae"/w probably Gryllidae of Welland○ 251 1u "Acridiidae", fig.w toothed lobe left wing 252 11–15m, 15–27m, 31a "crickets" Achetidae wb Cicadidae again different 253 1–2m, 4–5m, 8–9m, 18–24m 254 15–20m/w a kind of Thrush 258 25–30m 259 fig.→ 260 5–9m, 14–19m, 28–31m 261 22–27m 262 ↑11–1m 263 4–7m, 14–17m, 21–26m 304 22–31m 312 18–30m 313 1–8m

vol. 2 NB 238 Toucans; 341

SB1 (not CD?) 39 Palm; 49 Tonka bean: fruits on stems; 51 Palm; 53 General descrip; 169 Bulging palm; 217 Fruit conspic ripe; 218 Gulielma palm; 237 Eriodendron; 263 Turtles eat fallen fruit

SB2 ⚡ (not CD) Bates vol 2.

35 a young savage with instincts of finding his way.

44 Bees using hind legs to collect mud & using gum.

46 Parasitic fly – like bee.

61–70 – neuters of termites.

228. butterflies of several sp. males living in

sunny places & females in wood

⇒ (CD) 307 Short-tailed monkeys, yet arboreal.—

↷ (not CD) 313 range of monkeys separated by a river

347 butterflies with males 100 times more numerous than the female.

347 range of butterflies depending on wind

351 gradation in workers of ants

364 great difference in the castes of worker ants.

⇒ (CD) 204 man essentially same in mind

284 strong sexual characters. Umbrella Bird rudiment in female

349 tubes for caterpillars

357 gradation of instincts

SB3 □✕

35; 44; 45; 61—to 70 Termites; 113 sterility; 128 expression; 159; 162 God & Man; 194; 219 Cultivated fruit – by Natives; 228; 313; 347; 351 gradation in workers; 364 ants; ♣ close mouth & part front of tongue forming the palate & open mouth suddenly & this makes the click – open mouth sign of surprise.

35 1–9m 44 9–12m 45 13–23m, 29–30→ 46 8–20m, 18–23m, 23–27m 51 3–5m 61 7–14m, 15–18m 65 3–8m, 28–31m 66 5–9m, 19–22m 67 17–27m, 28–31m 113 4–12m 128 29–31m, 31u "to|a" 159 20–29m 162 28–31m 178 5–9z 194 16–29m 197 10m 204 1–9m 219 5–12m 228 4–9m, 9–12m 237 3–5m 284 12–18m 307 12–28m 310 24–29m, 24–26"...", 30–31z 313 17–31m 338 21–23m, 22u "seven|more" 339 22–23m/u "deficiency|used" 341 7–11m, 15u "considered|instrument" 347 4–11m, 27–30m 349 22–31m 351 22–26m, 27–30m, 30–31→ 352 21–32m 357 20–24m, 20–22w is it true, stinging 364 14–17m 365 15–20m, 22–26m 419a 20m, 29m 419b 1m, 12m, 26m, 31m 420a 8m, 9m, 19m, 29m, 35m 420b ↑3–1m 421a 1m, 6–9m, ↑2m 421b 16m, 22m, 23m, 25m, 31–37m, 40m, 40m 422a 1–4m, 9m, 10m, 14m, 27m, 30m 422b 20m 423a 1–3z, 16m, 22m

BAXTER, Jedediah Hyde *Statistics, medical and anthropological of the Provost-Marshall-General's bureau* 2 vols.; Washington; Government Printing Office; 1875 [Down]

BEALE, Lionel Smith *On the structure and growth of the tissues and of life* London; Robert Hardwicke; 1865 [CUL]
ct, phy, t

NB Used for pangenesis and of no other use

10 24–30m 21 wt♦ cell contents 1–5w or as some♦ several authorities object dispute♦ the reject○ the present○ ex|ion of cells, Beale's term been very useful 14–18u±, 21u "Formed|matter", 29–30m 25 27–30m, 29–30u "composed|tissue" 26 3–7m, 18–20m 27 23–28m, 27u "lastly|surface", 28u "of|and" 28 3–7m 29 12–14m, 13–14u "comparatively|matter", 24–27m 31 3–21w says before it has become completely passive 19–21m 34 wt the germinal matter in a fully developed muscle must be formed or modified by the development of the muscle. 36 11–13m, 12u "is|or" 37 19–21m 62 wt/1–21w says the nuclei or germinal matter of the various tissues are ♣ continually forming 12–15m, 12u "Cells|parts" 63 21–23m

BECHSTEIN, Johann Matthäus *Gemeinnützige Naturgeschichte Deutschlands* 4 vols, Leipzig; Ernsius; 1801–5 (2nd edn), 1793–5 (1st edn) [CUL]

beh, br, cc, ch, cs, dg, ex, f, fg, gd, h, he, hy, ig, in, is, mg, mn, no, oo, or, pat, rd, sp, sx, ti, tm, ud, v, wd, y

vol. 1 NB Blumenbachs HandBuch of Nat Hist

17♦; 26 Book; 227, 228 – do.; 232–6 Horse; 241 Canines varying

275; 285,6; 294; 300; 309; 310,12; 324; 358; 362,5; 378; 404; 425; 432; 434; 448; 457; 470; 491; 505 to 508 to 536; 546 – Dog

It wd be good to investigate the 4 teeth of upper jaw of Dogs to see about abortion

SB1 □✕

Vol I Bechstein – V End of Book for early references

p548 to 579 to 702

♦ p609 to 627; end; p.653

795; 850; 932; 950; 984; 1032; 1046; 1078–83,1084. Squirrels; 1095 Hare; 1119 Rabbits to p.1135–

A Calendar at end with periods of coupling of all wild animals.

SB2 □β

p241 Mares Eye Canine teeth either absent or very short – sexual & rudimentary characters variable (Bechstein Vol I)

p 294 Hinney more like Mother (ie Ass) than Horse, but ears Horse-like Q↷

p 309 Nine Breeds of Cattle in central Europe

310 Pale-coloured cattle more plagued with Flies than darker colours

359 She Sheep have horns smaller or none

362 In Hornless sheep some have small loose Horns

BECHSTEIN, DEUTSCHLAND

379 Certainly Ram gives fleece
 432 2 Breeds of Chamois inhabiting different heights
 505 Wild & tame Pigs produce fertile offspring Q
 508 Var. of front teeth in Pigs N.Q
 530 Sort of pad defending Boars
 536 Many wild Pigs die in Hard winters & in very dry summers.—
 548 Bitch 5, seldom 4 Q, mammae on each side — Iceland Dogs different voice (u)
 574 Newfoundland Dog — skin between toes — Not in Newfoundland, when discovered.
 584 time of gestation
 638 Stutz — Dogs are easiest crossed with Foxes Q
 654 Cats with wavy hairs N.Q
 663 Astonishing increase of mice in Isld of Placida off Naples, when Cats destroyed.
 682 In Lynx tufts of hair 2 inches long
 795 Ferret procreates quicker than Polecat, ● parent
 950 Black & Brown Rat cross in nature Q
 1032 Marmot or Arctomy inhabit only highest alpine height of Europe
 1084 Squirrels in same nest, one finds 2 colours, when parents of two colours
 1095 variation in upland & lowland hares
 1119 Hares & rabbit will not breed after many attempts made Q
 1123 Rabbit can produce in 4 years 1274, 840
 1133 Grey♦ Rabbits turned out after some generations assume grey colour

26 $\uparrow 2-1m/wb$ On variation 227 $\uparrow 5?$, $\uparrow 2?/x/u$ "deutscher|ausländischer" 228 3m 233 6u "dünn", 14u "Der|ist", 15u "Ohren|lang", 16u "Mähne dick" 234 1-2m/u "vorzüglichsten|Andalusien", 5-10m/w He means x — Hunter cross 13u "Yorkshire", 17u "die|haarig", $\uparrow 3u$ "Tigerpferde" 235 9u "Calabrien", 10u "Apulien|vorzüglich", 15u "Polnischen|gleich", $\uparrow 3u$ "dass|abnützen"/wt 236 2-7m, 10w Pony 18u "Holsteinische", 19u "Mecklenburgische" 241 (err. printed 235) 4u "Hundzähne", 6-7u "fehlen|kurz", 4-6m/w Fem♦ Mares Eye teeth absent or small: variable Owen says absent 275 $\uparrow 5m/u$ "von Natur" 285 wt There does not appear to be race of asses in each country. 4-8m/w Arabia Donkey very fine 8u "glattes", 12-18m/w smallness owing to climate (Peacocks do not flourish) 286 $\uparrow 8-5m/w$ various colours 294 12u/a "mehr mütterlich" i.e. Ass 12-13w sometimes much mishapen 300 $\uparrow 5-1m$ 309 zt, 1-2m/wt 9 Central Europe Kinds of large Cattle 4u "übrigen Deutscher" 310 10-16m/w

These colours more plagued by Flies (I wonder if true) might bring in 312 $\uparrow 3-1m$ 324 15-20w Change Bull to prevent inter se 358 5-7m/ \pm 359 $\uparrow 14-13m$, $\uparrow 9-8m/w$ Horns in Female fail or are smaller 362 1-2m, 13-17m/w Q Hornless but sometimes appear, & are then not well fixed.— 365 8u \leftrightarrow /m/w Hellenius case 378 12-14m/w Sheep with least mark often bring quite dark lamb— like Fox's fact 379 3-10w Certainly Ram gives wool most strictly hereditary $\uparrow 13-9m/w$ not interbreed 404 4-6m 425 6-7m/7u "lang herabhängenden", 16-17m 432 $\uparrow 11-1m$, $\uparrow 10-9u$ "klein|höchsten", $\uparrow 7u$ "obersten Theile", $\uparrow 5u$ "dunkelbrauner", $\uparrow 2u/wt$, wb might be 2 species 433 3-4u "Feld|Bershirschen" 434 14- 15u "Pyrenäischen|Gebirge", $\uparrow 6-5m/u$ "Steinböcke|mittlern" 448 15-20w Fallow Deer various colours 449 $\uparrow 8-4m$ 457 $\uparrow 14-10m$ 458 7-8u "gemeinisch|sind", 6-14m/w Q differences according to habitation 470 4-6m 491 $\uparrow 3-1m$ 505 11u "abgerundete", 12u "zugespitzte", $\uparrow 7-1m/w$ Pigs wild & tame breed together & offspring fertile Q Q 507 $\uparrow 8u$ "vier", $\uparrow 7u$ "etwas" 508 4-6m/w front teeth vary; sometimes 2 more in upper sometimes 2 more in under 5u/wt 509 $\uparrow 4-1m/w$ Breeds $\uparrow 4-1u\pm$ 510 11-12u "Die|Schweine", 16u/wt 517 6-15w white sows frequent 15 weeks speckled 18! Q 14u "zweymal"/w breed twice 529 5-7w Wild Boar Dark colour 9u \leftrightarrow , 12-13w short more projecting ears 15u "hängende Schwanze" 530 10-15w Black hairs have brownish tips $\uparrow 13-5[...]$ 534 $\uparrow 7-5m/o$, $\uparrow 4u\leftrightarrow/w$ Twice a year on Heat 535 wt Wild Sow 18-20 weeks 3u "fünf|zwölf" 536 (err. printed 436) 9-10m, 12-16w Many die of hunger in hard winters 14u "doch|für", 16u "sechs|acht", 19u "zuweilen|aussterben" 546 8-16m/w Believes in multiple origin of Hound 548 1-2m/1u "nur|Brüste" 549 5u "den|murrend"/w voice different. 551 1-6w Fox like dogs like our Spitz 554 6a "2" subspecies Mastiffs $\uparrow 12-1w$ Big thick upturned snout; falling chops; slaving mouth; small hanging ears; Breed had flat long neck & thick — smooth short hair 558 6w Pug(?) 559 $\uparrow 1w$ 3d subspecies Hounds 560 4-12w Head round with ridge Ears very long — Body long — claws on after-toes 568 1a "4" Spaniel♦ Poodle 569 8w Spaniel 572 8-10w hairs like Lion 15-16w Danish Dog 573 $\uparrow 2w$ Newfoundland 574 5-7m/w Q skin between toes 14-15m/w not there in 1622 15-16w Greyhound 576 1-2w Italian Greyhound 578 $\uparrow 5-4w$ Terrier 579 $\uparrow 2-1w$ Skye Terrier 584 $\uparrow 6-5u$ "neun|Wochen"/w Wolf p.617 wb 63-70 days 609 $\uparrow 10-9m/u$ "jeder|Backenzähne",

↑8-5w teeth different from Dog 617 ↑12w 77 days ↑11-10m/↑10u "2|trächtig", ↑9-5m/↑8u "selbstgegrabenen Loch" 627 6u "Spielarten", 9-10m/u±, ↑9-5w Q tip of tail variable ↑3-2m/u± 628 3-8m 638 ↷ 5-7m/w Q 653 ↑11-8m/w differ in habits ↑11-8w degenerate easily ↑6m/wb Tortoiseshell! 654 6u/wr 663 ↑10-3m, wb Extraordinary increase of Mice in Isld of Placida when cats all destroyed.- 674 15m/u "bringt|blinde" 675 4-8m 682 5u "zwey Zoll"/w ear tufts 2 inches long 702 5-12m/! 786 4u "gewöhnlich|selten" 795 ↑11-7w more than litis wild Mard○ on prowlo p786 850 2-4m, 7-8m, 13-16m 932 11-14m/11u "zweyen Jahrhunderten", ↑2m/u↔ 950 9-11m/w Q Black & Brown Rat ↑9-5m/w Q 984 ↑14-7m/w Water Rats like Snakes inhabit dry & wet places 1032 ↑11w Arctomys Marmot ↑10-9m, ↑8-4m 1046 ↑4-1m 1047 3-5m, 7-9m 1078 wt In relation to mankind - we cannot account for it.- 9-12m/w black very common 12u "gewöhnlich|Bauch", ↑3-1m/wb these 3 seem to arise out of cross of red & black, but no evidence. 1079 wt N.B It must be remembered that B is not to be trusted about species 9-10u "mit weissen", 11-12u±/w ♦ Then this is Fox var. 13-14u "mit|Schwanze", ↑7-5m/x, ↑4u/wr, wb when these vars cross offspring intermediately blended. 1083 ↑5-3m/wb all the vars of colours cross 1084 ↑12-8m 1095 ↓w In several cases he has utterly rejected the Hunters varieties & therefore may be trusted, when he admits them. ↑11w He has the L. varieties, besides. ↑11-9u±, ↑2-1m/→, wb no difference in any respect 1096 7w Nothing ↑1m 1097 2m 1119 ↑6-1m Rabbits will not breed with Hares, after many attempts 1121 ↑8-6m 1123 6m/u "vier|acht", 14m/u "mehrentheils viermal", ↑7-3m 1128 ↑5m/u (colours) 1131 ↑10m/u "vier|Junge" 1133 ↑9-5m/w become grey after some generations. 1136 16u↔/w short ears, round head 18u "oft|lang", 19u/wr

vol. 2 NB p4♦; Frisch Birds - Not in Linn Soc

Pigeon Pl. 143-151

Cock Tab. 127-137

p400 on Pigeons of this Book to p404

p396 Fowls nothing in Frisch

p1150; 1168; 1170; 1184; 1187 to 1204; 1271

SB □β

p400 Trumpeter in 1739

p404 some crossing domestic Pigeons I think read

396 1-4m/w From same parents legs feathered & not. 400 wb Frisch 1739 402 1-

3m/w will cross with others, & has crossed with Trumpeter & Jacobin.- 9u "Schleyertäbin", 11-16w It is not true that Hawks cannot catch. 404 5u "weisswarzigen", 5w Pavodetto 8m/w very large 463 "143".m 1150 ↑10-7m, ↑3-1m/↑2u "trifft|voll" 1151 13-14u↔, ↑5m 1168 ↑11-9m 1170 12-14m, ↑12-9m/↑11u "habe ich"/↑9u "gesehen"/w C corone & cornix 1171 6-9w Dwarfs occasionally born ↑11-8m, ↑7u "Jungen|Alten", ↑5-1m, ↑5u "gemischt|gesteckt" 1174 5-7m 1184 ↑17-1m/w crows following a little dog which used to catch mice 1186 "Naumanns Vögel".w where 1187 3u "Raubenkrähe|hat"/3-4m, 9-10m/u↔/w Beyond Ober ↑12u "Siel|grösser" 1189 ↑13-9m/w The grey colour only an exaggeration of base colour of all crows 1194 15-16m 1204 ↑10-7m 1271 ↑12w Magpie ↑9-5m

vol. 3 SB □β

299 Peacock more fertile in India, but Temminck Gallinaceae better reference

309 Caudal feathers vary in Turkey - Q

316 number of eggs in Tame Turkey

335 Range of wild Fowls - Acosta only authority for American Origin

337 Fowl has 14 Caudals

339 Breed of Hens with Spurs. good layers p.410

355,6 In Capons, Tail & Comb continue growing. They ● castrate Hens. NB Great variability of Comb, & in Spurs, variation of Secondary Male Characters

400 Cocks have not enlarged skull in Polands, only Hens!

406 Frizzled Cock with split Feathers Spurs various; Hens have sometimes.

N.B. Ld Spencer has shown how maturity & size of cattle increased & quite lately we have seen this in Ducks & Geese.- When no record kept, wd not be observed & yet cd go on slowly.-

xv ↓m/w Read (refers to pp. 293-500) 299

↑12-11m 309 4u "Anzahl|ist" 316 ↑5u/wr, wb

54, ie 27 each 335 14u "Acosta"/w Acosta alone says Fowls American ↑2-1m/u

"Morella|Hühner" 337 4u "vierzehn"/w 14 tail

339 ↑8-5m/w Q↷ Breed of Hens with spurs good layers; but the spurs disturb the nest

355 ↑10-6m 356 5-9m 396 ↑8u "Kamm|Fleischlappen" 399 ↑14u↷ "angefressenen Kopf", ↑16-13m/w

Canaries ↑7-5m 400 5w Has Cocks 8-12w Cocks can withstand this deformity. What says Blumenbach? 10-11w

Hen-poultry ↑7u "habe|bemerkt", ↑4u/wr, ↑3u/wr, wb Hähn Hühne 403 4-6m/Q↷ 406 4-8w

wing feathers always split ↑12u↷ "Japan"

BECHSTEIN, DEUTSCHLAND

407 wt Spurs but in Cochin? tuft 1-4m/w spurs various Q, 4u "sehr langen" 410 15-18m 434 ↑3-1m/Q 796 5z

vol. 4 SB1 □R

p3; p13; p14; p.31 edge of caudal.— coloured to p.47 — swallow-tailed Pigeon Pigeons Canary Birds

p454 difference in disposition of Canaries

p462 — if 2 top-knotted canaries are paired there come bald or birds with wound on head

p465 lay 3-4 times

p468 Hybrids.

487♦ 487♦ 478

SB2 □β

Bechstein Vol 4

p5 C. oenas Q pairs with tame (nothing said about fertility of offspring)

p14 C. livia varies most in colour of rumpi & is not true in this respect Q

17 do not mix♦ associate readily with Fancy Pigeons

47 Swallow-tailed Pigeon Q

31 Outer Tail feather on outer edge coloured like body of Pigeon X

454 Great differences in disposition in Canary Birds

462 If you pair 2 crown-turned Canary Birds, crown will be bald, & skull fail.

465 Canary Birds will lay 3- to 4 times (no ♣ wild Finch will do this)

468, 478 Q Hybrids of Canary Birds, various genera — Hybrids of Siskin & Goldfinch breed inter se, but at first small eggs & weak young

vii 4-8m/w Read ix "Canarienvogel".m/w Read xi "Zweyter Anhang".m♦ xii 6-9m 3 ↑9u "paart | bleiben"/w pairs with tame → 4 2u "zahnen | zu" 13 ↑9-5m/w House Pigeon with black Bars common in Germany 14 1u "Feldtauben"/wt The field Pigeon great vary in rump 1-6m/w For those with blue rumps bring grey, with white & reverse 15 ↑5m/u "bey | dunkler" 16 15-22w with Bars & white Rump 1/2 wild in towers &c. &c.— 17 ↑2-1m 18 8-15w Field Pigeons vary when fed by man ↑11u "Liebhaber", ↑5u "gedüpfelte"/w the chequered Dovecot ↑12-8m/w, wb has watched how the wild vary as he gives order of appearance, I suppose may be trusted; but then gives Jacobin! Did he judge by commonness of variation? Does not say that crossing avoided.— 19 ↑2-1u "dass | setzen" 21 ↑3-1m 23 13-17m/w chequered ↑7-1m/wb The ash-grey chequering sometimes disappears leaving the black chequering more conspicuous 25 ↑7m/u "grosse |

Feldtauben" 26 7-9m/8-9u↔, 11-14m/w crosses 27 4w 1795 7-12w Swallow thin feathered legs scarcely larger than Dovecot 9u "dünn", 11u "kaum merklich" 31 1-4m/w edge of outer tail feathers coloured like body. Like white & black bars. 32 1-2w Satz of Neumeister 35 ↑12u "aber | über" 47 6w as a Plate, I suppose must have seen it 7-14m, 18m 101 4-5m/5-6u "bald | mehr", 11-13m/? 454 ↑7-1m 462 wt For feathers are parted & the parting gets wider & wider.— 5-8m/Q, 9-12m/w Mr Brent believes 11u/wt, 12u/wt 465 9-11m/9u "viermal" 466 4m 468 u/wt 469 6wt, 7u "zeugen | Junge", 7-12m/Q 478 (err. printed 487), 3-4m, 16u/wt, ↑4u "Loxia Chlovis" 487 10z 903 "Eisvogel".w 927 "Pieplerche".w IV

BECHSTEIN, Johann Matthäus *Naturgeschichte der Stubenvögel* Halle; Hennemann; 1840 [CUL, S]

beh, br, cc, cs, ex, f, fg, gd, he, hy, in, mg, no, or, pat, sx, ta, tm, ud, v, wd, y

NB1 I thought of comparing rarity of English & German Birds after p210

There is very little information, except by inference, about fertility of the crossed canary-birds =

NB2 It is surprising how many birds have been introduced as cage birds

p1 to 7

-20 -40 83,4 105 skimmed

107 Memory; 108 var; 112 do; 114 range; 137; 138; 145; 177,185,155; 192 var; 196; 205; 210; 212; 215; to 253 to 256 to end —

SB □β (2 sheets)

2 Birds understand each others cries

4 Singing male attribute to charm females

7 Voice of Birds improves by practice Q

20 (he means 40) Remarks on rarity of Cage Birds breeding, except such as Canary used to confinement

83 Psittacus large eggs but unfertilised 105 exception

XX 106 Pi♦ 142Q Different facilities in learning in Bullfinches p231 Q Different characters in canaries (as in man) — 267 Q in Larks taken wild 139 Bullfinch occasionally breeding

139 Canary male Bullfinch female (Canary female Greenfinch male p.145)

185 Male losing sexual character in confinement — 215 Linnet do. 219. do.

205 Habit Chaffinch has Q different song in different places — 265 Q Larks sing differently individually

210 Can cross House & Tree Sparrow, but

not reciprocal (224 on canaries do) Q
 212 on comparative rarity of House & Tree Sparrow
 221 vars of Goldfinch, 222
 230 Easier to pair Siskin with Canary of same colour
 237 Origin of Canaries & Hybrids of (p347) Hybrids) Q
 238 Thinks want of exercise great cause of variation.-
 (over)
 239 Hybrid of Canary & F Species always takes after latter in colour & shape Q
 242 good Breeders rare amongst Canaries
 247 In Birds reared from nest, either sex will do to match with Canaries Q
 248 Certain that Hybrid Canaries & Q Goldfinches & Siskins will breed inter se [but first young are weak]
 247* Has himself crossed Bull-finch & Canaries N.Q
 252 Canaries sing till they kill themselves.
 262 Several cases of Birds in dark places losing brilliancy of colour (Ch 7) p.300 do
 289 Garrulus lived 12 years
 293 Q for instinct Migratory & Home Thrushes can be distinguished - probably do not cross (V Brehm)
 312 Nightingale once exterminated do not reappear (shows less abroad)
 318 Nightingale sometimes breed in cage surrounded by green boughs
 319 live to 15 years old - even 25 years
 322 Nightingale different Q prowess of singers, some are night singers, inherited
 403N.Q I think mistake *C. oenas* & *livia* (No) But says nothing on fertility of Hybrids
 418 case of Quail Breeding

title page $\uparrow 3m$ 2 10-17w not aboriginal! \approx -urkey & \approx -en understand others \approx of fear 15u \approx "Zaunkönige verständlich" 3 5-6x, $\uparrow 12u$ "Locktöne"/w understood by many species 4 10-17w from happiness or love $\uparrow 12-11u$ "Denn | Weibchen"/ $\uparrow 15-11m/w$ few females sing in widowhood $\uparrow 6-5m/u \pm$ 5 $\uparrow 15-1m/wb$ different species learn with different facilities \rightarrow 7 $\uparrow 13-12u$ "weil | Männchen"/w larynx not so strong in female $\uparrow 5-3u$ "dass | wird", $\uparrow 5a/w$, $\uparrow 5-1m/wb$ improved by practice 20 $\uparrow 8-3m$ 40 wt V Blaines Encyclop of Sport. (Athe) whether Falcons were bread or continually fresh caught - good case of difficulty of breeding, after thousands of attempts on European bird. 1-20w Elephants occasionally breeding may be compared to the mule occas. doing so 58 6V 61 $\uparrow 11V$ 67 15V 83 $\uparrow 10w$ Psittacus macao $\uparrow 5-3m/\uparrow 5-4u$ "Bei |

unbefruchtet", $\uparrow 1 \rightarrow$ 84 2-4m/4u "aufgezogene", 5u "nur | zähnen" 89 11x/u "pfeifen" 105 16-17m/u \leftrightarrow , 17-20m/x, wb it is known how very long pigeons live in confinement - \therefore not diseased. 106 $\uparrow 2-1m$ 108 15-20m 112 1-4m, $\uparrow 13-3m$ 114 15-18m 137 $\uparrow 10-3m$ 138 11-20m, $\uparrow 14w$, $\uparrow 13m/u$ "wie | Vögeln", $\uparrow 9-8m/\uparrow 8u \leftrightarrow$ 139 $\uparrow 4-3m/u$ "bringen | lauf" 142 $\uparrow 10-5m$ 144 $\uparrow 4m/u$ "Alter der" 145 2-6m 155 13-18m 177 4-5m 185 $\uparrow 3-1m/x$, wb X I think I have overlooked some analogous facts 192 $\uparrow 2m/u$ "Spielarten" 193 1-2m 196 10-12m 205 10-12m 210 $\uparrow 9-8u$ "ein | gerathen"/w Tree Sparr. 211 $\uparrow 3u$ "Fringilla montana" 212 9-11m/w still rarer in England 215 9-11m 218 18-21m 219 17-18m 221 $\uparrow 6-4m$ 222 $\uparrow 18-14m$, $\uparrow 11-8m$, $\uparrow 3u$ "kohlschwan" 224 $\uparrow 9-5m/\uparrow 6u$ "wenn | mit" 229 14-16m/15u "Deutschland | gemein" 230 14-19m/15u "die | gleichen"/18u "sogenannten" 236 $\uparrow 19-18m/u \leftrightarrow$, $\uparrow 8u$ "ohne | vermehrten", $\uparrow 4-3m/\uparrow 3u$ "erzogen. Anfänglich", $\uparrow 1u/w$ 237 1-4m, 6-10m, $\uparrow 11-8m/\uparrow 11u/w$, wb origin $\uparrow 3-1m$ 238 11-12u \pm /12u/w, 14-15m/15u "oft ausserordentlich", $\uparrow 8-5m/\uparrow 5u$ "sehr einfaches" 239 1-2m/Q/2u "Farbe | Gestalt" 242 6-20m/Q \approx /20u "Oder | spät", zb 243 1-2m 245 6-8m/8u "alle | möchten" 247 wt X F. linaria 6-7m/u "und | Bastarde", 9-18m/15u "Männchen | bei", $\uparrow 23a/w$, $\uparrow 21-17m$, $\uparrow 16u/w$, $\uparrow 15-14u$ "Erfahrung | die", $\uparrow 11a/w$, $\uparrow 5-4m$ 248 3m/wt F. spinus or Siskin 2a/w, 3u "wieder unter", 2-3m/Q 5-7m/Q 251 $\uparrow 21u$ "Das | Stube", $\uparrow 16m/u$ "Verschiedenheit | Temperamente", $\uparrow 5m$ 252 2-3m/w, 8u "Adern | zersprengen", 9u "herabfallen | sind", 15-21w related song 20-21m/u "der | fortpflanzt" 256 11-12m/u "Sie | bei" 262 6m/u "das | gemeissen" 264 12-13m/u \pm 265 $\uparrow 8-4m/u \pm$ 267 $\uparrow 3-2m/u \leftrightarrow$ /wb corporeal virtue & vice 282 3-5m 283 $\uparrow 3-1m$ 289 13m/u "zwölf" 293 19-22m, $\uparrow 12-19m$, $\uparrow 8-6m/Q/u$ "welche | fremde" 294 $\downarrow w$ Nothing said about breeding in domest. 13w The thrush 299 $\uparrow 13-10m$ 301 2-4m 308 20-21m/u "sind | Farbe" 309 zb 310 8m/u "bis | Schweden", $\uparrow 3-1m$ 311 $\uparrow 6-5m/u$ "wenn | leider" 312 wt The numbers of Nightingales in Europe in summer have no relation to amount of food for them. 5w, 7-12m/w This helps to show at what period the Sylviadae are destroyed. 15-18m/w think with respect to Malthus. $\uparrow 16-10m/w$ instincts dormant for one year 313 3-4m/u "Da | reisen" 318 $\uparrow 17-13m/\uparrow 13u$ "zuweilen bewerkstelligte" 319 2u "fünfzehn", 3u "bemerkt | Orte", 6-7m/u "fünf | ist" 322 15-20m/16u "nun | Schweden" 323 17-20m/17u "Es | Nachtigallen", $\uparrow 21-13m/\uparrow 20u$ "weiss aus", $\uparrow 12-11m$ 329 7-14m/12u "Diese | einer" 330 1-7m 332 4-8m 333 $\uparrow 6-4m$ 346 $\uparrow 7m$ 356 $\uparrow 6-5m/$

BECHSTEIN, STUBENVÖGEL

u "einige|um" 362 ↑10m/u "viel matter"
 377 ↑14m/u↔ 383 4-6m 387 16-21m/
 17u "Varietät" 397 ↑9-5m/w appears not
 uncommon 403 11-15m, ↑8-6m 406 8-9m/u
 "tritt|Jungen" 407 ↑11-10m/w Columba
 risoria 408 8-10u±, 11-12m, 16-20m, ↑13u
 "stets"/↑14-12m, ↑12u "grösser werden"/↑13-
 10m 409 3m/u "acht Jahre", 13-15m, ↑7u
 "unsere|schön" 411 1-3m 418 12-15m/15u
 "Jene|aus" 423 17-19m/18u/wc 424 ↑15-14m/
 ↑14u "die|Jahre" 428 ↑11-6m 436 (err. printed
 466) ↑13-12m

BEECHEY, Frederick William *Narrative of a
 voyage to the Pacific Philadelphia; Carey and
 Rea; 1832 [CUL, on B]*
 geo, ti

36 39-45m 49 3-17m, 26-31m 120 27-28"...",
 28-35m 136 wt Put this note to Matilda Isld
 wb ♦ Redo this Some of isld steeper ● 18-
 21w before 49 years 24-25w in 1767 26-30m,
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 174 35-42m 200 6-25w Note if same occurs
 to Beagle 15-25m, 15-25m 209 4-15m 211 4-
 11m 212 38-43m 213 1-2m, 40-43m 231 wb et
 314 44w 180lbs 444 31-37m

BELL, Charles *The anatomy and philosophy of
 expression London; John Murray; 1844 [CUL,
 S E. Darwin 1844 to Ch. Darwin Nov. 28
 1866]*
 beh, h, phy, y

NB p. 110 sneering muscles; p. 131 snarling
 muscles; 158 Pain; Wood-cuts of muscles
 99 p.107 109 p.261 general
 title page wb 1844 first Edit in 4to 1806. 2d
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 38 24-32m/24-31w add or more strictly bones
 of the jaw in comparison of Negro &
 European 27a "jaw" two 64 10m 82 7-8m,
 12u "a|upon" 84 4-5m 85 20-24m/23-24u↔,
 26-27m/26u "office" 86 25-27m, 27u
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92 3-4u↔, 9-13m 94 28-30m 95 2-3m/2a "of"
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 Owen 12-14w frowning good 13-16m, 15-
 16m, 16w this in man but no but not the
 M 17-22w I have seen well developed in
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 eyes 26-30m, 30-33m, 30-31u "a|animals"
 138 4-6m, 4?, 4u "arching of", 12-17w I
 suspect he never dissected monkey. 19u
 "expressing|fear"/18-20w Dog !!! 139 3-5m, 4-
 5u "muscle|expression", 6u "sign|altered", 14-
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 by Marshall Hall 149 6-8?, 15u "lacrymal|
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Appendix "On the nervous system" by Alexander Shaw, pp. 231-258
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 (u, w henceforth names of muscles) 261 7u, 8w, 15u, 15-16w, 19-21w, 23-26m/24-26w, wb♦
 262 2m/w, 12m/w, 14m, 14-15w♦, 16m/w, 21m, 21-24w, 24m/w, 32m/?

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37 5m 77 25m 89 14m 111 11m

BELL, John & Charles *The anatomy and physiology of the human body* 6th edn, 3 vols.; London; Longman, Rees, Orme, Brown and Green; 1826 [Down, pre-B, ED]

BELT, Thomas *The naturalist in Nicaragua* London; John Murray; 1874 [CUL, S]
 beh, cc, ds, f, gd, geo, h, mhp, mm, oo, phy, sp

NB1 (much not CD)

Page 23 26 Ants

28 Ants helping each other

28 Ants

112 Humming Birds S S

118 Monkey & Eagle - (CD:) give case I do not allude to Mivart - Probably after Rengger, just allude to Belt on ●

171 Indians

196 Cockatoos protected - Toucan

198 Toucans

209 Ticks

219 Acacia & ants protecting them

220 Nectar protecting plants (CD:) by ants

250 Skunk

260 Glacial

291 Nests of wasps

316 Butterflies protection & ants & spiders (CD:) resemblance

317 Lampyridae

320 do

(CD:)

321 Frog protected by colour

334 FW area continuous

383 Protection

384 do

NB2 ♦ These references apply only to facts useful for Descent of Man

♦70 Phaseolus not frequented by Humble-

bees & sterile

p. 333 Wide distribution of FW shells & Coleoptera

207 Romanes

SB ♀ p.19 Phalangidae escaping ants by lifting one after the other their long legs.

23 Blindness of Ecton an advantage in keeping them together

26 sympathetic help of ants

74. Leaf-cutting ants determines existence of trees & plants in S. America

77 ants rolling loads down steep slope

79 one of leaf-cutting - p. 83

grass brought by mistake

83 learnt danger by experience from carriages on Railways

p 119 intellect & art of Monkeys

p 219. Bulls Horn mimosa & ants

p 222 Ants & Melastomataceae

260 Glacial deposits.

291 Birds building close to wasp-nests

316 Mimicry. mostly used p. 383 do.

334. Causes why F. Water productions have not given rise to any new species - not continuous under same conditions

1 zb 7 2-8m, 3u "polygamous" 19 19-22m 23 23-26m 24 11-20m 26 6-16m, 25-30m 28 24-31m 70 12-23m/16-19u↔ 74 3-16m, 27-31m 75 9-12m 77 2-6m 78 16-20m 79 21-23m 83 16-18m, 28-31m 112 5-21[...]/6-21m, 10-14c 118 5-12m, 8Q 13u "Cebus" 119 6-9m 128 3-8m 132 15-19m, 22"..., 22c, 23c, 25c 133 wt Mr Belt says that he watched many flowers during a whole season & 3-4".../1-4m, 6-13m 134 14-26w this accounts for the orifice being closed 171 1-24m 196 16-1m 197 19-27m 198 5-13m 206 22-30m 207 5m, 5[...], 24w no no 26w races have 208 13[...], 13-16m 209 9-14m 219 11-28m 222 5-12m 250 1-4m 260 22-32m 291 20-32m 316 20-32m 317 10-14m, 10u "family|as", 12u "Lampyridae", 12m, 13u "genera", 14-18m, 15u "were invariably", 16u "not touch", wb over 318 7m, 7-14m 320 13-20m, 16m, 16-17u "out|eatable" 321 3-14m, 15-23m 334 11-14w no Water Birds 24-30m 335 12-15?, 16-18? 336 1-2m 383 7-14m 384 25-28m 385 3-6m, 7-16[...], 8-15m, 8a "wing" is

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BRONN, Heinrich Georg *Essai "Étudier les lois de la distribution . . ."*; Paris; Maller-Bachelier; 1861 [CUL]

em, geo, hl, tm, y

Beneden \varnothing

Bronn

SA (pp. 594-595)

p513 to 542; 555,556; 560; 580 Hot Springs
513 \uparrow 6-4m 514 8-9m 516 5-10m, 20-25m, \uparrow 3-
1m/w Bronn preceded 517 1-4m, 7-11m, 10-
13m, \uparrow 2w Bronn preceded 519 3-4m, 17-19m
520 11-15m 525 \uparrow 9u "division|travail", \uparrow 6-4m
(Milne-Edwards)/ \uparrow 4u "diversification" 526 10-
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Lowness.- 20-25m/21u "Pour|animaux"/22u
"minimum|chaque" 527 1-5m 528 8-9m 534
1-10w Ruminants when young have bones
typical & distinct - Hence embryo higher
than mature animal 13-16m, 17-24m 536 wt
Land animals higher than aquatic 1-17m 540
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BENTHAM, George *Handbook of the British
flora* London; Lovell Reeve; 1858 [CUL]

NB D

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"2".m 161 "3".m 163 1-3m 165 "2".w l of W
181 "1".w Down Isl of Wight "5".w Isl of
Wight 193 "2".w Norfolk 207 "1".w Norfolk l
of Wight 223 "7".w Somewhere 229 \uparrow 13x/u
"in|hairs", \uparrow 2x/u "covered|down" 230 11-12x/
u "less|plant"/w Norfolk \uparrow 1x/u "and" 231 1u
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Wight 292 "1".w l of W 315 "8".w l of W 317
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"1".w Down 70 530 "1".w Camb

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[Botany School]

vol. 1 ii, 441 30m, 40m, 49m, 53m 442 6m,
30m, 34m \diamond , 37m, 39m, 42m 443 6m, 16m, 51m
444 3m, 6m, 8m, 18m, 51m 445 10m, 26m 446
9-12m, 13m, 24m, 26m, 53m 447 1m, 6m, 46m

448 11m/9-12w also see Linnaeus 449 7m,
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46m, 55m 452 16m, 24m 453 27m 456 26m 458
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Duchata 460 19m 461 13m 463 19m, 29m,
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vol. 1 iii, 951 33u "Petalalimbricata", 35u
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37m 16 45m 17 32m 21 28m 24 6m, 7m, 26m
25 12m 26 29m 27 38m, 54m

vol. 2 ii \varnothing

vol. 3 i \varnothing

vol. 3 ii (after CD's death)

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London; Dulau & Co.; 1863 [Down]

[BERKENHOUT, John] *Clavis anglica linguae
botanicae, or, a botanical lexicon* London;
Becket, de Houdt, Hawes, Clarke & Collins;
1764 [CULR, pre-B, S]

ac1 10m ac2 11-12m, 16-17m ap 21m/u \pm ar2
4-6m ca1 17-18m ca5 4-6m ci1 19-23m cl 21-
22m co5 5-6m cr1 17-19m cr2 8-9m cu2 14-
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ou 7-8m, 13-19m pe1 8-9m pl2 11-12m, 25m
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14-15m re2 3-5m ri 14-15m, 17-18m, zb se1
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20m to 5-6m tr1 7-8m tr4 6m tu1 9-11m va2
8-9m ve1 11-12m ve2 1-2m, 17-18m un1
20m, 22-23m

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phénomènes de la vie communs aux animaux et
aux végétaux* Paris; T.B. Baillièrre et fils; 1879
[CUL (2nd vol. only)]

che, phy

77 5-11w glycogen but no sugar in muscles
80 23-28m 327 23-26m 333 17-19m

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des tissus vivants* Paris; Germer Baillièrre;
1866 [CUL]

beh, che, ct, phy

NB \diamond

The last Chapter on the Heart perhaps
concerns Expression.-

p 369 Ton Muscul
 Begun p 332
 349 will explain blushing
 p. 337 for Drosera
 SB (2 sheets)

(1)

21 ♦; 22 ♦

164 Contraction of vegetable cell – Drosera;
 drawing of cell; Drosera p.177 ♦ p. 210,
 p.337

177– Wourara affects nerve & not muscle

210 upas digitalis act on muscle

337 Strychnine affects sensitive nerves

Drosera

Bernard Tissus Vivants

[Hence it is wonderfully important that after
strychnine a tonal does not produce
 movement – when most absorbed does do
 so]

(2) ♦

April 20 1871

p. 310 not contiguity

316 spreading of irritation

321 Reversed nerve current

336.–Bears on spreading of effect of
 emotions.

353 profound contrast between voluntary &
 reflex actions.– latter most powerful when
 decapitated – Bears on weeping –

358 bears on individual effects of emotions

371; 384

397.– so Paget wrong

409 Name of vaso-motor system – 410

457 so quite independent of Habit certainly
 so.– But even here it may be habit which
 makes nervous power so readily follow this
 course.–

(over)

p354 Action of Brain checks reflex actions of
 many kinds Blushing & ♣ as the reflex
 action is to keep capillaries closed, if this is
 interfered with, there will be blush

p452, 457 Pneumogastrique irritated checks
 or stops action of Heart. thus a severe pain
 in any part act through the nose

(See H.H. says ♣ thinking about the action
 of the Heart interferes with circulation)

Nearest analogy very good for Blushing

My case of sneezing – about breathing○

p 459 direct action on Heart but why, except
 for habit, does the ♣ sensitive nerve, acting
 on brain influence the pneumogastrique.–

☞ very slight sensation initially affects
 Heart

46 ♦ 461, 463 reciprocal action of Brain on
 circulation & vice versa; syncope direct for
 heart

464 Reverse action & 466 direct action

21 14–21m 22 15–17m, 20–23m 177 3–4m, 21–
 22m 178 9–12m 210 29u "digitaline" 310 20u
 "non!" 311 1–3m, 1u "contiguïté" 316 6–10m,
 13–16m 321 1–7m 336 26–29m 337 15u
 "nerfs | mouvement", 20u "animal | curare", 21–
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 21u "souvent | diminuer", wb V → & p.358 354
 2–5m, 6–9m, 11u↔, 19–23m, 24–29m, 25–26u
 "C'est | réflexes" 355 4–6m 358 1–2m, 11–16w
 between all the reflex actions 11–18m, 16–
 18u↔, 21–28m/24–28w this is better than
 Müller wb Allude to Müller & give newer
 views 370 22–28m 371 2–6m 384 12–17m/12–
 14w reflex actions very special 397 wt ♦
 salivary gland acts by relaxation of arteries
 2–8m, 15–18m, 18u "cette | paralysante", 20m/u
 "mais | sympathique"/w a wb Hence in a blush
 some nerves from sensorium must paralyse
 the vaso-motor ganglia 400 wt The
 experiment of the arrow shows that much
 not affected only ♣ nerves, but these allow
 the vaso♦ capillaries to expand, & this
 expansion I presume causes flow of saliva
 409 24–29m/→ 410 9–28w I suppose when
 we burn from sensitive nerve causing
 impression to the cerebro-spinal ganglia &
 then paralyse the sympathetic & cause it to
 relax the vessels 17–20m, wb When we think
 intently of a part the part of brain which
 receives the sensitive nerves from part in
 question is affected, & this ♣ influences the
 cerebro-spinal ganglia – 411 1–7m, 22–24m
 439 15m↔ 452 26–29m 453 1–6m 457 22–29m/
 →, 24u "douloureuse" 458 28u↔ 459 1–6m,
 12–17m 460 19–22m, 21–22u↔ 461 14–19m
 463 13u "pâleur des", 15–17m 464 24–29m 465
 466 2–7m 485 6–12m/7–8w Ton 486 24–29m/
 25–26w Ton? 488 26–27m 489 14–15m, 25–
 26m 490 14m, 20–26m, 31–32m, 32u "Ton
 musculaire" 491 20–21m

BERNHARDI, Johann Jacob *Über den Begriff
 der Pflanzenart und seine Anwendung* Erfurt;
 Friedrich Wilhelm Otto; 1834 [CUL]

cc, ch, ds, f, fg, gd, he, hy, ig, mn, no, or,
 phy, rd, sp, spo, sy, t, tm, v, wd

SB ☐☞

Bernhardi

4. Definition of various forms of species Q

7. slight differences going with white var.

8 on Anagallis – argues for A. collina Q

12 one-leafed Strawberry, hereditary

14 on lacinated and curled leaves common
 to many genera

30 on Panicum ciliare turns into C.
 sanguinale Q

35 on vars. of some grapes very constant

BERNHARDI

39 a hybrid grass – rare case
 ♦45 *Erysimum strictum* not true
 50 on a *Pimpinella* ♣ being on a var.
 66 seedlings of *Veronica* changed colour –
 on vars of *Veronica* keeping true for 10
 generations –
 68 3 vars with analogous differences study
 these pages & look to Babington & Steudel
 will come in after *Anagallis*

vi 11–14w Denies the universal tendency to
 avitism 15–19w has no tendency to return to
 parent form 15u "*Chelidonium lacinatedum*" 2
 15u/wt, 18u/wt 3 wb There is no necessity
 according to my theory that new species shd
 have not descended from several pairs 4 9–
 18w Unterart is in fact a doubtful species,
 probably a species but very little different
 from other 22–30w "Abarten" a variety which
 does not tend to go back to parent form.
 "Spielarten", those that go back in one or
 more generations wb Does anyone think wild
 Pampas cattle identical with present stock.–
 5 1–2u "*Abänderungen*"/1–6w Varieties which
 do not keep constant, or only in certain
 ground.– 3a/wt, 17–25m/18u "*so | Zweifel*"/17–
 25w These several forms of species hard to
 distinguish wb Unterart subspecies =
 doubtful races or ♣ the close species
 Abarten – hereditary = race (or variety in
 animals) Spielarten which ♣ are hereditary for
 few genens – variety of Decandolle
 Abänderungen, which are not at all
 hereditary – allied to Monstrosities 6 28–30m/
 30u "*Rumex | nemorosus*"/28–30w colour of
 Beet wb compare these with Do they not
 belong to same Family 7 18–22u♣/18–28w
 1st turns into last without sowing. When
 colour more permanent, then accompanied
 by some slight changes just as Henslow
 thought wd be See next Page 23–26m/wb not
 in Spengler This bulbocapnos ♣ *Carus*
 produced white seedlings.– 8 12–19w
 Differences of *anagallis phoenicea* &
arvensis.– not proved to be same 23–25m/
 22–30w *anagallis collina* has 2 coloured
 flowers, believes this though experiment not
 decisive Q 9 5u "*A. carnea*"/1–5w Q This
 case true 7m/m, 8–13w fruit, taste & ♣ seed
 vary in colour & are often inherited 18u
 "*Phaseolus multiflorus*"/18–19m/w ? colour of
 flower & seed go together 22–25m/23–30w
 doubling not change of organ, but simply
 increase of petals 10 1–10w In *Datura* no
 loss of ♣ stamens (but may there not be
 potential stamens?) 14–18w on Hairs or
 covering of Plants 12 9u "*Trigonella coerulea*"/
 9–12w var. with stalks of leaves with leaflets,

23–26m/23–28w relative length of stamens
 good character in this ♣ Fam. but variable in
 Labiatae.– 29u "*Fragonaria monophylla*"/wb
 one-leaved Strawberry is hereditary 13 2u
 "*folia terna*"/w rarely inherited 19u "*Caulis*
fasciatus", 21u "*Sedum cristatum*"/21–23w in
 this case in some degree hereditary.
 24u "*Celosia cristata*"/24–25w Cockscomb
 example in flowers 28u "*Triticum com-*
positum"/wb hereditary division of the flower
 stalk 14 1–6w Thickening of special parts, as
 in Cabbages & heading of Cabbages. 9–27w
 Same variation affecting so many plants
 shows, how goes by laws. Lacination
 hereditary in *Sambucus* (& in Lettuce &
 Cabbage) so curled, blistered, &c. 10u, 12u,
 13u, 16–17u (u♣), 12–17w not hereditary 20u,
 21u, 27u, 28u (u♣) 15 wt curled leaves of
 natural species more regular 3–7w curled
 mint by seed had its first leaves not curled.–
 7u♣/10–11w partly hereditary 13u♣/12–15w
 petals only curled inherited 16z, 18u♣/18–
 19w leaves of in same situation 16 wt variety
 of Paeony with small leaves 12–15w Is there
 any *Linaria* with regular Corolla 30u "*auf |*
Boden"/wb on rich ground leaves of
involucra? end in spikes 18 2u/wt 19 1u♣/2–
 3u "*zwei | setzen*"/1–4m♦, 8–10m, 9u♣, 8–10w
 Probable mistake of Kolreuter's 24–30m/w
 See to this *D. stramonium* & *ferox* might
 be quite fertile. but *D. Tatula* & *ferox* are not
 quite but *D. stramonium* & *tatula* are. wb If I
 understand he only assumes about *D.*
stramonium & *ferox* 20 24–30m/wb When
 intermediate forms found together, always
 necessary to bear in mind the chances of
 their being hybrids.– 21 wb If the
 intermediate forms kept constant then one
 must be considered an "abart" of the other; if
 they went back to both parent forms, then
 they shd be considered as vars. & were
 result of external conditions ♣ on the two
 parents; which wd be subspecies 22 15u♣/
 16z/14–18w Organs of these plants make
 great differences 26 27z 27 19z 28 28u♣/w
 (a) wb (a) Doubtful whether these varieties,
 because other species differ in same, but
 greater degree.– 29 wb Those who are not
 naturalists think species a well defined
 entity; show the distinctions of Bernhardi;
 of Decaisne & Hooker.– H.C. Watsons
 classification of British close species – then
 the difference of numbers – Then cases of
 certain well known genera as Land-shells &
 Rats – then such flagrant cases as the 2
 Oaks – all this difficulty explicable on my
 theory depends only on ignorance of
 creations.– 30 14u♣/18u♣/14–17w Q turns

after repeated sowing into 20–24w V Steudel to see whether admitted 30u "glatte Abart"/wb does not change during 12 years 31 2u▲/w not this 5u "Abart"/6–7w this also true 11z 32 2m, 6u▲/5–13w This is a caryoploea, when it flowers 1st year, & differs in only one floret being awned.– leaves smaller 14u▲ 35 28–29u▲/wb changed in 3d sowing to D. glomerata 36 2m 39 25–28m 40 2u "hat | nicht", 2–3m 44 19–21w wild Cruciferae vary much 23u▲/24–26w probably vars 45 13u▲/14u ▲/14–21w scarcely abortive much less good species being cultivated from seed 46 3m, 4–6m, 7u/wr 50 8u▲/8–13w Kept true for 6 generations, but Steudel makes var. of L. Gallicum 16u▲, 18u▲, 16–18m/16–19w From this seed gave P. magna (Steudel makes var of P. magna– 66 4–8m/w In Veronica colours blue or red & some interchangeable 13w changed its colour 17–18w seedlings changed colour 25–26u±/25–30w Red vars. of these ▲ blue Angallis kept true for 10 generations but may be thought true species; but he seems to think other differences trivial.– 67 21–25m/21–28w when colour of flowers alters; so foliage, & when less colour, plant smaller. 68 17–21m/12–28w Like Rubus case & Hilacium. The abarten with red flowers from these 3 species differ from their stammarten in analogous way

BERZELIUS, Jöns Jacob *The use of the blowpipe in chemical analysis and in the examination of minerals* London; Baldwin, Cradock, Joy and J. Mawe; 1822 [Down, pre-B]

106 3c/wε 108 23c/wε, 24c/wε 141 11c/wε 147 16c/wε 154 15c/wε 214 23c/wε 275 15w A wb(not CD)

BEUDANT, François Sulpice *Traité élémentaire de minéralogie* Paris; Verdière; 1830 [Down, on B] ϕ

BEVAN, Edward *The honeybee* London; Baldwin, Cradock and Joy; 1827 [CUL, pre-B, S E. Catherine Darwin] beh, oo, wd

NB 352 Crippled Spider purling differently; 384♦; 261 taming Spiders & coming to Person for food ϕ 261 25–29m

BEVINGTON, Louisa Sarah *Key-notes* London; C. Kegan Paul & Co.; 1879 [Down]

BIANCONI, Giovanni Giuseppe *La Teoria darwiniana e la creazione detta indipendente* Bologna; Nicola Zanichelli; 1875 [Down] ϕ

BIANCONI, Giovanni Giuseppe *La Théorie darwinienne et la création dite indépendante: lettre à M. Ch. Darwin* Bologna; Nicola Zanichelli; 1875; trans. from Italian by G.A. Bianconi [CUL]

ad, beh, gd, ig, phy, rd, t, tm

NB All first part marked but nothing of importance

117; 158; x164, 9x;

I daresay many supposed rudiments have functions

173; x176; 179x; 206; 218;

Ruminant stomach – 268

Teeth & Skulls of vars of Dogs – 284

SB ⇨

31. number of joints in fingers good adaptation.– while intermediate – shows how well limbs adapted

117. Everything explained by adaptations

164. 169 uses of rudimentary toes to grip in descending mountains

174 no such a thing as a rudiment.

179. on the little hoof of oxen in ▲ soft marshy places.

206. In paddle of Cetaceans, variability of nodules of bone in cartilage

208 plan not uniform. joints in digits

218 explains wings of Bat by Mammiform Nature! & adaptation.–

268. no gradation between Ruminant & non-ruminant stomachs.– see Schiff on Duodenum

title page w 1874 12 8–12m 17 21–24w Wings of Insects & jaws of do 19 6–7u "nécessité | mouvoir", 7–9w Crustacean & Cirripedes 22 23–27m 23 8–12m, 18–21m 24 18–30w insects a far greater number of pieces end to end in limbs 25 8–10m 31 22–31m 46 wb All this adaptation agrees well with me, & explains cause of general form of limbs 117 3–16m 158 at (page no.), 8–12m/w why not a mere prominence of adjoining bone 164 20–23m 169 11–15m 173 18–23w but why shd it be a separate bone 25–26m 174 11–13m, 23–28m 176 22–26m 179 16–21m 186 wb why three bones & not in fin of fish or water Beetle plate facing 186 w why 3 bones? 206 7–12m 208 15–21m 218 18–22m, 19–20u "adaptation | nature" 224 7–10m, 8u "radius | seul" 268 4–12m/w Schiff ▲ shows that the Duodenum, I think, acts for this end; but no structural passage 15–19w Is it not in Kangaroos occasionally ruminant 269 11–15w

BIANCONI

Is it not in fact part of Oesophagus Schiff
275 6-9m 284 22-28m

BIBLE Cambridge; The Pitt Press; 1838
[Down, the family Bible]

title page (Note concerning children's diseases
by Emma)

BIGG, Henry Heather *Spinal curvature*
London; J. and A. Churchill; 1882 [Down, I]

BILLING, Sidney *Scientific materialism and
ultimate conceptions* London; Brickers & Son;
1879 [Down, I]

BINNEY, William Greene *The terrestrial air-
breathing mollusks of the United States* 2 vols.;
Cambridge, Mass.; Welch, Bigelow & Co.;
1878 [Down]

BLACKLEY, Charles Harrison *Experimental
researches on the causes and nature of Catarrhus
aestivus* London, Paris & Madrid; Baillièrè,
Tindall & Cox; 1873 [CUL, I]
cc, fg, gd

NB Shows how effective wind is in
Transportat of pollen

◆75 list of Plants

Effects of moisture discharge of pollen - 127
- 128

131 quantity of pollen of Graminae in air Q₄
- 132 - chaff^o of grasses

pollen at great height - 141◆; 147, 8, 9, do.
do. do. - Even alt wind had blown in any
how from the sea

◆148 on Board Ship

◆152 error?

◆157 Buckwheat entomophilous

500 - 1000 ft; more in upper current than of
lower [19 times as much] p152 over 1200 at
alt 1000 ft

75 33u "*Plantago major*", 34u "*Rumex*",
34u "*Polygonaceae*", 36u "*Amentaceae*", 36u
"*Urticaceae*", 42u "*Graminaceae*", 42u "*Cyp-
eraceae*" 127 26-32m 128 10-19m 131 38m 132
16-20m 141 29-37m 147 6-11m, 11u "600|
hundred", 14u "500" 148 7-10m, 10-11w p149
149 31-32m, 39m 150 8-13m 151 10-15m, 25-
27m 152 6-11m, 15-17m

BLACKLEY, Charles Harrison *Hay fever* 2nd
edn; London; Baillièrè, Tindall & Cox; 1880
[Down]

BLACKWALL, John *A history of the spiders
of Great Britain and Ireland* 2 vols.; London;
The Ray Society; 1861-1864 [Down]

vol. 1 NB O/

∅

vol. 2 NB 189, 207, 355

189 24-27m 207 16-18m 355 30-33m

BLACKWALL, John *Researches in zoology*
London; Simpkin & Marshall; 1834 [CUL, S]
beh, br, fg, gd, mg, mn, sp, t, wd, y

NB 3; 16; 29; 33; 46; 47; 51; 62; 73; 74; 80;
83; 86 Journal also; 89; 94; 122; 118; 136;
137; 141; 142; 151; 154 to 162; 174; 176;
190; 204; 227 Journal; 240; 245; 260; 270;
301

SB □^o

158 capacity of piping tunes in Magpie never
used in Nature Q₄

174. cases of Jackdaw Rook & Woodpecker
with monstrous crossed Beaks Q

3 14-21m

∅

16 14-20m 17 1-7m 29 6-14m 33 22-27m 46
wt Hence it will be important to show that
Malay Fowls make diff noise from Common.
1-4m 47 20-24m 51 8-11m 62 23-27m 73 8-
11m 74 24-27m 80 4-10m 83 13-17m 86 wt
Nor do all lcteri lay in other birds nest.- Is
Molothus pecoris migratory in N. America
(Yes I am almost sure Silliman?) 2-7m, wb
How easy for an ostrich to learn lay its eggs
in other birds nests were there any of same
size !!! 87 wt xx There remains to account
for young birds expelling brothers.- Not
invariably so Molothus in Sillimans Journal
1-7w Blackwall suspects they do xx 5-13w
Cuckoos do not pair - a remnant of Ostrich
state 14-20w From 4 to 6 eggs 18-24w No
see p. 75 wb The causes of Ostrich laying ♣
in different nests, is the number they lay -
Jenner? has said Cuckoos lay great number
does Blackwall say so ?? 89 8-21m 94 6-
13m 118 11-15m, wbee 119 6-7m 122 1-5m
136 23-27m 137 21-27m 141 6-12m, 20-27m
142 9-19m 151 23-27m 154 10-12m, 10-22m,
17-19m, 23-28m 155 1-7m, 16-27m, wb The
action of the old Pointer, they way look
round & have known to go round other side
of hedge. shows that they know what they
are doing: (my theory will explain all this)-
Lord Brougham says not knowing object -
one chief criterion of instinct 156 15-22m 158
16-28m 158/159 wb Hence it would be odd if
they did not sometimes acquire arts in wild
state. The capacity of animals which can be
shown by a thousand instances is in this
view important.- 160 1-6m 174 13-21m, 13-
16Q 23-27m 175 1-19m, 9-14m, 9-11Q 176 5-

15m, 8-10Q 190 8-15m 191 1-27m 204 9-16m, 12w x wb x What a contrast to Martins & Penguins deserting their young.- In Pointer we see contest between two instincts, standing & springing game 227 7-22m 240 1-13m 245 7-19m 260 2-15m 270 1-4m 301 1-5m, wb Important with respect to Argynauter attaining habit.
(\wp throughout)

BLACKWELL, Antoinette Brown *Studies in general science* New York; G.P. Putnam & Son; 1869 [Down, I]

NB 209 ♦
209 15-21m

BLAINVILLE, Henri Marie Ducrotay de *Manuel d'actinologie ou de zoophytologie* Paris; F.G. Levrault; 1834 [Down, on B, S] \wp

BLUMENBACH, Johann Friedrich *The anthropological treatises of Johann Friedrich Blumenbach, with memoirs of him by Marx and Flourens, and an account of his anthropological museum by Professor R. Wagner, and the inaugural dissertation of John Hunter, M.D., on the varieties of man* London; Longman, Green, Longman, Roberts and Green; 1865 [CUL]

beh, fg, h, he, sl, t, wd

SB ♦
191
203 Circumcision of Jews hereditary
205 → Man the most domesticated of all.-
292 ← good to show how quite ignorant B. was of selection
 \wp 322 tadpoles hatched on back of adult in cells yet have tails!
191 29-30m ♦ 205 14u "is advanced" 290 11m
292 11-13m/u "because purpose", 15u "consequence of" 322 21-35m

BLYTH, Edward *The natural history of the cranes* London; Horace Cox; 1881 [CUL]

BOITARD, Pierre *Manuel d'entomologie* 2 vols.; Paris; Roret; 1828 [CUL, on B]

vol. 1 title page S

\wp (all w are page-numbers)
55 4w, 10w, 15w, 18w, 20w, 24w, 32w 56 3w, 6w, 11w, 14w, 15w, 17w, 18w, 19w, 24w, 31w, 33w 57 1w, 19w, 20w, 24w, 28w 58 3w, 13w, 16w, 20w, 23w, 27w, 35w, 37w, 40w 59 5w, 6w, 10w, 16w, 18w, 22w, 25w, 28w, 30w, 31w 60 1w, 20w, 30w 61 24w 62 1w, 4w 63 6w, 12w, 17w, 22w, 30w 64 1w, 3w, 8w, 15w, 20w, 25w, 31w, 37w 87 26w, 28w, 30w, 31w

vol. 2 title page Charles Darwin Rio Plata August 7th 1832

BOITARD, Pierre & CORBIÉ *Les Pigeons de volière et de colombier, ou Histoire naturelle des pigeons domestiques* Paris; Audot & Corbié; 1824 [CUL, pre-B]

beh, cc, cs, f, he, hy, ig, oo, phy, sp, sx, tm, v, wd, y

NB \wp p 34 colours in crossing

SB1 Les Pigeons..

p.VII Introduction

It is a mistake to expect a tumbler suddenly to appear-

p.10; 15; 27 - ask Gould; 30; 34, 37; 54; 58; 64; 80; 120; 158; 163; 164,6 to 229; 235; 238

SB2 $\square\beta$

Special facts on Pigeons not here included

12 Females show antipathy to certain males (Ch. 6.)

15 Roman keep Pedigrees of Pigeons Q

32 Account of many crosses

35 useful Pigeons more fertile (45 fear experience) p. 160 do.

36 Absorbed in 7 or 8 generations Q \wp

37 Biset produced from complicated crosses

Q - One cross the Cavalier always true Q \wp

54 Pigeons of different size do not cross readily (Ch. 6.)

120 On Hawks observed to pick out white Pigeons; hence some owners examine all nestlings

158 By high feeding Dovecots rendered as fertile as Fancy Breeds (Ch. 3.)

165 The sailing Pigeons Q

173. Var of Pouter of which female never panachés - or chequered Q \wp

178 Claquart Q - 221 Turner or Smiter

200 Sub-vars of Nun - colours vary, but feathers coloured remain same Q

198 argument of intermediate form not being produced now as proof that both are species

208 Hybrid from Barb & Turbit very fertile Q

211 Turbit fly from Paris to Liege in 14 hours

224 Fan-tails crossed with any others lose character Q \wp

235 Sterility of crossed Turtles Q

238 In crossing white & common collared Turtle, young take after one side exclusively Q \wp

title page u "Corbié"/w kept pigeons for 45 years vii 26-31m 10 30-31m/wb p. 12 12 1-15"...", 16u "six mois"/16-17m 15 1-2m, 7-9m/8-9w See to this 27 5-17m, 19-20m, 24m/24-25w this must be mistake 27-31m/28-29w

BOITARD & CORBIÉ

what genus 28 17-22m 30 23-24m 31 15-18m/16-19w effect of cross long continued 27-31m 32 8w common Pigeon *wb* Nonain - Jacobin 34 6-9m, 9u "à|cavalier", 18-19u "souvent plombé" 35 7-12m, 20-22m, 24-26m, 30-31m 36 *wteε*, 4aε, 6-10m, 11-12w 3d cross 14-17m/16-18w 7 or 8 generations 37 1-4m/3-4u↔/1-2w !how odd Qε, 17-24m/20-25w how odd! Blue bars returning *wb* p152 description of Biset 54 4-6m 58 24-29m 64 1-3m/!!!/a "effet" sterility 80 5-10m 120 14-19m, 30-31m 152 2u "ou|pur"/4-5u "toutes|ailes"/6-7u "du|queue"/3-8w Dovecot & Chequered 153 3-5m/4u "Chardin"/3-5w What date 1686 in Ray Billi 158 5-10m 160 2-7m 162 22u "jadis estimé" 163 25-26m, 31m 164 13-14m, 17-21m 165 3-4m, 7-10m, 11-15m/11-13u↔/14u "moins haut"/15u "que|lillois", 17-18u↔, 23u "à|argenté" 166 3-6m, 13-17m, 16u "larvae", 23-25m 167 16-20m/17-22w hence not wild, yet well characterized 29-31m 168 1-2m/Q 5-9m/w only colours 169 9-10m, 16-19m, 20-23m 170 1-3m, 22-24m, 29-31m/29u "les|panachent" "de|petits"/28-31w not wild 173 7-9m/Qε, 9u 174 4-5m 176 3-6m, 15-18m, 22-23m 177 18-22m, 19w variation 22-23m, 25m/26u "milieu|seul" "allongé|mince" 178 6-8m/6u, 18u "Claquart", 19u "Columba precursor", 20u "Pigeon batteur", 22-24m, 25-29m/25a "plongeur" p. 165, 27u "enfle" 179 1m, 1-2u "ailes|yeux", 2u "chaussés", 3u "blanc", 9-14m/10u "M. Vieillot", 14-15m, 17-18m 181 1-2m, 8-10m, 21-23m 182 19-21m 184 2uε "Bagadais", 3-7m/4u "long|crochu", 7-10m/9u "leur|pates", 25-28w Scanderosa certainly pl. 9 *wt* Scanderosa 185 5m, 9-10m/10u "Tous|peu", 15-16u "pigeon cygne", 19-20u "et|moindre"/21-22u "ordinairement|noir"/18-21w just contrary to Brent 186 11-13m, 15-17m, 24-25u "redoutable" 187 1m, 18m/u "nouvelles" 188 22-23m, 23u "excessivement farouche" 189 2-5m 190 11-13m, 23-28m 193 16-17m 194 4-5w Archangel? 8m, 14-19m 195 21-23m, 23-24m, 24u "tête|vol" 196 5u "leur|court", 15-16m/u♠, 17-19m/18u "parce|conseroent", 19-30m/23-24w No blue 197 8m, 20-21m, 23-25w crossing & keeping part of character 24-30m/25-29w !? Why narrow shakers? 27a/u "cravates"/w p.210 27a/u "coquilles"/23-25w v. p. 199, yet nonains so near can be crossed & keep part of character 26u "paons", 27-28u "glouglou", 27-30m/*wb* are not the characters chiefly trivial? How is it in crossing poultry with crests? 198 *whole* ↓w I do not see this argument. It presupposes that characters of a species cannot be transmitted to a hybrid: I know of no such case; on the contrary it

might be argued those characters were not fixed - requiring both parents to have it *wt*/1-6w♦ This argument for certain number of races - in fact crossing will not do *midpage.w* Q, Qε 199 ↓w &c pigeons with a Coquille can be produced p197 by crossing a nonain with a common pigeon 9-12m, 13w The Coquille is reversed feather like nonain 16-26m, 17-20m, *wb* Nuns 200 2-5m/w laws of colouring 201 10-12m, 19-20m/19-26w ! Yet has said that Coquilles will not transmit their peculiarities 204 7-11m/9u "brièveté" 206 17u "carmes|soigne", 24-30m (Buffon) 207 10-11m, 21w Barb? 23m, 26-27m 208 *wt*/1-2m/w Ray talks of head of Turbit being square - 6-8m, 15-17m, 18-19m/?/18u "morilles en", 25-27m/25u "Il|polonais", 28u "Il|nourrit" 209 10-16m/w Certainly Barb - nothing said about being wild 210 12-14m, 18-20m 211 *wteε*, 1-2w 15 miles per hour 14-17m, 30u "un|yeux"/w See to this *wb* εε 212 3-6m, 26-27m 213 4-5m 214 16u "bleu", 21-26m 216 9-30w I shd think these were same as Antwerps 218 16-18m 219 4-5m, 15-16m 220 12-13m, 23-28m 221 7a "culbutant" Tumbler 8-9u↔, 12-16m, 23-26m 222 3-10m, 14-16m, 18wε Spot 223 17-19m, 26-27m 224 3-5m/Q/!, 7w p. 226 20m, 23-24m 225 4-8m, 9xε, 12-13m, 14-18m 226 3u "faculté|relever", 4u "moins large", 8-15w There have been several vars of this 24-27m 227 17-19m 235 3-8m 238 18-21m/Q 22-25m 240 4wt, 7w♦ τ, 8-9wt 8a/ut, 9m/u, 14u/wt, 15-16u/wt, 18-19m/u/wt, 20wt, 20wt, 23u/wt, 25u/wt, 28a/u/wt

BOLINGBROKE, Henry, Viscount A collection of political tracts London; 1748 [CUL. 1900]

(ink marks not CD; the following possibly CD)
4 4-12m 6 ↑20-3m 64 ↑12-3m 65 9-15m 77 12-15m 140 12-20m 177 6-12m 185 ↑15-13m 187 ↑4-1m 189 12-18m 213 1-3m 217 ↑10-6m 219 ↑11-7m 220 14-18m 234 ↑11-5m 235 ↑11-8m 236 9-12m 245 ↑8-6m 247 7-9m 260 15-20m 264 ↑12-8m 265 5-8m 266 ↑20-5m 271 1-4m 285 8-16m 291 ↑3-1m 292 1-12m 295 ↑14-8m 311 10-20m 334 3-10m 346 ↑5-2m 347 9-15m 374 ↑14-2m

BOLINGBROKE, Henry, Viscount A dissertation upon parties London, 1739 [CUL. 1900]

133 u/wε 269 u/wε

BOLINGBROKE, Henry, Viscount Letters on the spirit of patriotism London, 1749 [CUL.1900]

(ink markings not CD; the following possibly CD)

18 ↑10-4m 26 ↑10-1m 49 5-10m 60 ↑8-1m 73
 ↑12-9m 77 ↑3-2m 91 ↑7-3m 92 ↑12-9m 118
 8-10m 135 6-8m 138 ↑10-1m 148 4-9m 157
 ↑8-5m 159 2-10m 161 ↑8-5m 169 6-10m 175
 1u "studdy", 4-6m 179 ↑13-8m 190 10-13m
 192 ↓m

BONAPARTE, Charles Lucien *Coup d'oeil sur l'ordre des pigeons* Paris; Mallet-Bachelier; 1855 [CUL]

ad, gd, tm

SB □β

3 - On number of tail-feathers - 16 in Goura - ♣ Q

21 Birds of E & W Africa often same, but different at Cape

44 Balancement - long tarsi & short toes in the Phaps group

50 Zenaida American group - Galapagos

2 26-27m, 30-33m, 32u 3 9-10m, 10-11Q₂,
 11-12m, 11u "pattes|plus", 12u "douze", 16u
 "quatorze|seize", 29u "s'élève|seize", 34-37m 4
 13u "première|sont" 5 5-10?, 25u "orbites
 nues", 26u "rémige échancrée" 8 14u
 "quatorze|pennes"/13-16m/w The Pptilopoda
 ought to have 14 12 27-30m, 32u "les|
 développé", 34-36m, 35u "presque|oeuf" 13 2-
 3m 19 14m, 15-18m, 15u "douze", 16u "sous-
 famille", 16u "seule cosmopolite" 20 27-29m,
 27u "genre|deuxième" 21 30-35m 22 21-24m,
 30u "Col. livia", 35-36m 23 4-5u "deux|
 caractériser"/4-7m/4w orruption blanc., 5-18m,
 8-9u "clair, gris-bleu", 15u "plus d'assurance",
 19-21m, 20u "C.|retrouve", 26u "d'un|ou",
 37-39m 25 12-19m, 28-33m 44 3-8m 50 8-
 12m, 9m, 10x, 9-10w Zenaida at Galapagos
 good case 51 12-17m 52 15-21m

BONAPARTE, Charles Lucien *A geographical and comparative list of the birds of Europe and North America* London; John Van Voorst; 1838 [CUL, S]
 gd

NF go through this list with D'Orbigny & self & see what birds common to N. of America & Europe

NB 35 Nothing in particular on birds
 35 26m 45b 19w Galapagos 47w Rio Plata
 46b 26w Rio Plata 47b 9-10w Galapagos 17-
 18w Rio Plata 48b 25-26m 49b 5-6w Rio
 Plata 50b 13-14w Tierra del Fuego
 ♂

BONDI, Augusto *L'Uomo: ipotesi sulla origine (teoria darwiniana), considerazioni* Forlì; Tip. Soc. Democratica; 1873 [CUL, I]

BONER, Charles *Transylvania: its products and its people* London; Longman, Green, Reader and Dyer; 1865 [Down]

BONNAL, Marcel de *Une agonie* Angoulême; F. Lugeol & Cie.; 1877 [Down] ♂

BONNET, Charles *Oeuvres d'histoire naturelle et de philosophie: insectologie* 2 vols.; Amsterdam; Marc-Michel Rey; 1780 [Down, pre-B]

vol. 1 NB 160; 167

130 30-34m, 31u "petit accroissement" 160 18-
 20m/21u "deux|Eté", 22-24m/23u "jusqu'à|
 fois" 163 2-6m/5u "douze fois" 167 10-12m,
 24-28m 267 17m 268 15-16m, 24m 269 19m
 271 2m, 5m

BONNET, Charles *Recherches sur l'usage des feuilles dans les plantes* Göttingen; Elie Luzac; 1754 [Botany School, FD]

BONNET, Charles *Recherches sur l'usage des feuilles dans les plantes* Göttingen & Leiden; Elie Luzac; 1754 [Botany School, FD]

9 1-4m 17 5-9m 19 9-11m 27 1-3m 42 23-
 25m

BOOTT, Francis *Illustrations of the genus Carex* 2 vols.; London; William Pomplin; 1858-1860 [Down]

BORRELLI, Diodato *Vita e natura* Napoli; Enrico Dethen; 1879 [Down] ♂

BOSQUET, Joseph *Description des crustacés fossiles du terrain crétacé du Duché de Limbourg* Haarlem; A.C. Kruseman; 1854 [Down, I]

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BOSTOCK, John *An elementary system of physiology* vol. 1; London; Baldwin, Cradock & Joy; 1824 [Down, pre-B, ED]

BOUDIN, Jean Christian *Traité de géographie et de statistique médicales et des maladies endémiques* 2 vols.; Paris; J.B. Baillière et Fils; 1857 [CUL]

cc, gd, he, oo, pat, sp

vol. 1 SB □β

☞ xlv

l-iii; p. 201

→p320 ☞ number of animals killed in France, showing how one animal increases; ☞ compare with ravages of wolves

p.347; p.392; p.406

☞ Poor Book

☞ The introduction gives all the most important cases; which show that climate & race affects the constitution; if so why not the progeny?

xliii 35-38m xlv 1-36m lii 12-38m, 16-19m 1
☞ 9-17m, 23-27m 201 15-20m 320 29-33m
347 25-28m 392 31-32m 406 14-23m, 14-18m
Catalogue ☞

vol. 2 SB Vol 2

☞ 295; 317; 321, 322 ☞ Bouton d'Aleppo

401 ☞ Negro diseases

445 ☞ Elephantiasis

529 ☞ Deaths of different Races in Ceylon

648 ☞ - do in Jamaica.

Most of the local diseases probably ☞ have local cause but it shows what little causes act, unperceived by us & act differently on different races - may as well produce diffrens of structure, as such diseases as the Bouton of Aleppo

295 2-5w☞ strictly local diseases 317 12-15m☞, 24-26m☞ 321 3-5m☞ 322 7-19m/w☞ drinking certain water saves from Bouton 401 7u "être noire" 445 11-17m 529 35-41m 648 4-11m

BOUÉ, Ami *Autobiographie* Wien; F. Ulrich und Sohn; 1879 [Down, I] ☞

BOURBON DEL MONTE, Jean-Baptiste François *L'Homme et les animaux* Paris; Germer Baillière; 1877 [Down, S]

SF 63; 65; 71; 72; 73; 79; 81; 87; 89; 90; 91; 93; 97; 98; 99; 101; 108; 111; 129; 137

BOWDLER, Jane *Poems and essays* Bath; 1819 [CUL.1900]

125 3-6m 130 ↑6-1m 131 1-3m, 10-14m 134 ↑3-1m 135 1-10m 177 9x, ↑4x 178 ↑9m 223 5x/w 29 227 ↑4x 229 ↑3x 232 3x 235 11-16m/16x 239 ↑3-1m 240 1-15m 242 5-10m 245 1-10m, 11-18m 249 1-8m, ↑15-9m 258 4-10m

259 ↑6-1m 260 ↓m 264 2x, ↑12x 265 3x 266 5x 268 ↑8x 270 1-12m

BOWERBANK, James Scott *A monograph of the British Spongiadae* 4 vols.; London; The Ray Society; 1864-1872 [Down] ad, hl, tm, v

vol. 1 NB Even in so lowly organ. bodies as Sponges B has shown the special uses of the wonderfully diversified & curiously formed Spicula -

☞

(vols. 2 and 3 ☞; vol. 4 ed. by A.M. Norman)

BOYER, Abel *Le Dictionnaire royal françois-anglois et anglois-françois* New edn, 2 vols.; London; J. Rivington; 1816 [Down, pre-B, ED]

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BRACE, Charles Loring *The races of the Old World* London; John Murray; 1863 [Down, I] h, v

NB 388 correlation of colour of skin; 392 smells emitted by Human beings

☞

BRADLEY, Richard *A general treatise of husbandry and gardening* 3 vols.; London; T. Woodward; 1724 [CUL, pre-B, each vol. S of R.W. Darwin]

ch, fg, phy, v

vol. 1 NB 43♦ Ash Tree - 199♦ - White edging leaves common by graft; 132 black and white grapes, & striped on same plant; 298♦

43 6-8m 132 19-26m 199 2-5m, 21-27m 201 25-37m 202 1-6m 298 15-21m, 15-16w 1724 20-24m, 21-26m 299 zb

vol. 2 NB p.16; p.172♦; p.172♦

16 26-31m, 39-48z 171 22-30/22u "soft"

vol. 3 NB 1722; 40♦; 58 on good from change of Seed; 60♦; 90♦

40 30-33m 41 7-15m 58 20-22w in 1724 21-31m 59 1-5m 60 2-17m, 7-15w A.O. 1722 11u 90 14-40m index, p. 3 12m, 16m p. 4 25m p. 6 13m p. 7 24m p. 8 18m

BRADY, George Stewardson *A monograph of the free and semi-parasitic Copepoda of the British Islands* 3 vols.; London; The Ray Society; 1878-1880 [Down]

BREE, Charles Robert *Species not transmutable* London; Groombridge & Sons; 1860 [CUL]

beh, cc, sl, sp, t, ta, v

NB 78 Variation accidental as far as good of animal is concd

- ◆ Origin
- ◆ 102 Sp. Th.
- ◆ 132 Origin
- ◆ 157 Origin
- ◆ 168 good No; 222 Origin; 222 Sp Theory; 252 aphid
- ◆ 168 Look to – may not different castes of ants be produced by different food
- ◆ 222 on variability of Larvae
- ◆ 252 on aphides & Ants.

60 6-8m, 18-22m 78 wt He must think other species 4-5m, 5u "uncomfortable", 7m 102 10-29m, 22-24m/22w good 103 4-6m 108 26a/u€, 25-27w time of – no 132 19-32m 157 4a/u "same"/w similarity 7a "these" several 166 3-7m 168 wt Plant produces 2 forms wb yet wd be due to selection of instincts 15-23m 222 11-13m, 15-22m, 25-28m 223 26-29m 252 11-23m

BREHM, A.E. *Illustriertes Thierleben* 4 vols.; Hildburghausen, Verlag der Bibliographischen Instituts; 1864-1867 [Down]

beh, br, gd, sx, tm

vol. 1 NB 75 Baboon like spirituous drinks & orang like tea & coffe & wine?

- ◆ pxxx about polygam?
- ◆ xxxvi about pairing
- ◆ p261 Baboon & Leopard
- p.119 stopped reading March 2d
- p77 apparently polygamous Q
- 108 Poly & ●

title page S 11 6-9m, 10-14m 23 14m 25 35m 30 29-30m 33 7m 35 8-9m 39 23-45m, 30u "Siamang", 32u "freudiger" 40 17-23m, 21-22u "seinelan", 23m 47 16-18m 50 21-22m, 24-31m 52 16-17m 53 wt Tail 1-3m, 7-8m, 27-31m 54 10-12m 56 1-5m, 9-12m, 11-13m, 20-23m, 31-39m 58 17-23m 59 3-6m, 9-11m, 9-11m, 22-25m, 22m 60 1-4m 61 11-12m, 11m, 17-18m 62 33-36m, 34-36m 65 20m 67 13m 68 16-20m 70 1m, 16-19m 72 46-48m 74 24-32m 75 1-5m, 2-3w get drunk 12-14m/12-14w distinguish male & female 33u▲ 76 27-40m, 47m 77 6-9w lives in Tropics 15-20 to 150

10u "und | Weibchen", 12u "Mantel", 13-14u "die | Mutter", 44m 79 8-35m 80 7-26w Saw them roll down stones, as large as head, so as to close the pass for the caravan – act in concert & use tools.– also defend each other for the males advance 81 18-19u↔ 82 wt old male Hamadrya & Geledons fight & tug each other by the long man or mane of Hair, & roll down stones against each other 28-31m 84 3m, 7-11m, 7-14w hits the ground when in passion with open hands – as in Garden. 22-27m 85 wt X Master shown by pretending to strike him, & the pretender instantly recognised.– Mat on shoulders to protect from heat of sun 25-26x 86 1-5z, 9-11w very fond of riding apes 13-19w very fond of Beer – headache after being drunk 44-48w/wb very much afraid of Lizards & Frogs & Lurchen yet very curious like Orang with Turtle– 45-48m 87 wt X one individual of distinguished intelligence – very fond of all young animals – & when kitten scratched him, bit off claws. 12x, 28-31m, 29w about food 34-39m, 42m, wb very clever in stealing & conquered Dog 88 17m 91 3u/w fright 7-10m, 8u "hellbraun", 10-12u "In | gefärbt", 46m 94 25m 96 8m 101 18m, 35m 103 17m 107 21-22w Polygamy 108 19u▲, 33-34u▲/34wt, 40-41u↔ 111 22-24m, 24u↔ 112 2m 113 13-14z 114 17m 116 21m 119 10m 120 16-20m 124 32m 128 9m, 43-48m, 48u ↔ 129 1-6m, 6u↔, 35m 130 11-13m, 11u "aufgeregten", 12u "sich | möglichst" 261 3m

vol. 2, 729 11u "die | Schild" 731 20-29m, 26-28u↔, 31-33m, 36-38m, 37u↔, 40-41m 732 10-16m, 13u "auf | fallen" 743 13-14w up-curve fig.z, fig.w these ought to curl a little more outwards (see Wallace – correct by him; Reduce Wallace's drawing & face same way with Boar 14u "rückwärts", 17-18u "Die | kurtz", 19u "ragen | sie" 745 15-17m, 15-16u↔, 34u/wt

vol. 3 NB 236 Vidua; 322 Paradisea; 745 Rupicola 236 5-9m, 18-20m, 19u "feuerroth", 23u "roströtlich", 40-44/42-43u "paarweise" 237 3-5m, 4-6w sings when in fine plumage 292 15-18m, 15u "bedeutend kleiner", 16u "ist | auf" 293 4u/wt, 6u/wt, 11-12u↔ 325 1-4m/1-2w long feathers 9-12m, 9u "sonderbar | Geräusch" 326 24u "Bennett's", 26-32w cannot bear any dust on feathers

vol. 4 NB 351 Courting of black cock; 991 on Courtship (?) 352 9m, 14-15m/19m 469 2-6m, 18-20w tailfeathers & secondaries 18u "ungemein |

BREHM

stark" 473 10m 990 29-31m, 29-30w few polygamous 33u "Da gibt"/33-37w more males than female

BREHM, Alfred Edmund *Tierleben* 2nd edn, Grosse Ausgabe, 9 vols.; Leipzig, Verlag der Bibliographischen Instituts; 1876-1878 [Down] ♂

BRENT, Bernard P. *The canary, British finches, and some other birds* London; Journal of horticulture and cottage gardener, n.d. [CUL] hy

NB p.21; p.22; p.30; p.109 Hybrid Canaries 21 8-12m 22 19-21m/20u "feather-footed" 30 12-16m 55 7-11m 109 32m

BRENT, Bernard P. *The pigeon book* London; Cottage gardener office; n.d. [CUL] br, hy, oo, v

NB w₂

Q p4♦ 13 - Hybrids with C. Oenas

Q 41 - Kite Tumbler after spling become black

46 Trumpeter 1/16 blood not trumpeting

55 - Lace Fantails always give lace to offspring what a contrast with my Japan silk Fowls!

60 - The story about Hawks killing tired Carrion wrong.

↔ 36 definition of splash pigeon

13 6-12m, 14-16m 36 41-47m 41 12-18m 46 20-31m, 28-31m 50 zt 55 27-31m 60 20-22m

BRIGGS, Thomas Richard Archer *Flora of Plymouth* London; John Van Voorst; 1880 [Down, I] ♂

BRIOSI, Giovanni *Intorno un organo di alcuni embrioni vegetali* (extr.); 1882 [Down]

British Association *Report of the third meeting of the British Association for the advancement of science held at Cambridge in 1833* London; John Murray; 1834 [CUL, S]

SB Brit Assoc Vol 3; p. 50 x; p. 447; O/Oct. 1857

50 17-29m/w Hooker quite agrees 446 15-20m 447 21-26m

♂ throughout

British Association *Report of the eleventh meeting of the British Association for the advancement of science, held at Plymouth in*

July 1841 London; John Murray; 1842 [CUL] em, fo, gd, hl, ig, ir, sp, t, ti, tm, ts, v

SB1 1841; p. 77; p. 96; p. 173; p. 181 Waterhouse - low in scale; 185 185; 186; 192; 193; 196; 198 to end.-

SB2 □β

96 Different form of Vertebrae in ant & post part of column. Ch 7. Kinds of Transition.- ◊ 173 Owen intermediate fossils - 185 - 196 Summary on do

181 do - animals on confines of groups present great differences

197. Argument (Owen) against Transmutation - Resting on assumed rise in development - Grand discussion.-

201 Embryology of recent Reptiles resembles ancient

♂

77 49-54m 96 44-50m/? 173 37-45m, 44-47m 181 23u "like a"/21-27m/1-24w this is like Waterhouses remark that low groups vary much, 29-34m/29-51w according to this, if there were many Monotremes, they wd vary much.- 185 41-48m, 46u "Pleiosaurus"/46w Enaliosaurians 49-53m/50u "other fishes"/w p.186 53-54→ 186 30-32m 192 36-41m/1-44w As species are long lived (must be!!) so are genera - how is this in Mammifers Badger long-lived - Carnivora in Eocene 193 33u "terrestrial"/31-49w These cd have been np terrestrial Mammifers for 70 specimens of Iguanodons have been found 196 9-11m, 13-15m, 20-22m, 24-30m, 36-38m, 48-52m 197 21-25m/33-37m/1-35w assumes the series to be perfect & a tendency to higher development - 198 12-14m/12-42w must confess even on my view imperfection of record surprising - 22-25m, 36-38m, ↑8-2m 199 3-5m, 7-9m, 18-30m, 32-44m, 49-54m 200 1-8m, 29-33m, 45-51m, whole ↓w Do those geologists who tacitly think the record pretty perfect - think that there were only 3 Mammifers during Oolitic & only . - Reptiles during Carboniferous & so many in Permian & ♣ Triassic 201 22-25m, 36-41m, 43-50m 202 6-8m/w Falconer 11-15m, 21-24m ♂

THE BRITISH AVIARY London; Dean and Munday; n.d. [CUL]

18 ↓m/"... 20 8-18m 25 wb 2 32 ↑8-1m 33 6-14m 34 8-16m 40 6-14m 43 4-10m 50 ↑4-2m 51 1-2m/m 57 ↑10-7m 68 1-4m

British Museum (G. Busk and J.E. Gray) *Catalogue of Marine Polyzoa in the collection of*

the British Museum 2 parts; London; by order of the Trustees; 1852/1854 [CUL]

Part 1, 39 1-4m 44 18-22m 54 ↑13-11m, ↑9-5m **Description of plates, iii** "pl XXII".m

Part 2 NB (not CD)

67 3-8m, ↑11-7m 70 2-4m, ↑16-14m 83 16-19m, 24-27m 84 ↑3-1m 94 7-9m 104 3-7m, 16-21m, 19-21m/21...", 29-33m 105 13-26m, ↑11-1m 106 1-7m/2-7".../2a "seta" & the 2a "observed" ● ↑4-1m/↑3u "avicularia|far" 107 8-11m/w Both avi(cularium) & vibr(acula) 108 table.m

British Museum (J.E. Gray) List of the specimens of Mammalia in the collection of the British Museum London; by order of the Trustees; 1843 [CUL]

gd, geo, is, sx

Part 1, 2 1u (u henceforth ♠) 4 1u, 11u 5 19-21m/20u, 33u 6 21-25m/21u 7 6u, 16u, 25u, 33-34m/33u 8 1u, 17u 9 29-31m/29u 10 16u, 20u, 24u 11 17-18m/17u, 21u, 26u 12 18u, 32-24m/32u 13 18u, 27-29m/27u 15 18u

Part 2 front and back blue covers.w Seals
NF What seals Kerguelles Isd Aukland & Campbell Isd Azores S Shetland Georgia Ascension? Falkland Seals - ice-action
NB There is no case of Seal confined to single isld So not case parallel to Bats.- No species common to N. & S. but species of same genus N. & S. - In fact nothing for me.-

p22 & 24 Caspian Seals It is a Northern genus alone

viib 15-16w Fur seal viii 13-14w representative species in North 22-24m/23u "Ursinus", 31-40m 2 34-37m 3 41-43m 13 23w Packed ice 33m/u (u henceforth place-names) 14 6-8m/17-18m/1-18w Ice does not come to New Zealand 16 23-25m/24u/25u, 41-42m, wb Distance from S. Orkney to Tierra del Fuego 17 4u 22 31-39m/32u/33u/36u/37u 24 wt good case as identical species in P. viz P. vitulinus Hardly because may have ranged further formerly 9u, 11-13m, 36-37u 34 41-42m/41u, 43-44m/43u 35 31-33m/31u/32u, 41u, 45u 37 21-24m/21u, 38u, 40-43m 43 20-22m, 24-32m 45 38-39m

Part 3, viib 19m, 23w ? common viiia 17m♦, 36w C Aegoceres 38m/u/w Aegoceres viiib 16-17m, 19-21w C Dar & ♣ 29-32m, 32w C Smith 34m/w Babing 36-37w Colours ixa 4m/w Colours 48 (u henceforth sex-differences) 4u, 6u, 8u, 10u, 18u 100 5-6m/5u, 36-40m/36-37u 104 30u 106 37-40m 124 20m 128 2u 133 1u,

5u 134 22u 136 6u, 25u 137 30u, 35u 139 26u 141 7u, 14u 142 33u 143 5u 144 16u, 16-17u 146 33u, 40-42m 147 28u, 30u 148 19u, 20u 149 6u, 7u, 14u, 17u, 20-21u 150 7-10m, 8u 151 35u, 36-37u 152 24u 153 4-5u 157 9u, 15u, 16u, 17u, 19u 160 18u, 31u, 37-40m 171 36u "in male only" 172 37-40m 177 35u 179 18u, 23-25m, 42-43m 185 20-22m, 28-30m 216 40-43m 220 29-31m 242 24-28m

British Museum (F. Smith) Catalogue of British Hymenoptera in the collection of the British Museum London; by order of the Trustees; 1855 [CUL]

beh, fg, mhp, oo, sp, sx, tm, v

NB ♦ p225 Ask about accidental other species & they lay their eggs

SB1 □♀

16 ♦ How far mixed; 46; 114; 117; 118; 144; 158, 161; 108 to end

SB2 □♂

16 Mixed colourings of 3 genera & 5 species. Wd not blindness of instinct lead them to become parasites

46 The bee whose larva preyed on, does not interfere with Parasite Bee Q

117 The parasite closed nest in some cases NQ

158 Great diversity of instincts of Bees of same genus: variable in species also Q

174 Males in one genus, female in another hard to distinguish

185 diversity of Habits NQ

211 Bombus diversity in nests Q

225 on occasional presence of working Bees of different species, in nests of others Q

1 7u "added|one" 2 wb for Apidae p 113 16 wt Fabre believes certain Sphexidae occur only parasitic 2-5m, 9-10m, 13-15m/13u "a mixed", 18-22m 46 1-11m, 11-13m, 25-30m 56 zt 114 20-21m/w Hibericum 117 19-23m, 26-32m 118 14-22m 144 25-30m 145 16-18m 158 10-14m, 10-28w variable situations of nests 11-28w variable in species & genera 21u♠, 34][u♠ 159 9-12m, 12u♠, 13u "burrows|banks", 20m, 25-26u↔, 44-46m 161 10-14m, 10u♠, 12u "underside|lying" 173 32-37m 174 18-22m, 23-31w In Andrena it was the males which were so difficult to distinguish 27-30m 185 wt Megachile a leaf culture, what diversity of Habit- 11-14m 208 22-26m, 29-31m 209 42-46m 210 12-16m 211 44-46m/wb Build in different situations & use moss → 212 6-12m, 14-18m, 43u/w 2 213 15u/w 3 25u/w 1 36-39m/Q/36-38u "in|numerous"/wb These varieties are males females & workers 214 23w 1 32-40m, 32u,

BRIT. MUS. (SMITH), HYMENOPTERA

37u/w 21/2, 40u/w 1 215 7-11m/8-10u, 21u/w
 2 33u/w 3 36u/w 1 216 22w 2, 29u/w 2 31w 1
 217 23w 0 34w 1 38w 0 218 22w 2 30w 2,
 32w 1 219 25w 11/2 29w 11/2 31w 1 221 1w
 2 10w 1 16w 1 26-30m 223 4w 1 9w 1 11w 1
 33z 224 33w 2, 38w 1 zb 225 4w 1 18-
 30m, 18m, 22u "workers" 226 21w 1 24w 2
 26w 21/2 227 22w 1 34w 2 39w 1 229 18w 0,
 24w 11/2 230 27w 0 32w 11/2 34w 1 231 21w
 0 32w 2 36w 2 233 7w 1 23w 3 26w 2

British Museum (T.V. Wollaston) Catalogue of the coleopterous insects of Madeira in the collection of the British Museum London; by order of the Trustees; 1857 [CUL, I]
 is, sp, v

SB □β

Whole Introduction marked

♦p85 note Canal Elateridae Telephoridae
 vii 11-19m, 11-13w dele these 3 vars. 16-
 18w add 5 vars. viii 6-10m ix 3-4**, 7*, 14-
 15w Italics 16u "far", 25-28w x ↑13-11z xii
 32-36m xiii 12-14m, 19-30m xvi wt The
 species f. on all 3 islands, are all rather
 indigenous 4-9m 1 zb 207 wt The numbers to
 left hand are the vars. to each species
 added from great Book & corrected in few
 cases.- Omit in counting all those marked
 by one or two Asterisks (a.s counted) 5*,
 10.3 (ie, line 10, CD writes '3' to left hand),
 17.4, 30.1, 34.1, 42.4 208 2.1, 5*, 10.1, 12*,
 15.1, 20.1, 23.3, 31.1, 34.1, 39.1, 52*, 53.5 209
 2*, 4*, 17-19c, 26*, 39.1, 43c, 44c 210 5.1, 39.1,
 42.1 211 5.1 212 29*, 30*, 40* 213 12*, 21.1,
 29* 214 11*, 17*, 20*, 27.2, 29* 215 6.5, 14*,
 25*, 33*, 41.1 216 16.4, 19.1, 21.1, 27.2, 28.1,
 50.1 217 15*, 27.2, 34.1, 35.1, 40.1 218 22.1,
 26.2, 32*, 43.1 219 10.1, 17*, 20*, 26*, 28*,
 28.1, 29*, 34*, 35*, 36.2, 42* 220 7.1, 10.1,
 11.1, 13.5, 18.1, 41.1 221 7*, 29*, 31.1, 38.4,
 39.2, 43.1, 44.2, 45.2 222 12*, 14.1, 17.1 223
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Catalogues of the zoological collection in the British Museum 8 zb

BROCA, Pierre Paul *On the phenomena of hybridity in the genus Homo* London; Longman, Green, Longman and Roberts; 1864 [CUL]

f, h, he, hy

SB 25 Definition of fertility in hybrids; 38; 39; 40; several statements to this effect - quote when I speak of inferiority of Mulatto under Reversion

18 21-26m 25 19-34m 27 29-36m 30 12-18m
 33 23-26m, 28-32m 36 9-15m 37 19-24m 38

5-12m, 22-26m 39 18-21m, 32-33m/w Proc R
 40 28-30m 49 7-11m 60 7-34m 63 10-13m,
 12u "indirect communications" 66 15-19m
 ♂

BRONN, Heinrich Georg *Handbuch einer Geschichte der Natur* Stuttgart; G. Schweizerbart; 1841; 2 vols. and atlas [CUL]
 ad, af, beh, br, cc, cr, cs, ct, em, ex, f, fg, h, he, hy, ig, is, mg, mn, oo, sl, sp, sx, tm, ts, ud, v, wd, y

vol. 1, xviii 12-13m 378 31-33m

vol. 2 NF When in doubt for reference see Index to first time name is mentioned

SB (10 sheets, numbered 2-10, 12)

2

Bronn. Geschichte Th. 2

Cross means useful

a p.93 cage-birds deprived of light become black & snow insects from ♣ same cause do-

p.96. birds black from food & being in dark places, generally assume proper colour next year. - (Bechstein)

X p.do (b) nestling goldfinches in cage covered with cloth all became black, resumed colour ♣ next month

do (c) fe♦ male pyrrhulas took on plumage of female in cage (other cases analogous)

(d) Hence light has influence, & whiteness of polar animals perhaps effect of snow-light
 Negros!!

Introduce discussion.- though polar animals may have been created white & beetles under stones black, we yet know that it is possible they may have been so altered.- Against relation between tadpoles & Siren

X Q (e) Beetles become darker & darker (traced by gradations) till black on snow-covered 7000-8000ft summits of Alps.- but thought species by some authors - so in going to pole: hence climate, though opposite effect on Vertebrata, such beetles must in pupa or larva state must be long under ground

3

p. 99 (a) yellow var of Zygaena not found at Erfurt, but common in south Germany.-

(b) accounts for increase of cattle in Australia from greater birth of cows to Bulls 3-to-1 & in Man ???!

(c) Rabbits & Hens breed much oftener, in domestication, with food &c, than free

p.100 (a) quote Roulin on infertile geese, when taken into America & Garcilasso for hens not procreating; though now become fertile, yet game-cocks from England are

less so.—

p.101 (a) late eggs of butterfly produce a different variety from early eggs

p. 102 (a) much food increases fertility:— mountain sheep produce only one lamb; whilst lowland more & if former brought into good pasture, even in first year produce more than one; on other hand, Marsh-sheep taken to mountains retain fertility for 3—4 generations [How opposed to Doubleday!] X X109 Hares larger & smaller in Woods & Fields

p110 Most important: Gloger thinks similar differn in feathers of wing in Ducks, especially Musk-Duck differences between migratory & stationary birds of same species.= X

(4)

p111 change in stomach in owl for vegetable food (a) X wh. caused it to perish X alludes to milking of cows — I may say difference is sudden in La Plata

(b) In pig-races, wh. have many young more tits give milk than in less fertile races.

p113 X Difference in Habit of single & many Beavers.

p. 113 (a) Rabbits much ferreted (?) taken to live in farms (F. Cuvier): anyhow a variation in habits

117. Latent instincts in animals become feral ~~ie~~ tameness

p. 117. It is important to consider whether the male in plants or animals (V. Koelreuter) can propagate the sportive tendency, because if so it will show, that the varying tendency in the generative system, under domestication, is the effect of impregnation & not the womb influence. In fact if fish & silkworms vary much, it cannot be foetal influence X|| (Yes it may in Egg), nor indeed in birds, as the mother only influences the egg by its warmth, after a very early stage:

p.118 (a) origin of most varieties of plants, through sports by unknown causes.

p. 118 (a)(a) attribute sporting of apples & such like to the transplanting, pruning &c, wh. they have undergone. [no. corn sports as much as anything]

5

p.119 when a man has once got an \diamond variation (a) (or through bastardising), then he can easily go on raising more & more. ie variation tends to increase. [this comes very near to my facts]

p119 (b) No character resists variation in cultivated plants; in lesser degree in wild state: cannot compare effects of nature during course of years, with our during a few

years.—

X|| p.120 (a) is said, that Dahlias at first sported on single characters, & then in less degree in all: this very important, from analogy to wild (& whether relations of sub-genera to genera)

X 121 variability of hereditariness in weeping ash & Peach

p123 (a) cases of sports in Dahlia flowers; & of whole plant producing different coloured flowers Geranium do — Dianthus — case of wild Achillea do

(b) apple with no petals or stamens, but 14 styles; fruit peculiar, when impregnated.

p124 (a) curious account of seeds of a Carduus sown — one young plant came up different, & the seedling for 3 years from it same, & then on same soil lost one of its chief ch \diamond

6

p 127 (a) subsequent offspring of a mare, affected by having once produced a mule. & sow so affected from a cross with wild Boar & on two races of dogs

p.130 (a) tailless fowls appear to have an abortive unformed, knotty projection, instead of the Cuckoo-Bone

p.130 (d) left wound snail can pair with only left — but young are right, in Helix pomatia (contrary to Sowerby)

p.131 Tail feathers in waders & webs sometimes X vary in number — Gloger & Hodgson (references)

p132 (a) case of carp (which bred true) with 4 times larger scales in lines, with some places bare X — call Looking-glass Carp.—

X p.132 (b) Indian races of sheep & oxen where female hornless — he compares it with deer-tribe.

X p.132 (D) cow lost left horn by suppuration, afterwards had three calves with left horn a mere stump attached to skin.

X p 133 (a) Bug generally apterous, found in marshes with wings elytre bred in a house produced offspring with abortive wing \diamond M Dictionary \circ [case where we know what an abortion]

7

p 135 (a) — remarks that the nature of the affinity in plants, wh. favours crossing is not known — because

p141(a) Gartner not external similarity. some of the closest species have not offspring when crossed; & because some genera, especially amongst the Monocotyledons will scarcely cross!

(b) No cross of two species produces as many seeds as the \clubsuit true species; yet

BRONN, HANDBUCH

above says it is sometimes easier to get fertile seeds, through cross, than with no cross.-

p136 (a) remarks on uncertainty of Koelreuter experiments, how many trials necessary - first flowers fail - K. saying all that are fertile are vars., is arguing in circle.-
Good summary of Crosses =

141. (b) genera crossed with difficulty

p146-(a) [good summing up of results of Hybridisation

(a) seems to think, the more remote, the crossed species & the more intermediate the offspring, the less fertile they are & more subject to monstrosity which particularly affects generation system(?)

p147 (b) -How odd it is hybrids crossing easier \diamond parents than \diamond

8

It is important to show in Azaleas, in (p.147) Lilacs, in animals, that the sterility is not due to tendency to vegetate or to increase of fruit &c.- but to some direct influence on propagating system.-

p. 147 (b)(b) remarks from Köl, that variation in hybrids, depends on the parents (or parent?) having been domesticated, or tending to vary -

p148 (X) It wd be easy to take 100 double flowers & count, which has male & which female part most affected

p.152 (a) From Koelreuter, hybrids self impregnated. others lose or retain their small fertility, or approach to one parent in form & gain in fertility

p152 (B) Lindley on Hybrids not propagating in the 3d generation. X

p154 (a) - hybrids not intermediate between parents (as by Koelreuter) but seldom!! in some parts like father, in some like mother Gartner

9

155 (a) Gartner. Hybrids the more fertile the nearer they take after the mother-side, less so, the nearer after the father side Hybrids go back to Mother side ! Herbert says just different

155 (B) says Hybrids from same species differ (??) & that the facility of impregnation depends on the selection of the sexual organs, & not as general relations. Reverse crosses similar offspring

p.156 (a) He says some species of a genus \clubsuit impress their characters on hybrids, much more strongly than other species (does not d'Orbigny assert this in some Indian Races?)
p156(b) He says either return to mother, or lose their procreative faculty

X p156 Passiflora more fertile with other pollen than own.

10

p. 164 (a) in making hybrids the female generally resists male; so that male donkey must be painted like zebra to cross with mare zebra

Mares will only take stallion-donkey in dark, & stallion horse must never have \clubsuit seen mare before - alludes X(d) to physical difficulty of crossing some races

X(e) Buffon says that female foxes, dogs, & wolves though in heat drove off with bites the males of other species.

(f) Cuvier says Dingo & common dog wont breed, though often \clubsuit couple (they will in Australia) & Zoolog Garden of London good X ||See to authority

H. case of dog pairing with chained wolf

X p165 crosses of Domestic Cock with other Birds & Finches

p172 (a) Case of some crossed by boar (perhaps previous impregnation) had one tame pig & other wild &c &c

X p168 variation which comes on with age appear at corresponding age ●

X p.169 & 172 BB - Mongrels have the character of (but many exceptions) $\langle rest \diamond \rangle$ hybrids have character $\langle rest \diamond \rangle$

$\langle over \rangle$

It is an old argument, but never to be forgotten, that we must look with our gained experience \clubsuit on the history of the world, as an \clubsuit animal of years duration must on the variation of domestic animals he wd never suspect such a thing.

12

p184 (a) Ammon reckons on colours of of horses being certainly true if only two generations are known true

(b) white hens, peacocks, mice all come true
(D) contrasts fruit-trees - gives Van Mons case of 35 years selection producing all good fruit - (natural mongrelising he does not notice) & trees bore fruit sooner

p185 (a) High-heel boots, have affected form of childrens feet in Germany! Thaer

p186 (b) Shepherd-dog instinctively \clubsuit rounds sheep

X (a) mongrel sheep-dog & pointer for several generations pointed at Birds.

(e) varieties sometimes cross whilst wild; white hares in Cornwall &c

\diamond Have parasitic plant genera wide range as Waterhouse says parasitic insect do have No

p.54.

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 56 on mixing of Salt & FW Fish in Baltic
 58 do. & of shells & Crust in Caspian
 69 changes of colour & quality of fruit from soil.
 77 Doubling of flowers, discussion on.
 83 changes of flowers on mountains, intense colour, plant less size, but larger flowers
 85 cases of plants changing by culture. Lobelia & Ziziphora (Refer to in note) Q
 89 Summary on changes of Fur of animals under changed climate
 107. most important case of variation of Fish
 96. Hawk in Berlin went back to earlier plumage
 11
 170 X 8 generations absorb another race, in which one blood is 99.62 of whole
 – strong case of sheep taking after Ram in reciprocal cross X
 – on crosses not intermediate: on horns going from father X
 177 Description of Hybrids wolf & dog
 179 Particulars on Hybrid Canaries & Goldfinch
 I have used all this Book for Hybrids
 13
 187. feral dogs soon reclaimed (Schomburgk)
 188 –Bechstein says Zeisig more readily pairs (Ch. 6.) with ♣ green than with yellow Canary Birds
 189 Brehm's subspecies not merely geographical Races
 190. White Hares of Cornwall.– (must allude to Bronns Gesichte in Preface; if soon Gartner, Kolreuter, Decandolle Huzard.– Hooker's works – Lyells Geology. Isodore G. St. Hilaire
 195 References to G.St. Hilaire's doctrine of external cause causing change
 210 Horses swim 7 German miles
 216. on accidental migration of Lemmings, insects &c
 223 References to falls of inorganic bodies
 224. Lost animals – Turtles – & Birds on continents
 225 Reference to Hawk Case Fontainebleau – R. Brown on Gulf seeds germinating
 229 case of Head of Bos m. washed on shore of Greenland shows course of iceberg, with respect to plant common to White Mnt. & Greenland.–
 234 Excellent accounts of falls of seeds, with references
 236 Fish & Crab Rain
 247 Remarkable that N. Holland more plant common to Europe than S. Africa –

explained by me

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252 on Relation of Red Sea to Mediterranean – Wiegmann Arch.– on distrib. of insects & Lacordaire.–
 253 Alpine climate not very like polar.
 254 Snow region in Alps 12 plants, many more in Melville Isd
 –Table of heights & Latitudes to show correspondence
 272 Duration of Seeds vitality of
 284 number of seeds – kind of animals which have most – number of eggs in Crab-Fishes
 286 number of mice one pair can produce in year
 – increase of cattle in America with dates
 293 Destruction of forests by insects
 297 – on insects destroying crops–
 299 Rein-deer killed by insects
 300 Mice destroying trees
 302 increase of mice, followed by increase of weasels
 505 causes of extinction, yet not real for they do not apply to rarity

v 9–12?, 14–18m, 1–26w Read all on this problem vi 4m, 23–26w Read vii 20–24w Read viii 1–30m, 18–23w Read xi 2–12m/w Read & marked 28 wt Tobacco plants in 5 years wd cover all Germany 29–31m/30w (a) 54 8–10m, 13m/u "die Pflanzen", 19u "lange", 11–21m/w (a) wb Trees not killed by cases of shells of seawater – did annual seeds spring up again? ask Mr Higgins 55 7–17w sea & freshwater shells mixed together 56 14–20w on Fish inhabiting salt & F. Water 16–17u↔, 32u↔/30–35w Cyprinus in F. & salt water 58 21–40m, 23–28w Caspian Fauna genera of salt & fresh fish & Crust & Shells 43–44m 59 28–40m♦, 30–41w changes in vegetation – spread of a grass when forests cut down 65 12–17w (Must skim previous Part May 12 – 45 Begun 69 23–31m/w dark red Rosa became streaked with white by earth colouring 29–31m, 32m, 35–38m, 35u "1837", 44w Is this good authority? wb X other cases of flowers changing colour in diff: soils. xx case of grape strongly manured cow-dung, alum, horse-chips &c changing from small ♣ yellow-green, with flattened grapes into large watery dark blue grapes 70 wt A Different manures affect greatly melons in quality 2–10m/3u "Gewürz | zartheit"/w A 72 wt sugarcane & ♣ Pineapple seedless, from antithesis of sap & pulpy fruit 1–4m, 1u "Ananas", 2u "verwildert | kleine", 29m 74 1–27w instances of different parts, with

parenchyme enlarged by culture, as in Cabbages & Plums 16–27m, 28–29u↔, 29–30m, 35–39m/w These trees did not produce fruit, from luxuriousness of vegetation 75 1–2u↔, 8–13m/w cutting trees makes them fruit. 76 19a/u/wt, 16–28m/w on change of sex in dioecious plants 77 1–21m/4–17w on doubling of flowers 27–30m, 27–35w old & new seeds differ in producing double flowers 78 11–26w did seeds produce female plants – large fruits is opposed by antithesis to seeds 79 35u "dasselbe Individuum"/35–37w loose or gain hairyness 81 20–22m/19–25w European biennials changed into annual in Crete 82 11–17m/11u▲/15u "Weiss"/16u "Hibiscus|weisse"/17u "Roth"/w Lilacs when put in hot-house changed from white to red 21u "Wimmer", 28–38m, 44–45m/w (I have not thought worth quoting) ↑2w/wb all facts on next page I believe taken from this wb R. Brown believes in great alterations in flowers on mountains 83 4–7m/w dwarf from growing on high mountain 9–13w leaves change a little 20–26w Hairyness increases on heights & in wet places 27–29w other time lose them 30–35m/w Colours of flower – stem darker 37–45w flower larger sometimes though petal smaller even twice wb x from above changes many varieties have been considered as other species 84 19u "Nessel|dioica"/16–22m/w Link says southward *Urtica dioica* changes into *U. caudata* 41m 85 wt (a) *Lobelia lutea* from England flowered for 4 years in Pawlowsk, did not seed, was divided into 3 plants, & they lost their lance-formed teathed leaves & has broad, egg-shaped leaves, with different flower; became the *L. bellidifolia* 1–7m/Q 9a/u▲/10a/u▲/7–12m/w Both. C.G.H. flowers diff. colour diff time of flowering 30–33m/w Form, direction & connect less affected; great influence on instincts 39–40m 86 22u "kleiner|unfruchtbarer"/23–24m!/?/24u "die Grad"/17–28w Animals on limits of proper climate less fruitful? and less size. 31–37w Peron's case of shells altering in size in Australia 37–38m/wb On increase & decrease in size in Helix's on Alps 89 wt European goats in high mountains have some fur 7–14m/10–16w on change in fur in European animals in Himalayas midpage Q 40–41m, 45–46m, wb this Page summary of facts on fur 90 4u▲/4–6m/4–9w looses hair when old 6–10m/9–19w Pigs with different hair in different parts of S. America 16–20m, 19u "weit|Winterhaar", 26–30m/w No cause for Angora wool 42m 91 15u "Gloger"/14–21m/w almost all beasts undergo some change in winter in colour 19u "tropischen

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Horses swim 211 33wτ, 34–35u↔/w whether same one does not know 216 1–29w in certain periods animals congregate & migrate in no fixed direction or fixed time hard to explain 31–34m/33u "O.I.W.", 35–36m/w (a) wb (a) In these cases Congregating always announces intention to migrate, though when in years, when number not great, there is no tendency to congregate 222 29–39w congregate & migrate, when food & c fails in own country 223 17–18m 224 16–18w Lost Turtles 26–31w Lost birds on continents 225 3–4m, 30–32m, 40m, 41m 226 6–15m/w Eggs of mollusca may be attached ♣ fuci & wood 227 wt x said that maize was floated to Japan 1–2m/w x 229 wt (a) quadrupeds carried on ice may transport seeds– 3–13m, 6–10w (a) White Bears. Wolves. 15–21m/w Bone washed to Greenland on ice so cd seeds 38u/wτ 230 11–13m, 28–40w If Storm Petrel so often blown inland, other birds might be blown to sea wb The real cause of surprise in birds, insects & light seeds, that not more distributed. 231 19–24m/23u "leichter|schliessen"/22w (a) wb distance to wh. pollen is carried bears on seed transportation 232 2–20m/2u "Lupinen" 4–10w cases of pollen-showers 18u "vor|Feldarbeiter"/16–25w This bears on seeds. Meteoric paper of Coniferae.– 233 zb 234 3–5w rain of seeds 9–11m/11u "die|waren", 14–18m/18u "zum|Art"/14–20w corn raised in Africa fell in Spain 15u/wτ, 21m/u "Schleffen", 41m/w Read 42m/u "und|217", 43m 235 32m 236 16–21w Crab & Fish Rain 237 7–10w Fish Rain 14u "zwei|lebend", 27u "Fischen|Fröschen", 28u "und|lebend", 29u "lebend" 238 9–11m, 12–15w Frog Rain 241 15–19w Fish eggs perhaps stick to Birds 20u "50|Genera", 21u "mit|Saamen", 26–31m/w amount of birds with seeds killed by others 245 27–28m, 29m, 37m, 41m, 42m♦ 246 14–15u↔/5–20w ?? shells in America & Pacific 25–28m/26–27u "ziemlich|besitzen", 37m, 39–40m 247 8u ♣, 9–11w wider genera 13u♣, 18–19u↔, 26u "385|von", 31u "nur|Arten", 33–35m, 33u "70|590", 40–41m 248 6–7m, 9–11m, 19–20u "unter|Europa", 27u "Ursus|Fischotter", 28–32m/29u "beiden Wiesel"/29–30w two weasels 37m, 43m 249 23u "reicher|ist"/24u "je|seine"/23–28w Hooker says no no! N. Zealand 251 24m/u "22|Reiche", 41m 252 5–6m, 7–8m, 17u "Fischen"/18u "Korallen gemein"/19u "500"/20u "32"/17–21m/15–27w Red Sea & Mediterranean Phillipines make shells more in common 36m 253 11–16w climate of mountain tops differ much from Polar

Regions 254 17w in 48° wb Snow regions of Alps only 12 phanerogam whereas Melville Islds & Spitzbergen much richer 255 5w♦ exclusively confined not peculiar ↓w Heer on insects of Alps.– ♦ The number of peculiar insects appear very small at the great heights – most peculiar species at bottom 256 24–27m/25w (a) wb (a) Larger the continent, larger the animals – Australia & S America contrasted with Java & Borneo !!! 272 wt Duration of seeds 273 38–42m/w old seeds reviving 278 25u "Spallanzani's Versuchen"/25–31w no fish eggs keep more than 2 months dry ↑2m, ↑1m, wb account of a disconnected pool annually dry & annually reseeded with Fish 284 16u↔/14–18m/w Less propagating powers by ostriches !! wolves !! x 19–21w because not destroyed 29u "ihres hundert"/28–34w number of seeds from a 1000 year old trees wb x number of eggs compensate viability chance♦ of destruction in full grown state & youthful state & egg state 285 18–19m, 18u♣, 19u♣, 29u♣, 30u♣, 31u♣, 32u♣, 33u♣, 42u "Polygamie|Hühner", wb How evident protection of womb does in place of many eggs (yet rats) 286 11u "Feldmaus", 12u "5|10", 15–21m, 19m, 34u "27 Jahre", 35u "4000–8000", 36u "35.444"/wτ, 37u "65.|Besitznahme", wb One is always astonished at geometrical increases 287 2a "Rudel" flocks 1–2m, 40–42m/u "Lyell's Principles of Geology" 288 38–41w impregnation 42–45m, 42u♣, 43u♣ 293 7u♣, 8–9w destruction of forests 11–18m, 22u/wτ 294 5–10w Forests destroyed wb To see what injury horses do & sheep to young plants I have often wondered how anything grows up 296 11m 297 1–3m, 17u "von|Engl.", 18u "land einwärts", 18u "200", 38u♣, 39m, 39u "den|unmöglich", 43–45m 299 29–32m, 29u "Renntiere", 31a "Drittel"/u "so|stirbt" 300 32–36m, 33u "Feld|Maus", 35u "bedeutende junge" 301 15–19m/w Epidermis in Caterpillars 302 6m, 42u 303 wt Weasels increased 1u "Wiesel", 2u "Mäuse" 505 25–28m/25w (a) wb (a) all these great causes given of extinction, yet none of these apply to rarity & therefore (with exceptions) to extinction

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409 10–11wτ, 13–16m, 19w no 19u "bisher gänzlich entgangen"

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SB ♦ p78 Oken Grant 1835 use my copy d'Alton, Unger 1852; p.80 ?
79 36m 80 34-37m, 34wt

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(w&; not CD; give melting-temperatures of various metals; u mainly names of metals)
iv 34-37w, 34u v 26-28w, 26u xxiv 27-30w, 27u xxvi 19-26w, 19u 25 8u, 9u, 13u, 30u 26 4u 98 26-31w, 29u, 29a 102 15w 110 15w 111 5-10w, 8u 114 31w, 31u, 32-38w, 37u 116 2-3u, 2-5w 117 3-9w, 3u 122 38-41w, 38u 128 15-16w, 15u, 23-24w

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ad, beh, br, ch, cs, fo, h, hl, no, oo, phy, sh, sl, t, ti, tm, y

vol. 1 NB1 Is there anything odd in the nidification of Penguin Duck.- M. Miller says so - we want cases of this

N.B. some birds feed their young with different food from what they eat themselves - this paves the way for explaining habits of solitary wasp, ♣ in this book considered - good plan thus to take one example.-

Ask Fox to obtain information about Tumbler Pigeons. cross them.-

NB2 1 all to 54; 70; 77; 79; 84; 91; 102; 107; 108; 116; 119; 123; 121, 122 to 134 to 138 to to 143 to 155 → 161, 167; 179; 188; 196; 203, 204 → 208; 216- Journal =; 267; 244; 332

SB □β

Q 17 Case of solitary wasp feeding young with spiders & caterpillars. good better than Birds feeding different food

Q 28 Brougham definition of instinct [Insects life too short for much experience or gained habit]. Though habit may do something for higher animals not needed for most complex instincts

Q 30 Instinct - (47 do &, 52) 70, 203

Q 77 Mathematical work to show how perfect the Bees cell is 79 contrast with man making a plan - p. 244.

Q 117 good instinct - chicken pecking circle inside shell cannot be an habitual action; 208 young alligator snapping/ Chicken seeing, walking, pecking at early youth reflex continued

Q 124 Intelligence

Q 196 On Abstraction in animals

Q 219 On the form of Bee Cells

All Q

7 11-17m 8 wt therefore growth an instinct!!
5-7m 9 wt or rather apparently voluntary - analogy from ourselves would lead one to consider voluntary 2-3m 11 11-15m 15 ↑11-1m 17 wt In whatever way I create my instincts & habits, or changes in brain's structure, the instincts must have been formed step by step on account of effects of crossing 19-25m, wb excessively hard to account by habit - 24 4-12m, 5u "in | number" 28 1-7m/w/wt this hardly applies to S. American horse cantering wb Yes the gratification of an habitual action.- or even without it, but disagreeableness of prevented - One sees this in dogs - 29 16-21m/17-23w but why does she like half killing them 30 wt Spallanzani & the Bat is good to exemplify what I mean 1-2m, 5u "instant"/5-7w false in Bees 7-12w Here is common confusion of means 32 12u "cylindrical cells"/? 33 15-25m 42 19-25m 43 1-12m 47 13-23m/w no - retriever action does not apply to it 22-25m/? 48 wt Yet S American Horse cantering ♣ would be called instinctive. ? will not my definition, of that which, according to our own consciousness, wont○ be done with deliberation. 1-6m 51 14-18m/Q 52 10-18m, 21-25m, wb is it not that most instincts happen to have some end in view? 70 ↑15-1m, wb applicable to habit 77 wt very wonderful - it is as wonderful in the mind as certain adaptations in the body - the eye for instance, if my theory explains one it may explain other. 2-17m 79 5-25m, wb some wax-working woman worked under a cloth, & so made likeness by touch 84 21-25m, wb take the case of chicken being born with powers of sight, which man only acquires slowly - we can see no reason why man shd not be born so - this might be worked into good case 85 1-19m, wb also lamb walking & baby not - the movements of lamb in womb could never teach it to balance body - an act which must be most difficult 91 12-14m 102 10-25m 107 12-22m 108 18-25m, wb Casarita boring through mud walls - swallows building on wet places - 116 1-13m 117 15-24m/21-22u "and | end"/23-

25m/16–21w hard to account by my theory
 121 12–18m, wb Blackwall has seen same
 thing 122 4–25w the blindest instinct, birds
 building nests, is somewhat adapted to
 circumstances 22–24m, wb I am surprised at
 this being called intelligence 123 8–17m/9–
 10w See Rengger 124 3–6m/4–5w Yes
 Rengger wb ♦ 125 3–7m, 8–12m 134 22–25m
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 astonishing on my Th. that infinite attempts
 should have reached that perfection which
 mathematics requires – this instinct has
 same relation to geometry, which the eye
 has to optics 245 8–11m/8–9u "not | rhombus"
 264 18–20m 265 1–2m/1u "but | three" 267 11–
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 ♂

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NB 52; 56; 65; 66; 84; 108; 183

SB □β

84 Rattle of Rattle-snake; if given to paralyze
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108 Vis Medicatrix

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 fossil

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 281 2–4m

♂

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 beh, ds, phy, sx

vol. 1 NB 95 Blushing; 8 Death of males
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8 5–12m, 13–15m

♂

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 35u/w var. tintary○ 56u ♣ 167a 13–15w var.
 lantenabulus 167b 21u 168a 1–2m, 12u ♣
 168b 1–2?, 31–32m 169b 19u ♣ 170a 6–8m/

BRUGUIÈRES

8u▲/6-9w Probably a Chthanalus O 23-24m
170b 35-38w Conia? Tetradila serrata? 171a
18u▲ 172a 38u▲ 305 2m

BRUNTON, Thomas Lauder *The Bible and science* London; Macmillan & Co.; 1881 [Down, I] §

BRUNTON, Thomas Lauder *On digitalis, with some observations on the urine* London; John Churchill & Sons; 1868 [Down, I] §

BRUNTON, Thomas Lauder *Pharmacology & therapeutics* London; Macmillan & Co.; 1880 [Down, I]

BUCH, Leopold von *Description physique des Îles Canaries, suivie d'une indication des principaux volcans du globe* Paris; F.G. Levrault; 1836; trans. C. Boulanger [CUL] geo, ve

NF Etna albite lava also produce pumice. p. 328

NB ♦ See Burney – for Shortland world Solomon Isld –

155 25-28m 156 14-17m 159 17-18m, 21-31m 162 9-22m, 11-17m, 31-35m 163 1-4m, 6-13m, 29-35m, 29-31m 168 27-33m 170 3-6m, 23-27m 171 24-31m 173 7-18m, 31-35m 178 4-13m 181 12-18m 182 31-33m 183 32-35m/32u "écaillés striées" 184 1-18m 185 1-5m 190 15-20m, 30-35m 191 12-17m, 18-22m/w (A) 192 13-22m 193 28-35m 196 22-35m 197 9-15m/11u ♦ 200 6-16m 201 3a "l'autre" (of W) 1-9m, 1-13m, 20-22m, 20-23m 202 15-19m, 30-33m 206 20-25m/! 207 15-16z 212 19-23m 215 14-17m 216 28-35m 277 25-28m 283 15-19m, 26-29m 293 24-35m, 30-35m 294 1-10m 295 12-28m, 28-35m 300 5-21m 323 8-17m 324 1-4m 327 1-2m, 21-22m, 31-33m 328 1m 329 1-3m, 14-16m 333 27-30m, 31-32m 334 22-25m, 34-35m 335 1-3m, 7-8m 336 9-11m 339 29-35m (E. de Beaumont) 340 1-2m 342 13-18m 343 33-35m 346 1-3m 349 31-34m 350 1-3m, 5-6z, 11-14m, 15-16m 351 7-10m 354 24-27m 355 3-6m 356 20-23m, 22-25m 358 35"... 359 9..." 373 16m 374 7-11m 386 11a "Island" Same as Amargura Krusenstern 392 31-34m 393 1-10m ♦ 398 6-10m 400 10-15m 403 10c "Ouest"/10w east 404 30-34m, 31-35m 405 2m/3-7m/2w Mathews Rock 406 15-17m, 24-30m 407 10-14m, 17w Lava 32-34m 409 5-8m 411 29-35m 412 1-3m, 13-15m, 21-27m, 29-32m 413 20-25m 415 11-14m, 27-31m 416 5-7m 418 17-20m 419 1-3m, 30-32m,

34-35m 422 1-3m, 1-2m, 17-23m, 33-35m 423 32-35m/Q/33-35m 424 1-2m, 27-29m 425 15-18m, 19-21m, 34-35m 426 1-2m, 33-35m 427 1-3m 428 9-14m, 9-14m 429 18-22m 430 23-27m 435 9-11m 442 6-11m 443 2-8m 446 17-21m 450 26-31m 451 8-13m, 13-17m 452 13-20m, 22-25m 455 1-12m 456 17-24m 457 1-6m 458 1-7m 460 6-13m, 24-29m 466 1-25m 467 1-26m, 29-31w Valparaiso Earthquake 30m, 33-35m 469 26-33m 470 25-34m 471 1-4m, 7-11m, 12-35m, 17-20m, 23-25m, 34-35m, wb XX 472 5m, 10m/8-25m 475 5-10m 477 8-13m 480 1-8m, 22-27m 482 4-9m, 4-8m 483 23-31m 485 24-32m 486 16-20m 487 16-19m, 28-29m 488 13-16m, 19-20m (Humboldt) 490 3-8m 491 29-31m 494 2-12m 501 9-13m, 10-14m 505 33-35m 506 1-2m, 19-20m 508 29-32m, 29-33m 514 18-20m 519 wb Does not some one describe Volcanos in S. Shetland besides great crater; New Isld Discovered 1839 by Enderby's Ship; St Pauls or Amsterdam seems quite omitted.; Proby Isld – Isld North of Bonin Ramilla on coast of Ascension – Matthews Rock

BUCH, Leopold von *Travels through Norway and Lapland during the years 1806, 1807 and 1808* London; Henry Colburn; 1813; trans. J. Black [CUL, on B, S Charles Darwin M. Video Nov. 1832]

xvi 19-20m, 24-25m, 28-29m xvii 16-17m, 30-32m 94 8-20m 236 7-10m 306 8-16m, 16u "fruit\maturity", 16-17m, 27-28m, 27u "not\well" 307 5-9m, 7u "presented\fruit", 8u "barren"

BÜCHNER, Ludwig *Aus Natur und Wissenschaft* Leipzig; Theodor Thomas; 1862 [CUL]

BÜCHNER, Ludwig *Conférences sur la théorie darwinienne de la transmutation des espèces* Paris; C. Reinwald; 1869; trans. A. Jacquot [CUL]

ad, beh, fg, h, ig, phy, t

NB 79 good sketch of Häckel's views on first organisms & spont. Generation

114 Helmholtz Eye not perfect

♦ Man 123 Schaafhausen – Gorilla 1/2 way between erect & quadruped.–

♦ How difficult to young child to stand upright – 124 do – on milk teeth of man

♦ 132 self-reflection or consciousness

♦ 135; 137; 144

♦ all Q

title page z 79 3-29m 114 27-32m 123 30-33m 124 4-11m 129 wt Büchner L. wt 39? 132 6-11m 135 8-18m 137 30-32m, wb higher apes & lower races of man → 138 2-8m 141 6-9m 144 30-32m

BÜCHNER, Ludwig *Die Darwinsche Theorie von der Entstehung und Umwandlung der Lebewelt* Leipzig; Theodor Thomas; 1876 [CUL, I] ∅

BÜCHNER, Ludwig *Liebe und Liebes-Leben in der Thierwelt* Berlin; Hofmann & Comp.; 1879 [Down, I]

BÜCHNER, Ludwig *Die Macht der Vererbung* Leipzig; Ernst Günther; 1882 [CUL, I] ∅

BÜCHNER, Ludwig *Man in the past, present & future* London; Asher & Co.; 1872; trans. W.S. Dallas [CUL] h

NB Nothing need be quoted – Nov 1873; All on Man; 120 very good' resume; 142; 156; 266

119 34-37m/37w quote 120 1-4m 142 13-25m 156 12-17m, 25-30m 266 3u "Dr. Lisch", 13-15m, 17-25m

BÜCHNER, Ludwig *Mind in animals* trans. of 3rd edn by Annie Besant; London; Freethought Publishing Co.; 1880 [Down] beh

NB 159 on instincts of ants 159 ↑2a "are" ie pratensis 36-42m/→, 20-41w & yet pratenses taken as pupa 160 10-13m, 41-42m

BÜCHNER, Ludwig *Sechs Vorlesungen über die Darwin'sche Theorie der Verwandlung der Arten* Leipzig; Theodor Thomas; 1868 [CUL] beh, ds, ex, h, ig, oo, t, y

NB ♦ 179; 180; 190; 195; 198; 202 good when described; 210; Schaafhausen Book & Rutimeyer Paper

SB ⇨ ♦ ⇨

p.179 Man first dentition like Apes.– conclude ♣ feed on Plants 180

⇨ All used Man

p 90 on Self-consciousness of Savages 195 on the exactly intermediate manner in which apes walk on Hands – good It might have been asked how cd there have been transition between ● hand & foot?

198 interval will get greater between man & higher apes, from extinction of latter p202. Rutimeyer apes interval between Catarhine & Platyrrhines.–

210 The milder disposition of young apes, perhaps only like mildness of young Carnivora – Bücker

179 12-15m, 12-14w ask Huxley 14u "auffallende", 15-18u "indem|hat", 17-20m, 23-26m 180 14-21m 190 11u/wt, 15m, 15-25m/w asks whether savages reflect on relations of things 195 wt Gorilla intermediate in upright position – if not existed wd not be kn 1-5m 198 wt/3-12m/1-14w interval between Man & higher apes will get greater, from death of lower races & higher apes. 201 9-10m 202 22-26m 203 5-7m 205 25-26m 210 wb The milder disposition of all young apes only like young tigers or lions – perhaps does not indicate descent from a mild form.– ∅

BÜCHNER, Ludwig *Sechs Vorlesungen über die Darwin'sche Theorie der Verwandlung der Arten* 2nd edn; Leipzig; Theodor Thomas; 1872 [CUL]

title page 18u ∅

BÜCHNER, Ludwig *Die Stellung des Menschen in der Natur; 2. Lief "Wer sind wir?"; 3. Lief "Wohin gehen wir?"* Leipzig; 1870 [CUL]

NB Reichenbach (rest ◊) 170 – (Lamarck before him) O/ 2. Lief ∅

BUCKE, Richard Maurice *Man's moral nature* London; Trübner; 1879 [Down, I]

BUCKLEY, Arabella B. *A short history of natural science* London; John Murray; 1876 [Down]

BUCKTON, George Bowdler *Monograph of the British aphides* 4 vols.; London; The Ray Society; 1876-1883 [Down] oo, sx

vol. 1 NB p.71; p91 Dimorphism. p.71 Some Plants not often attacked by aphides – even very poisonous ones 71 10-13m, 17-23m, 23-26m, 33-39m 91 4-17m, 36-37m (vol. 2, ∅; vol. 4 published after CD's death)

BULLER, Walter Lawry *A history of the birds of New Zealand* London; John Van Voorst; 1873 [CUL]

ad, beh, br, ds, gd, mg, oo, phy, sx, t, y

NB1 p29 Protective Colour of Birds

p56 – affection between paired Birds S S. Q
p66 – Huia Q with Beaks different in 2 sexes & aid each other SS

NB2 p74, 76, 78 migratory Birds to N. Zealand

81, 84 spreading of a species

93 – Rats destroying Birds

Nothing for Descent

NB3 167 Birds with good wings, but incapable of flight

219 male colours on one side fainter & the Bird feeds laterally SS

224 Courting of Pied Oyster Catcher, not important

278 – Gulls catching Moths

SA (pp. 2-3) □β

p. 1; 15; 19; 111; 117; 121; 137; 163; 165

SA (p. 372; ♦) p.29 Stringops large wings but no muscles for flight – colouring assimilative must be protective from Birds of Prey, whilst resting during the day

Part II

p.74, 75, 78 Cuckoo summer immigrant believed to be partly parasitic in incubating but not feeding its young

p.81. Birds, Zosterops which has spread from S. Isld. rapidly

84 Changed Instincts, also, has become permanent resident

94 Believes rats by destroying much chief cause of decrease of ●

95 Anthornis or Bell-bird – decorates nest with Brilliant feathers.

Part III & IV

167 Weka good-sized wings, but incapable of flight.

29 1-4m, 6-7m, 8-10m, 16-19m, 17-25w why as no beasts of prey Rats? There are Birds of Prey 33 9-10m 55 15-23m, 37-42m 56 14-19m, 20-23m, 25-26m 66 19-29m 74 29u "another | visitant", 31-34m 76 11-16m 78 19-22m 81 1-6m, 6u "indigenous", 7-11m 84 6-15m, 20-25m 93 13-17m, 24-26m, 31-34m, 41-43m 94 7-9m 95 22-26m 167 6-10m 219 33-41m 224 11-20m 242 14-17m 278 6-16m

BURBIDGE, Frederick William *Cultivated plants, their propagation and improvement* Edinburgh & London; William Blackwood & Sons; 1877 [CUL]

fg, hy, phy, v, y

NB p.34 size of seeds effects on growth of offspring

58 grafting, rules of

♣ species which will graft

95, 96 – on Variability

132 ∞ – Hybrids dying young

155 ∞ – on Hybrids taking after either parent

33 26-33m, 28u "Dr Gustav Marck" 34 1-48m

35 3-9m, 5u "Professor Lehmann of Munich"

58 9-18m, 14w Recipient 19-30m, 32-38m 95

4-17m, 18-27m, 28-39m, 42-43m 96 14-45m

132 18-34m 155 2-14m, 5-16m, 10u "comes |

most", 26-31m, 38-43m 156 13-18m, 26-33m

157 36-43m 159 29m

♠

BURCHELL, William John *Travels in the interior of Southern Africa* 2 vols.; London; Longman, Hurst, Rees, Orme and Brown; 1822 [Down, pre-B, S]

fg, tm

vol. 1 NB p529, 536 wonderfully hooked seed; with woodcut; 529 grapple plant

27 8-9m 101 27-29m 124 23-24m 158 4m, 12-

14m 259 1-3m 409 16-17m, 27-28m, 34-35m

427 13-14m, 24-27m 428 22-24m 429 10-11m

529 fig.m 536 10-14m

vol. 2, 59 1-6m, 10-12m 69 26-27m 71 32-

33m 72 11m, 16m 73 13-14m 74 28-31m 78

12-13m 172 21-24m 173 zt 207 7-13m 450

22-27m

BURGESS, Thomas Henry *The physiology or mechanism of blushing* London; John Churchill; 1839 [CUL]

beh, cc, cr, h, he, phy, sx, t, ud, y

NB1 p.1 Youth more liable – care more for opinion of others

Sighing – Grief

NB2 ♦ p10 Expression

B says Blushing Hereditary in one family (both parents being never subject) except when one child diseased with cyanosis heart♦ –

SB1 p.1 Youth blushes

10 Description of fear

23 Female blush most

24 Designed by Creator, as check Th♣

♦ – In Ezra & Nehemiah – Bible

♦31 scar in negro blushing

♦33 Mulattos

♦34 Otaheitians

38 Albinos blushing – (Iris)

43 Circassian do – disuse Th♣

48 Morbid sensibility Th→♣

50 Power of accusers

◆ 54 Causes

◆ 56 Infant do not blush, but redden with passion (evident do not blush) (old age no)

◆ 61 Hereditary

◆ 62 Blushing no proof of guilt x

68 Rage, expression of – Rage

◆ 114, 122 Why face blushes more –

◆ 125 Exposure to air

◆ 128 whole body glows

◆ 133 Sensation on face before blush

◆ 134 Concomitants of Blushing & Sham (*ie* Shame)

Over

(*over*)

◆ 137

◆ p156 – only a moral stimulus excite blush (not a passion) not shrugging shoulders (no shyness) commonest of all causes or self consciousness –

◆ 177 Decline of blush

N.B. Personal remark makes a person blush more than anything self consc

◆ This is differently on my view that vanity does not cause blush – it is on depressing self-consciousness which alone causes it – No a pretty girl who thinks a man admires her will blush – One is more sensitive to the ill-feeling than good opinion of others.–

◆ 180 says depressing cannot be called either exciting or depressing

◆ 182 Hereditary blushing 10 children

◆ tear-ducts in youngest

◆ 187 upbraiding shy people makes them worse

◆ 188 Edgeworth quoted (good)

All about Blushing except p68 Rage

Burgess

SB2 Burgess on Blushing p 10

Fear

in regard to voice in Aeneid

"Obstupui, steteruntque comae, et vox faucibus haesit"

(*over*)

Will the albinism observed by Dr B

Dr B "the strength alters the ●"

◆ Dr B observed with ◆ two albinos that th "caused them to blush deeply.–

1 9–10u "sensitive|conscious" 10 10–20m ◆ 11 8–11m 23 1–3m, 1u "children and females" 24 3–5m/w see to this 8–11m, 9–13"..."|12–13w ◆ 25 7u "Ezra", 8–11m/w Ch IX.6, 20u "blush"/w Jer Ch VI v. 15 26u "a|wrought" 31 21–24m, 21"..." ◆, 22a/c/w|23a/c|23–25 "..." ◆, 28–29m/→ 32 24–27m 33 5–8m, 13–16m 34 19–21m 38 23–26m 39 13–16m, 15m, 20–25m, 29→ 40 4–8m, 4u "ears", 9–12m, 20–22m, 29m

43 6–9m, 13–16m 48 14–17m 49 3–7m, 12–15m 50 16–19m, 17u "presence|accusers" 54 *wb* nearly all cases, his real & false blush, connected with what people will think of one – Remorse does not cause blush.– 56 8u "hereditary", 13–15m, 15–16u "of old age" 57 9u "idiot", 13–14u "but|blush" 61 1–5m, 15–18m 62 6–11m/1–11w/wt no test of guilt because the thought that the other was thinking of you suffices to cause it 68 11–12u "flushed|fire", 17– 18e "My|rage", 19–21m/u "heart|rage", *wb* glittering 69 11–13m 114 9–13m, 19–24m, 20–23w effects of use or Habit 122 1–10w but neck & ears colour 5–13m 125 20–29m 128 7–11m, 10u "epigastric" 133 18–20m 134 1–20w mental agitation which affects heart and respiration 6–8w ◆ & Gratiolet good 10–11m/w ◆ p. 349 & 366 22–28w (awkward gestures) stammer peace of mind lost 156 *wt* He may shrug his shoulders voluntary – he may pretend to laugh 6–7w affecting "to his mind" 9–12w no shyness 177 13–20m 180 21–25m 182 1–11m 187 19–23m, 22–24m/→ 188 1–4m/2u "countenances", 5–7m 189 21–26m/24u "frequently wept"

BURKE, Edmund *A philosophical inquiry into the origin of our ideas of the sublime and beautiful, with an introductory discourse concerning taste, and several other additions* London; Thomas M'Lean; 1823 [CUL.1900, I by G.V. Jackson] beh, sx, t

NF ◆

The morality & Metaphysics of Ambition } ?

I am going to Italy next Summer

Sublimity

NB1 Simple Ambition instinct of excellence over other men satisfied (1)

Pride. ditto. with comparison to other men so as to undervalue them. (2)

Fame. desire that (1) should be generally known. & acknowledged (3)

Vanity, [do] (3) with undervaluation of others, or overvaluation of yourself (4)

Arrogance a determination to show pride without real pride having been attained

Conceit – pride without foundation and on trifling subjects?

◆ But the ideas raised by these words refer to peculiar kinds of character

NB2 He can see reason why instincts (sexual) of animals stronger than in man – because not having any notions of beauty to keep them in right line

these involve feeling triumph The◆ feeling◆ of◆ Sublimity akin to feeling of pure (1)

BURKE

gratified ambition – connected preeminently with consciousness of being a sentient being arising from many ideas.– each preeminent of its class.– [feeling of triumph at being a sentient being] brought on by the thinking faculty by being very active & exhilarating (hence aided by bodily conditions) with power to look inwards = Euclid too absorbing = yet conclusions from mathematics sublime – Gravitation sublime – thinking on subject if pleasure from a source not well understood, sooner look to yourself & hence sublime –

iv 6m, 8m vi 8m 55 9–17m 56 13–21m (*Scipio, Cato*) 57 21–25m 58 16–20m 66 zt 103 11–25z 114 14–15z 115 2–25z 162 13?/u "objects small" 163 5–10m 191 13–14m (*Tommaso Campanella*)

BURMEISTER, Hermann *Beiträge zur Naturgeschichte der Rankenfüßer* Berlin; G. Rainer; 1834 [CUL]
em, fg, phy

14 15–17m/w eggs not contemO impregnated
15 3–5m 16 28–29m 17 20u "Organe" 18 3–5m/w eye becomes double 19 4–6m, 20–23m
20 20–24m/w feelers & eyes thrown off 21 10–11m, 23–27m 22 3–6!! 23 17–19m/w no trace of seam in shell 24 23–27m/w calc. plates 25 1–4m/w epidermis on all young shells 26–30m/w Ovaria within young shell 27 5–6m 28 11–17m/w eggs in different state in different parts 29 1–2m 30 13–15m/14u "Gräten"/w fish-bones 16–29m/w Burmeisters description best of mouth.– 31 14–18m/w cissi all alike 35 11–16!! 37 1–3m, 15u/wτ, 16u/w♦τ, 22–26m 38 4–6m, 19–20m 40 11–14m/w case of moth 22–29m/w pretty good 41 1–3m, 14–16m/w so cissus ant. are longest 19–20w rest of cissi similar 45 21–23m 49 13–16m 50 13–16m/w compare with Cyprus 26–28m 51 26m, 26u "Stomatopoden", 27u "lässt|der", 28m 28m 53 5–6m, 12–13m pl. facing 60 wt €

BURMEISTER, Hermann *Histoire de la création* Paris; F. Sary; 1870; trans. E. Maupas [CUL]

∅

656 30–33m 667 31–36m

BURMEISTER, Hermann *The organization of trilobites* London; The Ray Society; 1846; trans. Bell & Forbes [CUL]
co, ig, sp, t, ti, tm

NB p37 & 38 Species Theory

SB □β

p.37. The earlier geological types present peculiarities of various existing groups passing into one another Good Remark to quote

1 zb 33 3–4m, 3–4w 3 37 16–18m, 37–42m 38 1–6m, 12–17m, 12–17w Mollusca! Corals support this

∅

BUSCH, Otto Arthur Schopenhauer München; Fr. Basserman; 1878 [Down, I] ∅

BUSCH, Otto Arthur Schopenhauer: *Beitrag zu einer Dogmatik der Religionslosen* Heidelberg; Fr. Bassermann; 1877 [Down] ∅

BUSCH, Otto Arthur *Naturgeschichte der Kunst* Heidelberg; Fr. Bassermann; 1877 [Down, I] ∅

BUTLER, Samuel A. *Evolution old and new* London; Hardwick & Bogue; 1879 [Botany School, FD]

(markings presumed to be by FD)

BUTLER, Samuel A. *A sketch of modern and ancient geography for the use of schools* 4th edn; London; Longman, Hurst, Rees, Orme & Brown; 1818 [CUL, pre-B, S]

title pages (much illegible scrawl) v 2w 4004 vi 2m, 7m vii 37m, 39m, 41m viii 4m ix 11m, 21m, 25m x 4m, 28m, 33m, 40m xi wt (dates), 5m, 45m xii 7m xiii 13m, 17m xiv 9m, 27m, 42m xv 17m, 22m, 25m, 32m, 38m xvi 5m 10 wbee 11 wt ● 12 11m 13 23m 15 16m 17 12m, 17m 20 8–14m, 17–20m 31 wtee 32 10m 33 7m 34 18m 35 10m, zb 36 3m 37 32m 39 14m 40 1m 41 22m 43 3m 51 7m 63 zt, 2–15m 64 zb 67 24m 84 14m 85 18m 89 12m 93 20m 97 11m 99 16u "Ennius"/w 169BC 100 6w 281 104 wt (note about events of 264BC) 122 zt 146 27m 148 2u "Thucydides", 2–9w son of Plorus an Athenian died 391 before Christ 149 3m 151 6m 153 14m 154 11–20z, 23–25w 449 died BC 155 5m, 17m 158 16m 159 7m 160 5m 161 2m 162 11m 163 17m 164 16m 166 11m 168 2m, 23m 169 21m 185 wt (dates), 11u "Apelles and Hippocrates" 186 7–10w (dates), 9u "Zeno" 191 wt/8w (dates), 7u "Diogenes", 8u "Mithridates", 18m, 23u "Punic war"/w 218bc 192 30u "Mithridates and Strabo", 32u "Pompey", 30w/31w/wb (dates) 193 17u "Lucullus", 18u "Mithridatic", 9–16w/17–19w/wt/wb (dates and events BC) 194 23u "Anaximenes"/w, 26u "Themistocles"/w (dates)

195 21m 196 10u "Strabo"/w (dates) 199 1m
202 17m 209 10m 210 26m 237 wt ● 240 2z
241 zt 243 zt 249 wt/5-8w Mani Manc Mane
Manc 251 wt 251 253 7w Aegyptus 254 wt
Dr Darwin 255 wt DARWIN 258 17m

BÜTSCHLI, Otto *Studien über die ersten
Entwicklungsvorgänge der Eizelle die Zell-
theilung und die Conjugation der Infusorien*
Frankfurt am Main; Christian Winter; 1876
[CUL, I]

fg, phy, sx

title page 11u "Bütschli", 16u "1876" 207 28-
32m 208 5-12m/w for a renewal of youth & a
reformation of parts 209 18-22m/18-19u↔,
27m 210 10-13m/10-11u↔, 19u "Vereinigung |
Actinophrys", 22u "scheinlich | Encystirung",
31m/30-33w Give Butschli first & Enger &
then Carter 211 19m, 22-28m/22-23u "dass |
ist"/27u "Verjüngungsepoche"/26-30w this is
just what he has said about Infusoria wb
According to this view Conjugation is a
renewal of youth & size which gradually
decreases & propagation thus division.—
Process seems analogous 212 2-11m/w
same process without conjugation or with 2
spores formed 214 17-22m/22u "den | de
Bary"/w the first man 17-22m/w He fully
admits that conjugation is the first step to
sexual copulation 215 3u "Dagegen"/5u
"wirkliche Befruchtung"/3-7m/w not so ♣ with
Proteus infusoria &c &c 10-17m/w seems
here all for connection of conjugation &
sexual reproduction 22-24m/u "dass |
erkennen"/w Conclusiv 32u "1838"/m (J.
Müller) 216 3-6m/w seems to say that
conjugation of infusoria is the same with s.
generation 8-9u↔ 219 9-26[...], 25-26u
"erhalten | Fortpflanzung" 252 wb p.207 to 219

CABOT, Louis *The immature state of the
Odonata* 2 parts; Cambridge, Mass., Uni-
versity Press; 1872-1881 [Down]

Part 1 NB O/

CAMERANO, Lorenzo *La Scelta sessuale e i
caratteri sessuali secondari nei coleotteri* Torino;
Ermanno Loescher; 1880 [Down, I] ♂

CANDOLLE, Alphonse de *Géographie botan-
ique raisonnée* 2 vols; Paris; J. Kessmann;
1855 [CUL]

ad, af, beh, cc, che, ci, co, cr, cs, ds, dv, ex,
f, fg, fo, gd, geo, gr, h, he, hl, hy, ig, in, is,
mg, mhp, mn, oo, phy, se, sl, sp, t, ts, v, ve,
wd

vol. 1 NB1 p478 His ♣ Geogrph Regions

As there are only 3 - 5 Ascension Plants, &
I think DeC speaks of several inhabitants, it
is one of strongest case of many introduced
plants.

NB2 Philology pxxii; p.xiii; p.xiv to end of
Introduction

p535. Decandolle Memoir vol X on
compositae

SB Mem. Carrier Pigeons caught at Dover -
See McGillvry number of seeds in crop.

That Transport does little for continents, but
much for isld. is what I shd have expected.—
In Compositae & all others.— Proportion of
seeds with plumes & small seeds ought to
be great in islds; even if not same species.

It may be possible to take two great groups
for comparison of range. it cd be useless, I
think to compare orders of Vertebrata

SA (pp. 528-529, 5 sheets)

SA1

5. Sous-regions (cc showing) 34 species to
Fam.

3 Sous regions (cc showing) 28 species to
Fam

(over)

⇒ 4. Sous-regions (cc showing) 40 species
to Fam.

This again is hostile, contrary to largest
Families do not extend furthest

SA2-5 ☐

SA2 ♣

⇒ Vol I p 516 Decandolle

(numbers of species in certain families totalled)

Water Plants seem to make large proportion
of Monocot. - wide ranges

Taking the 23 Fams. of Dicot. & 4 Fams
Monoc together, with more than 500
species; we have 27 Families, with species
inhabiting more than 2. regions

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(*calculation that*) 4.5 is the standard of all Families whatever

(*over*) ⇒ ☞ ♦

SA3 p.512 of Decandolle; (*list of numbers of species, and totals; names*), ☞, ☞☞

(*over*)

⇒ I think if Families are used, whole world or Continents shd be used as field of Compositae. But I cannot say why I think so ☞ May 1. 56 I have taken the Families (p.512. Decandolle) on other side (*above*) from Drege (Flora B.2. 1843). There are 21 (*one omitted*) Families, which have their species ranging over a ♣ larger number of the 20 divisions, into which the Cape District is divided. there the average (viz 1.6 regions) ♣ range of all the Dicots. & Ferns together? – These 21 Families have each on average 126.2 species, but if the Compositae from having more than double number of species be subtracted; then the average is only 77.1.– There are other 37 Families which range ♣ less than the general average mean of 1.6 & these have 87.9 species to Family. So that nothing can be inferred safely from these results, ♣ Families being too large.– [If we give a reasonable number to the Compositae, viz 500 species, then the average of the wide-ranging Families is 96.7]

SA4 (*and*) ⇒

Vol I p.516

(*continues totalling numbers of species*)

This gives for the 23 Families of Dicot with some 500 species, that the proportion of species ♣ per cent which inhabit more than 2 regions is 4.3. The standard for all Dicot being 4.1.– If we ♣ consider the ♣ 7 Families marked ✓☞ which I consider Tropical, & which have less means of spreading, for Tropics divided, we find these 7 large families have only 2.0 per cent species widely spreading, so that means of distribution come into play, & the remainder, wd be above 4.9. Those of Tropical Families, have 6044 species & only 124 in more than 2 Regions.–

(*over*)

Picking out Families with more than ♣ 500 species, no of species, no of wide rangers (*list follows, with species names and totals, some marked* ✓☞)

SA5 Dicoti only. Families with under ♣ 50 species.

(*list follows, with species names and totals, and number of wide rangers*)

(*over*)

(*continues list from SA4; calculates that*)

The standard of all Dicots is 4.1

☞ General Conclusions

☞ Families with more than 500 have a little above average of wide rangers & Fams beneath 50 rather fewer wide rangers, than average – But there is far greater difference ☞ according to nature of Family itself, than its mere size.

N.B. Decandolle does not use the very small Families, here used in his average.

SA6 ⇒ (*pp. 560–561*)

Cruciferae – p.550

(*table of totals of species and those in more than 2 regions in various islands*)

N.B. If the Labiatae & Polygonum worked out this way, it wd show ♣ in how isolated ♣ spots some species of each Family occur.–

= 33/100 agrees nearly with Decandolle

I conclude islds must either have some easy way of getting inhabitants or double creations are tenable

(*over*)

(*another similar table*) Compositae, p. 552

= 22 per cent leaving out Canary lsd only 13 per cent.

xii 24m xiii 12–17m xiv 7–10m xv ↑9–5m/w true xx 30–33m xxii 34–36m xxviii 19m, 34–35w Individuality xxix 16–17w Cultivated Plants 32m xxx 21–22w Definition of species 45 19–33m 47 16–21m(FD), 23–25m 62 6–7w(FD) 72 8–12m/10–11Q 14–22m 84 8–22m/8–9? 85 7w say read 88 ↑3–1z 116 36–39m 117 6–8m, 13–16m, 27–30m, 37–39m 118 6–9m, 16–21m 144 1–4m 147 4–7m, 9–10m, 17–25m 156 11w♦ say read 183 4w♦ say read 200 10–16m 201 1–7m/3–5w examples of causes 28–31m 202 25–29m 203 36–38m 238 24–30m/w Read 39–40m 246 18–26m/w Does☞ this refer to America? if so ● or to Islands? 247 2–7m, 6–8m 250 20–28m/w I do not think even at lower limits except approaching a Desert 264 10–11m, 12–16m/12–13u "*enfin | nord*"/15u "*on | fait*", 16–21m 268 9–11m 270 16–31m, 28u/29m/w Spain 279 10w says read 305 20w say read. 316 34m/32–34w theoretical average of minimum height 34m/wb I have no doubt native 326 30–37m/→ 329 14–21m/→ 330 1–7m 334 4w♦ I only read 337 6–7m, 9–10m/9u "*lat. | degrés*", 15–16m, 15u "*se | connaît*", 25–28m, 27u "*environ | trente*", 30m/u "*bord | degré*"/→ 338 5m, 41–43m 339 wt Island Saxifrages 2u "*aux | ouest*", 3u "*la | Asturies*" 340 15–20m 341 23m 343 7–12m 394 20–24m, 32–34m 395 12–15m 397 20–22m, 23–24m, 25–28m, 32–38m, 39m/→ 398 29–33m 399 8–15m 406 12–18z/w (*circle with compass points marked*), 31–36m/

31u "8495", *wb* *cc*, *zb* (oval with compass points marked)/*wb* 4 times elongated E & W 407 7w arctic 11-13m/12u "Montagnes Japon", 14u "Turquie d'Europe", 37u "Caucase" 408 15-18m/16-17w S. America 410 16-19m 411 25-29m, 31-32m 412 3-6m, 12-15m, 38-42m/40u "Sierra-Nevada" 416 11-13m/15-17m/7-20w so make Alpine Plants of N America, so means more wonderful 24-26m 417 11-16w♦ -But Asa Gray's Alpine plants are more than this alone. 35-38m, *wb* The southern hemisphere of Hooker 418 5-10m, 10-12m, 25-28m, 30-33m 419 *wt* All used in the Chapter on Sociability - Struggle for existence - Stations & *wt* Not used on proportion of genera to range 422 1-2m, 26-29m, 36-39m 424 36-40m 428 31-35m/32-33Q 431 38-39m 444 19m 447 28-34m/→ 448 8-10m, 11-13Q 15-18m, 18-20Q 21-23m, 35-36m 450 24-27m 453 12-17m/12-13Q 21-26m, 27-36m 454 1-5m, 6-7m, 24-26Q/26-31m/26-37w Every one of such species *wd* cover ground if no other species present: if rarity here is step to exclusion, then the greater importance of other organic beings is shown *wb* p463 near confines become rare necessarily, but yet, (at least sometimes) social; see top of p462 (Q) 455 6-16m/8-9Q♦/wt Not Q 22-23m, 26-28Q 31u "caractéristique | blé" 456 1u "dans | cultures", 14u "Plante | champs", 40-44m/Q 457 15u "ne | absolu" /15-16w because impossible 458 1-3m 459 16-18w I shall not Q. this 28u "espèce | sociale", 20-33w a broad distinction in terms between repandu or diffused, & abundant or social. (a) see p. 463 *wb* (a) Does former depend chiefly on physical conditions the latter on other species ??? The latter must chiefly on other species, except where, perhaps conditions very peculiar. 460 26-28m/36m/Q/25-38w/wb I am inclined to think that H.C. Watson facts go only to show that most widely diffused are diffused likewise most in smaller areas: hardly descends to such minute areas as field. A species might abound on one spot & yet be rare over all England, but is this so? 461 4m/u "nuisent", 19u "directement | indirectement", 6-29w It comes to this, whether there are ♣ many social plants in good common soil? 25-26u "toutes | grand" /25-28m/ ←, 11-12m/14-15m/12-20w Alder in Larch-wood, but this must imply adaptation, else *wd* not grow up. 23-24Q/w Mangrove forests 27-29m, 31u "les | alpines", 34-38m/36u "paraissent | abondance" /38u "d'être | moins" /31-39w This is fact of same kind as not being dwarfed 38u±/wb This is opposed quite to view that each form more depends on other

organisms than on external conditions, *wb* ie great numbers to live *wb* But on the extreme limit of a desert, then plants grow separately, I think 462 1-4m, 3-4m/4u "isolés | étroite" /wt meadows very full of social plants 3a "espèce" but not of all life? 5-9m/Q/wt Q when a form can once live, then it may be social from mere number of seeds. & occupation.- 11u "en | isolés", 13-16m/w (a) → *wt* (a) As long as conditions exactly same. in relation to physical nature & other species & its own ♣ excretions, then of course there will be many individuals, & so be social.- 13-14u "causes | locales" /12-15w This must include other species. 19-23m/18-31w Except (z) at the Cape, it seems the more fertile the land, the more diversified the flora; & according to me, it is more fertile of production in life in part because more diversified.- (z) The forest of firs grows slowly, for land poor & cold. ↑2-1Q/wb case (z) explained by diversity of stations, such as occur in all dry regions.- as stated before 17-34m/w I cannot but think the number of species, depends in part on the goodness of conditions; but why I do not see; much life causes much decay makes strata & c & c & many stations. for different times of year will have species all times of year. good. ↑11-9u "surtout | station", ↑5-2w This is cart before horse?? There *wd* not be many species without stations; yes, how many species can be introduced. *wb* a field of grass cannot be called so rich for so many genera. - (a damp rich tropical soil & a damp cold poor soil ought to be compared) 463 *wt* The many cases of introduction of new species into islands, shows the simple free-road to, from elsewhere created, is important element.- Creations not easy work thus also shown.- My theory shows how slow & difficult it must be.- Supply not equal to demand.- 8-9w all this discussion strikes me as unsatisfactory, from struggle with other species, not being here prominent. 10-11w Not Quoted 14-18m/w depends, I think, on beating other species 14a "répandent" no doubt one element 15a "vent" Yet Compositae confined, 14-18m/?, 7-23w He shows towards end of Book, that genera increase with no of species - but not I think with individuals - yes for mean density & decay create other stations) 20-25m, 26-29m/28a "communes" but not yet social; but sociality and commonness bound together, for perhaps hardly one absolutely social plant to exclusion of all others, except such as Mangrove ↑6-5w but yet it seems when does appear is sometimes social.

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↑4u/a "est|rare" Yet social plants occur near limit ↑1u "de|elle", wb A great diversity of forms will follow from adaptation to different stations (supposing free inroad), as well as from supposing a great amount of life, for the latter creates many stations, ↓w Would not under same climate a uniform good soil support more diverse forms than uniform poor soil & climate? 464 1-4m/wt/1-7w No hardly - flatly contradicted by his social Plants. 8-11m/w thus if compositae abound in many countries it must be due to their organisation; but if ♣ the species in certain countries are more or less common due to conditions 10a "les" different 12-18m/w Does this not imply that habits of species have more in common than they really have? - wb ♣ One sees a Railway cutting temporarily covered with plants (in most cases only the natives of seeds) next year there wd be more seed, yet the abundance soon ceases.- here struggle comes in. 465 wt these tables refer to species being very generally dispersed within their own region of habitation.- 2-3Q 2nd table "composées".w largest family 6u "1 sur 4", 10-15m/w It wd be very curious to see what result wd follow from genera. calculated in this manner by averages 11-12u "mais|sensible"/12-14m/14u "soit|100"/15u "18|45", 13-15X, wb Can Families include too great a range of adaptations to answer for such calculations?? The resemblance in Families may be due to parentage? 466 1-10m/w Tropical Families have nearly as many common species as non tropical Families.- This shows how little adaptation to climate goes through a Family. table "Phanérogames".w standard table.w Here again it is clear that largest Families do not have greatest number of common species ↑12-7m, ↑4-3u↔, ↑2-1m 467 1m/1-4w & yet it may be social!!! p.462 7u "17,8"/w ie below the average of all Phanerogams. 9w ie average 11w the very small families have more than average!! 12-13m/w quite opposed to my views.- table "Phanérogames".w standard table.w Here again same general law 468 table.m/w This goes as it shd do 2nd table "phanérogames".w/wb These are 2 largest families & they have nearly 1/2 the common species, but single spears in other Families are excessively common 469 27-31m/w Doubt whether Watson not too large. 34-35m, 40-41m/w doubts. 470 wt Ask Hooker about paragraph 3.- what it means 8-11m/10-11u♣, 13-14m, 16-17m, 18-20m/18-19u "moyens|remarquables", 20-23m, 19-24w |

cannot believe, much is due to this??? Yet it must be part element.- 23a "Quant" to common species of 23-26m/?, 27w ♣ What does he mean 31-32m/??, 34-36m/w but excess of numbers very small 37-39m, 40-43m/Q/wb "species with restricted range are not common" ie confined range & rarity go together. ↑2m/↑4-1w/wb propagating by number may account for this to certain extent 471 wt Only those social plants which inhabit common ground are the difficult ones to understand. if such exist near limits 1a "sociale" certainly if conditions peculiar 1-3m/1-8w It shows that sociability does follow other laws than ♣ commonness; how can they help each other. or injure others? 4a "espèces" Can means of propagation come into play 4u "circonstances locales", 5-8m/w diffusion depends more on climate 7-8w This like Bentham's cases on Pyrenees. 16-21m/Q, 34u "c'est l'abondance"/34-37m/w social plants most easily affected 472 wt If this fact of social plants entirely disappearing be true it shows again that there must be some other law.- It is analogous to social plants suddenly appearing on their limits wt If sociability depends on other species & not on external conditions, then very slight change might determine their existence 1-2m/6-9m/8u "par|naturelle"/1-16w It is like change in Oyster Beds.- I cannot believe; flatly contradicted by History of shells.- No this seems to apply exclusively to plants social or not social in same area.- Is not part of this that social plants now conspicuous, especially in forests *midpage.w* But it cannot be that every individual disappears from field 16-22w It looks as if one individual protected another, & so this wd lessen when preyed on by insects &c: Trees, wind.- 24-28m/24-30w Everyone knows how hard to rear few ears of corn in Garden.- my Radish seed from apparently mice ↑11-7w cross impregnation ↑7-1w/wb are social plants very defined in their adaptations: It has been shown I think greatly depends on number of other species adapted generally to same sort of conditions. wb/↓w - But why none in tropics; because oldest climate, & all species mostly perfectly adapted: most of the facts come to adaptation in preponderant degree.- wb These several cases seem to show that all the individuals of social plants disappear together owing I presume to rotation - 473 wt The Paris is well fitted as shown by its mere presence; it is social from numbers of seed sown: this I conclude must be

governing element, but easily overlooked in Tropics where more closely adapted species.— 2-12w Destroy 5/6 of English plants & many wd become social which are ♣ not so now.— 4-32w These two Pages not worth quoting 23-25m, 23-25m/w of rotation 28-29m/29u "sur|considérable", 31u "de l'Europe", ↑4-2m/!, wb/↑15-1w I wonder whether Cardoon is social in Europe? & spotted thistle of Pampas? If so it wd seem to be merely ♣ excellent adaptations, like when Railway cutting first exposed, due to seeds. wb Fennel — Hooker & Bentham say yes. 474 1-2z/w ordinary shape (oval), ↑8u "endémique"/m, ↑16u "sporadique", ↑13m 475 1-2m, 21-26w difficulties in defining areas & terms 476 2-4m, 10-13w Before making any calculations whatever skim over to p 519 26-35m/28u "mais|rares"/33u "espèces|aire", wb Introduction 478 wt/1-5w Now the question is whether this applies to means of transportation or adaptation, probably the latter; for plants seem to have such power of spreading.— The adaptation must be to struggle with other species & not conditions 4-5u "de|famille"/5-9m/7w (a) 479 wt The transportation is a theoretical question & implies single origin, & probably not considered by Decandolle. In Birds, according to Goulds idea, was considered with means of transportation.— The very nature of the areas, some continuous and others disconnected, shows he did not consider means of transportation. 22-23m/22-25w Can it be right to run them together.— 22u "Archipel indien"/23u "Nouvelle-Guinée"/24-25m/?/!, 26u "Nouvelle-Zélande"/26-27m/w are these distinct 32u "Bermudes" 480 1-26w without knowing whether areas connected by continuous land or separated by sea, the results seem to me useless. How different cases of plants common to India, & Africa or tropical S America & ones common to Europe & Siberia, must make some difference. 481 2-13w Thus far it seems that intertropical species do not range so far as temperate (but tropical lands ♣ more divided by seas?) not the American provinces. table.w very regular laws indicated by this table. 484 7-11m, 15-17m/15-32w Q I cannot think why; this fact keeps very constant, see note below, when more species discovered so that a given percentage in each Family are sporadic 486 1-4m 488 table.w R. Brown 489 table.m/w Aetheogames = Mosses, Fern, Hepetiae, ↑15-5m/↑11u "730"/↑8u "dont|Europe"/↑7u "8"/↑14-11wcc 490 table.m/wcc,

wb ?? So Auckland isld more in common with other countries, but less with Europe — If this community is the S American, it accords with glacial, having been subsequently peopled. Kerguelen ought to have been most with S America & less with Europe — See next Page.— So he counted ones about Glacial agency. 491 2nd table.m/w These must have come from North. 493 table.w/wt (What a contrast with the 730 Phanerogams of N.Zealand more water, more coast — more higher mountains.) Dryness alone most important element, but not enough to account for this difference table "Phanérogames".wcc, table.w Far larger proportion common to Europe than in N. Zealand & Auckland Isd; So far more species in Larch wood, than in all Falkland or Tristan I or Norfolk Isld. Only 272 in Society Islds ↑18-1w this shows how much free access determines the number of species: is not this against former continuity of Land. table.→/5u "soit|100", 5u "soit 2,3", table.→/↑15m, ↑4u "1843", ↑13-1w/wb 5009+1686=6595 species of Phanerogams The fewness of European plants very interesting as compared with all land further South. Was not Africa the old Tropics? The glacial climate & ice action explains the greater community in other regions. 494 wt Von Buch only → Canary Isd Dicot 322+Mon 59=381 species. 496 table.m (Dicotyledons)/w so that Kamtschatka & Labrador have nearly same number of species in common with Europe. (Mem Iceland all in common) 497 2-3m/u "Remarks|plants", 15-18m, ↑12-1m, table.m/?/→/wb what a contrast with Alpine Plants of N. America 498 1-16w These contrasts of numbers, show that islands never united to mainland 17-23w♦ contrast with Falkland Isd 18-31w Feroe 192 Dic+80 Mon=272 a contrast with the Oceanic islds 499 ↑9-6m/wb Is this owing to closer adaptation? or longer existence of simple plants, & ∴ part of existing means of dispersal. wb/↓w Means of dispersal & adaptation are all confounded — in Cryptogams at least, means of dispersion wd come into play. ↓w The cases from which he argues are in very many cases islands; & even when same species occurs in 2 continents ♣ means of distribution must come into play.— 500 8-12m, 17-19m, 21-29m, ↑12u "mesure|découvertes"/↑12-1m/wb/↓w I cannot think cause of this. Perhaps it is only that certain species of genera range far, like certain families in order: but why as discovery progresses, does the relative

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proportion keep constant? Does the proportion hold good in different countries ← I shd think it was only chance that more wide rangers ♣ were found & more local species. 502 *wt* can this have anything to do with Glacial Period? carried by ice from Tierra del Fuego? – but none could go from New Holland. At Glacial period New Holland very favourable for introduction of temperate plants. 1–4*m*, 6–8*m*, *table.w* some compositae have wide range.– 503 1–3*m*/2*u* "dont | France"/1–3*w* water-plants (condition more uniform) 4–6*m*, *table-title.w* This is the more important comparison? *table.m/w* These very large & natural Families have only a few: (a) *table.w/wt* These 13 Families have 149 species on average: they have 37 species in common with N. Holland, or average nearly 3 in common with N. Holland 2*nd table.w* These 33 Families (those with less than 15 species being omitted) have 1541 species on average only 47 species each & not one in common *wb* (a) N.B. There is another element, besides facility of transport, the durability of same form. No – but this is the very point that we are considering that large Families are wide rangers & most convertible [but that it is only a few which are wide rangers; the others changed into species]: I see I have not clearly relation between very wide rangers & variability.– as in water plants. Indeed if wide rangers are only generally variable, then some wd be identic at great distances. 504 2–4*m*/→/*wt* Even if these are added to list on other side, the Families, which on average have larger number of species, have most in common with New Holland.– 3*u* "Lemnacées"/4*u* "Hydrocharidées"/5*u* "Lythariées", 5*u* "Alismacées"/*w* water. 505 *table.u* "Composées"/*w* some wide rangers *table.w* It is evident that the Glumaceae most widely spread. & I shd think means of distribution must come into play. *second table.*↑4–2*m*/→/*w* compos. 507 14–16*m*/15*a* "austral" which are common to Southern islands & Europe.– 508 *wt* N.B. Pritchard shows the ♣ mntains go partly E & W in Lat 10° N.Africa. 9–15*m/w* 96/7000 What a contrast with T del Fuego. 18–19*u* "et | Cap", 20*u* "ou | antérieures", *table.m* (Salsolacées)/*w* Here again; must be owing to means of transport. *table.c* "Fougères" "Phanérogames" "Composées"/*wb* These 16 Fam. (with species in common with France) having 2222 species have 139 species per Family; ie nearly twice as large as those families which have not one: there wd have been none if Compositae had not

been omitted *table.m* "Composées"/*w* so many omitted 509 *wt* The Cape & Europe valuable, because have means of distribution, cannot be so important as when islands are compared. – No Sahara – but how in glacial period.– *table.w* These 41 Fams. with 2895 species, have on average only 70 species to Fam. (wd it be worth great labour to calculate by genera.) 11*u* "pour | moins"/*w* on account of smaller Families not giving true averages ◊ calculate this 2*nd table.c* "Fougères" "Phanérogames"/*wb* These 21 Fams. having species in common with Cape, having 2438 species have an average of 116 species; if we ♣ leave out Compositae as so numerous (at least at Cape), we have 20 Fam with 1960 species each Fam. has 96 species – (ie double of those Fam. with no species in common) – see over 510 2*u* "15 | moins"/*table.m/wt* These 24 Fam. having 916 species (with none common to Cape) have an average of 38 species each 4[...], 2*nd table.m* "Composées" 511 *table.w* ◊, 2*nd table.w* see over There are numerous very small Families with very many species in common, which wd make case the more hostile 2*nd table.m* "Graminées...26"/*w* can this be accurate? *wb* These 13 Fams (<in left half) have only 36 species to Fam. & have 255 species in common to N. Africa *wb* These 13 Fam (<in right half) have 52 species on average & only 243 in common. Here then the larger Families have fewer species in common with America. First hostile case. 512 16–25*m/w* These two groups might be contrasted ↑13*u* "Documente | 1843"/↑10*u* "plus | (a)"/↑13–1*w/wb* I might work at this Dividing the Plants into 2 groups of those ranging above the mean 1.6 those ranging beneath the mean – (Being continental wd depend not on means of transport) & not tropic come in, or so much astounding range of water plants ↑1*m, wb* Would it be possible to work out this in genera??? Taking for instance the genera found in 2 & upward sous-regions & see what average of species such genera have, ie of general average of genera, or give or take those Genera found in only one sub-region 513 *wt* N.B. Hooker says Dreges Book is great Book with elaborate distrib: (perhaps in Linn Soc) & he will lend me; good to work out genera larger & small for distribution.– Does not give genera, only Families 5*w* 22 6–7*m/w* omit this in calculation 9*w* ◊, 18*w* 37 Ledebour ↑12–5*w* ◊ I feel sure that this wd be hostile to view that largest Families range furthest ↑8–4*m*/↑2*w* This is mean ↑2*u* "6366 | près"

514 *wt* F. Water Plants demonstrate that some element quite distinct from numbers of species, come into play in wide distribution. Is not same thing observable in Salsolaceae? love of salt? 515 *wt* This table gives the proportion in each of the named Families of the wide ranging species to the whole number of species in the Family.— 516 1–39*w* This table looks ♣ hostile Can my view be applicable only to single continuous regions; if so, Cape of Good Hope & Russia wd be excellent.— 517 20–22*w* V. note p.519 ♣ anomalous 518 *table.m* "9 à 7,1" "1 à 0"/*w* These 2 might be compared *table.*"1 à 0".*w* But these seem mostly tropical 519 3–9*m*, 9*u* "dans l'infère", 18*u* "Calyciflores | compliquée", 20–23*m*/20–27*w* according to this one ought to compare ♣ size of Families in same great division & not as I have done in great totals. 26–29*m*, 28–29*m*, 29–33*m* 520 13–15*m*, 29–32*m*/30–38*w* Marshes cannot be so uniform in conditions. But Marsh Birds visit 521 11–14*m*/*w* ie Marsh Plants 16–17*m*, 23–24*u* "la | salés", 35–36*u* "les | grande" 522 *table.w* Table of aquatic & Marsh Plants 34–35*u*↔/*w* This looks like conditions 8–10*m* 523 8–11*m*/*w* conditions & means of transportation here explained. 20*u* "plantes annuelles", 38–39*u*± 524 4–5*m*, 8–11*m*, 12–14*m*?/13*u* "plantes | arides"/14*u* "semblent"/13–23*w* why? few other species or inhabitants, this wd apply to water-plants & sea-side plants.— ↑4–1*m* 525 12–15*m*, 17–18*m*, 28–34*m* 526 *table-title.m*/*u* 527 ↓*w* Trees often dioicous chance transport of one seed insufficient Might be tested by other dioicous Plants. ↑6–1*m*/*w* Trees most limited. Herbaceous plants next – annuals most widely – can live in hot countries during their winter *wb* Does not this depend on means of dispersal, as annuals for very conditions of life must have great means of dispersal.— *wb* Trees depend less on means of dispersal 528 *table.w* Have these big seeds? What can reason be? Mostly Tropical 529 2–3*m*, 10–11*m*, 21–22*m*/22–23*u* "quelmer", 32–35*m*/*w*/*wb* What can reason be Higher developed & more changeable 530 2–3*m*, 5–6*m*/*w* small seeds 531 *table.w* In same Families distribution according to annual & herbaceous & trees. All accord in same general Result.— 532 12–15*m*/*w* no general rule means of distribution greater or less 18–20*m*/*w* seeds in proportion small 20*w*/1–20*w* There is, also, relation of size & highness in series.— Because big requires more food & is therefore a flourishing organism.— ↑15–1*w*/→/↑9–5*w* (a) If I am right on size, wd go to show wind.—

But then Compositae!! Yet here the ♣ transportation comes into play; but then the Genera ought to be widely distributed. How is this.— This ought to be worked out in Decandolle → or better look to Flora of islands & see whether genera of Compositae more usually the other genus. ↑5*u* "peut-être beaucoup", ↑4*u* "reproduction | dissémination", *wb* (a) Means of distribution coming in so importantly is quite in accord with Barriers (ie the stopping of distribution) being so effective; so beyond anything the most important 533 11*u* "Ailes"/*w* or pappus 12*u*↔, 17–18*m*, 26–27*m*, 29*m*/*w* This does not concern wind 32–33*m*, 38*m*/*w* I wonder whether in Royal or Linnean Soc.— *wb* If I am able to add anything new to Decandolle to means of transport, it will show how curiously imperfect our knowledge is.— 534 4–6*m*, 7–10*m* 535 *wt* Wind generally accompanied by Rain will the pappus then cause seed to stick?? *table.w* I must study distribution of genera. ↑14–1*m* 536 *wt* (a) Note/ the proportion of genera with single species with & without pappus nearly the same: if transported by pappus & transmuted, then ought the most genera with single species with pappus 1–20*w* As these calculations include many continents, the seeds cannot be more transported than others. 5–7*m*, 19–25*m*/↓*w* ∴ Pappus, therefore, would seem to act like hooks which can transport to only short distance: remember no transport avails except it be to unoccupied land: no false look at introduced plants ↑17–10*m*/↑11–10*m*, ↑9*m*/*w* (see last page) ↑5–3*m*/*w* (a) 537 6–9*m*/6*u* "2,2"/7*u* "2,9", 9*m*, 13–14*m*, 17–18*m*, 20*w* Range rather small 20–21*w* therefore rather peary I shd think 538 1–2*m*, *table.w* In same Family species with fleshy fruit have widest range; is it because animals eat them? 31–32*m*, 38–39*m*, *wb* without Isld are specially considered, I hardly dare trust these discussions, for my purpose, as adaptation must so overrule powers of dispersion 539 2*m*, 3*m* 540 3–7*m*/3–7*u*±/*w* what complication. 541 ↑5–2*m* 544 23–26*m*, 33–37*m*/*w* Russia may be considered as new country peopled from whole South 545 3–5*m*, 28–34*m*/29–37*w* Here isolation clearly comes into play; but this does not account for smaller range of plants within Cape District. 38*u* "Flora, 1843" 546 16–22*m* 550 *table.w* As far as I can see (which is very little) isolation of area seems to have little to do with confinement of species!! In this Family 552 *wt* Here again it seems perfectly insulated regions have the

CANDOLLE, VOL. I: 552

wide-ranging species in greater proportion; this cd happen whether formerly connected by land, or chance introductions: No if isld was only a bit of a continent, it would not be so, but if it received species, then it wd have wide rangers ↻, left half of table: 17m, 18m, 21m, 26m, 28m, 29m, 30m, 42m, 45m, 48m, 49m, right half of table, 12u "purement insulaires"/w New Holland Mem 13-16m, 20-26m/! 554 wt Here again the less the connexion between the areas forming one group, the more species they have which are generally wide rangers or Isld generally possess large proportion of wide ranging species. table.m, 2nd table.m/wb Caledonia ♣ 555 table.w 59 regions ↑1u↔, ↑4m/wb !This exactly opposite result to top of last page 558 table.w This agrees with Bentham 559 18-19m, 25-28m/w uniform bad conditions & means of dispersal 37-40m/w can think of no explanation ♣ wb Give this as example of unexplained facts or law 560 8-9m, 12-13u↔/12-25w great regions more separated, but how can this bear on distribution within Cape Region. The very wide rangers which inhabit different great regions will a fortiori inhabit the smallest.- 23m/a "proportion" of wide rangers 28-32m, 33-37m, 33-36m/w/wb North most united before Glacial, or rather by ice action during glacial. and Before Glacial action 561 1-4m/3u "Crucifères"/4m/u "Composées"/3-13w♦ try this with really oceanic isld say only volcanic isld - It is here done: no great difference 10-11u "présentent | autres", 11-17m, 20-26m, 28-30m, 35-40m/38-39Q/35-40w | shd have looked at this just contrariwise wb I never shd look at it under this light; yet perhaps agrees with Herbert's views - When then only few species, we must suppose either others extinct, or then few only as yet introduced. 562 1-4m/1-10w All this opposed to groups with largest number of species having widest rangers 16-17u "indiquent | petit"/17-18m/16-20w This perhaps comes into law that great wanderers are very great wanderers. 32-36m/37-40m/30-38w in fact isolation by deserts or climate or sea equal 563 1-3m, 12u↔, 13*, 20-30m 564 15m/w introduced 36-38m/w 1/2 world 567 46u 569 46-48m (Hooker) 573 44-46m 579 32-37m 581 24-25m, 36-39m/38u "d'un | cultivé" 582 3-4m, 9-13w 47/117 acquatic or semi-acquatic ! 26-33wcc, ↑14-13m/↑15-7w This looks as if due to ♣ unoccupied site ↑2-1m/wbccc 583 3-4m, 18m 584 2-5m, 15-17m, 21-22m/21u "en Abyssinie", 30-33m, 30-35m, 38-40m 585 1-3m, 15u "La | Légumineuses"/15-17m, 19-21m/

w (a) 26-27m, wb (a) yet how extraordinary the law lately developed, that where there are few species of a Family, then average range is greater than when many.- species occur.- The latter are local vars. considered as species 586 1-3m/Q 3-6m/5u "à | baies", 12-14m, 15-16m 587 12-14m, 22-29m/22-24w very local plants 34-39m 588 13-14m/12-32w This bears on ♣ few species inhabiting 2 areas, where there are many species. Does it not come to this, that widely extended species break into varieties & these become species. with confined ranges.- anyhow this shows how complicated a question it is 21-25m, 36-38m/37u "restreintes | vastes" 590 28-30m/27a "la" Mediterranean 591 11-13m, 22-23m, 30-31m/u "12000 | existent", 34-36m, 36-38m 592 7-11m/w Labrador lately colonised, 11-16m 594 14-16m/13-20w This is important for shows creation by adaptation does not explain. see p.599 28-30m 595 1-7m 596 2-5m, 36-37m, 37-39m 597 ↑22-20m/↑22-9w No, because opposed to generally contest within same Families:- One Family may fail over world. animals or insects allied over world. ↑12u "Rutacées", ↑12u "Zygophyllacées"/↑13-5m/w (a) wb (a) Here is case in ease with which var. changes into species; & tending to extinction: Rutaceae & Zygophylleae small orders in alliance of Rutaceae, which has several small orders wb Antiquity of sp. anoth cause. Most complex problem 598 18-21m/18-25w seems to attribute much to simple fact of ancient existence. 30-34m/w contrasts these islands in range 37-39m/wb here comes in creation: they are new in North. 599 2-4m, 24w Marsh Plants 26-28m, 29-30m, 37-40w/wb speculation, which I shall introduce on Fish, bears on this; changes of River courses: most lakes connected with streams.- How many fresh water deposits with recent shells.- ↑1u "aux causes"/wb why, mere hypothesis 600 2u "ou | espèces"/2-4m/wt/1-7w I think many acquatic plants are social, which is proof not fully occupied; see to this I remember it is in salt-marshes, water-lilies Reeds & Flags &c. 9-11m/w whirlwinds 23-28m, 38u "Protacées"/38-40m 601 5-7m, 23-25m, 28-29u "comme | plantes", 29-31m/w no evidence for this 32-34m 602 table "régions arctiques".m/u "Petits | espèces"/?/w recently unoccupied area "régions tempérées".m/?, "régions australes".u "Petit nombre"/?/m/??!, ↑13-2u "les | extrême"/m/wb ∴ closely adapted: parasites opposed to this.- 603 table "marais".u "Uniformité | physique"/m/!!!/w why this was contradicted "plantes nivales".m/!!,

"forêts".m/u "époque glaciers"!!! 604 table-title.m, "Organisation simple".m/wt I see he always thinks simple organisation & ancientness correlated. More probably is related to adaptation to diverse conditions. I presume complexity or highness & close adaptation go together. 605 38m, 44m, 46m

CANDOLLE *Géographie botanique* vol. 2

NF Read & write sketch & look over; Read Hooker Galapagos New Zealand & Flora Antarctica

SF ☐☒

☞ When this read skim over (make index); Reread Hooker N. Zealand & & Fl. Antarctica & Galapagos; Skim my own portfolio; Then read my own old sketch, & write essay

compare D.C. list of introduced Plants in America & see whether they abound in vars. & whether large genera: taking average of species with vars. in whole U. States Flora – but those very sparingly introduced ought to be excluded.–

NB p.1130 ask; 1179 ♣ ask ♣; 1332.– Error (about Potatoes

♣ on absolute numbers in small distant islands.–

If Decandolle cd be trusted we shd have ♣ greatest difficulty to transport seeds from isld to isld in same archipelago & as most volcanic archipelagoes are rising we shd have the wondrous spectacle of a naked isld somewhere in ocean.–

Isolation most important, as preventing migration & so altering conditions, & making gaps in economy of nature, & quite secondarily causing organisms to vary. Also few individuals would aid in checking crossing, especially the bisexual.– A vigorous wider spreading spec. & which consequently varies, when isolated, under most favourable conditions to vary. Possibly isolation not long enough in many cases, as in Alps & F.W. Fish.– Few individuals for isolation, & this gives bad chance of new forms, but time wd make up for that.–

SB1 ☐☒ ☞

Index to Decandolle Chief Points

1☞

p.72 p.117,8, 147, 201, 203 Adaptation to external conditions, chiefly climate, showing how differences of temp. will affect differently diff. plants, on trees exposed to whole year cold hence (I shd think, dwarfed

p.264 more height no influence; hence alpine plants show nature of former Glacial

land better than arctic plants.

–p.268. humidity.–394–418 ♣

x☞ 238 on difference in leafing & c of Beech in Madeira. Read essay 397?

246 on sea not determining limits of plants in Europe

250 Nothing said about sterility of plants at lower limit of range [ask Watson or Decandolle at some future time] shows limit dependent on other forms.

☞ though they are sterile at upper limit

270 Alpine Plants. 316–327, 329 Polar & height limits are corresponding in different species; 407 Japan Mts; 412 Spain –

☞ p416 bears on general forms of area of Plants.; 490 Bears on Glacial Period

x☞ 337 Limit of cultivation of maize

343 on N. American vines, European does not succeed.

☞ x means used for 1st Volume

x☞ 406 only few plants have elongated area & 416

x☞ 422, 428 Q☞ Adaptation to conditions; 447 Q☞ alternation of natural Crops☞ 453

☞ Struggle between Fish & Water Plants

☞ p455 why more species in dry than humid climates

456 Corn Plants, list of

x☞ 457 to 465☞ on abundance of species, or Social Plants.– my discussion on selection of diversity of form to amount of life.– p.470 to 473

☞ p465 Book on the subject to consult)

465 to 470 Q☞ on relation of frequency & largeness of genera; bears on extinction.– 503 – 509 in connection with very wide ♣ ranging genera or Fams. & large genera. see infra

x☞ 476. When species in 2 distinct countries are generally in intermediate – ratio of wide ranging species & families. Families which range furthest, without regard to obstacles. There is p484 great distinction between Weak species & very widely extended species, ie when a species is once a spreader it spreads widely. 490 Proportion of N. Zealand & Auckland Is. & c with Europe & & 505.– on expansion of absolute numbers within Larch wood. On relations of polar districts to each other. 496☞ Labrador, Kamtschaka & Europe 499 Low plants 519 (u☞) Q☞ range furthest ☞ with exceptions p500.– 498 Bears on former continuity of Islands & continents.

☞ Decandolle ● plants not being spread N

x☞ 502 on introduction of glacial plants into N. Holland p.507/508 contrast of Cape & T. del Fuego in European species.

CANDOLLE, VOL. II: NOTES

x 502 some Compositae wide rangers. 505-508.510.

♦ 508, 509

503. 509. On largeness of groups & wide ranging. 511 hostile.

⇒ 514. & highness & lowness in plants 499/519

other causes determining range.- also greater division of Tropical land.

519 on wide range of aquatic plants 522 good index.- do Marshes yet not so uniform

521 sea-side plants do

527, 532 Trees much limited; herbaceous plants next; lastly annuals - good MS. remarks. Bears on distribution of F. Water productions

533 to 540 on ♣ Range in relation to nature of seeds

544 to 563 ♣ Range in different countries as Russia & Cape &c & Islands

563 Plants which range over 1/3 of world p.582 47/117 semi-aquatic/ p584 108/117 in N. temp & arctic lands, where land continuous, good to show effect of continuity - so good remark on same plants 584 being found on the intermediate islands

587. Azores less endemic sp. than Canaries; Färoe has none - cases of very local species

SB2 □β ⇨ (4 sheets, numbered 2-5)

Alph. De Candolle for 2d & 3d Vols.-

2

590 Species which inhabit other areas besides Mediterranean, inhabit all its Provinces

594 shows extension of aquatic plants cannot be explained by uniform conditions p. 599 do

595 winged Compositae not large range p. 600 small seeds widest rangers 596 not large-fruited seeds.

597 to 600 On sp. of same Families having small range in very different countries, but that they come into competition with nearly same Fam.- Good about dominant species spreading:- Long & Good Discussion on this subject

Vol 2 Naturalisation. by Nature & by Man

608 Each sp. not perfectly adapted to its own home, & [good] good MS remark physical causes cannot engender new species perfectly adapted

613 seeds blown up 5400 feet & effects of wind

617 currents of sea (Madeira to Canaries) note 616 20 years in F. Water alive

618 action of Birds on transportation in

various ways. (p769 admits agency of Hooks 797 good)

624 seeds alive in earth.

629 Cases of naturalised plants confined to few localities in new country. [Cardoon, Guava Peaches & Oranges several cases

631 Few disjointed species, & even species of same genus generally in same country

631 Cases of aboriginals, which are often injured by weather or do not ripen seeds. [this again shows want of perfect adaptation in indigenes.

632 Curious case of irregular distribution chiefly F. W. Plants: [Birds now rarer] good suspicion. one may say that means wd be now less effectual.

637 List of plants which have spread recently moderate distances

645 List of nat. plants in Britain [compare with Hookers list ♣ of nat. Plants f. in Australia ♣

698 Resume on do. 83 certain - 10/83 from America & Discussion on causes.

709 722 Nat. at great distances. in various countries; Europe/U. States 716 in 26 years 600 miles of Lat. Many other good facts of rapidity/- 720 Monte Video cases, when became social/ Juan Fernandez on Australian list.

723 Plants nat. in Europe since ♣ date of Columbus; from all countries (Compare with Australian List)

742 Resume on do. 64 sp. good in contrast to many on islands (None from any island) No p. 754). The introduced sp. are wide rangers in home

746 Plants nat. in N. America (751 Nat. plant in many countries & wider range than its own nat.)

754 Resume of do. p755 (proportion 122: 35) of plants of 2 worlds.- Proportion of Fams. of Nat. Plants nearly same as of indigenous in Europe.-

(p.759) the naturalised plants here again wide rangers in Home

761 Plants probably from merely scientific reasons nats. by nature in Tropics of Africa & S. America

796 Resume on - shows very few cases from continent to continent.

797 Again rule that naturalised, were originally spread widely & have naturalised widely

798 On difficulty of succeeding in naturalising a plant. When tried intentionally good to show importance of struggle

804. The species which ♣ have become naturalised belong it seems to Fam. which

have not wide average nat. range; but that does not concern me * on account of specification; if the individual species have that is all

Overlooks time See MS remark.

3

Alph De Candolle for Vol 2. & 3.

807 Recent Fir trees extinct in Ireland & Shetland Isd – Faroe & Nut-trees.–

995 cases of trees with Disjoined ranges (Alpine, Glacial & 996

Disjoined aquatic Plants

999 After Glacial period more lakes – p 1024 Eriocaulon 1027–1029 – Nymphaea W. Plant range of.

1007 Disjoined Alpine Plants to 1019

1019 Alpine Disjoined Species (but some partly glacial) connected with being aberrant forms. p1035 get Hooker to look over lists.

1025 Inter-Tropical Disjoined species.

1030 Cyperus polystachyus hot soil. Mem. Hooker Himalayan Cyperus in Hot Springs – shows a genus adapted to become fitted for peculiar site.

1034. No sp. common to S America & S. Asia, unless also fd in Africa – why on theory of creation? good

1036 Sp. common to Mauritius, Madagascar & India. do. difference is in Bourbon & Mauritius.

1047 Good discussion on Disjoined species. 1047. Species common to N. and S. not found in Tropics. Glacial: Antarctic ocean 1054.

1055 Conclusion on Disjoined Sp. races

1056 on ancients causes of dispersion. remarks in general

1062 on antiquity of species – old Trees

1067 Brongniart on relation of American & Europe in vegetation fossils

1092 to 1104 On Origin of Sp. Extinction, Isolation

1097 Concentration of close species the rule &c

1110 Multiple origin of species (1116 do)

1127 Genera more real than species.

1129 some analogy intimated between all species of genus (1131 do) see my reference below 1145

1130 Disjoined genera – 1132 Metropolis of genera with wandering species

1133 small genera with few far separated species [Glacial] a difficulty here.

1137 The bigger the genus the wider its area of extension; specially if it has sub-genera

1138 Relation of area of genus to that of its component species

1141 Genera confined to single isld with several species.–

1141 Case of Genera with very wide & very narrow Ranges: Average range.

1144 number of individuals not guide to aboriginal country, but number of species is so.

1145 External characters go with consti: differences, as shown by crossing & grafting.

1146 Cannot explain by any cause Distrib. of Families. 1149

1151 Distribution of Families like species of a genus.–

1152 Outlying genera abnormal or aberrant

1153 Single species ranging far taking place or representing or equivalent in distribution many local species in other cases.

4

Alph De Candolle 2d & 3d Vols.

1158 Fams. with immense ranges & local List of small Fam. with few genera & few species (Aberrant)

1161 Concentration of genera – not range in proportion to number of species.

1165 I suspect lower Fams. more broken?? good if I could show as it could be due to increase in number of species in higher Fams.– No. Higher Reptiles. higher Mollusc. Higher or more Reptilian Fish most broken: if contest within each Family it would be so.–

1170 Definition of Dominant families, which have most species.

1172 on number of species to genera & to Families in various areas.

1176 On proportions of species of Dicot & Monocot in different countries & Islands

1180 Something in common with regard to Temp. even in all Monocot. & Dicot. So on (1185) Mountains 1188 Humidity chief relation in the Mono. & Dicot.

1189 to 1233 On the Dominant Families in various countries & Islands.

1233 Discussion on & good M.S. remarks.

1236 The richer in species any area, the greater the no of Families, ie more diversity in inhabitants

1237 Under unfavourable conditions the great & dominant Families only survive.

– The Dominant Fams. over world are not always in same proportion to most numerous; they seem to be the increasing Families.–

1238 On how far the dominant Fams. are affected by climate. The most dom. seem now very complex. 1241. Even in Tropics Leguminosae, Compos. & Gram. are the dominant Fams.

1247. Local dominant Fams, at Cape &

CANDOLLE, VOL. II: NOTES

Australia (1251 for cases)

1249 good sentence, cannot explain proportion of Fams. in Islds by conditions.

1252 Arctic Regions very peculiar conditions yet very few peculiar forms, no Fam. Good

1254 Excellent Table of "characteristic" Fams. (not found elsewhere) over whole world 1258 Detailed Table.

1267 On families with double & treble centres.

1267 Glacial

⇒ 1268 good Glacial 1269 Cape at base of Page.

1271 Total no. of species in areas of various sizes (1273 small areas)

1275 same sp. range more widely in Sweden than in France 1276 still less widely at Cape & S. Australia

1279 & 1282 On number of species in small islds.-

1278 Africa, tropical poor in species & very poor in characteristic Fams. (for latter see 1254 & 1268)

1287 On proportion of no. of species to genera in various countries & 1288 Islands.

1289 good discussion bearing on the problems of more life supported by more forms (1298) and generally on insular Forms.- 1293 often monotypic - ie preserved from extinction. 1297 Islands again

1308 First great Division of Distribution of World are not related to Climate, like the forms of land.

1309 remarks Old & New Worlds greatest division.-

5

Alph De Candolle (Vol 2. & 3 of mine)

1313 Plants of Europe in relation to Glacial.

1326 Glacial

1326 Lyell on most ancient sp. most repanded.

1329 Vegetation of Madagascar allied to India

1330 Africa & America never united all points to ancient Broken Land.

- Many species in common to Mountains of W. Indies Glacial. California & Chile

1331 & 2 on Plants of Pacific islds

1332 Ligneous Lobelia in Tahiti

1333 Submerged countries when elevated have uniform vegetation

1334 admits some species are derived by modification

1340 Cause physique of present period one of subordinate importance.

Feb. 17th 1860 I have now abstracted whole grand Work.

SA1-10 (pp. 878-879)

SA1 □✕

Introduction

♣ p72 Hence dwarf?; 84; 116,8; 144; 147; p.238

200 - influence of other species overlooked here & in similar cases.-

202 & so here. A cause which prevents more than 1/20,000 seeds vegetating or giving full-grown plant.- Here in this page: preoccupation overlooked. How little climate explains what species are common & what rare in same district - When ground preoccupied seeds of other plants wd have to arrive at period, when not in full vegetation.- good

♣ 246; 250; 264, 68; 270; 326; 395; 397; 406, 408 to 418; 422; 447 to 474 to)

SA2

p465 DeCandolle Books to see whether frequency goes with genera, as it does in Families, not in latter markedly in larger Families.

Boreau Flore du centre de la France

Miquel Disquisition Geograph Bot de Plantarum Regni Batavi Distrib 1837 Lugd: Batav:

Furnrohr Flore de Ratisbonne in Naturhist. Top. Regensburg 1839

♣ De Plantis Salvadoricis 1830 Ev. Meyer Meyer on Cape Plants p509 & 512

SA3-6 □✕

SA3 ♣

Oct. 15/55/: As every organism struggles for life: the individuals of every species, will try to adapt itself to several stations (of course chiefly wide-spread species will meet with such) for thus more will live. Why a species cannot adapt itself to all stations, depends probably on hereditary laws & actual chemical nature of its body.- But it may be said ♣ more will live by being adapted to several stations; I think this is obvious; we might kill probably many species adapted to flourish under trees

⇒ (or food of which species wd disappear & decay if they not present)

without proportionally more trees - (or more chemical change, best measure of amount of live) ♣ living.- The better the conditions the more the life; & the more the life, probably the more the forms

⇒ see p 462 Tome I Decandolle why? I cannot prove this

⇒ (at least the more the small diversity of forms ie species, the more the great diversity ie genera, but not in same ratio.

- though the latter (ie number of forms) chiefly

depends on diversity of conditions, & ♣ for plants, at least, as Decandolle files
(over) has shown are most in warm, dry countries. Under peculiar conditions, small stations, there may be a good deal of life & yet few forms, – as in arctic seas, – do the forms live throughout seas? or are they not short-lived. Why have Lakes few forms? no tides, not much diversity; no estuary of brackish water

⇒ The question which I cannot answer is, why under bad climatal or soil conditions there shd be fewer forms than under good climate & soil. ie when little life, few forms but most diversified in stations. – → (to SA4)

♣ I think Decandolle explains why fewer social plants in good climate & soil. viz where more species there will be more neat adaptation. – → (to SA4)

I can see in case of salt marshes, because like small isolated isld (for salt-marshes are isolated by conditions themselves) there has not been room for creation: all the salt-marshes in world under approximately similar climate wd make but a small world. – All F.W. Lakes of same climate (besides too much separation) are likewise small. – Land fitted for heaths small – Even arctic seas small, especially if killed in winter. –

SA4 → (from SA3) My old question why so much life in North Seas, & so few forms, is probably in fact an illusion, the eye struck by number of same species. One is surprised to see any life compared with arctic Land. –

(Small area only bad from fewness of individuals giving chance of new forms, hence this is opposed to isolation being advantageous)

→ (from SA3) In bad climate & soil, the amount of live, from slow growth probably smaller than it appears & number of forms perhaps really in proportion to quantity of live considerable. – It has acquired a great laboratory to make all forms – Perhaps once there was no arctic Regions. – Hence few Alpine plants on really isolated Mountains. – this caused by slowness of creation

Caspian biggest brackish water & a good many species.

(over) ↗

We may move to discussion on number of species. (N.B. few species, but many individuals in salt marshes) with the distribution of mammifers on premise that I exclude Cetacea, Chriopter & Seals?) The presence of Bats ♣ very strong case. –

⇒ Is not Madagascar a great opposed fact to my views of distribution of Mammifers –

perhaps so large as to rank with Australia – very separate & mammifers very like. –

(The way the Inula & Alders & Gorse, appeared in patches, shows seeds a very important element)

Ought the law of ♣ common plants belonging to large families, as is faintly case with Decandolle facts, to be common to large genera. A Family may & does contain many genera not increasing, but then a genus may & does contain many species not increasing. If on average genera contain forms more closely allied, & either decreasing or increasing more regularly, then the law wd hold more with genera than with Families – How does a Family increase by the genera increasing & splitting up & other genera dying out &c Family turns into an alliance by a few portions only increasing
∴ I think law always better tested by genera than by Families. –

Some agricultural green crops are said to be advantageous because they smother weeds
Here abundance of seed is important

SA5 ↗ Feb 15/57/: In every small area ♣ if not of some extraordinary nature, there are many genera to species. ie much diversity in organisms & no great number of individuals in relation to species – Sqr yard of Lawn – a single wood – ♣ a coral islet – an islet of any kind. – This depends on most ♣ life being supported on small area. –

aaa But if the site be very peculiar, the former part of law fails, & species not very different as on Heaths – saline plains Cyperaceae as in Hots-pools (Hooker Himalayan Journ) there peculiar adaptations will come into play: In these cases ♣ there are also generally many individuals in comparison to species because only few things can live there. ♣

(over)

Diversity of sites great cause of most numerous species (D.C. explains well effect of dryness). Subject to this I shd expect & believe it is, that most species when most life, for as organisms are so intimately related to organisms this will in itself cause more species. And this bears on unfavourable conditions, as Arctic Regions &c

SA6 aa If the site be small, & somewhat peculiar ♣ as compared to rest of world, As in arctic regions (near winter) Alpine summits – Lakes of F. Water – then there will be many genera to species, & very many individuals to species. –

why is this I believe because laboratory small; if in nearly whole world, with myriads

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of individuals selection has effected what we see, we could not expect so much for restricted sites, specially if of no great antiquity: as Arctic Regions – [N.B. this is contradicted by islands; No but into these forms transported from other countries come into play] Possibly unfavourable conditions may come into play, but I doubt from case of Lakes.–

(over)

⇒ p462

SA7-10 (numbered 1-4)

Nouvelles Recherches sur les lois on distribution des formes vegetales Humboldt, Sw Acad Sci 19 Feb 1821.

p.6 Notre imagination est singulierement frappée de la preponderance de certaines q'a cause de leur facile reproduction &cc (would aid no doubt) "Fallacy. There is something quite unknown about social plants. The cause of such cases in the Mangrove is nearly obvious = in pine forests in N. America, which when cut down for few years only bear oaks cactus & Bamboos = in our heaths. I think that it is simply, that there are conditions of some peculiar nature to which only few species adapted. Yet how comes it that in Northern parts of Europe & N. Zealand Ferns are so preponderant. Where a species is so obviously well adapted & abundant, there seems no tendency to form new species. A species to form new ones, ought to have been widely spaced under different conditions, & not simply numerous under the same, though peculiar conditions

2

|| I think this explains the absolute want of relation between abundance in individuals & species of the genus?: it shows that new species not formed by mere chance or laws of simple propagation I suspect the line of succession in making a new family may be this & not branch out till a new & useful form is formed.

p.9 Generic forms numerous on Mountain summits (– small area) ⇒ as in Glacial region: there must be a cause

⇒ (as in Dark cases, Blind Fauna. as on Coral islands also)

↳ why such peculiar & ill-fitted situations "recoivent des colons d'un grand nombre de genres". Why do not several species of same genus become adapted, I think it must be because same spot can support more life under very widely different forms – Take glacial region or dark cases ⇒ – can support

1 nocturnal 1. diurnal carnivore – one grain-feeder ♣ &c&c (There is something very remarkable in this & very different habits imply generally different genera.(a))

(back of 1)

⇒ → On this view the small number on Coral Isld is due to not – suitable conditions, & prob to few arrivals.

(2 again)

p.16 Under a given latitude & in either the old

3

or new world (which in several families have different proportions between the families)

(u⇒) if we know the number for instance of the Leguminosae, we can judge of total phanerogames.

⇒ not in Patagonia (Hooker)

(back of 2)

(a) We can understand this in animals & we must suppose something analogous in plants though not intelligible to us.

(3 again)

p.22 The proport. numbers of the great families are the same in Germany & France; hence the species of Leguminosae, Cruciferae & Umbelliferae, which appertain exclusively to Germany, must be replaced by other species of the same families in France. Again France has 1700 or 1800 more species than the German list, & yet their additional number must be proportioned in same manner as whole.

(calculations follow)

⇒ All this ought to be advanced as creationist facts

(over)

New species not having been created in Aegypt since Mummies & Pyramids is less result of physical conditions having remained unaltered, than of other organic beings having remained the same.–

4

p.23. Taking even few square leagues near Berlin having only 900 species. Vide last page.

These facts show in most astonishing manner how if a new species has to be created, or more strictly perhaps to be introduced (ie if a gap be left in economy of nature) how it will depend on the character of every other plant in country – (Think of this with respect to animals, whose place in the economy of nature we understand better) The point is to consider what old species could be introduced ♣, their subsequent modification is a separate question.–

Shows how a gap in Nature is a fixed & difficult point

(table of calculations follows concerning proportions of Monocotyledons, Cyperaceae, Compositae and Rutaceae in the equatorial zone of the old and new worlds)

How does this list bear on above remarks does it not invalidate it? Wonderful adaptation of some kind is shown.—

(over)

⇒ p466

SA11 *(pp. 980–981)* □β

(list of species) Unknown according to Bentham

SA12 *(pp. 1020–1021)* □℞ ↻

p.1020: The case of Geum – Veronica, Myosotis – go to show that Mediterranean was land during Glacial Period.— as does Mouflon on Sardinia.— & some Alpine plants (in former page) on the Mediterranean islds – Perhaps bears on connection with Abyssinia.— sub-alpine plants on opposite side of Gibraltar – read J Smith? on change of level at Gibraltar

SA13 *(pp. 1078–1079)*

Changed habits ↻

Decand ♦ ↻ (9.)

Edin. New Phil. Journ. 61/70 fish salt water; Zoologist p.20 do

Quatrefages Unite p79 Goose laying at new time

6. Colin 1/426 animals accustomed to new food; Gard. Chronicle 1841. 291 Cherries vegetating earlier under Heat

SA14 *(pp. 1232–1233)* □℞ ⇒

All these tables with under nearly same climate, the similar proportion of great Families impress my mind, very strongly how the existence of every species, depends on fixed laws & relation of organisms.— Especially the latter respect, when we see how considerably different the countries are – It shows too by what laws the creation of new species will be governed.—

The proportion of the great Families in the Atlantic islds, impress strongly my mind as an argument in favour of continuity. Only coral isld (most of which probably at one time have been immersed) shows that different groups only are allowed to live. & seeds from adjoining country wd be in proportion to that country.—

SA15 *(pp.1238–1239)* □℞ ♦

(table concerning Compositae and Leguminosae)

As Legum are generally good sized seeds ♣ I have made out this table of all the islands in foregoing list & it certainly seems very

doubtful how far size has anything to do with transport – But then floating; & crops of Birds come into play –

Upon the whole nothing can be inferred from this list

608 *wt/℥w* (a) it might as well be argued that plants do not change under domestication because not perfectly adapted to man's use. De grants complete adaptation is proved not to hold good arguable, & yet argues because there is room left for new species, no change can be effected. On contrary, it might be argued if every country had its species perfectly adapted, then there wd be no cause, or means by selection to change species.— |||— good 1–3m/3u ↻ "Causes | actuelles", 4–7m/6u "L'adaptation complète", 8–10u "et | ébranlées" !/w (a) 609 2u "passagères | adventives", 30m/30–39w [The many plants which can live & the few which can propagate, shows that seedlings or life of seedlings the most crucial part of existence] C.D. 610 34–36m 611 1–3m, 12–17m 613 38–49m (Boussingault) 614 6–10m, 25–30m 615 1–3w Spiders webs Fall of pollen C.D. 15–17m/16u "10 | lieues" 616 31–33m, 35–36m 617 10–12m/?, 27u "courant | Canaries", 31u "l'est | etc" 618 12–15m, 36m 619 *wt* In MacGillivray even Carrion Crow attacked a flying wounded Grouse 3–5m/4w (a) 11–12m, 21–24m, 32–36m 620 28–35m 623 10–12m, 28–30m/30u "transport | légère" 624 20–25m, 34–37m 625 1–3m/2u "magasin | graines" 628 30–36w Peaches Oranges La Plata Guava in Tahiti 629 1–2m/1u ↔, 15–21m, 23–26w shows difference of conditions 27–36m 630 15–18?, 24–31m/27u "Ce | rarement" 631 1–4m, 7–11m, 18–24m/24w ↻ Joy○ 632 17–18m/w of irregular distribution 18–22w ♦ I do not see that owing to non-transported 24–29w very curious details in following pages 633 27–30m 634 14–16m/15u "enclavés dans" /16u "vent | le", 21–25m/←, 31–35m/31u "hypothèse" /33u "autrefois | facile" /35u "accidentelle | disparition" /31–39w Only one fact for this hypothesis 37–39m, 40u "à | certaines" /wb What an hypothesis 635 *wt* If herons eat fish with seed, such means wd have been more energetic formerly, when country wild.— 1–5u ± /19–22m /→ /2–7w less time equally good theory 9–10m 636 9–10m 645 *wt* p.703 He excludes plants growing only in cultivated ground, very correct. 3–10m/w Big type certainly not. 687 1–3m 698 9u "satisfaisant | probabilité", 11u "quatre-vingt-trois" /w 83 12u "avant | siècle", 15u "10 venant" /w 10/83 Amer 26–28m, 31–33m 701 *wt* (b) England formerly

connected, hence most plants which could live in England wd have immigrated. If any species had been introduced by Birds within the last century, & was not mentioned by old Books, it wd have been thought to have been overlooked.— 30–37m/w (b) (a) So very recent since 1700 *wb* (a) But is there not some arguing in circle for it is the very probability of being introduced by some one chief argument 702 20–25m, 26–27m, 27–28m/!, 33–34m/! 703 6u "55", 6u "en 1724", 12–13m, 39–40m 704 6m, 7–20m, 26u "trois mille"/w Cent? 27–31m/30–35w How can this be told – look at connections, before any ancient Floras 31u "alpine|aquatique" 705 7u "manque|exactes"/6–8w this shows the means he uses 706 8–9m, 36–38m 707 5–8m, 16–18m/w shows conditions 19–22m/w proves too much 24–26m 708 1–3m, 8–13m, 17–21m, 32–35m, 36–40w even in same country difficult 709 *wt* (a) if all true, either doubt creations, or new isld do not form; but new isld do not form.— 3–6m/w by wind or animals 11u "devaient|rare"/w (a) 17w These are only a few of the best cases 711 2m/u "1629" "1623", 5–8w age of early good Floras 9–10m/10u "p.|1627", 37m/u 716 22–27w in 26 years 600 miles of Latitude Ch. 5 718 28–33m 719 12–13m/13u "quatre|après"/w Ch. 5 18–19m, 23m, 26–27m, 29–30m♦ 720 17–22m/19–20u "ne|Montevideo", 27–28m, 32–38m 721 4–5m/3–9w Falkland Isd Azores? Canary Isld How many (See next Page) 7u "le|ordinaire", 18–22m, 30–35m 722 9–18m, 21–23m/22u "espèces|naturalisées", 24–28m, 29–32m, 38–39m (Hooker) 726 25m, 30–31m 731 7–11m/w on account of Hybrids.— Ch. 9. 18u "la|résolue", 19–20u↔ 732 17–18m/18u "de 1857", 19–20m/u↔, 42m/u "les|comme", 48u↔ 733 1–4m/1u↔/3–4u↔/1–4w what does Bromfield say on this? 40–42m/41u "c'est|blanche" 734 7–15m, 16–17u "appuient|vue", 20–24m, 30–32m/33m, 37u "que|Stramonium" 742 6–9m/8u "64 espèces", 17–19m, 30m/u "grand" 743 38–40m 744 1–5m, 6–8m/7u "18|siècle", 19w (1) 20w (2) 18–24w I think this Law wonderful; but not applicable (?) to island.— 25w (6) 29–30m, 31–36m/w These introduced species are wide rangers in their own countries. 745 9–11u↔, 12–14m/w Q6 746 18–21m 750 14–17m 751 23–31m 754 34–36m/35u "à 184"/37u "172|12" 755 16w 35:172 18–20m, 35–36m 757 8–10m, 22–25m 758 6u "184", 7–12m, 30–33m 759 17–22m, 34–37m, 39–40m/Q 760 1u "56|nouveaux"/2u "Parmi|sont"/1–3Q 30–34m 761 1–4m, 23m 762 3–4u "l'ancien|monde", 6–9m/6–7u "aux|sont", 9u "très|inconnue"/w This may be

natural 15–16u↔/18? 763 26u "les courants", 28–36m/30–33w currents from Africa to America & reverse 764 20–25w Current of Pacific from Hooker 38u "de|l'ouest"/39u "dirige|Sandwich"/wb But as trees come to Carolines 765 7–15m/9w currents 19–21m, 23u↔ 766 5–8m, 15w The Disjointed Species appear in further list, where there is no good evidence of true partition 769 14–16m/13–21w I see he admits often hooks are powerful agents of dispersion. 773 4–9w Rhizophora on 2 sides of America 774 23–25m, 26u "peu|genre"/25–28m 796 8–10m/10u "et|Océan"/8–22w opposed to my idea of storms. But so few & agency of man so difficult to eliminate, that the case is not important. 19–21m/21u "est|égard"/23–38w All this shows that sea is a very effectual Barrier, when wide. How then islands in open ocean. Wind from isld to isld?— 28u "était|tropicale", 30–31m 797 10–11m/11u, 13–15m/12–17w makes the case of such plants, peculiar to Isld, the more striking.— 17–22m/→/wb This often mentioned before & shows truth of rule, that when a plant ranges widely, it can range very widely Ch. 7. Acclimatisation 798 3–4m, 11–15m, 18–21m/w not on islds 31–32m 799 1–7m, 33–38m/→ 800 30–34m/w so could live 801 *wt*/1–15w Could I get list of Naturalised Plants from Lowe for Madeira; for Canaries – Webb & Berthelot; for Azores St. Helena. Sleeman – Watson: it in his publish^o lists Bojer has done it for Mauritius.— This cd be important as showing means of distribution & as showing inhabitants of islands not well adapted. 802 4–5m, 16–18m/w already disseminated 803 28m/28–29u↔/Q 804 *wt* I fancy the Compositae agree with my law that Compositae have as class narrow range, & few the species of range widely. No, my law was that when the species range widely the class ranges widely. But plants will not serve. Except so far how species range narrowly & I fancy genera range narrowly. 3–6m/5w (a) 27–32m/w time, time (a) he argues for 2 or 300 years last 100 only known at all well.— *wb* The Azores has 100?? European plants, if 1 transported in 1000 years then 1000 wd get in a hundred thousand years.— Who will pretend to think ♣ real species has existed, so short a time? 805 23–28m/20–25w Bears most importantly on origin of cultivated species 29–30u↔ 806 9–10u↔, 17–25m, 24–25u "le|encore", 40m/u "Il|espèce" 807 21–27m, 29–33m 809 18–21m, 24–28m 810 ||/wt N.B. Most domestic animals & Plants can withstand most diversified climate, & therefore (like

accidentally transported plants) they have probably wide range & therefore are very unlikely to have become extinct or be unknown. 1-5w Mosses only. Animals accidentally transported by man. 4-7m/1-5w Generally conspicuous ♣ & certainly useful. xxx 6-11w♦ Shows that are becoming extinct belong to small broken genera.— This not 15w (Good to compare all this with Bentham's article) 20-24m, wb xxx Might say probably not local species 811 → (from p. 810)/wt I suspect it will appear for Decandolle that the originals have not wide ranges; but I suspect Decandolle in the following discussion.— To make this argument perfect, they ought to run wild. Nor fowls & Fancy Pigeons do not run wild. 815 19-27m 826 9-13m, 15-17m, 23-25m 827 4-7m, 8m, 20u "combien|par"/20-24m/w not selected except size & colour of root 32-33m/33u "pendant|altérées" 831 38-40m 832 1m, 4-6m, 11-14m 835 5-8m 836 13-15m, 18-19m 838 2-5m 840 1-7m, 15-19m/19u "estimés généralement", 20-21m/21u "origines|Choux", 26-27m 842 12-16m/w yet all cross — must be created in Hybrid Chapter. 22-24m, 26-31m/27-28u "de|oleracea"/26-35w Here comes in argument ♣ as in dogs, that reputed parents are closer than variations 32-36m/36u "Systema"/? 843 27-34m 844 3-11m 848 20-25m, 27-31w See in Gartner about fertility. Nothing — 34-38w Not known wild positively — wb Hence not likely that the numerous varieties shd have each wild prototype 849 9-12m, 16-17w Not known positively wild 850 7-19w The fertility of the N. chinensis being American bears on the vars. in China (not known wild there) 854 wt/1-18w I shd remember that ♣ edible vegetables may be killed out by being eat up.— in times of famine at least annuals. but then seeds in ground, as Decandolle remarks. But annuals do not appear in winter time during famines — 857 13-15m/13u↔ 863 34m/w Citron 35-39m/36u "d'espèce|celle", 40-42m 864 21m/u↔, 29-30m 865 5-6m/u/w (2) 12-14m/13-14u↔, 28-32m/28w (3) 866 33-38m, 41-44m 867 19-21m/19w bitter orange 868 8-13m 869 22-23m/22w Sweet orange 30-36m, 37-38m/w —shows how he believes in hereditariness 39-40m 870 6w 4 10m, 15-21m, 22-24w Sp. ? 6 24-25m, 26-27m 871 4-6m, 11-12m, 28-29m/29u "Bergamotte", 30-34m, 35-37m 872 18w & Crimea 21-22m, 23-24m, 25-27m, 32-34m, 40-42m 873 wt/1-3w I daresay wild ● Secy — Boucher de Perthes in same Library. Hort. Soc. Agricult. Soc., Antiq. Soc. 4-6m/5u

"Reynier"/4-6w Worth reading for Cattle &c 875 16-19m/17u "multitude|ces" 876 12-18m, 29-33m, 34-36m/w Flora Jamaicae? 37-38m/36-40w good case for no doubt an eastern Plant 877 2-3m, 3-4w Poor 3-5m, 6-7m, 10-15m, 23-24m, 26-27m/26u "plusieurs espèces" 878 20-21m, 27-30m, 34m 879 37-40m/38-39u "faveur|sûr"/39-40w/wb Hence probably derived from single species 880 10-12m 881 4-9m, 30u "Malum|ils"/29-31m 882 6-7x/ u "hort|121", 11-14m, 15-18m/16u "Théophraste|avant" 883 35-37m/x 884 3-8m/x 885 3-7m/x, 13-15m, 22u "en 1857"/22-25m, 27m/x 886 11-12m/12u "S'il|espèces"/1-31w/wt There is strong difference in Laburnum & Orange? & apple cases the tree goes on producing separate fruit & blended fruit. But this case (together with several stones of seed) makes Peach & Nectarine different far more analogy with Sports. In Laburnum○ case it is not pure yellow which produces pure purple; it is a mixed tree.— 19-22m, 30-35m/w Peaches & Nectarines 35-46m/w/wb I shall have to read all Gartner on this subject ↑9-1m, ↑6u "Journ"/↑5u "V"/↑2u "1851|299"/↑3-1m 887 11-14m/x, 17-21m, 35-40m 888 23-25m, 26-32m 889 24-27m, 33-35m, wb Great cause of doubt in fruit trees is escaped seedlings 891 1-2m 897 16-20m 902 27-31m 910 ↑12-9m/↑19-6w (In Loudon good account.) confined range. Probably single origin. good to point out amount of variation. ↑13-11m/↑9-7m 911 1-4m, 14-15m/11-14w This good as well as gooseberry ↑14u "1557", ↑12u "1597" 918 20-21m, 35-37m 919 25-26m 920 4-6m/4-8w Forster must be read again 921 32-34m 922 1-7m 923 7-9m, 15-16m, 37-40w Mem Schomburgk in Guyana 925 24-30m 926 4-9m 928 4-7m (Lindley), 12-13m, 16-18m/17-18u↔, 21-26m, 26-31m, 35-37m/w Read 929 1-3m, 5-6m, 8-12m/9u "150|froment", 15-24m/17x/15w old vars 28-33m/28-29m/26-32w Does not stigma & anthers with pollen protrude what for if not for external fecundation in fine weather. 30-31x, 35-37m, 39-40m 930 1-10m/4-5x/↓w ? see the accounts of Australian savages how they try everything — Look at Carrot, Parsnip. Gooseberry — I am sure I have read somewhere of savages getting grass seeds.— Zizania aquatic (?) in N. America How large. 10-16m/10-11x, 17-21m/w yet do not run wild.— 25-26m/x/26-27u "non|changé"/27-29m 931 4u "2822"/x 932 10-18w Only 1 of the 4 species found on any good evidence wild.— So that at least the 200 or 300 sub-vars cannot have wild

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aboriginals 16-21m, 22-25m/20-26w I doubt whether language can be trusted? so far as he does. 25-31m/w It is clear that one arrives at maximum \uparrow 3-1m 933 4-6m, 7-8m, 15-16u \leftrightarrow , 32m, 39-40m/39u "Bull. 166"/x/w I have read this 934 16-24m, 38-40m 935 5-6m, 12u "hexastichon"/13u "distichon"/14u "vulgare", 11-13x/w 3 sp. 23-24x/24-26m, 28-30m, 33-34m, wb The more I reflect the more I come to conclusion that antiquity of man one of the most important elements in history of variaton.- 936 wt \diamond , 17-18x/18u "l'Hordeum distichon"/18-20m/w 1 or 2/4 f. apparently wild.- 21-24m, 31-34m, wb Lindley or Loudon makes probably only one species of Rye 937 19u "Econ. Eg." 938 \uparrow 10-3m, \uparrow 2-1m 939 6-7m, 15-16m, 34-38m 940 12-17m, 30-31x/m, \uparrow 2-1m 941 15-17m, 35-37m 942 18-21m, 22-23u \leftrightarrow , 28u \leftrightarrow , 31-32x, \uparrow 3-1m/w see about European vars. 948 \uparrow 9-6m 950 5-7m, \uparrow 7x/ \uparrow 6u "avait considérable"/ \uparrow 5u "aujourd'hui nouveau", \uparrow 5-4m, \uparrow 4-2m, \uparrow 15-1w Did I not find it in elevated deposit? 951 10m, 13x/15x/11-18m, 19m, \uparrow 15-14m, \uparrow 12m, \uparrow 11-8m, \uparrow 4-1m 952 15-19m 956 10-11m 957 36-37m 960 19-22m/20u "localité auteur" 961 25-27m 962 1-4m, 18-21m 966 10-15m 969 20-21m/21-22u "grande Rouge" 980 4-6m, 18-20m 981 table.m/w (notes Bentham's opinions as to wildness, affinities and principal locations of species listed; so also pp. 982, 983) 982 wt Plants not mentioned by Decandolle Celery - (Medlar known wild) Cynara cardunculus (Pistachio nut origin unknown) Ane \blacktriangleright or Fennel Asparagus Atriplex Isalis lin \blacktriangleright & Ricinus Castor-oil Plants (origin doubtful) 983 1-3m, 4-7m (in text below table) 984 21-23m, 25-28m, 29-34m/30u "157", 34-35u "21|85"/35-40w omit in my calculation, though several authors, I think, wd not put in the 85 985 2u "32|aient", 9-10m, 11-14m/12u \leftrightarrow /11-18w comparatively modern. \therefore this which at first appears a very important original is not so important.- 14-15u "dans|connus"/m, 20-27m, \uparrow 3-1x/ \uparrow 6-4u \leftrightarrow /??/ \uparrow 12-1m/ \uparrow 11-8w against creation for man? 986a 5m/?, 9m/?, 14m/?, 18m/? 986b 5m/?, 12m, 13m, 19m, 20m 987 1-4m/w/1-6w Celery not cultivated in Tierra del Fuego Potatoes not south of Chile. because not being civilised for culture No S. America, but Incas far enough & long civilised. 988 1-2w But I think ground cultivated in La Plata when discovered 4-10w How many of these cultivated along Cordillera - Look to this. 9w Tomato \uparrow 4-1m 989 1m/w This all used 3-4m, 6-8m, 10-14m/w exactly the same as in Pigeons 15u "XVIe", 16m/16u "choux|courges", 19-22u \pm

21m/15-21m/w but no evidence that have not reappeared 23-27m, 27-29m, 29-37m 990 5-9m/7x/wt x He seems to have overlooked the indirect effects 1-2m, 3-4??, 15-21m/w But this all implies such perfect communication 28-34m/28-29u "ou|communication"/27-37w Here he admits faulty communication. This argument equally applicable to var. arriving in one country 31u "sil|autre"/32a "spontanément" in same country \uparrow 5-1m 991 6-8m/?, 16-17u "Quand|agriculture"/14-24w ! How can he pretend he knows origins of agriculture.- (Celts are thought to be agricult.lists) \uparrow 7-1m/w How can he tell no change.- No \clubsuit selection 992 1m, 3-7m/4w quote 8-16w So when one attends to any species, instantly one begins to get new varieties.- 14-15m/u "seulement|origines" 993 18-20u "examiné|transport"/!, 24-25m 994 20u "occupé"/19-20m/w forgets wild 23-26w In Keeling Isld some larger fruited trees 995 7u "en Sardaigne"/5-7w So Decandolle thinks these species distinct 21m, 23-24m, 26-27m, 32-33m/32u "Quercus Suber", 33u "il|Madère" 996 1-4m, 10-11m, 19-20m/17-22w Pigeons might transport Beech most or Oaks \uparrow 6-1m 997 14u "Bourbon|Maurice"/13-15w ? How if not Fact? 13-15m/13-25w I think there must have been some great subsidence here.- I might ask Maury about soundings between Mauritius & Bourbon. 26-27w wingless Birds 998 4u "Bourbon, Maurice", 22-25w He does not bring in depths.- 999 wt I think soon after Glacial epoch, country with more lakes, like Finland?? 16u "en Abyssinie"/17m, 21-23m, 28-30m/29u "flottent|germination", 33-36m/36u "aux|Shetland" 1000 8-9m/9u "à l'île", 14-15m, 18-19m, 14-25m 1001 3u "en Lithuanie", 6-7u "nord|Italie", 17u "La|du", 24-28m/24w Extinction 31w Extinction 34u "dans|méridionale", 39u "en Algérie" 1002 1u "au|Espérance", 2u "dans|Amérique", 34-35m 1003 wt Sea breaks with F.W. lagoons often bordering coasts.- 1-2m/w Extinction? 7w Extinction (?) 19-21m, 29-31m, 37-38m 1004 10-13m/w wd surely stick on birds 22-25m, 32u "mûrit|de"/31-34m/w Birds pick up \uparrow 2-1m 1005 15-17m, 20-21m, 23-25m, 29-33w must conclude belong to causes geological or anterior \uparrow 8-1m 1006 1-4m/2-3u "l'autre|montagnes", 10u "d'immenses"/11m, 23-24m, 27u "première hypothèse", 28-29m/28u "chaque|espèce" 1007 5-8m, 8-11w D.C. speaks of 300 leagues = 15° Lat. 12-13w \diamond nearly 20° between Lapland & Switzerland. 17-18m/w Hence 108+18/685 not altered since glacial epoch 23u "purement"/22-24m/w I do not understand whether these 124

exclude the Swiss 26u "arctico-alpines"/26-27m 1008 wt (It being only genera & not species in common on Borneo & Australia, is a difficulty.-) wt Not one of these is Atlantic isld. 10u "au Caucase", 17u "Carinthie"/w where 22u "variété d'Amérique"/w Extinction ↑2u "monts centraux" 1009 13-15m/13-19w this shows I think, former land transport & not by icebergs 32u "Corse" 1010 24u "Sierra-Nevada" 1012 2-4m/3u "arctico-alpines", 15-16m/15u "3 lieues", 22-23u↔/19-26w This seems to me to presume that we know the causes of struggle far better than we do.- 26-29w♦ Elsewhere far less of these 30-36w mountains & therefore probably other species take their place ↑4m 1013 1-2m/wt of course for implies first wide extension. 5-9m, 14-16m, 28-29m/29u "les Abyssinie"/30w There are mountains in Ab of 10,000 ft wb Are there many genera in common between Abyssinia & Europe not fd in intermediate country? 1014 14u "Sinai", ↑3-1m 1015 1-2m, 7-8m, 16-17m, 24-28m, 29-33m, 34-36m/w my facts go only to genera.- 1016 1-7m, 18u "aux pieds"/19u "dans montagnes"/20-25w This must have been imported during glacial period (a) 28u "Abyssinie | pieds", 31-32m, 37m/w extinction 38-40m/w since glacial ↑1m/su "aux hauteurs"/w (There are also alpine insects wb (a) This good argument against connection by land or if land connection a very long one for cold & warm plants, so plenty of time for immigration of everything which O cd immigrate us land quadrupeds.- 1017 1-4w Mem: if seeds transported by icebergs ♣ it wd be irregular.- 5u "Sommités"/5-6m/w extinction since glacial 8-9m/w extinction 11u "montagnes"/10-11m/w extinction since glacial (?) 16-17w Extinction since glacial. 24m, 30-36w one of the species which has transmitted down Andes crossing by Behring Straits ↑6-5w extinction since glacial 1018 4-7m, 9-10u "L'identité | quoique"/?!, 14-16m/w extinction since glacial 24-29m, ↑4-1m/↑2u "déposé | impalpables" 1019 13-17m 1020 wt The fewness of these cases show how usually habitat continuous 3-10w Spain & Greece & Palestine. Extinction 15-19m/w alpine in Spain & Taurus 22-23w Extinction 26-27w extinction 32-33w extinction 36w extinction 39m/w extinction 41m/w extinction 44u/45m/w partly alpine wb Those with x seem most likely to have been separated by extinction, but they do not seem very good cases or worth calculating for extinction.- (x against *Minuartia dichotoma*, *Viscum cruciatum*, *Solanum persicum*) 1021 wt All

these 16 cases are Spain of Western portion of Mediterranean 2w some extinction? 6x, 8-9u "sur | 6500", 12x/w do 15m/x, 21u "habitant | sablonneux", 27m/w true 29-30u↔/28-37w Depth not excessive Now the islds in Mediterranean are not simply volcanic isd I think, but fragments of other rocks. See Map of Europe 39u♣/39-41w species of Atlantic isld. 38a "p." none mentioned./ mentioned at p.1016 1022 2-8m/w After giving Spain & W. Mediterranean Give Spain & Ireland.- 7u "car | montagnes"/3-8w During glacial period by Rennells current.- hence might have travelled by land during glacial period. 10-12m/w Great Genus 10-11w See S. America 13-14m, 20-22m/16-22w has only 3 species Decandolle makes a Family: Lindley a sub-family.- with 5 genera 25m/23w Great Genus 27u "à | famille", 30u "des | Népaül", 28-29w Extinction ↑10-1w/wb Genus of 3 species Saurureae Rich., Alismaceae Rich. (so I suppose very peculiar) genera. Lindley gives only 4 genera to Saururaceae. It really might be worth while to work out the Spanish cases. No not worth.- ↑4u "Etats | ou"/w this refers to these 2 last cases entirely dying groups. 1023 1-4m, 5-7m/w He always leaves out struggle with other species.- 9-12w a great genus: Lindley 9 genera in Eriocaulaceae 22u/21-24w Decandolle puts genus in the Family 28-30m 1024 wt F. Water habitats not being well stocked less likely to become extinct.- 1-2m, 3-4m, 7u "la | Eriocaulon"/7-9m, 10-13m, 19u "mais | quantité"/14-20w Large genus not small subfam in Lindley.- (now thought peculiar species?) ↑12-19m 1025 4-5u↔, 12-13u "dirai | impossible", 28u "sigue | les" 1026 14?, 28? 1027 1?, 40-42m 1028 10-11m/10u "Lieux humides", 19?, 26u "Lieux humides"/?, 32? 1029 wt/↓w If these are transported accidentally what hundreds of thousands of genera requisite.- May one speculate on excessive antiquity of F.W. Plants.- Continents were all once united theoretically.- It seems most improbable that the great laws of Creation shd be different for simple elements of aquatic Plants.- Is there any geological evidence of Water Plants being older? There is something in relation to land & F.W. Mollusca, I think; Morris would know. ?The genera of F. W. Molluscs are most ancient 3u "Il | humides", 5-6u "les | humides", 10u "Lieux humides", 31u "terrains humides", 35u "les | humides" 1030 3u "montagnes | Indes", 4u "montagnes | intertropicales", 12-13u "même | 20°"/14-15u "où | Antilles"/11-14w Ischia Volcano 1032

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13u "humides", 18u "graines", 21u "humides", 34u "humides", 37u↔, 39u "prés humides" 1033 4u "Lieux humides", 10-15w I see one Dicliptera in Keeling Flora 22-25m, ↑3-2m 1034 17-18m/→/19-21m/w why if creation. 1035 6u "endroits marécageux", 8-10m, 12-17m/w small genus Lindley small Sub-Fam. & put it with (?) in another small Fam. 26-30m, 33-41m 1036 1-3m, 4-6m/w Double creation. subsidence in Pacific 10-12m/9-19w either on coming or on going off of glacial period: species might have travelled by Arabia & c Canaries Isld 180 miles from Africa.- 20u "à Mariannes"/21-24m/23-24u↔/xx/w Primulaceae; moderate Family 34m, 36u "sont Mascareinhes", 39-40m, wb good to compare list of Mauritius & Bourbon to see difference like difference in Galapagos & c 1037 9-11m, 15-17m, 22m♦, 27-28w Supplemental list 30-32w These seem all less certain.- 1038 17u ↔ 1039 11-12m, 23-25m 1047 1-2m, 4u "il monocotylédons", 5-6m, 9-10m, 11-14m, 15-18[...], 19-20[...], 20[...], 21-22m, 21u "être hygrophiles", 25m, 27m, 28-35m, 39u "des existes", 40-41m 1048 20-25m, 35-37m, 38-40m 1049 21-22u "Pour Maloïunes"/w Var. of islds 35-48m/48u "sept. parte" 1050 3-8m, 9-12m/12u "Il lithosperm", 22-28m, 30-31m, 33w Arabia 34-35m, 39u "Lieux humides", 48u "sericea peine" 1051 1-2m/2u "Les maritimes", 2u "Lieux humides", 6-7m, 19-20m, 31-35m 1052 2-6m, 33-40m 1054 8-23w There is something very odd in Family resemblance with Cape: quite beyond speculation.- (u henceforth place-names) 8u, 11u, 12u, 14-15m, 16u, 22u, 23u, 24-25m, 27u/28u/26-29m/w cirripede in this predicament 30-31u, 31u, 33u/33-36m/34u, 38-40m, 43u, 45u, wb How little is known: power of floating & duration of vitality in salt-water 1055 1m/u, 14u, 15u, 16u, 29-30m, 42-44m 1056 1-3m, 4-12m/10-16w The separation of areas depends entirely on anterior causes? ie no means of present for transport. 1057 12-16m, 25-27m, 31-34m, 35-37m 1058 7-18m, 23-26m, 28-31m/32-34w Does not mention small number on islands. ↑8-5m, ↑4-1m/w If we cd believe in antiquity greater, this wd be explained.- 1059 3-7m/5w (a), wt (a) If I remember right, Compositae wider range in Europe & Siberia than at Cape - if so formed into distinct species in latter.- 1060 3-7m/w Gerligg wd give opposite presumption 20-35m/w oh! oh! Look to shells analogous formations. East & West N. & S. America.- India.- not exactly contemporaneous 1062 ↑16m, wb He looks at extinction as due all to Deluges & c!!! 1063

29-31m, 32-39m 1064 1-14m, 14-20m, 23-24m, 38m/w (FD), 40-41m 1066 39-41m (Unger) 1067 wt Lyell refers to Murchisons Paper on Alps 4u "pliocènes d'Oeningen"/w Oeningen. 9-14m, 15-19m/!!!, 27m, 31-34m 1069 4-7m/5w♦/u "mais insuffisante", 15u "la manque"/16-17m, 26-27u "prennent l'importance"/28-29m 1070 21-24m, 25-28m, 29-32m 1071 7-17m/10w See next Page 18-21m, 25-29m, 30-35m, 40u "ville, village" 1072 24u "nous époque", 24u "avec données"/24-32w Not one of these characters agrees with primrose & Cowslip 26-40m/w The definition; but practically, & as far as my subject is concerned descent & creation come into play. 33u "positivement commune"/wb Here creation comes into play No 1074 14-17m 1075 12u "zoologistes", 18m/u ↔, 23-25m, 32-33m 1076 9-10m/10u "la commune", 19-22m, 28-31m, 28-31!/29-34m, 34-35m/35u "pollen bouton"/?, 37m/u "quod creatae" 1077 3u "hybrides"/w oh 4-6u "et qu'on"/5-9m/6-9m/8-9u↔, 11-12u↔/w So he wd not argue from quadrupeds 19u "la succession", 34-35u "Ainsi seulement"/35-36m/w even in Hybrids 1078 wt there is no separation between domesticated & wild variation 6-8m, 10u "variations races", 15-18m/15u "On même"/16u "années"/14-31w variations are fleeting changes in Individual: Probably answering to ♣ (shell in brackish water) size in animal and wool - or blackness in Bird fed by Hemp seed 29-30m, 33-34m, 37m 1079 1-2m, 6-9m, 12-13m, 18-20m/w not hereditary 21u "perdent toujours", ↑3m, ↑4-2w Horse-Chesnut origin known. 1080 19u "à multiples", 18-20m, 26-27u "variations variétés"/26-29m/w ie can be propagated by grafts. 30-38m 1081 wt If this cd be trusted, it wd be very important.- 1-6m/1-4w Chance seedling surely must have been raised?? 5u "jamais semis", 14-23m, 31-33m 1082 7-13m, 25-26m, 30u "asperges"/w asparagus 34-37m/w Race = sub-species 1083 1m/x, 2-4Q 8-14m/9-10Q 16-21m/17u "pourpre"/x/20-21Q 21-24m, 24-29m/26w any crossing? 34-36m 1084 20-23m/w very good & new 38-40m 1085 8u "curieuse rarement", 17-20m/20w only requires selection. 21-23m, 25u "est dans", 30-31u↔, 32-33u "imparfaits borné", 34-35m 1086 7-13m/7-20w For my view I do not want races, only more variability: these introduced plants are excellently adapted, for they hold their ground in a well stocked country. 19-24m/19u "conditions tendent", 24u "depuis siècles"/22-25w because adjoining continent stocked 27u "cette chimère"/28-30u↔/25-30m/w Azores plants. Himalaya

Rhododendron Ceylon Plants. ↑7-4m, wb
 The Kidney Bean objection goes for nothing; those who bring it, seem to think that climate acts on all: it is selection & we know not that colder climate has anything to do with production of hardiest varieties, yet I believe climate does gradually harden plants 1087 3-6m, 23-30m, ↑2u "influence du climat"/wb (always this) He has not the Key.- 1088 5-6m, 7-12m, 33-35m 1089 16-20m/15-16w Bears on old glacial period 25-31m/25-35w I suppose he means they wd not have been created not to extend for they cd not have extended, owing to their isolation.- 1090 1m/? , 8-9m, 25-30m, 36-37m, 38-39m 1091 6-8m, 11u "c'est cultivé" 1092 12-17m, 20-23m/w Shows not shadow of evidence in shells !! 1093 10-16w not isolation in case of trees; many species in same island.- 18-22m, 25-32m/26-27u "distinctes l'autre", 38-40m 1094 7-8m, 10-13m, 14-24m, 34-37m, 39-40m 1095 10-13m, 16-19m, 29-32m, 33-35m, 37-40m/w same argument as Cuvier about Dogs ↑5m/wb but many think these are only varieties 1096 wt (a) It must be most rare, when species gets isolated & sports suddenly: I shd think favourable but diverse conditions (referring chiefly to other co-organisms) but numbers in the sport not great.- 5-6m, 8-10m, 11-18m/w In fact he here follows man's method of selection too servilely.- 14-18m/!, 19-22m/w islands 20-25w (a) Isolation chiefly requisite to get new conditions. 23-30m, 32-34m/32-33u↔ 1097 1-3m/w This necessary for if contrary was rule, they cd not have descended.- 4-6m, 6-10w (a) (Antelopes same case at Cape) 9-14m/12-13u "cause l'naturelle"/10w Selection 17-24m/14-21w This exactly the reverse argument of old Decandolle about Araucaria ↑14w Yet in Compositae we have case of Centaurea in Hieracium & ↑21-1w Get Watson to give some particulars about Hieracium: see in marked list, how many doubtful vars. ↑8-1m/↑12-3w What is Henslow composite plant which has a palustr species or ♣ Kieracium. (he means Hieracium), wb (a) Elevation slow ♣ subsidence. every continent has been many times divided into islands. 1098 7-8m/8u "isolement"/7-11w ie avoiding crosses.- yet he says many are impregnated in bud.- 9-12m/!! 1099 24-26m, 32-38m/35-38w always overlooks selection.- 1100 2-6m, 7-8m, 16-18m, 31-33m, 39-40m 1101 10-14m, 22-31m/27-28w Well stocked countries 34w (time) 36-38m, 39m 1102 6-17m, 20-30w I do not see any good in discussing this hypothesis.- There is so little analogy in a

plant taken suddenly 29-30m/w false ↑10-2m/!/? 1103 22-23m, 29-39m 1104 24-31m, 32-37m 1105 6-8m 1110 36-40m 1111 wt (a) Those geologists, chiefly continental, who believe that species all destroyed by catastrophe, upset the whole theory.- 5w (a) 30-33m/w just like shells, with increasing knowledge all upset. 34-37m 1112 2-5w Mem. India & Africa 35-37m 1113 2m/3-5m/1-9w Mem. how little is known about Chalk. Hooker is much opposed.- It is like arguing about Mammifers.- 1114 3-8m, 21-26m 1116 1-5m, 17-22m, 24-27m 1117 18-20m, 29-32m/33-35m/28-40w All this agrees with my theory, but I confess I do not see much weight to argument concerning facts of introduction accidental. 1119 1-4m 1121 21-25m/25u↔ 1124 1-5m/?/wt This shows how little he appreciates real antiquity of world.- 27-31m 1125 9-12m, 18-21m 1126 27-28m 1127 14-21m, 27-30m 1128 2-6m, 16-22m 1129 1-2m/2u "complète", 11m, 18m 1130 wt Glacial Th. 3-4m/w Ask 9-13m 1131 3-4m/3u "individus l'faits"/2-8w ie you may have many species & few individuals; or reverse.- 11-13m, 15-20m, 22-23m 1132 8-10m, 13-15m, 16-18m, 21-23m, 22-24m, 26m, 29-30m, 31-32m/31u "Les dispersés", 32u "plus rares", 39-40m 1133 wt Are these aberrant genera? 1-2m, 4-6m/6u "et Brésil"/4-7w small genus with wide range, & species itself wide ranger. 9w cold period 14-16m, 21-23m/22-23m, 24-25m, 30-32m/26-40w/wb opposed to my doctrine but how little we know of agglomeration of individuals - The number of species will always depend on anterior causes, of individuals or actually existing causes.- ↑4-1m/wb Yet as far as H.C. Watson's Cybele goes, it wd appear so.- 1134 3-7m, 8-12m, 18-22m/w on the number of genera in a region.- 27-29m 1135 1-8m 1136 table.w but here comes in old cause of doubts that regions, not divided according to apparent obstacles of transport. 7-8m ♦ 1138 1-5m, 7-11m/12-16m/7-18w a good proof that with wide diffusion differences supervene - all showing slow transport.- ↑15-9m, ↑4-3u "la régulière" 1139 1-3m/w General conclusion 21-23m, 24-27m/24-39w see next Page So that perhaps (he admits) it is only in the less large genera (ie growing genera) that extension of ♣ one of species affects course of genus 1140 3-6m, 10-11m, 17-26m, 28u 1141 18-19m, 22-30m 1142 ↑13-12m/→/1-14w area of genus thrice size of species .X ♣ X Perhaps really six times as great as species 1143 4-6m/w How little he understands extinction. 16u "isolement", 17-

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19m, 33-35m/34u "un | près" 1144 27-29m
 1145 14-17m 1146 6-10m, 11-15m 1147 31-
 32m 1149 24-30m/25u ↔ /28u "n'est | océan",
 38-40m 1150 23-24m, 25-26m 1151 8-10m/w
 This like species of a genus 19-21m, 27-
 31m, 35u "qui | Fissenia"/36u "doit | rapporté"/
 34-35w seems abnormal genus 1152 wt In
 Steudel Bontia put in many Families 3u "à
 l'extrémité"/w small Fam. 6u "Bontia"/5-8w Is
 Bontia abnormal in the Myoporaceae 7u
 "Sélaginées"/7w small Family 8u "Gym-
 nandra"/8w abnormal 23-24m, 28-30m,
 31-32m 1153 1-5m, 16-19m 1154 12-15m, 17-
 18m, 23-27m, 30-33m, 35-40m 1155 27-28m,
 33u "soit | 100"/35u "2, 5"/36u "7 1/2", 36u
 "12 1/2"/31-40w/wb There are more species
 of Gramineae in Holland, than in France,
 but far more individuals of Gramineae. &
 so fewer Leguminosae even of individuals
 than of species. 1156 22-25m 1157 26-27m
 1158 16-18m, 29-30w Families with confined
 ranges 36-37m 1159 16-19w I doubt whether
 cd have been exterminated elsewhere 20w
 above 300 species 1160 4-6m 1161 7-8m,
 22-25m, 26-29m/27u "d'une | régions" 1162 22-
 27m 1164 14-16m, 24-26w Examples of
 above 1165 25-28m/25-32w Monocots. much
 more broken families Lower Families more
 broken: so Ferns, Equinatae &c. more
 distinct.- 1166 1-3m 1167 24-28m 1168 11-
 14m 1169 ↑3-1m 1170 10-13m, 14u
 "caractéristiques", 22u "l'absence", 25u "Enfin |
 familles", 27u "de | Fougères" 1172 12-17m/12-
 21w Bears on numbers in small isld - but
 yet the diversity of forms bears on
 adaptation 27-29m/29u "diminue" 1174 ↑8-
 5m 1177 8-10m 1178 wt for World 83/17
 table.m "Grande Bretagne"/w Penny Encyclop.
 83,827 sq miles table.m "Nouvelle-Zélande"/w
 8600 sq miles - Crawford 1179 table.w I wish
 I knew real size (of islands) so as to see as
 compared with continents real miles of
 inhabitants. (rest of table has dimensions of
 islands marked), wt ♦ Make out or ask author
 whether mere relation to distances from
 mainland does not influence number of
 species wbc 1180 19-23m/20-27m/19-35w
 These are important as showing something
 common in constitution of the grandest div-
 ision of Veg. Kingm. 1181 1-4m, 19m 1184
 ↑9-6m, ↑9u "de | Monocotylédones", ↑8u
 "beaucoup | régions" 1185 17-19m 1188 16-18m
 1189 29u "prédominantes"/w Definition p1170
 1194 2nd table.m "Amentacées" 1195 3rd
 table.w This very different proportion 1197 3rd
 table.m "Légumineuses" 1199 1st table.m
 "Crucifères", 3rd table.m "Composées"
 "Scrophulariacées" "Renonculacées" 1200 1st

table.m "Graminées" 1202 3rd table.m
 "Légumineuses" 1203 3rd table.m/w about size
 of Canary Isd 1204 1st table.m/w/wt Compare
 Sardinia & Canary Isd too Big 1206 2nd
 table.m "Rosacées" "Composées" "Amentacées"
 "Renonculacées"/w very curious 1207 2nd
 table.m "Sur 157 Phan" "Rubiacees" "Ver-
 benacées"/w very peculiar 1208 first
 table.m/w These families prevail irregular
 1209 3rd table.m "Salsolacées" 1210 3rd table.w
 Cambridge has 866 sp. m/wb How much
 more pure wb Same general proportion as
 elsewhere 1211 1st table.m/w How the orders
 of the Families agree.- 1212 1st table.m
 "Rosacées" "Amentacées", 2nd table.m "Lég-
 umineuses", 3rd table.w Rosaceae seem
 to abound in N. America 1214 2nd table.m
 1215 2nd table.m "Orchidées"/w Compositae
 not here 3rd table.u "57 Fougères et 9
 Lycopodiacees"/w hardly any Compos. 1216
 1-2u "Composées"/!, 3rd table.m "Acanthacées"
 1217 1st table.m "Orchidées" "Rubiacees"/w
 like New Guinea 1218 1st table.m, 2nd table.m
 "Malvacées" 1219 2nd table.w Malvaceae
 prevail in W. Indies 1220 1st table.m "Mél-
 astomacées" "Malvacées", 2nd table.m "Orchi-
 dées", 3rd table.m "Euphorbiacées" 1222 3rd
 table.m 1223 2nd table.m "Scrophulariacées"
 "Rosacées" "Crucifères" 1225 11u "Mél-
 astomacées", table.m "Protéacées" "Eparc-
 ridées", ↑2-1m 1226 table.m, ↑3u "29° lat.
 S." 1227 1st table.m "Graminées" "Malva-
 cées" "Aspholédées", 2nd table.m "Scro-
 phulariacées"/w None .u "Myrtacées", ↑3u
 "Scrophulariacées", ↑2u "Epacridées" 1228 1st
 table.m/w very peculiar 1229 3rd table.m
 "Cypéracées" "Géraniacées" 1230 table.m "Gra-
 minées" 1231 3rd table.m "Myrtacées" "So-
 lanacées" "Berbéridées" 1232 12-14m, 18u
 "316"/18-20m, table.m "Composées" "Caryo-
 phyllées" 1234 1-24w He seems to think
 great object to get picture of country 1235
 23-25m, 21-31w ie the number of Fam.,
 making half the Flora. ie about 7 or 8 this
 number depends on richness of species in
 Flora ↑2-1u "nombre | Vert"/w so he
 considers these islands have few species
 1236 15-18m/12-24w This wd have been
 more useful to me if all Families had been
 counted. I do not see how it bears on
 me.- 1237 11-14m/10-16w Hence under
 unfavourable conditions the great &
 increasing Families chiefly prevail 22u
 "Prédominantes"/w Definit p1170 22-25w
 These must be the growing Families, either
 over world, or in some regions.- but
 sometimes peculiar regions.- 26-32w Hence
 the predominating Families do not depend

solely on the number of their species. 1238 1-2m 1239 *wt* When one sees Legum. Compos. & Graminae. increasing one can hardly doubt that complexity of vegetation is increasing & getting higher.— 13u "à l Maurice", 17-23m/w Falkland 19/100 Juan Fernand 25/100 Tristan 9/100 25w♦, 26-28w Madeira 13/100 Azores 111/2/100 I think these facts overcome the fact that individual species are not widely disseminated, because they are correlated. ↑15u/w & Timor & New Guinea 1240 17-19w Perhaps replace Compositae ↑20-12m, ↑6u "Les | ces" 1241 1w tropical 1-2[...], 3u "nos | tempérés", 7u "Mélastomacées", 13-16m 1242 24-27m 1243 1st table.m, ↑4-1m 1244 1-2m 1245 17-24m 1246 28u "la Nouvelle-Zélande"/? , ↑4-1m 1247 15-24m/17w Cape 1248 2-5m, 13-14m/14u "sont | représentée", 29-32m 1249 19-21m/w ie, I presume in proportion of Families ↑7-6m, ↑5-1m 1251 16-20m, 21-24m, 21-22u "presque | d'espèces", 27-30m 1252 18u "la | boréal", 19u♦, 17-20m♦, 34-35u "Comme | arctique"/34-36m/w new forms do not arise under unfavourable conditions. 1253 4-17m/w It is rather small region, like Lakes, as well as unfavourable.— In middle tertiary still smaller area. Perhaps sea round Pole — If there be circumpolar sea, on some theory Probable.— 1254 23u↔/23-24m/12-19w These imply the most fundamental & longest separation, excepting so far as difference may depend on conditions 26u "énumération", 27m, 28w 3 33m♦, 35-36m/wb Except that Isld no islands seem to have any characteristic Fam. 1255 1-2w 4 3-6m, 7u "intertropicale", 9-13w 16 Fams highly characteristic add one for Chile 18-19m, 24-23w only 4 ♣ highly characteristic ↑10-9w 5 ↑4-3w 5 1256 1-6m/wt Looking at plants on I or at animals, taking most distinct forms. It is clear I think that S. America excluding S. extremity most distinct — then Australia (2), — Asia (3), — Mediterranean (4), Cape (5) (temperate N. America 6) — But Decandolle does not consider very small Families. 1257 27-29m 1258 *wt* These right-hand tables apply to number of species in each Family, compared to world: conditions must influence to considerable extent.— *table.m*, "Renonculacées".w Refers to other division where found & in order "Onagrariées".w equal "Cactacées".w *high land 1259 "Uvulariées".w 13 beginning with 2. ie more preponderant in N. America than in any other region. 1260 *table.w* 20 beginning with 3 1262 *table.w* 30 beginning with 4 — many peculiar 1263 *table.w* seem very distinct from

temperate old world.— 1264 *table.w* (numbers of species) 1265 *wb* 34 — 10 with 10 or ♣ more predominant than in other countries 1266 ↑4-1m 1267 10u "Familles | principaux", 11u "15"/14u "3"/11-14w This looks as if ancient connection by East old world.— 15u "familles | principaux", 27-29m/w Glacial ↑4u "6"/m, *wb* I doubt whether had better be used 1268 *wt* I believe no revelation in science will be more wonderful, than the ancient history of geography of world, when we can feel sure that individual species & genera are descended from one common point, when we know more of means & facts of distribution of all organisms.— 1-15w Behrens St in Eocene Period.— 11u "ensuite | avec"/10-13m/w Glacial 18-27m/14-35w Only the wider spreading Families have reached Africa. This looks as if Africa peopled at late times from Asia; & that at very ancient times there had been much communication between Asia & tropical America.— 20u "intertropicale | 2"/26u "15"/→/17w very old ↑11-8m 1269 3u "1", 38-39m, 42m 1270 9-10m, 13-16m 1271 *table-head.w* or 75 miles *wb* 1272 *table.m* "Nouvelle-Zélande" 1273 *table.m* 1275 2-4m, 6-11m/w ie same species range more widely over Sweden. 1276 3-7m, 9-15m, 19-22m, 24-27m 1277 36-38m 1278 3-5m, 15-18m, 32-34m 1279 9-11m, 32-37m 1280 11-14m, 21-23m 1281 6-8m/6u "les Malouines", 23-25m/21-24w In archipelagoes all islds never in action together ↑16u↔, ↑15u↔, ↑11u↔, ↑10u↔, ↑2u "Hooker's | 241", ↑10-1w I cannot at all admit enough to kill vegetation more than Madeira. Look at Etna, Vesuvius or even Sandwich Islds.— 1282 *wt/* ↓w It might be argued that there has been fully as much or more creation than could have been anticipated, on theory of some unknown ratio of creation to area (but such theory is complicated by relationship of immigration to creation). Those who do not admit possibility of immigration, but believe in multiple creation, wd be most puzzled.— Then antiquity comes into play it may be said that islds near continent not old enough to have creations.— (a) Etna very old But generally if no new species exist in isolated islds looks as if some land — It can't be assumed that each isld very old.— ↓w Even theory of creation is complicated by the relationship to easy immigration.— & by affinity to adjoining lands. 1-2m, 3-6m, 9-13m, 14-16m, 21-30m/24-25u "ont | élevées"/26-37w volcanic soil very rich, except when too dry. How fertile Mauritius & Society Islds 1283 1-9m, 19-20m, 30m 1284 11-19m/2-25w

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♣ During glacial epoch the conditions of low country must have been ♣ more similar, ? from length of days ?? & absence of peculiar united to present alpine climate ? than to present arctic regions.— There must always have been some arctic regions 1285 2-3m/2u "200,000" 1286 19-21m 1287 table-head.w what a pity not real number 3w p1271 table.m/! 1288 table.m/w very curious 1289 wt/ 1-26w What I want to show is that when little life can be supported, most can be supported by very different forms; when more life, more forms; but not so different, as less differs in the conditions to be filled up.— 10-12m/11w of course 14-16m, 19m, 20-23m/w more fertile the country, more species in ♣ each genus. 25-27m, 28-32m, 33-37m/w In short in ♣ species are created easier than genera ↑4u↔/w with poor countries this doubtful ↑10a "pauvres" in species not in fertility ↑10-1w/wb My vars in Keeling good case. showing that species might come in closest approximation? wb It seems whatever causes may be, whether nature of country, or difficulty of immigration, & slowness of creation, when few species, many genera: must be only the different causes, I shd think.— 1290 3-7m, 8-11m, 15-21m, 36-40m/w these causes rather different. 1291 4-7m, 14-17m/w I do not think subject here approfondi 21-27m, 30-31m 1292 1-2m/1a "proportion" in Falkland 14-18m/1-18w/wt This looks as if isolation was not so important as many individuals.— a large archipelago Quite a continent — most favourable of all chiefly rising, but att→. → Small outgrowing island may be most favourable, & yet make but ♣ few species difficulty of immigration of forms to become modified 29-31m, 33-35m/34u± 1293 wt In quadrupeds, no Batrachians: — Apteryx & Curious Parrot — Extraordinary Parrot of Pacific Dodo & other birds of Mauritius, — where for from not flying have become insulated. Can insulation be more related to peculiar conditions than to mere crossing.— 17-23m/14-21w One sees not only created so different ie very abnormal from ocean or islands (a) 25-31m 1296 table.m ↑"Ile de Madère et Porto Santo" 1297 3-5m, 6-9m/w but this does not go to cause 16-17m/16u±, 19-20m, 21m, 22-23m♦, 23-28m/29-40m/23-40w/wb If we reject accidental introductions, I argue impossible. but look at Keeling Islds.— We shd conclude that in enormous period, certain genera & Families wd increase, & extinguish the various ones introduced & so bring proportion to average wb Think of

effect of reuniting America & S. Africa, or New Holland 1298 19-29m, 24-27m 1299 19-20m/19u "de chaque diluvium" 1301 8-9m, 10-11m 1304 34-37m 1305 5-6m, 32-36m, 38-41m (E. Meyer) 1306 36-39m 1307 1-2m 1308 wt Climate was first idea, just as adaptation was first idea to explain structure of bodies — neither position of an organic being depends on adaptation to conditions, nor structure, both show ♣ a ruling however, viz descent. ↑3-1m 1309 ← (to p. 1308)/wt (a) It is very important to show that the first great divisions of world are not according to climate, but geographical.— 4-5m/w (a) 7-8m, 15-17m, 28-29m, 32-34m 1311 1-3m 1312 26-29m/27u "le septentrionales" 1313 8-9m/2w The relation being between North & Alps & England, looks perhaps more like land: ♣ only north colonised subsequently. We must remember before it was warmer.— & apparently with more American vegetation.— The uniform extra outer vegetation, wd have been driven South. Baffin Bay then a great separation. & Iceland & Greenland Faroe, must have been peopled subsequently to Alps & old lowland of Europe 11-14m, ↑6-1m 1314 29-37m/?/29-30w transported by ice 1315 34-38m 1316 28-34m, 35-38m 1317 18u "districts montueux" 1318 3-8m/1-6w Land of Mediterranean rest on much better ground.— 18-30w !! This is poorest speculation in whole Book 1319 15-18w But these Compositae hate damp. 35u "espèces anciennes" 1320 5-9m/!!, 10-11m, ↑7-1m 1321 17-20m, 22-26m, 26-27u↔, 34-37m 1322 25-30m 1326 6-18m (Lyell), 27-34m/w covered with ice different from Kerguelen Land 1327 29-33w ?more likely cold, from neighbouring great continent.— 1328 14-20m/16u "Alph. l 341"/14w Hills of Java? 26-29m, ↑3m/w What evidence 1329 1-5m/w yet quadrupeds so distinct.— 13-16m, ↑2-1m 1330 8-13m, 27u "aux Antilles"/24-28m/w agrees with extinct Mammifers 32-33u ↔ 1331 1-5m, 4-9m, 25-28m, 33-38m 1332 1-5m/1-5m/4-5"...", 7u ↔/w What kind of seeds.— 13u "Lobéliacée ligneuse", 15-16m/12-21w Do not more complicated plants change more rapidly, like Mammifers.— ↑9-8m 1333 6-10m, 23-27m/25u "Avec l'imagination", 29-32m, 37-38m 1334 6-10m 1335 4-6m/1-21w ie that the species were once common to all the islands: I cannot believe this: it wd make species too numerous; & not applicable to variation:— This is good argument, the existence of vars.— 1336 1-4m, 5-7m/5-11w why shd the species supposed to have been identical have become extinct & not the others? 9u

"à l'espèce", 11-12u ↔, 15-18m/16u "inexplicable la" 1337 4-8m, 28-30m/29u "Sainte Afrique", 31-32u "laquelle précédé", 32-40m 1340 9-11m 1346 3-7m, 17-19m/18-19u "que utiles", ↑2-1m 1361 ↑3m/w Longifolia on Ischia p.1030 1362a 6u "982|986", 11m, 12m, 13m, 14m, 15m, 16m, 18-19m/18m/19m

CANDOLLE, Alphonse de *Histoire des sciences et des savants, suivie d'autres études sur des sujets scientifiques et particuliers sur la sélection dans l'espèce humaine* H. Georg; Genève, Bâle, Lyon; 1873 [CUL, I] beh, gd, h, pat, sp, v

SB p7 species generally in groups in the same country

357 - 358 - 361

Selection of Barbarians & uncivilized man

♣ Somewhere in Vol.

7 24-31m/w no separation a disparity 10 19-23m 11 30-31m/31u "vol|ailleurs" 316 28-33m 321 8-9m 322 1-5?/3u "robes|dames", 21-24m/w Cuckoo answers this question 357 11-16m 358 19-23m 359 2-4m/3u "manière régulière"/ 3-4w certainly not 6u "barbares", 7-8u ↔ 361 6-12m 482 wb Return by atavism of tendency to disease & about vaccination quite new

CANDOLLE, Alphonse de *La Phytographie* Paris; G. Masson; 1880 [CUL, I] mhp, tm, v

NB 38 Notes; 81 Variation; 185 Cotyledon of Conifer in appearance multiple 197 198 Bloom

38 1-7m 81 13-16m, 32m 197 16-27m 198 5-10m

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NF Preserve (CD?)
v 17m vi 28m

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NB O/

CARPENTER, William Benjamin *Introduction to the study of the Foraminifera* London; The Ray Society; 1862 [Down] ♂

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ad, af, beh, br, cc, ci, dg, dic, em, fg, fo, gd, h, he, hl, ig, mhp, mn, no, oo, pat, phy, rd, sp, sx, sy, t, tm, ts, ud, v, wd, y

NB p. 480 Regrowth of thumb - Doubling of Germ

SB1 ☐☞

The difference between high & low in Fish, I think, is whether other classes are considered besides Fish.

♣ So many insects, It is very odd how many inhabitants of Fresh Water - Gasteropods - Insects - Spiders - Plants are land-productions metamorphosed & not marine productions. How few have passed on to the Sea. Hence so few Radiata in F Water The Sea has Whales, Seals & Penguins & formerly Lizards, Sea-Snakes, Turtles p.3; p.15; p. 16 to 42 to r; p. 257; p.271; p.273,7; p.291; p.309; p.313; p.317; p.319;

CARPENTER, PHYSIOLOGY

p.322 to p. 332; p. 359; p 377; p 405; p 413; p 425; p 433; p 448; p.458; p.467; -470; p.476 to 480; 493; 546; 553; 561; 569; 571; 573; 575 to 585 to 610 to end

SB2 □β(2 sheets)

<1> 16 on highness & lowness

79 – High Fish. N.B. I think on this subject there is much difference whether we look to Fish alone or to other classes ??

92 same number of cervical vertebrae in Giraffe & Whale – As in Reptiles only 2 sacral vertebrae in Kangaroo

96. top – special from the general in development

101 Rudimentary & not developed used as synonyms. [as well to talk of ♣ the final s in generitive, which is rudiment of his, as prophetic of new change, as in Rudimentary organ]

102 Compensation, – Balancement (only terms)

107 Fossils approach nearer to Archetypal form & to embryos of recent forms p110 Examples p.112 old forms intermediate or rather with various characters combined, which are now separate [an admirable summary chiefly from Owen on this subject] p 117 Summary of do

122 Even Carpenter believes plethoric population breeds less. Q So did Hugh Miller; must fight against

131 Even the most specialised organs retain other & more general powers Q

257 On 3 Kinds of Lungs in Fishes NQ

271. same organ, viz. heart, in 2 Classes developed at very different rate.

272, 277 Branchial vessels in loops in young chick like those in Fish or tadpole

279 Branching from aorta very variable in man

320 Gradation in Respiratory organs NQ Wings of insects Branchiae: Reuse○ of swimming bladder & original○ fraena into wings

322 respiratory organs in Arachnidae & Vertebrates NQ

332 Branchial slits

359 Pagets explanation of Rudiments (false) [over] Carpenter Comp Anatomy lent to L.K. Bruce○

<2>

405. Atrophy of muscle & bone when nerve cut of hind leg of Rabbit

413, 425, 433 Glands are f. of utmost simplicity in lower animals – Mammary, Biliary & Urinary

448 thinks light of larvae of glowworm for Birds to feed on them ! Q

458. Q Birds quits eggs when temperature 71° or 72° – not instinct or feeling? 465 Q The "proper electric current" of frog has curious analogy with electric discharge of Fish

467 Q Electrical Fishes 470 471 Explanation of

477 to 79, 80 I had better allude to Spallanzanis experiments of regrowth to show nisus formativus

480 On Double Monsters being a division of one. – Good discussion on Nisus

493. Abstract of M. Thuret on sexes of Fuci (Chapt. 3)

553 Medusae generally have sexes separate

561 Synapta hermaphrodite differently from ♣ all other Echinodermata

569 Hermaphrodite Byrozoa F.W. false

573 Salpidae Dichogamous 574 Lamelibranch generally hermaphrodite 575

Davaine Carpenter seems to doubt their Dichogamy p.577 Pteropoda require

congress of two 589 Planaria do

577 Eggs of Linnaeus can be dried up & revived

590 On Ascaris 64 Million Eggs Q

592 Dorsibranchiate Annelids dioicous, Tubicolae do. being fixed by Water – 595 Myriopoda do.

602 In White Ants, soldiers are Pupae NQ

608 Some Acaridae hermaphrodite water or land?

610 Fallopian & Placenta foreshadowed in Fish

627 Explanation of 2d young taking after 1st Father

Chapter on Development might read to see on law of most developed soonest ♣ developed

633 Orchis case, another instance

635 Decandolle says the more common & robust plants vary most

690 Secondly automatic – mastication without will

693, 4 Definition of instinct – 696 Relation to habitual (N.B. origin seems chief difference between ♣ instinct & Habit

726 Different position of eyes, show I think all org never cd become sensorial NQ

730 Eye of Cephalopods Q

734 Eye avoids spectral aberration & chromatic aberration

title page *wb* 1854 xvii *zb* 3 5–10*m*/6*u* "totally"/7*u* "evolution" 9 2*u* "the | of" 10 4–7*m*

15 19*u* "functional"/a "and" internal 16–19*m*/

18*w* (a) *wb* But why shd analogy or functional correspondence be so much more

than homological or structural correspondence?? 16 14u "Lemna"/15u "Zostera", 17u "degraded"/16-21w I wonder whether really: is there much abortion? 28u "Tree-Fern"/29u "Lemna|Zostera"/27-31m 17 51u "grade|in" 18 1-3m, 6u "homogeneous", 15-16m/13-19w I have misunderstood Von Baer 48-50m (Budd) 19 45-48m 20 25-28m 23 4-6m 25 30-35m 29 8-15m 42 14-19m/16u 50 23-27m 58 22-31m 60 29-35m 62 29-37m 63 2-5m 79 26-32m 85 8-12m 87 9-13m 88 49-50m 89 41-44m 90 48-50m 91 37-40m 92 10u "7", 13u "11|20"/12-16m, 35-40m, 44-46m 93 6-11m, 13-16m, 47-50m 95 7-10m, 45-49m 96 5-9m, 32-38m/34u "regarded|general", 38-40m 97 8-12m, 29-42m 99 11-15m 101 6-12m/w Electric organs Poison glands 33u "rudimentary", "underdeveloped"/33w not synonymous 41-48m 102 34-36??/36u "principle|compensation", 38u "occasions"/40u "accompanied"/42-51w These do seem to me good examples 104 32-39m/34u "teeth" 107 13-17m, 28-31m/30-31u "archetypal generality", 40-47m♦ 109 21-25m, 23-26m 110 1-6m, 15-19m 111 1-8m, fig.m, 22-39m, 40-43m 112 3-8m/6u "not|lowest", 15-18w ask Huxley 40-44m (Forbes) 113 12-21m 114 5-11m, 23-28m/! 115 1-4m, 27-31m, 34-37m 116 1-4m, 5u "but|type" 117 19-41m, 29-32m/31u "osculant|forms" 122 22-27m/?/Q 128 27-30m 130 4-8m 131 32-36m, 38-47m 137 10-19m 142 41-42m 143 1-3m, 13-20m/w Falkland Islds - Elephants 32-37m 159 9-13m 257 31-42m 258 1-11m/w The foundation for another kind of Lung 261 16w Fish?, 18-20m/18-19u "Lepidosiren" 264 13-17m 271 25-30m 272 1-9m 277 26-39m, 44-50m 279 4-9m 290 33-38m/"..."/u "rate of life" 309 10-15m/w Double organ 313 21-24m 316 15w see p 325, 23-27m♦ 317 38-50m 319 42-51m/→ 320 1-3m, 29-34m 322 17-32m 323 21-26m, 30-34m, 45-48m/→ 324 5-12m, 27-31m 325 wt variable organ & a transitional group 3u "all|developed"/5u "Lepidosiren"/4-9w So ranks as Reptile & not Fish 14-22m 326 fig.w snake-like Saurian 332 21-34m 333 30-37m 359 23-31m, 33-43m/w But why present cases of undeveloped glands. 43-35w/wb Rudiments of wings of insects. Rudiment of bone, when so much matter of same kind excreted. wb Rudiment of teeth in young growing whale, when so much phosphate of lime wasted. wb Rudiments in plants! more cellular as a rudiment of a style. Rudimentary instincts. 377 39-45m 405 33-40m, 41-52m 413 27-32m, 29-31m/30u "simple structure" 425 1-8m 433 44-51m/→, wb organs 434 1-4m 448 49-53m/Q 458 30-36m/w not instinct 465 18-25m/19-

20Q 467 33-38m/33-34Q 470 5-10m/6-8Q 471 7-43m/13-14Q/9-10w see p 455 476 36-41m, 51-55m, 54u "subjected|influence", 54-55u "has|species", wb But the domestic varieties keep constant under their proper condition. 477 22-31m, 33-39m/36u "not|larva", 45-46m/→ 478 7-15m 479 wt for 6 fingers 1-2m, 21-24m, 42-48m 480 2-19m, 11-12m, 33-43m/34u "thumb double"/35u "each|perfect"/37u "along|nail", 43u "formed" 481 20-23m, 22u "possessing|rudiments" 493 26-33m 546 7-10m 553 40-42m 561 39-44m 569 33-37m, 38-40m/39u "visceral cavity", 40-44m, 48-50m (Van Beneden, Allman) 571 10-16m/13u "within|cloaca" 573 18-23m/20u "ovarial testes"/21u "not self-fertilizing", 25-28m 574 37-41m 575 1-3m/3u "ostensible co-existence", 8m, 10-16m, 19-23?/m/21u "ova|recognised"/23u "which|place", 27-32m/31u "which|find"/32u "general|shell" 576 37-39m/38m/u♦, 42-43m 577 23-25m, 29-31m/30-31u "being|fertility", 32-34m 585 43-47m, fig.m 587 wt Phillip Phillip 35-39m 588 8-16m 589 24-29m, 30-41m 590 11-15m/Q 592 26-27m, 32-34m, 41-45m 593 1-3m/3u "in|Planariae" 595 33-36m/33u "Myriapoda"/36u "dioecious" 599 wt Larvae not being simply embryonic but likewise adaptative is never noticed.- 602 8-11m 608 43u "Acaridae"/42-45m/w land or water? 610 24-27m 611 5-8m 613 20-27m, 27-33m 615 3-5w not♦ applicable only in Vertebrata? 5-7m, 27-30m 616 42-46m 627 40-47m/42w (a) wb (a) Grafting nearest analogue. does not support this view Do you think if you injected blood from one into other it wd make hair grow different? 628 17-38m 632 9-14m 633 11-22m, 48-50m 634 8-12m, 24-27m, 36-40m, 43-48m 635 1-4m, 31-33m, 32u "61|species", 38-43m/45u "are common" 637 3-8m, 26-36m/w not if nothing better possessed 638 29-32m, 49-51m (Owen), 68-70m 639 40-45m 690 8-13m/"Medulla Oblongata"/10-11Q♦, 17-19m/19u "684" 692 31-38m 693 25-31m/27u "immediate|sensations", 28u "intentional adaptation", 43-47m/45u "no|required", 48-52m 694 4-8m, 14-17m, 17-29m/18-23w sensori-motor connected with Instinct. 25u 696 31-37m/32a "these" habitual 698 7-14m, 17-20m, 22-45m 699 35-38m 702 20-24m/20-30w dogs turning face on one side not see another petted.- 708 10-13m, 23-27m/19-26w Fear of punishment 726 15-19w Mysis Cirripede 18-30m/20-34w difficult to explain, except on general diffusion of perception. 730 18-21m, 26-28Q/26u "iris", 29-30m, 49-51m (Siebold) 734 11-18m, 28-33w wonderful! 30-36m

CARPENTER, William Benjamin *Principles of mental physiology* London; Henry S. King & Co.; 1874 [Down, I]

CARPENTER, William Benjamin *Researches on the Foraminifera* (extr.); 1855 [Down] ♂

CARRIÈRE, Élie Abel *Production et fixation des variétés dans les végétaux* Paris; Librairie agricole de la Maison Rustiane; 1865 [CUL, I]

cc, cs, dic, ex, fg, he, hy, sx, tm, v

NB 21; 30; 28; 34 to 58 very good, wonderful on Bud-Variations; 65; 66; 69; 70 Bud variations; 72; 57 Cytisus Adami ♂ p 21 & 30 on Dichogamy (rest ♂)
SB ♣ p.28. on influence of Father – on colour &c. goodish evidence in certain cases p67 On Hybrids presenting quite new characters Relation to Doublecross Many valuable facts referred to proper places –

6a 16–23m 21b 36–57m/40–44w colouring self-fertilised 48–50m 28b 4–12m 30a 27–32m, 32–34m/30–38w in cold weather pollen matured later, 35–44m, 37–41m/40u "gelées" 30b 36–49m 31a 28–32m/"..."/29c/32c/ 28–32w ie not crossed 34a wt Bud-variations 1–18m/2–7w Chrysanthemum 35b 12–14w Roses get list 36a 1u "Baronne Prévost", 3u "cinq variétés" 37a 27–28w Cherry, 51–55m/w does not revert perfectly 37b 10–11w 3 fruits 38a 10w Plums 38b 10–11w Grapes 49–57m, wb Apples show 39a 6–10w Haricot Maize & Potatos 23–38m/w But this is by seed 38–41m/30–34w variable when sown by seed 39b 15–18m 40b 28u "sur|sur"/25–29m/w Maize 29–36m 41b 2–13m/5–6w Potatoes 42b 10–16m 54b 1–3m 57a 26–33w Hycanths 57b 1–2w Cytisus 4–6m, 12–14m/12–13x, 19–24m, 33w ♦ New character 36 36–37m 58a 21–34m, 21–22m, 23–28w X ♂ Bud variation Effects of conditions 64a 46–58m ♦ 65a 76–82m/wb Varies or breaks like tulips or Vidua 65b 63–73m 66b 67–76m/71w ie wb strongly hereditary 67a 4–34m 69b 33m, 46–55m, 61–71m, 75–78m 70a 6–13m/w Double flowers 28–32m, 33–40m/w form of bud variation like tulips, 44–50m/41–42w conditions 70b 15–19m/13–25w moss Rare for seed 24–25w by seed 43u "Moussense partout"/40–45m/w Bud var 54–61m/w Bud var 65–73m/66–67x/ 75–79m/75–76x/78–79m/wb good like his case of Radish – Causes of Variation 71a 25–30m/30x/25–26w Bud var. 44–66m/57–61m/! 72a 32–39m/32–39m/33–34x/32w/wb Barbary; this is in principal buds, not all

affected conditions wb Causes of Variation Use these new facts under Var. under Nature 72b wt change slowly 1–3m, 6–13m, 12–23m/15–20m/20–23m/ wb These facts of beech & Barberry bear more on relation of conditions to inheritance 27–30m, 31–40m

CARUS, Julius Victor *Geschichte der Biologie* München; R. Oldenbourg; 1872 [Down, I]

CARUS, Julius Victor, and ENGELMANN, Wilhelm *Bibliotheca zoologica* 2 vols; Leipzig; Wilhelm Engelmann; 1861 [CUL]

vol. 2 ♂

979 58–64m 1070 43m 1792a 26m 2000b 61m, 78m 2001a 1m, 2m 2026a 52–55m 2030b 64m (Morren) 2039a 3m (Newport), 4m, 38m 2129a 35m (Wallace), 39m, 40m, 41m

CARUS, Julius Victor, and GERSTAECKER, C.E. *Handbuch der Zoologie* Leipzig; Wilhelm Engelmann; 1875 [Down, first vol. only] ♂

CASPARI, Otto *Die Urgeschichte der Menschheit* 2 vols.; Leipzig; Brodhaus; 1873 [Down] ♂

CATALOGUE of the books and maps in the library of the Geological Society of London London; R. & J.E. Taylor; 1846 [CUL]

NB1 Read p109 Darluc Hist Nat Provence

112 Risso on Ranges

p.111 Cirripedia Lamarck

In the Presentation Copies in list given in Journal Feb 1851 – Many useful to M Periodicals

p8. Linn Trans of Normandy

Good Journals

Agassiz Recherches sur les Poissons

Fossiles – of Old Red Sandstone p.60

Calcutta Journal of Nat Hist vol 3 & 4

NB2 107 (he means 109) Dict des sc nat

109 Forbes Star-fish

111 Loudon, Arboretum

112 Royle

Buckland's ♣ Bridgewater Treatise

p67 Pictet Pal.

Bowerbank – Plants of London Clay

R. Agricult Journal – Edinburgh – other Journals

Wernerian Transactions & Other Journals recd

Boston Journal

xii 8–9m/w marked 36–37m/w marked 3 15m/ 16w read 4 38m/w read 5 19m 6 41–42m 7 1–2m, 30m/w read 8 13m 9 2–7m/4w Hooker

for 8w read 12-16m, 19m/w read 21m/w read, 27-29m 12 24-25w I do not think worth reading 25m, 35m/w read 13 6m, 8m, 17m/w read 46m 14 5m/w read 6m 25 38m 33 26m 58 5-8m, 10-11m 60 2-8m 61 4m, 28m 65 10w vol. 2 11-12m 66 35-36m 67 28-29m, 40-41m, 42u "in vol. 4", 45m, 48m 68 33-35m 106 18m 107 9m 108 7m, 14m, 23m, 27m, 32m, 41m 109 6m, 18-19m, 34m 110 40m 111 3m, 27m, 33m, 39-40m 112 49m 113 12m

§

209b 53-55m (Brocchi) 210a 4m (Bronn) 217a 18m (Lea, J.)

CATALOGUE of the Chiroptera in the collection of the British Museum (G.E. Todd); London; by order of the Trustees; 1878 [Down, I] ig, tm

NB xvii Gradations in complex Nasal appendages of Bats xvii 21-35m, 36m xviii 17-26m xix 10-19m

CATALOGUE of the scientific books in the library of the Royal Society London; Richard & John E. Taylor; 1839 [CUL, S] fg

NF E.W. Strickland 31 Robert St Chelsea Mondays & Thursdays
 NB1 Hills Essay on Natural Hist 1752; Montagu Testacea; Libr in Royal
 NB2 Brickells Nat Hist of N. Carolina Whewells Bridgewater Treatise read Lawrence Lectures on Man 1819 Read Harlan medical & phis Researches Edwards. sur la caractere physiologique - des hommes des races diverses p.497 - 1829 - read - 2d Edit 1841 is to be published
 James on man physiologically & spycologically considered Edinburgh Hort Soc & Highland Soc p 387 List of Hort & Agricult transacts Lindley's Horticulture ?? p.721 Forster on Migration of Birds 505 by Isode G. St Hilaire p740 = Amoenitates Acad.- p767 Stillingfleet Transact do -? read Broderip? p.639. Asiatic Journal Hooker says good.
 NB3 p 396 Decandolle papers p 552 Quetelet sur la loi de la croissance de l'homme p.758 Quetelet sur l'homme et le developpement de ses facultes Dubois voyage Lichtenstein's Travels read

Loefflings travels Louisiana Mackenzie north Pole○ Ramond's voyage on M. Perdu Natural Hist.: p581 Barton's fragment in Nat. Hist. 583 Catesby's Nat Hist of Florida 585 Linnaeus on study of nature Virey's Philosophie & Histoire Naturelle 1835 a miserable book according to Brougham - read Lawrence Lect on Man 538 Meckel 474, 582 Blumenbach: must be read.- 582 Buffon. 449 Pallas Spicilegia Zoolog 510 Haller

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CATALOGUE: ROYAL SOCIETY

Hooker says good 640 26m 651 13m 652 36m, zb 653 7m, 16m 655 49m 656 4m 657 42m, 47w read 54m 658 9m 659 7m, 32m 660 6-13m, 15m 661 43m, 47m 662 16m 664 26w read 665 6m, 15m, 19m, 44m/w read 50m/w read 666 22m/w read 41w read 43m 667 14m 668 35-38m, 50m 669 42m, 53m 670 1m/w read 671 39m 672 47m 674 25m, 29m, 36m/34-35w read, 38m 676 3m/4-7w I suspect appalling on separation 677 12m, 32m 682 44-47m 688 25m 689 26-28m 721 26m 740 25m/21-28w Lyell believes Broderip has Engl. translation 744 5m 767 38m

CATON, John Dean *A summer in Norway* 1875 [CUL, S, I]

NB O/

CATON, John Dean *The antelope and deer of America* New York; Hurd & Houghton; 1877 [Down] beh, br, cc, v

NB p.46 Antelope weeping; 90; 156; Deer not breeding in Parks 294; do.- 304 46 33-42m 47 3-10m 90 26-31m/w analogous var. 156 32-42m 157 30-37m 158 27-32m 294 17-22m, 21-31m 295 9-14m, 22-28m 304 22-24m 305 1-4m, 6-9m, 12-15m

CATTANEO, Giacomo *Darwinismo: saggio sulla evoluzione degli organismi* Milano; Fratelli Treves; 1880 [Down] ♂

CHAMBERS, Robert *Ancient sea margins* Edinburgh; W. and R. Chambers; 1848 [Down, I] geo

21 25m 100 3-9wcc/3u "847", 26-27w 1202, say; 1210 110 17-19m 113 11-13m 115 1-2m/w p61 of mine 5-8w also entirely overlooks my arguments for the terraces 124 23-27m 157 9-10w 968; 821-6 15-17w 628; 706 187 1m, 28m 189 3m 328 3-5wcc, 11-22w average interval 20ft. 330 wt/£w 27ft interval on average & each observ. ♣ has for 5 or 6 ft of variation. so that real interval not more than 10ft table.m/wcc, wbee

[CHAMBERS, Robert] *Vestiges of the natural history of creation* 6th edn; London; John Churchill; 1847 [CUL] ad, ci, ds, em, fo, geo, hl, is, t, ti, tm, ts, v, y

SB1 ☐

p.67; 90; 123; 186; 195; 209; 225; 235; 249 Key of Book; 268; 274; 276; 280; 281; 283; 286; 290; 301; 307; 312; 319 p494; 501

The idea of a Fish passing into a Reptile (his idea) monstrous.-

How easily a soft cirripede might give rise to Balanus Segments of shell - if loose wd be lost

I will not specify any genealogies - much too little known at present.

Never use the word higher & lower - use more complicated, as the fish type (& not a mere repetition of parts) where cartilaginous forms are higher for being nearer reptiles & consequently mammalia.-

SB2 ☐β

90 Embryonic Reptiles now have biconcave vertebrae, extinct form had do

209 Inherent impulse to advance from oldest & simplest up to highest - & inherent impulse to become adapted. Quote in Preface. ♣ 249do 225 compare with tadpoles metamorphosis.

235 Yarrells Birds Gull getting thickened stomach Vol. 3 p571 Quotes Pennant on Trout in Galway getting thickened stomach. Was it Trout? Yarrell Fishes vol. 2 p.57 thinks Gillasso only a var. inner cuticle only undirected.

274 Monomyarian Molluscs before Dizaria - latter higher?

276 Young Gasteropods all alike when very young (Forbes) in Jameson's Journ

277 Nucleus of Cephalopods shells is also spiral like Gasteropod (Forbes) Carpenter Gen. Physiology This about Cephalopods, important for it shows what precursors were: see if accurate

280 Dibranchiate Cephalopods commence in Oolitic 281 Cephalopods change quicker because higher

301 Talks of nature being equally ready to go back as well as forward

307 Cecilia is a snake-like Batrachian

494,2 Curculios - Corydalis & Libellula & Scorpion in Coal

367 Remarks on isld not having mammals & less perfect life but really I need not allude to such Rubbish

67 12-19m (Agassiz) 90 5-8m, 17-20m 123 21-26m/22-25w See to this in true chalk 179 17-26z 186 8-14m/w new creations !! 16-22m 195 4-5m/w is not Pecten very old 209 1-16"... 4u "inherent"/1-8m/w quote to show difference V. Whewells remarks against this 11u "inherent" 219 22-26[...] 220 13[...] 221 3[...] 225 5-12m/w whole key to theory 229 16[...] 230 24[...] 231 10m/10-14[...], 17-21[...] 232 9[...], 20-25[...] 235 11[...], 20-22m/w Yarrell! 249 23-26m 267 17-18??/18u

"exclusively marine" 268 2-7m, 7-18m
 (Agassiz) 274 11-21m 276 9-17m/12-13w
 Forbes 277 14-26m/24w Carpenter 278 6-20m
 280 20-24m 281 2-16w I must allude to all
 this 283 12-15m 286 1-17w It is strange error
 that generally he looks at every form, as
 having started from some known form. 19-
 23m 290 1-3m 301 7-11m, 15-17m 307 10-
 15m/w I forget this Amph? 312 1-3w Hence
 many Turtles transformed!! 4-9m 319 1-3m/
 !!!, 17-20m/!!!/20w oh 340 5!!/u "walrus" 409
 11?/z/u "monkeys | houses" 494 10-22m 501 7-
 8m 505 8m, 22m

CHAPMAN, Henry C. *Evolution of life*
 Philadelphia; J.B. Lippincott; 1873 [Down, I]

NB O/

21 8w 22 30w 25 13-15"..."/15w Haeckel 86
 2-5"..."/4w 100 13w/c 102 32w/c 130 28c 170
 34w
 (untranscribed words not CD)

CHAPMAN, John *Neuralgia and kindred
 diseases of the nervous system* London; J. & A.
 Churchill; 1873 [Down, I]

NB O/

xiv 21m xv 8m, 17m xviii 3m xx 5m, 6m xxiv
 21m, 23m
 ⌀

CHAPUIS, F. *Le Pigeon voyageur belge*
 Verviers; 1865 [CUL, I, S]
 beh

SA (pp. 170-171)

(conversions of km to miles)

↻ nearly say 35 miles

George calculated these and average rates
 per minute for 20 selected flights the rate is
 1066 metres per minute which gives per
 hour as above

59 18-24m 86 24-27m 87 1-2m, 3-7m/5w
 Instincts 10u "certains mâles"/9-24w *cc*, 23-
 25m, 24-27m 133 wt Verviers to Lyons 156
 11-15m 159 1-3m 161 9-16m 165 19-20m, 24u
 "kilomètre | minute", 28m 166 18u "soit |
 mètres", 23m/u "925" 167 7-10m/w but due?
 168 22m/u "947" 169 1-4m/1u "Espagne"/2u
 "Liège", 5u "1 kilomètre" 171 wt ♦ which is
 kilometers?; average of 20 flights *cc*, 5-6m/
 w ♦ = 366 metres?

CHARPENTIER, Jean de *Essai sur les
 glaciers et sur le terrain erratique du Rhône*
 Lausanne; Marc Ducloux; 1841 [Down]

⌀

CHAUMONT, Francis Stephen Bennet
Lectures on state medicine London; Smith,
 Elder & Co.; 1875 [Down, I]

NB 135 Beer; 165 cistern

CHILD, Gilbert W. *Essays on physiological
 subjects* Oxford; Combe, Gardner, Hall &
 Latham; 1868 [Down, I]
 beh, he

NB Consang. Marriages

CHILD, Gilbert William *Essays on
 physiological subjects* 2nd edn; London;
 Longmans, Green & Co.; 1869 [Down, two
 copies]

NB O/

⌀

CHILDREN, John George *Memoir of J.G.
 Children* Westminster; Josiah Bowyer,
 Nicholas & Sons, for private circulation;
 1853 [Down]

CHUN, Carl *Fauna und Flora des Golfes von
 Neapel, 1. Ctenophorae* Leipzig; Wilhelm
 Engelmann; 1880 [Botany School] ⌀

CLARCKE, Benjamin *On systematic botany
 and zoology* London; J. Bale & Sons; 1870
 [Down]

CLARK, Henry James *Lucernariae and their
 allies* Washington; Smithsonian Institute;
 1878 [Down] ⌀

CLARK, Henry James *Mind in nature* New
 York; D. Appleton & Co.; 1865 [Down]
 af, ct, fg, he, ig, sl, sp, tm

NB O/

SA (pp.94-95)

p.61,66 Pangenesis; 81 do; 85 shows how
 numerous gemmules must be for carrying on
 to next generation Not all used up in
 formation of the animal.— This view of
 division of single egg, & not union of 2, is
 now very generally admitted.

Planaria cut in two says it is true budding

♦ 203 Snails asymmetrical.—

263 Lepidosiren, affinities

279 projecting instead of selecting

Lereboullet consult

272-276 Doubtful on intermediate forms in
 lower classes

279 projecting instead of selecting

61 16-18m, 25-29m, 30-31u↔, 32-36m 62 1-
 4m 66 16-20m 81 22-23m/23u "fissi-

CLARK, MIND

gemination", 33-35m/→ 82 16-18m/11-19w but with budding, I suppose for formation of eyes 32-35m 85 15-17m, 25-28m, 30m 86 1-5m 93 24-26m/25u "budded out", 29→ 94 15-17m 203 13-16m 267 9-15m 272 1-4m 273 1-13m 276 10-21m 279 23-30m

CLARKE, J.W. *Cattle problems explained* Battle Creek, Michigan; published by the author; 1880 [Down]

CLAUS, Carl *Grundzüge der Zoologie* 2nd edn, 4 vols.; Mauburg und Leipzig; N.G. Eltwert'sche Universitäts Buchhandlung; 1871 [Down, S] ∅

CLAUS, Carl *Untersuchungen zur Erforschung der genealogischen Grundlage des Crustaceen-Systems* Wien; Carl Gerhold's Sohn; 1876 [Down]

CLELAND, John *Evolution, expression and sensation* Glasgow; James Maclehose; 1881 [Down, I]

COAN, Titus *Adventures in Patagonia* New York; Dodd, Mead & Co.; 1880 [Down]

NF not yet entered in Catalogue of Books

COGNETTI DE MARTIS, Salvatore *Le Forme primitive della evoluzione economica* Torino; Ermanno Loescher; 1881 [Down, I] ∅

COHN, Ferdinand *Die Pflanze: Vorträge aus dem Gebiete der Botanik* Breslau; Kern; 1882 [Down, I]

COLIN, Gabriel Constant *Traité de physiologie comparée des animaux domestiques* 2 vols.; Paris; J.B. Baillière; 1854-1856 [CUL] beh, cs, fg, he, hy, ig, mn, no, oo, phy, sx, tm, v, y

vol. 1 SB p.131, 5; p.142 to p.160; p.192; p.374; 426; p.617; 426; p.614
Londeners Walk Watch while Snail fixed in crevice pulled in 3 directions to free itself
V. 2d Vol for Abstract

127 9-10m♦ 131 10-12m/1-12w none to aid another animal without that aided itself 13u "ait|inutiles"/w V. p. 134 15u "susceptible|essentielles", 26-31w wildness in aboriginal Galapagos Birds.- 32-33m 134 35u "animal sanguinaire" 135 27m, 29-31m/29u "mulet|dans"/30u "espèce|cactus" 142 10-14m/11-12w no gradation 143 30-31m 144 27-31m 145 wt I have seen young Ourang at looking

glass 4-7m/5w (a) 147 31-34m 151 29-32m 160 13-16m 192 16-20m 374 35-39m 426 2-5m, 13-18m 614 wtcc, 12-18m/14u "bout|douze"/16u "dix|vingt"/17u "une|fois" 617 wt my notions not half so odd as life of Parasite; bred in fish & matured in cormorant wtcc, 1u "les|membraneux", 4u "le héron", 3-5m/w V. next Page 11-15m, 33-40m, 34u "pylore|étroitesse", 35u "duvet|poils" 618 6-9m

vol. 2 NB Book p 405; p.492; 496; 529; 530 to 548; 614

SB □X

374 On Hinny neighing on account of shape of Larynx

426 How soon animal gets accustomed to any particular food.-

614 - excellent on length of time grain kept in crop of Turkey - 18-20 hours -

617 Hawks throw pellets because pylorus so narrow

Vol 2.

492. M. Desfossé on hermaphrodite Fish Serranus

529 case of hybrid of Horse & Cow NQ author admit clearly only monster

530 Q∞ on ovules in mule

532 Vauban calculated produce of Sow in 12 years at 6 millions - on rate of increase Guinea-Fowl - on sterility of fat animal Ch.

3 Tegument of eggs of wild Peacocks

536 on characters of Mongrels so like Gartner Q

537, 539 Hinny more after ass than Horse Q♂

(over)

540 Horns transmitted from either parent

542 The older races transmit most surely

614 10 Mammae in Rabbit, Dogs &c

405 44m (Geoffroy St Hilaire and Cuvier), wb Has Waterhouse got it 492 12-15m 496 17-22m 497 28-37m 529 1-2m, 11-24m 530 5-12m/8-9Q♂, 15m (Aristotle), 29-31m 531 18-23m, 29u "tigrelion", 34-36m/35u "font|sanglier", 45m/u "fait|oeufs"/→ 532 2-6m, 26-30m, 27m/w Sow?? 36-37u "engraissement|oiseaux", 14-1m 534 10-15m/11-12u "Suisse|Poitou" 535 28-31m, 34-43m/41u "d'une|portée" 536 1-4m, 5-7m/5u "intermédiaire"/7u "mélange|fusion"/5-12w how like to Gaertner, 14-17m, 15u "taureau|jura", 25-30m, 31u "mulet|âne", 39u "deux|cotés" 537 10u "le|mamelons", 18-19u↔, 35-36m, 40-41m/40w variable 43-45m/44u "incontestablement|prédomine" 538 7u "l'hémione mâle", 11-12m 539 2u "bardeau|mulet", 3u "la|exceptées", 31-34m, 40u "cheval|Hartmann", wb Hartman

is a German Book which I have seen referred to elsewhere 540 13-15m, 19-21m, 37-39m, 38u ± 541 36-38m 542 18-19m, 30-32m 543 1-3m, 14-18m, 38-40m 544 14-19m/17-18u "boeuf breton"/24-26m/1-27w It certainly is not true that one can get as perfect offspring as parents 548 1-6m 614 17-19m, 21-23m, 40-45m 627 31m/?

COLLETT, Robert *Zoologi: Fiske* Christiania; Grøndall & Søn; 1880 [Down] ∅

COLLINGWOOD, Cuthbert *Rambles of a naturalist on the shores and waters of the China Sea* London; John Murray; 1868 [CUL] beh, gd, ss

NB 173 Electric snake

♣ Butterflies attracted by dead specimens S. Selection

♣ 182 Referred

♣ I have read as far as p 260 (very little) 367 all inhabitants of the Sargasso basin

374 Flying fish Habits

1 11-12z 173 27-34m 182 6-9m/"..." 183 4-6m/5-6u "frequent battles" 367 12-21m 374 17-21m 375 32m 376 9-12m, 24-29m 377 14-19m end of booklist wb 64

COLUMBUS, Christopher *Selected letters* ed. R.H. Major; London; Hakluyt Society; 1847 [Down]

COMSTOCK, John Henry *Report upon cotton insects* Washington; Government Printing Office; 1879 [CUL] beh, gd, mg, oo, phy, tm

NF extra-floral glands; moths boring into melons→ 84-85; 86-87; 90-91; 97; 89 great powers of flight of moths; sweet juice eliminated - 319-320

NB 84 Extra-floral nectar-glands

89 Migration of moths grt distances

117 do & distribution

120 do

213 ants destroy enemies of cotton Nectaries

320 to end with Bibliography.

84 10-22m, 41-46m 85 2-12m, 19-26m, 28-32m, 38-47m 86 4-21m 89 1-16m 117 7-13m/13u "Argotis annexa" 120 27-32m 183 26-29m 213 28-30m 317 wb W. Trelease 320 22-26m 325 14-22m, 31-38m 326 1-7m 327 5-7m 331 3-7m, 21-25m, 38-43m, 44-46m 332 24-30m, 40-47m/? 333 1-5m, 9-15m, 45m 336 11m

COMSTOCK, John Henry *Report of the entomologist of the United States Department of*

Agriculture for the year 1879 Washington; Government Printing Office; 1880 [CUL] ab

NB 203 Change of Habits in insect; 246 do 203 25-28m 246 17-23m, 18-19u "At|acquired"

CONGRÈS INTERNATIONAL d'anthropologie et d'archéologie préhistorique (Bologna, 1871) Bologna; Fava & Gavagnani; 1873 [Down, I by Cappellini (secretary of conference)]

∅
540 1m 542 13m

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(a few editorial marks, not CD)

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vol. 1 NF This Work was given on its first publication by Josiah Wedgwood Esq of Etruria to Erasmus Darwin M.D. of Derby and is given to their Grandson Charles Robt. Darwin by his Father in 1840

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COTTA, Bernhard von *Die Geologie der Gegenwart* Leipzig; J.J. Weber; 1866 [CUL] af, ch, gd, geo, sp

SB p.198; 200; 208 good; Geology, change of species; closely allied species; Die Urwelt der Schweiz Notes pinned
198 10-12m, 14-15m 199 24-30m 200 21-23m, 31-33m 201 17m/14-16w all found together
207 4-12m 208 1-3m/2u "dort|Kreide", 13-15m/13u "sechsmalige", 21-25m, 25-27m 209 1-2m, 21-23m/22a "ausgedehnten" Sea 210 34m 221 28m

COTTA, Bernhard von *Geology and history* London; Trübner & Co.; 1865 [Down]

COTTA, Bernhard von *Die Lagerungsverhältnisse an der Grenze zwischen Granit und Quader-Sandstein* Dresden und Leipzig; Almdische Buchhandlung; 1838 [Down, fragment]

COX, Edward William *What am I? A popular introduction to the study of psychology* London; Longman & Co.; 1873 [Down, I]
ct, fg, hy, phy

64 ↑12-8m/w One pollen gr not enough 66 1-13w I hardly understand what you mean by germs 68 18-19x/16-18w hybrids 70 19-21m/14-21w fused together 71 2-5m 72 3-16w influence of nerves - Plants 73 26-28m/27u "must be"

CRAWFURD, John *A descriptive dictionary of the Indian islands and adjacent countries* London; Bradbury & Evans; 1856 [Down]
br, gd, geo, is, se, v, ve, wd

SA (pp. 216-217)

10; 14; 15; 16; 28; 32; 38; 46; 56; 59; 73; 74; 86; 88; 92; 101; 107; 113; 119; 121; 122; 123; 125; 92♦; 135; 138; 143; 144; 145; 152; 153; 171; 172; 217; 220; 225; 255; 256; 268; 269; 278; 288; 291; 298; 306; 316; 318; 320; 407; 417; 420; 433; A volcanic mountain wd undergo enormous degradation when subsided; Penth note sheet missing

SA2 □β

See map at beginning Very many facts show that very large quadrupeds will not exist in the smaller islds

14 Mountains heights & nature of

15 Zoology of archipelago

38 Bantam Poultry came from Japan

112 History of Cock Q

119 Genus Cervus

121 Dog NQ

125 Duck no wild ones, Penguin common var.

136 Elephant of Borneo described by Pigafetta

145 Goose not breeding in Manilla

152 Hog, wild species of

153 Horses many breeds of, not aboriginal Q

255 Cat of Malay Q

268 Marian Isld nothing about aboriginal quadrupeds

288 Monkey wild species of

316 Ox tribe

10; 11; 16; 88; 28; 31; 46; 56; 59; 74; 217; 225; 92; 279; 337; 143; 171; 220; 291; 298; 306; 318; 321; 407; 417; 420; 433; (names of mammals of different islands)

10 57-62m/59u± 11 40-43m, 46-50m/46u± 14 40-43m, 45-47m 15 20-28m, 30u±, 35u±, 40-41m, 45-51m/51u "Babirusa", 53u±, 56-62m 16 1-6m, 4-9m/5u±, 13-17m 28 52-61m 32 3-10m 38 16u "It\|java", 23-27m 46 58-61m/61u "the\|cat" 47 1u "The\|hog" 56 42-48m, 44-51m/46u "hog" 58 37-43m 59 20-43m 73 52-59m 74 4-19m 86 54-59m 87 7-15m 88 11-20m 92 40-45m 101 14-18m 107 12-20m 112 51-56m, 61-63m/Q 113 1-3m/1u "among\|rudest"/2u "domestic state", 2u "bears\|species"/3u "Sumatra", 4u "Java", 4u "Malay\|Philippines", 5-18m, 18-20m/19u "Malays\|Javanese", 21-28m, 29-31m, 31-37m/35u "do\|such", 42-48m/44u "in\|Hindostan", 51-56m 119 1-16m, 4u "Cervus\|Cervus", 11u "The\|belongs" 121 46-62m 122 5-11m, 58-63m 123 4-9m/8u "crown-pigeon" 125 9-11m, 12-20m 135 52-59m 136 1-18m 138 1-3m 143 10-16m 145 49-57m 152 19-29m 153 26-62m, 32m/u "There\|breeds", 33u "one\|to", 36u (u henceforth place-names), 37u, 40-41Q 43u, 44u, 48u, 49u 49u, 52u, 54u 154 20-24m, 42-51m 155 13-18m 171 47-61m, 61-64m 172 14-21m 217 12-17m 220 26-29m, 33-40m 225 40-52m 255 44-51m, 50-52m 256 13-19m, 31-38m 268 14-21m, 51-58m 269 14-18m, 37-39m 278 60-64m 279 4-6m 288 4-19m 291 26-27m 298 7-14m, 36-45m 300 22-25m, 31-40m 306 58-60m 316 9-16m, 22-29m 318 19-24m/20u "about\|miles", 29-34m/29-31w Depth 320 51-58m 321 6-9m 337 54-59m 407 3-5m 417 32-42m 420 54-61m 433 26-31m

CRAWFURD, John *A grammar and dictionary of the Malay language* vol. 1; London; Smith, Elder & Co.; 1852 [CUL]

beh, gd, geo, is, sy, ti, wd

NB ii; viii; xcv; civ; clxxxiii; ccvii; ccxl - on animals of Isd; ccxlviii; ? cclii area of New Zealand; ccliv; cclx; cclxii, & iv

SB □β

civ at Lucon no horse or Oxen - - only Hog, Dog, Goat, Fowl & perhaps Buffalo

xcv Timor said to be primitive

ccvii Horse wild probably feral in Celebes

ccxl Domestic animals of Pacific

cclv & c on men colonising islds in Pacific

cclix Dogs of N. Zealand same race of in Society Isd

cclx Traditions of introduction of esculent plants into N.Zealand

cclxii In Marianne group natives use Fish Bones for arrows ∴ not deer x

cclxiii Fowls wild or feral, probably from wreck, as Cat then found?

ii 1-6m iv 3-8m v 20-23m, 24-26z vi 22-26m,

27-29z viii 19-22w~~cc~~, 34-38m xcv 28-31m civ 25u "absence", 26u "buffalo", 27-30m clxxxiii 25-27m ccvii 3-5m ccxl 23-27m ccxli 27-30m ccxlviii 7m, 19-22m cclii 18-22m, 19-21m/20a/w~~cc~~ ccliv 27-30m cclv 25w Sandwich cclvi wt Yet Sandwich had dogs, Hogs & Fowls wt Probably the frequency of being cast adrift wd make it obvious that, the Polynesians had better try to preserve animals.- 2-6m cclix 15-17m, 20-23m cclx 1-11m cclxii 8-13m, 15-24m/w see to Magellans voyage about Deer cclxiii 8-9m, 11-15m cclxiv 6-8m, 23-30m, 34u "hog|wild", 35-36?

CROLL *Climate and time in their geological relations* London; Daldry, Isbister & Co.; 1875 [Down, I]

NB Glasgow Geolog. Soc. iv.313 p7; Athenaeum Sep 22. '60; 32 xii 30-32m 25 10-11w~~cc~~, 17-19w (not CD) 331 9-14m 332 6-9m (Geikie and Jukes)

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NB ~~↔~~ (page numbers ⇔)
p56 Live terrestrial insects in sea when I found them
94 Young Logger-Headed Ducks can fly but lost when old
131 says Upland Geese do frequent lakes by the sea
195 lizard in T. del Fuego.-
56 9-12m/9u "live beetles", 15-17m 94 29-32m 131 1-5m 195 6-10m

CURTIS, William *The botanical magazine, or, flower-garden displayed* 2 vols. in one; London; Stephen Couchman; 1793 [Down, pre-B]

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281 1-4m/2w C11 9-11m♦/24w C21 282 9-10m 283 7w 3 10w 4 19-21w 5, 6, 7 284 15w

8 21-22w 9 285 7w 10 12-23m/17w 11 18-21m 345 21-23m 346 20-25m 347 2-9m 354 29-31m

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(most w apparently not CD)

vol. 1, 14 10m 16 18m 18 26m 21 29m 22 2-3m 23 1m, 2m 24 5m, 9m, 10m, 14m 25 5m, 9m, 10m 26 12m 29 22m 36 19-20u↔ 37 26c/a~~cc~~ 46 17c~~cc~~ 50 13m, 24-27u ± 51 13m, 19m, 20u "irritabilité", 24m, 28u "poissons", 29m 52 3m/5m/1-5w Quant ils font sauter tout hors de l'eau 6u "n'ont aucune" 62 11a/c~~cc~~ 92 16-17m, 30m 93 3u "sont", 4m/u "parallèles", 5-6u "leurs extrémités" 94 4m, 5m 95 21u "moindres", 23u "véritablement", 24m 96 3m, 6u "auxquelles", 7u "après|mort", 8m, 12m 97 2m, 3m, 5u "le fibre", 6u "de|corps" 98 19-20m, 14m 99 11u "temps", 13w (not CD), 15m, 18u "dont", 18u "nerfs", 26u "insensibles", 27m 100 16m/u "nerfs", 18m/u "fonctions", 19u "dépendent", 20m/u "médullaires" 101 9-10m/9u "charnue", 14m, 23m, 24m, 27u "fluide", 28m 102 2m, 15m, 19m 110 9m/w oiseaux 111 20m/w oiseau 25-27m, 28m/w remarque 29m, 30m 116 12a/c~~cc~~ 120 10m 122 13m~~cc~~ 124 24a~~cc~~ (not CD) 125 14m~~cc~~ 133 18u "sensibilité|irritabilité", 19m, 25m 134 11m, 12w (not CD), 15m 135 3m, 19u "le milieu", 20m, 27-28m 137 2m, 17m, 19m/u "tous sens", 29m 138 1-2m, 5m, 7m 139 19u "cordes", 25-26m/26u "mêmes" 140 25-26m 141 28-29m 144 14a/c~~cc~~ 209 4-6m~~cc~~ 248 16-17m 256 10u "preuves", 11m 276 22m 288 15w remarque 343 20m~~cc~~ 365 22-25w~~cc~~ (not CD) 449 3-4m 463 12u "poches", 13u "qui" 464 14m 465 21u "muscles", 23m, 23u "muscle" 466 2m/u "et s'alonge", 3m, 10m 472 23-25m 476 5-6m, 19-20m/w (not CD) 480 28m 484 8u~~cc~~ "déploiement|certain", 11-12u~~cc~~ "et|opposé" 486 11u "talon|étendre", 12m, 14u "fournit|immobile", 15-16m/w marquez 23m/w~~cc~~ 488 8u "soulever", 9u "extenseurs", 10m, 22m/u "homme" 489 6-7m/7u "et du", 8u "talon|arrière" 490 ~~cc~~ 9u/c "gauche"/9w d. derriere 11m 494 16-17m 497 23-29m/25-26w♦~~cc~~ 501 11u~~cc~~ "certain point", 12u~~cc~~ "seroit|élastique" 508 10m, 14m, 17u "leurs|que"/[...], 18u "pieds sont" 509 7-8m 510 14u "La|mouvement", 15-16u↔, 25-26m 511 5u "avant d'arriver", 6u "le premier", 7-8m, 27-28m 512 5-6m, 9-11m, 25m 513 16-17m 514 3-4m, 8m, 11m, 15u "les|dans" "martinets|fous", 16m, 23-24m, 30m 515 1m/u "inflexible", 4u "centre|gravité", 5u, 6m, 8m, 11m, 15-16m, 17u "inférieure|corps", 22m/u "os", 23u "cylindre|creux"/23-

CUVIER, ANAT. COMP.

24w (not CD), 26u "aériennes" 516 1-2m, 2-3u "traitant des", 5-6m, 10-11m, 12u "entre", 13u "expansion|peau", 15-16m, 24-25m 517 2m, 3u "grêle|centre", 10m, 24-25m 522 14u "156", table.w<τ>

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vol. 4, 308 4m 309 13m 319 15m 331 12m/w (not CD), 13m/w (not CD) 364 15-17z/20-22z 374 14m 486 22m, 23u "que|fils", 24u "membranes|unissent", 25u "trachée"

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vol. 1, 151 26-28m 214 20-24m 219 30-32m 220 9-11m, 27m 227 25-28m 228 5-7m, 13-16m 306 23-28m 458 2-4m 459 10-12m 460 24-25m 462 11-12m 496 9-13m 560 8-14m

vol. 2 NB p.78

Q & G Cap Freycinet; L'Uranie (wrecked in Falklands); S. Astrolable Peron, Lesueur artist; Baudin - Australia Lesson & Garnot voyage de Coquille Capt. - Duperrey

viia 34w 1 viiia 33w 2 viiib 31w 3 ixa 29w 4 ixb 7w 5 12w 6 29w 7 xb 15w 8 28w 9 36w 10 xia 11w 11 15m/w 12 xib 1m, 6w 13 15w 14 xia 1w 15 12w 1, 32w 2 xib 10w 3 37w 4 xiiia 23w 5 12 24-27m 28 23m 30 13-17m 54 20-23m 60 3-4m/u ↔, 6u "comme|femelle" 65 20-22m 66 19-20m 73 8-10m 81 15-19m 83 11-15m 88 28-30m 101 5m/w ● 103 3-5m 104 29-31m 106 9-11m 107 14-17m 110 32-36m/Q 111 20-22m 112 14-16? 113 10-17m 114 5-7m 119 4-6m 189 zt 237 21-24m/23u "s'enfle|saison" 247 22-27m 255 11-13m 333 15-18m, 23m/w Cape Fairweather

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♂

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vol. 5 NB p. 305 Leon Dufour has written on stinging instruments of ants p.291 - on antennae differing in male & female Cynips in no. of Joints.- 206 23-25m 305 31-33m 399 13-14w 2 403 29w 3 408 5-7w 5 415 10w 8 25-27w 9 423 22-23w 10

THE CYCLOPAEDIA of anatomy and physiology ed. R.B. Todd, 6 vols.; London;

Longman, Green, Longman & Roberts; 1835-1859 [Down]
beh, phy, tm

vol. 2, 221a 6-12m, 8-9u, 62-66m 221b 1-7m, 34u, 44u, 47u, 49u, 51-54m/54u, 56-59m, 61-69m, *wb* the lower eyelid acts during laughter 222a 17-26w very little about it, seems to depress eyebrows & causes frown 21-26m, 65-68m 222b 10-14m, 15c, 38-42m 223a 26-31m, 54-55u 224a 9-13m, 24-28m 224b 6-9m, 12c/w ϵ , 50-55m 225a 31-33m 225b 17m, 33-35m 226a 48-56m 226b 3-9m 227a 6-10m, 53-56m, 62-69m

vol. 3, 90a 21-30m 93a 38-43m 94b 24-25u 98a 13-17m 566a 55-58m 566b 41-51m 722, 723 w(FD) vol. 4, 1415a 43-44u, 44m 1415b 29-31m, 30u, 35-37m/35u 1424a 38-41m 1424b 14-17m 1425a 42-50m, 54-59m 1427b 16-24m, 31-40m, 44-51m 1427a 8-12m 1428a 53-58m 1496b 4-11m, 29-36m 1497a 38-42m/39u 1499a *w ϵ* , 1-6m, 57-61m/60u 1500a 30-34m 1500b 1-4m, 40-46m 1503a 15-19m

vol. 6, 301b 50-57m 302b 35-40m 303b 9-13m 304a 10-13m, 12u "*vermiform*" 304b 24-28m/25u 317b 37-42m 318b 24-36m/28u 334a 38-47m 642a 35-37m/"..." 642b 1-5m, 1-8"..."/7c 643b 16-19m

DALLAS, William Sweetland *A natural history of the animal kingdom* London; Charles Griffin & Co.; n.d. [Down] \wp

DANA, James Dwight *On the classification and geographical distribution of Crustacea* Philadelphia; C. Sherman; 1853 [CUL, I]
gd, hl, sp, t, ti

SB $\square\beta$

1557 No species in common to W. America & central Pacific, except few cosmopolites

1498 On number of species in Torrid zone (Q)

1501 less numerous but higher

1504 Tropics most prolific in Crustacean life
1528 general discussion on above heads

SA (*pp.* 1588-1589; *part of a letter from J.D. Dana*)

1498 35-39m 1501 28-29m 1503 36-38m 1528 1-24m 1529 1-9m 1531 4-5m 1533 *w $\epsilon\epsilon$* , *table.m* "Hyas", *wb* Right (*also totals in each column totalled*) 1536 *table.m* "Cyclograpsus" 1538 *table.m* "Lithodes" "Paguristes" 1542 *table.m* "Jaera" 1543 *table.m* "Amphoroidea" 1544 *table.m* "Anonyx" "Gammarus" 1551 30x \ominus /30-39m/34u, 39u (*place-names*), 35-37w Before Glacial B.G. 1552 7m, 7m, 9m, 12m, 31m/w Med & Japan 33m, 40m/w Med & Japan 1553 1m/w, 3m/w, 5m/w, 7m/w Med & Japan 8w 36 species with enormous ranges *zb* 1554 4x \ominus /3-9w 42 sp with curious ranges.- belong to many genera 1557 1-5m/4-5x \ominus , 11u \leftrightarrow , 23x \ominus , 28-33w Evidently far more relation between E. & W. America than in shells & more species in common: but I can hardly judge 35-37m \blacklozenge 1558 19-24m/21x \ominus 1561 3w a temperate genus 3x \ominus /w New Zealand & America 25x \ominus 1564 30x \ominus 1567 18-19x \ominus 1569 10-11w New Zealand & S. America 12x \ominus , 16w do 19x \ominus , 26u "eighty-one", 29u "thirteen|Japan"/x \ominus /w - New Zealand & Cape 30u "three"/x \ominus 1570 3x \ominus , 13x \ominus 1574 7a "above" 33 7x \ominus /w 33 species in common 15-17m, 19x \ominus /19-22w It is a difficulty so few being common to Europe & Cape 29w 12 Natal & Japan 1576 19u \ominus "eastern|Australia", 25-28w New Zealand & America 29x/? \ominus 1578 21u "Hymenicus|near"/21-32w No representative case can be made out, as for common Antarctic land; New Zealand & America \uparrow 13-8m/ \uparrow 11u "over twelve"/ \uparrow 9x \ominus / \uparrow 9-7w are any of these southern genera I wonder \uparrow 10-8w p.1561 & temperate genus of Amphoroidea \uparrow 8u "Cyclograpsus"/*wb* is a wide ranger, Mid Pacific Florida \uparrow 8u "Paguristes"/*wb* wide ranger \uparrow 7u "Betaeus"/*wb* Indian Ocean

DANA, CRUSTACEA

torried ↑5u "Palaemon"/w torrid wb Cancer none torrid N & S. America Ozius torrid 1579 3x/u "Ozius|Xantho", 13x/u "Lithodes|Galathea"/w range equator wards? ↑8-1m/u/w (ranges and climatic zones of species named) 1580 28-29x 1581 4u "Glyptonotus"/ 3-4x, 6x/13x/6w New Zealand & Cape & S. America 1582 7x/10-11x/8-9w & Turtles & c 1583 8x, 12x, 18-19x/19u "not|zone", 21x, 27x/w New Zealand & America 27-28u "Amphoridae|Ozius"/x, 35x 1584 9x, 13c "Horn"/w G Hope 22-23x/26-27x/36x/38u "Japan" 1585 4x, 11c "Horn" Good Hope 16x, 27x 1586 13-14x, 21-22x, 29-30x, 32-33x 1587 13-25m/13-14x, 24-25x 1588 33-34x 1589 3-4x

DANA, James Dwight *Corals and coral islands* New York; Dodd & Mead; 1872 [CUL, I] geo

NB p.365; p.308 Loyalty Isld Quart Jour. 1847 p.61
7 26-30m 108 8-10m 116 9-13m, 13-16m 158 1-2m, 10-11m, 31-32m 171 12m, 15-17m 184 22-26m 193 17u "Metia or" 199 9-10m 219 12-14m 259 13-16m 267 ↑8m 273 15m 301 9-18m, 11-12m, 15-17m, 30-33m/33u "westernmost islands" 302 11-16m 303 3-7m, 10-13m, 14w why not 23u "occur|lare", 30-31m 304 10-13m, 18-25m/23w why 305 9-12m, 13-14m, 16m, 20u "Tatoa|volcano", 28-32m/30u "evidence|very" 306 6-8m, 12-14m, 14-17m, 20-22m 307 7-9m, 12-13m, 18-23m 308 25-29m 309 16-19m, 23-24m 310 6-12m 311 29-32m 317 8-10m 320 14-19m 321 16-20m 322 1-4m 323 17-23m 324 1-6m, 9-11m, 27-32m 325 11-13m/11-15"..."/12u "deep bays" 326 16-20m, 24-25u "Tutuila|coral", 28-32m 327 6-11m, 15-16w | do not trust this evidence?? 17-22m/18u "wide reefs", 26-31m 330 28-31m 331 wt Mr D also shows on authority of Mr Hale that ♣ these islanders seem to be here held ♣ where certain ● on Ponape were sacred 1-8m/4-8"...", 9m 333 22-28m/22u "the lagoon", 29u "two feet", 31-21→ 334 2-4m, 16-18m/18u "six feet"/ 14-21w This wd protect the leeward side 25-26m/w From Keeling Isld 25a "Metia" or Aurora solid coral rock 27-32m/29u "northeastern" 336 11u "three hundred", 26u "Rurutu", 28u "high", 29u "lower eminences", 30u "hundred", 30u "three hundred", 32u "part basaltic" 337 5-8m/6u "All|Tonga", 10-14m/12u "layer|thick", 31u "one|height" 338 4-7m, 14-17w Samoan elevtn 2 or 3 18u "two|three" 339

16u "proof|elevation" 341 12-14m 342 24-26m/24u "four|six" 343 19u "one|has", 32u "full|feet" 345 17-37m 346 wt The nature of the slope - (Galapagos ●) Tasman - birds of atolls 351 19-23m 365 1-7m/1-2u↔/4u "of|Hawaii" 394a 1m 394b 1m, 3m 395b 13m, 22m

DANA, James Dwight *Manual of geology* Philadelphia; Theodore Bliss & Co.; 1863 [Down, I]

DANDOLO, Vincenzo *The art of rearing silkworms* London; John Murray; 1825 [CUL, pre-B]

NB 23; 244; 270

φ
23 20-27m/22-23Q 244 1-3m 270 7-11m 349 25-28z

DANIELSEN, Daniel Cornelius and KOREN, Johan *Zoologi: Gephyrea* Christiania; Grødahl & Søn; 1881 [Down] φ

DARESTE, Camille *Recherches sur la production artificielle des monstruosités* Paris; C. Reinwald & Cie.; 1877 [Down, I]

DARWIN, Charles *De Afstamming van den Mensch (The descent of man)* trans. H. Hartog Heys van Zouteveen; Delft; Van Ijkema & Van Gijn; 1871 [CUL] φ

DARWIN, Charles *En Naturforskares resa omkring jorden (Voyage of a naturalist)* trans. G. Lindström; Stockholm; J.L. Törnquist; 1872 [CUL] φ

DARWIN, Charles *Het Ontstaam der Soorten (The origin of species)* trans. T.C. Winckler; Haarlem; A.C. Kruseman; 1860 [CUL, I] φ

DARWIN, Charles *Origine delle specie (The origin of species)* trans. G. Canestrini; Torino; Unione Tipografico Torinese; 1875 [Down] φ

DARWIN, Charles *L'Origine dell'uomo e la scelta in rapporto col sesso (The descent of man)* trans. M. Lessona; Torino; Unione Tipografico-Editrice Torinese; 1871 [CUL] φ

DARWIN, Charles *Über die Entstehung der Arten in Thier- und Pflanzen-Reich durch natürliche Züchtung, oder Erhaltung der vervollkommneten Rassen im Kampfe um's Daseyn (The origin of species)* trans. H.G. Bronn; Stuttgart; E. Schweizerbart; 1860 [CUL]

af, cc, cr, ct, ds, em, ex, fg, gd, ig, oo, phy, rd, sl, sy, t, ti, tm, ts, v

SF □X ⇔ (4 sheets)

Bronn's criticisms for New Edit of Origin

Objects that I cannot precisely say why two species of Rats Hare & Rabbit assumed by selection their present characters – very true I can in no case say this – we know so little of use of parts & laws of correlation.– But I confess, I thus evade every special difficulty. Why one gets round and another pointed leaves.

Objects that in case of two varieties still living in abundance side by side how can intermediate races ♣ have been exterminated – But are there such cases, excluding such vars as albinos.– Do not they inhabit distinct countries or stations – surely this is general rule.–

Do you believe in Brehms sub-species. Have you seen them?

Thinks that variation arising from external conditions are linked together by intermediate – not those produced by n. selection.–

Why of two cells, primordial, one got volition & sensation & other did not.–

Says I ought to answer ♣ whether my primordial forms were created as eggs or full-grown &c.– Admits that vegetable-cell wd come first.

(over)

I think Schmidt says the eyes not so completely grown, at least form more related to those of external world ♣ near extreme of case – ♣

I shd never suppose with respect to his supposed changes in 2 Rats, that first longer or shorter tail & larger ears were acquired, but that all were modified together.–

⇒ Might I not ask Creationist why tail longer or ear shorter? I could not ask this of him who believes that God makes his creation different for mere variety – like man fashions a pattern for mere variety.

(over)

Objects there might @ 100,000 creations as well as one: I agree @ then these would not have borne signs of common descent in homologies & embryology & rudimentary organs.

Some mistakes about my supposing several glacial periods.– Permian & Chalk

"Why shd the process of development have always caused one race rats in all different parts of world" I do not believe so – N. Zealand & Australia.

◆⇒ I cannot see force of your objection because one cannot explain origination of life – the far grandest problem of any – why it wd not be gain to explain or account for forms; if this could be done – so we ♣ do not know what selecting is, but ● this its action.–

I fully agree to your final sentence – & I fully admit the many awful difficulties in my view. (over)

Certainly, as he grants @ that both rats descended from one common parent.

As I cannot justify my opinions in any one single case, so I need not in any.– is as true ♣ as it is severe–

Though I can in no single instance, (except by conjecture, as longer legs of Hare for fleetness & not ● – longer ears to hear with) explain changes ♣ yet the structures &c led me to conclusion.– Laws of Variation will hereafter be understood far clearer

1 wt With

⊗ (missing from p. 463)

DARWIN, Charles *The zoology of the voyage of H.M.S. Beagle, under the command of Captain Fitzroy, R.N., during the years 1832 to 1836* London; Smith, Elder & Co.; 1840–1842 [CUL]

ex, gd, ig, mg, sp, ti

Part 1, 9 wt 4 apparently the *Olivallaria auricular* of d'Orbigny 19–20u "Oysters"/w●, 22–23c/wæ, 22–37m 17 23–28m◆ 28 10c/w already alluded to 11–13m/a "Toxodon" in several cases it deviates from 29 1a "Rodent" 55 13–21m, 20–25m/20w a *Pachyderm* 24a "Macrauchenia"/w animal 72 33–37m 74 19–21m 107 1–2m, 37–39m

Part 2, 17 31–36m 35 13–15m 48 21w△ 12 73 2w 28 81 3–6m

Part 3, NB S Representative species p31; 85◆

85 capital Glacial Representative, not quoted 113 Beaks of woodpeckers muddy at base 67△ intermediate var in intermediate regions 16 (u=colourings) 4u, 5–6u, 9–10u, 10–16m/10–12"...", 29–34m/33u 31 11–13m 34 7–8Q 66 19–20Q 67 29–30Q 83 22–24z 85 9m 108 16–17w Matutina 17c "ruficollis" 113 32m/Q 143 10–12Q

Part 4, SB1 ⇔

Important to find out those genera which have no marine species or migratory species. In these distribution must offer great difficulty.– Are there many? Feb./56/

DARWIN, C., BEAGLE VOYAGE

SB2 Galapagos Fish (*list of species*)

SB3 □β ⊕

◆ p340 odd about Alpine forms becoming less numerous (*rest* ◊)

F.W. Fish

p3 True Perch in S. America

p18 Dules R Tahiti – other species Java

p79 Atherina Valparaiso – some in brackish, some salt species

p98

p114 Poecilia Cyprinidae Lebias S. America

p120 Mesites Nov. Gen.

Salmonidae

p123 Tetragonopterus

p131 Aplochiton F.W. Genus Falklands & T. del Fuego

p142 Anguilla N. Zealand

Part 5, 2 12w 111 4 1w 2 5 1w 3 6 16w 4 7
 16w 5 8 1u/5-6u (*colourings*), 9-14m, 27w 6
 10 1w 7 11 1w 8 12 20w 9 13 23w 10 14 31w
 11 15 33w 12 17 1w 13 18 7w 121 41 3-4m
 51 10-12m

DARWIN, Charles (*end of German translation of Beagle Journal?*) [CUL]

pat, phy

298 1-17w thinks palm sap owing to life being continued 299 14-23m/w in Challen Id a well person new arriving made all sick – believe in New Zealand

DARWIN, Erasmus *The botanic garden* part 1 and part 2 vol. 1, bound together; London; J. Johnson; 1791; and part 2, vol. 2, 2nd edn [CULR, pre-B, S]

fg, gd, mhp, sp, sx

NB p.8; p197; p200; p202

Species of Plants p.4 to 7; 10 to 26 to 40; p.60; 75; 125; 147; 169; 185; 186; Abstract Dec 1857

p3 & 4 female bending down; p.5 In Genista the pistil Bending round to stamens which last shed their pollen; p.6 Labiatae similar observation; p.16 On Arum preventing Flies escaping (Ch. 3); 60 seeds of Tillandria found sticking to trees; 169 Amoen Acad on Rams giving fleeces

vol. 1 title page *wb* Second * part 1790 which was published first 8 23-31m 9 1"... 197 15-17m 17u "the bush", 20-21m 198 15-1m/w(FD) 200 14-16m, 21-22m 202 17-20m, 22-25m (White)

vol. 2, part 1, 4 18-20m 5 8-11m, 15-18m, 20-24m 6 9-12m/8-15w These facts do not appear to me impossible, though Sprengel

denies them 7 12-17m (Linnaeus), 19u "with only" 10 11-15m 12 15-18m 14 12-15m, 19m/u "two different", 23?/u "approach pistil" 16 11-20m 17 30-32m/31u "letter with" 26 14-2m 38 20-22m 20u "Caterpillars which", 26-27m 26u "The lark" 39 11u "those green" 60 22-24m 23u "with on" 75 14m 76 8-9m 107 15-19m 121 11-15m 125 20-22m 146 23-25m 147 15-23m 148 18-20m 149 7-9m 169 19-20m 185 2-6m 186 4-21m

DARWIN, Erasmus *The botanic garden, part 2* vol. 2; Lichfield; J. Jackson; 1789 [CUL, pre-B]

DARWIN, Erasmus *Phytologia* London; J. Johnson; 1800 [CULR, pre-B, S]

beh, br, ch, che, cs, fg, mhp, pat, sh, sp, spo, sx, tm, y

NB 45 leaves closing in rain 95 96 99 102 106 108 114

116,8 – direct action of pollen of beans V. faba○

137 148 181 324 320 350 379 451 452 501 532 535 541 543 545 568 570 579 583

p207 215 Phosphorus not enough attended to but he thinks shells contain an abundance 217 use of Straw○

SB □β

106 Q Case of broom other plants bending pistil to late anthers, I doubt

116 Most curious case of rows of Beans, crossed Bath Soc. vol. 5, p.38

451. 1746 a Mr Cooper selecting his vegetables with care, & evidently independently (shows how it may have gone on) & with this care, does not find any change of seed. necessary. Quoted from Communications to Board of Agriculture

532 On Gout produced by intemperance. children can bear less.

568 Phytolacca 1 species with 20 stamens, another with 10, & another with 8 & 8 Pistils & another dioicous – Properly Decandria & Decagynia○

2 3-4m 45 9-13m 55 10-12m 76 31".../32m 77 1-3m, 9...", 27-29m 79 29-32m 95 1-12m 96 10-16m/w will not account for sporting 97 16-19m/w How do Horticulturers propagate these 99 1-3m 102 1-5m 106 11-32m/w shows that stigma long remains susceptible of impregnation 107 1-9m 108 10-19m, 28-32m (Bonnet) 109 6-9m 114 13-18m, 21-32m 115 24-32m 116 1-3m/3-1m/11c "See work"/ 22-28m/2-28w important shows extent of crossing 117 21u "Vol. Academic"/18-21m (Schreber) 118 5-7m, 20-29m/22u "plants his"

119 4-8m 137 7-15m/11u "Fordyce" 148 19-21m 181 1-5m 207 19-20m/19u "universally|vegetables"/20u "sufficiently|to" 209 15-16m 211 6-8m 215 6-9m, 7m 217 6-10m 316 13m 320 1-4m 324 24-32w so that Sir G. Sebright explanation of ill effects of breeding in & in - same as my grandfathers for diseases in old trees 350 3-9m, 29-31m 379 27-32m/? 433 1-2m, 6-7m 451 1-5m/w good 7-14m, 19-23m, 28-32m 452 2-5m, 25-30m, 28-29m 467 9-12m 501 16-18m/18u "after flowering" 531 1-9m 532 10-15m, 19-25m 533 14-18m (Linnaeus) 535 2-4m (Linnaeus)/4u "Tracts|Hist." 541 18-22m 543 18-25m 545 16-19m/16u "Philos.|Nature" 557 7-10m, 18-21m, 22-25m/24u "old organizations", 30-32m 559 5-8m 568 4w Fish? 6-10m/6u "the|organs"/w is this so? 9w Lamarck 11-30m 569 2-16m 570 1-3m 577 27-29m 579 17-20m (Murray) 583 20-23m

DARWIN, Erasmus *The temple of nature* London; J. Johnson; 1803 [CULR, pre-B, S; 2 copies, one unmarked] beh, cr, phy, tm

NB O/

p54 In Man fundus not over opening of urethra; 63; 134

notes p.1; p.18; p.25

124 Love your mother as yourself

54 consonant to the dignity of the Creator of all things

Notes

120 Machine to speak

87 Reference to my Father on Spectra vol.76

p11 - advantage of * Power Microscope

54 12-13m, 26-28m/24-28[...] 63 26-27m 68 11-18m 73 13-17m 124 13-21m (Socrates)/17-21[...]/18c/19c 134 5-8m, 5-6m

Notes, contents "270"m, "295"m 1 20-21m 11 5-9m 18 3-7w external or internal yolk sac - means of passage= 6-8m 23 2w ♦ Read 25 15-19m 33 3w ♦ Read to p.36 45 20-23m 120 7-14m/8-12"...", 21-27m

DARWIN, Erasmus *Zoonomia* 2 vols; London; J. Johnson; 1794-96 [CULR, pre-B] beh, cc, ch, ds, gd, he, ig, pat, phy, sx, t, tm, v

vol. 1 NB1 23; 24; 46; 50; 52; 55; 57; 103; 104; 108 Malebranche gustation; 114; 130; 142; 140; 147; 148 Expression; 150; 152 Expression; 154; 160; 162; 190 I must show habits descended and then ◊; 192; 201; 203 whole chapter on sleep very good & all

marked; 214; 242; 253; 265; 267; 268; 269; 423 expressions; 425; 427 - good yawning; 483; 487; 502; 504; 505; 509; 510; 517

NB2 p.183 centipedes cutting worm into 2 pieces

SA (pp. 504-5) □β

140 Q An infant soon forgets to suck - if calf once sucks cannot be ● up by hand

160 Q Kitten covering spoonful of water. Etty○ shaking foot, when it heard water

191 Compares Music with Instinct & when putting nose into glass

504 Lamarck concisely forestalled by my Grandfather

508 Teats on sheath of Horse (& in Mule)

- Plato thought that all animals Hermaphrodite

12 14-19m 23 7-20m/8w (a) wb (a) This is strange as hungry men never dream of hunger 24 6-32m 46 6-21m 50 17-19w instinctively so 52 2-4m 55 12-15m/w the mouth alone repeats the sensation 57 8-10m, 13-29m/29u "whole skin" 58 1-9m/w hope is mental desire 99 27m, 31m 103 22-25m, 29-32m 104 7-16m 105 19-31m/23-27w does habit imply having ideas? 106 30-32m 108 22-25m/w as soon as we became locomotive 114 8-15m 139 8-17m (Haller) 140 5-7m, 20-26m (Harvey, Hippocrates) 148 14-18m 150 5-13m 151 11-14m 152 18-20m/w Sir C. Bell says because he looks back 154 12-14m/w Ding to dogs in S. America 30-32m 160 15-21m 162 17-21m, 28-32m 182 9-12m, 19u "flesh|instincts" 183 9-17m 190 28-31m 191 wt There appears to be perfect gradation from concatenated movements of which is only partly unconscious.- to those which by no effort can be recollected yet, but yet one does by instinct & habit.- 1-5m, 7-11m, 13-15m/w & indeed the more she does the better wb all this is the reverse of intellectual power 192 19-24m 194 8-17m 195 24-28m 197 4-6m 199 21-24m/w no consciousness ↑4-1m 201 19-22m 202 25m 203 1-14m 207 22-27m 208 4-10m 213 4m/x 214 11-13m 215 13-16m 216 19-22m 219 1-5m/2u "tremulous convulsions" 242 22-25m 253 1-2m, 4-7m/w tastes hereditary do 16-20m 255 15-18m/w ♦ tooth on edge sound, when earth is crushed between teeth - hear similar sound 265 4-8m 267 13-20m/18-19u "sensation"/w ♦ I think this is 22-23m/w only by drying the mouth 268 20-23m, 24-27m, 28-31m 269 21-25m/22-27w is there or not a muscular contrivance to expel this 270 16-23m 273 16m 339 ↑7m 356 14-17m/w Vide 359 3m 387 19m 409 7m/x 421 12m ♦ 422 7-10m, 14-16m/14u "exertion

DARWIN, E., ZOONOMIA

of", 24-25m 423 15-19m, 29-31m, 32m/w over 424 25-32m 425 7-9m, 11-24m, 27-31m 427 wt yawning. stretching fidgets (see Dr Holland) convulsions affecting the voluntary muscles - muscles of jaw, perhaps soonest brought into action & likewise perhaps connected by associations with ♣ digestive powers & therefore soonest gives relief. 7-9m/w hence yawning attacks these muscles 431 24m/x 433 5m/x (Helvetius) 435 9m/x 455 9m/x 456 15m/x 483 26-28m/27u "polygonum viviparum" 487 10-19m 500 22-24m/[...]/23u "lactescent women" 501 1-5[...], 3w (not CD) 502 13-26m, 26-31m/w Bell Bridgewater Treatise argues against this 503 8-16m, 25-28m 504 6-16m/12-16"..."/11-13w Lamarck!! 505 1-3m, 5-7m, 7-11m, 12-18m 506 wt Sir Charles Bell perfectly confutes all this 7-13m/7-23w May be quoted, to show no more wonderful.- if merely proved a law of nature we are accustomed to the former. I attempt to show means - which is impossible in the one animal 507 7-10m, 10-11m/x/w variation 19u "learned"/19-20w what an assumption!!! 508 11-32m 509 4a "generation"/wt aided by endless attempts, of which only few are preserved.- Vide Hume's works 1-4m (Hume), 17-24m 510 27-32m/w This pro the Dr 511 1-8m 512 15-16w sex of Bees changed by food 514 3-11m 517 8-14m vol. 2, 40 4-8m/5w(CD?) 43 1-6m 46 12-15m 145 1-19w (not CD) 352 17-31m 573 2u/w (not CD)

DARWIN, Robert Waring *New experiments on the ocular spectra of light and colours* London; J. Nichols; 1786 [CUL]

DARWIN, Robert Waring *Principia botanica; or, a concise and easy introduction to the sexual botany of Linnaeus* London; Longman, Hurst, Rees & Orme; 1810 [CUL, pre-B]

DAUBENY, Charles *A description of active and extinct volcanos* London; W. Phillips; 1826 [Down, pre-B] geo, mi, ti

94 21-25m/22-23w A 95 6-12m/8-9w A 104 30w Miocene 105 15-17m, 23-31m 170 15-16w (not CD) 171 13-14w (not CD) 180 18-27w Covington copy 28-39m, 28-34m, 30-39m/ "..."/36-37u "frequent matrix" 188 11-15m/w A 265 13-22m 266 7"...", 11-24w This is correct is taken from chart of the Azores by Reade 13-24m (von Buch), 20c/w€, fig.w♦ fathoms 24"... 267 zb 270 27-33m, 33m 272 11-12m/11u "Madagascar" 273 1-2m 312 9-

16m 313 20-26m 323 16-17m/w Carteret in new Britain V. Krusen 324 wt New Britain Carteret saw spouting 1-4m, 5u "Ahryn", 7u "Tanna" 325 12-19m 326 1-6m 334 18-27m 343 27-30m 350 1-35m 351 1-11m 361 21-25*/25m, 27-35m/34w€, wb * Do either of these periods include 3 Caracas & Quito case of connect 386 9-11m/10u "pearly lustre", 26-28m, 35-37m/35u "nepheline leucite" 387 18-27m, 26-33m 388 1-6m 401 1-12m/2-5w♦ Not in shifting sands 402 10-35m

DAUBRÉE, M. *Études et expériences synthétiques sur la métamorphisme et sur la formation des roches cristallines* Paris; Imprimerie Impériale; 1860 [Down, I] ♂

DAWKINS, William Boyd *Cave hunting* London; Macmillan & Co.; 1874 [Down] wd

NB Used; 77 Domestic Anims; 78; 137; 382 77 25-31m 78 2-8m 137 2-13m, 15-21m 382 25-29m

DAWSON, James *Australian aborigines* Melbourne; George Robertson; 1881 [Down, I] beh, oo

NB White louse beaten out by black louse - p.13 p.90 Change in Habits in Opossum 13 1-5m 90 25-33m ♂

DAWSON, John William *The fossil plants of the Devonian and Upper Silurian formations of Canada* Montreal; Dawson Bros.; London; Sampson, Low, Son & Marston; 1871 [CUL, I]

74 21-32m 77 8-13m 80 7-10m, 22-26m

DEFRANCE, M. *Tableau des corps organisés fossiles* Paris; F.G. Levrault; 1824 [Down, I by F.W.H.] ♂

DE LA BECHE, Henry Thomas *Researches in theoretical geology* London; Charles Knight; 1834 [CUL, on B] che, geo, mi, t, ve

NB1 Every mountain chain may be considered as the ruin of an earthquake aided or obliterated by time! It is vain to bring first & other causes to bear they are comparatively insignificant.-

♦ 192; 198; 219; 242; 252; 293; 297;

greenstones traversing granites serious drawback –

NB2 ♦ 12 Spec Grav of Limestone–; 13 on Sulphur; 34; 43; 44; 53; 58; 95; 97 to 100 to 109 &c. Cleavage; 128; 131 When considering M. chain; 141 Hence value of unitary System enters; 147; 151; 177 futility of lake theory well shown

12 30–34m 13 24–30m 14 1–13m 31 11–12w of silver 34 5–9m 43 1–12m, ↑5m/wb If so absence of ice in Arctic region proof of heat of bottom 44 1–4m 33 30–34m 58 7–17m/12–16w I cannot understand this 15–22m/17–18w No 19–33m/x/wb Study Mr Palmer's papers in Royal Transactions 60 19–20m, wb Something wrong because breakes from sea and swell nearly similar 61 1–31m 62 1–33m 63 2–12m, 15–27m 74a 15m 74b 4m, 9m, 10m 75 11–12m, 12–14m 93 wt lquique 1–13m 95 wt with respect to obsidian 3–30m 96 5–27m 97 19–28m/25u "subsequently"??, wb whilst soft because lime blends with clay wb lquique wb anhydrite 99 14–22m, wb Fissure seen other○ to determine convulsing action.– Hence veins of quartz in many rocks. 100 13–33m/32–33m, wb Hollow concretion 101 12–17m 103 3–8m 104 2–15m 105 14–33m 109 4–25m 111 22–30m 128 wt Falkland lsd 1–8m 129 6–22m, 12–15z 130 24–26m 131 4–11m 132 10–31m 136 11–16m 141 17–26m 147 13–25m 149 28–34m 150 wt Hence carbon removed from primary rocks – hence hydrogen & nitrogen 151 wt X Thence all the bituminous rocks, layers of shales, because carbonic acid decomposed water 10–26m 160 15–28m 177 6–24m, wb applicable to Terraces 192 26–33m 193 1–33m 194 1–15m, wb formed by beaches 198 wt as long as stream rapid form gorge straight (why?) then zigzag, widen it, but could not produce sloping tub 12w V. p200 200 11–18m, 19–21m, wb ♦ hence gorge straight 212 12–31m 213 1–15m 219 10–31m 220 11–19m 221 13–32m 242 24–28m 243 1–9m 252 wt where underdraught not too strong.– 5–23m/!!!, wb how can the part above the sea determine the action, submarine part may do so.– 267 16–28m 292 wb Mem. carbonic Acid in Springs– 293 12–19m, 33u/! "...", wb Insist upon thickness in Cordillera however difficult to understand 297 2–17m 407 23–27m/24a "Voluta" O/

DE LA BECHE, Henry Thomas *A selection of the geological memoirs contained in the Annals of Mines* London; William Phillips; 1824 [Down, pre-B] ∅

DELAGE, Yves *Contribution à l'étude de l'appareil circulatoire des Crustacés édriophthalmes marins* Paris; A. Hennuyer; 1881 [Down, I] ∅

DELAMER, Eugene Sebastian (Edmund Saul DIXON) *Pigeons and rabbits in their wild, domestic and captive states* London; G. Routledge & Co.; 1854 [CUL] br, che, geo, oo, v

NB1 Carbons; Salt & Old Mortar & gravel to floor Runt; Turbit?; Almond-Tumbler; Carrier; Fantail; Powter

NB2 p.1; p.2; p.22; p.38; p.51; p.53; p.66; p.68; p.69; p.70; p.72; p.75; p.77; p.82; p.95; p.114 good one Rabbit outbred other; p.133; 139

SB □β

95 Rabbits probably in Caesars time in Britain

114 If Warren stocked with Grey & Silver the latter will soon be bred out (on var. beating another Ch. 5)


141 Rabbit with longest ears known 22 inches and this length of ear great point.–

136 do not breed true.

1 19–23m 2 20–35m/22u "Columella" 3 29–33m 14 zb 17 23–25m 18 27m, 28m, 31–32m, 35m, 37m 19 3–4m 22 10–14m 30 14–16m 32 34–35m 33 7m, 35m/u "twenty inches" 34 2–15m, 34–39m, wb Brick next Pan 35 22–23m, 30–32m 36 12–14m 38 12–17m, 25–27m, 27–28m 41 23m, 37–38m/38u "bay salt" 42 26–28m/27u "cumin" 43 12–14m, 15–16m/16u "old mortar" 44 12–14m, 30–31m 46 9–11m 51 28–33m 53 24–31m, wb marked to end 54 38–39m 56 2–7m, 8–12m, 21–23m/21u "pair"/22u "two | more", 34–39m 57 8m, 26–29m, 32–34m 58 9–11m 59 27–29m 61 22–24m 63 16–19m, 21–39m 65 1–4m 66 8–16m, 27–29m 67 29–36m 68 2–12m, 25–35m 69 3–11m, 33–37m 70 15–20m, 34–38m 71 25–31m 72 30–35m 75 17–25m facing 76 fig.w fig.5 Copied from Mr Delamer 77 28–39m 81 14–15m 82 7–10m 95 12–22m 114 9–15m/10–11Q 133 20–39m/→ 134 15–22m/18u "Angora rabbits" 135 14–18m 136 6–23m, 9–18m, 12–15m 137 2–6m, 13–17m, 33–36m 139 33–35m/33?/u "seveteen | ear", wb See next Page 141 5m, 32–33Q, 36–39m, 36–39m

DELGADO, Joaquim Filipe Nery da *Encarnação Sobre a existencia do terreno siluriano no baixo alemtejo* Lisboa; Academia Real das Sciencias; 1876 [Down, I] ∅

DELPINO, Federico *Ulteriori osservazioni sulla dicogamia nel regno vegetale* Milano; Giuseppe Bernardoni; 1868–1874 [CUL, S] cc, ct, fg, mhp, oo, phy, sx, t, tm

NB1 

 p.16 *Utricularia* (rest )


91 *Goodenia*

170 *Passiflora princeps*

p177 In Liguria 1/3000 of *Ophrys araneifera* only get seed; a good many more near Florence

188 *Marcgraviacea*



224 *Ceropegia*


62 George  Has seen Bees, not *Bombus* visit flower of *Trifolium*.–

NB2 On Anemophilous Flowers (very full & good)

NB3 337; 342 *Pontederia* trimorphic

Cephalanthera Grandiflora  – p149, 150 Orchids

154 –  male more conspicuous & visited first 

123 + 124 *Ophrys* 

(here also Pt 2)

orchids p61–62; p60 *Laburnum*

L. Mortigon 

NB4  *Arumi* p18

SB ; 

p61 Great *Laburnum* flower

62 *Serapias* perhaps gnawed

63 Calyx commestible long discussion on

121 says Sprengel right & M. & I wrong about nectary & lower flower only visited False drops of nectar.

149 *Cephalanthera ensifolia*

150 Waechter – news of explosion of *Neottia*


See Part I on *Ophrys*




(over)

; 

Much on Orchids in Delpino Part II 211f *Osservazioni*

Part 1, 6 4–9m 14 23–26m 15 20–22m 16 2c/ aæ, 30–35m 22 11–14m 29 29–32m 33 14u/wt 35 11–14m 51 19–21m 52 2–7m 59 23–29m 62 1–9m 75 24–26m 118 22–23m 119 5–8m, 35m 121 27–31m 122 1–2m 144 23–27m, 29–35m 148 7–10m 149 17–19m 158 15–17m 173 3–5m 176 11–13m 177 16–24m 188 6–8m, 15–16m 198 7–8u/wt, 10u/wt 202 4–6m 229 26–29m 258 31–33m

Part 2, fasc. 1, 22 7–9m 24 13–15m 25 15–18m, 23–25m 37 1–6m fasc. 2, title page w 21 *Ruppia* 24 59 31–35w cells 60 32–35m 61 29–32m (*Fritz Müller*)/29–35w Kind of powder attraction to visit loose  cells 62 7–10m, 23–27m 63 4–17m (CD), 20m, 22–31w Calyx &

Petals attractive to be gnawed 121 6–34m/w thinks H. Muller & self wrong & Spengel right about false nectary – says only first flowers visited & then bees find out mistake – and that only few pods get 122 2–16w says cold accounts for bursting of *Epidermia* cells within the nectary 30–31m, wb Other plants with false  & true nectar-pollen both on same plant. Mem How long it is before nectar secretes 123 1–29w Despises idea that nectar an excretion & supposes false drops are rare excretion.– (Mem. common Laurel && *Vicia*.– wb Shining swelling like nectar & drops of true nectar on same plant. – thus explains case of *Ophrys* – *Liperzia* a case – I shall believe when insects seem to try & suck.  124 22–27m 149 9–42m/9–39[...]/w *C. ensifolia* 4 pollen-masses.– Viscid matter from stigma probably besmears backs of insects & thus pollen is carried 150 1u "*Periplocea*"/1–4m/w like Orchids 13–40w W apparently did not know of CK Spengel, but was well aware of necessity of insects for fert. of Orchids & describes well the fert. of *Neottia*, viz. explosion of  154 10–11m/w Read 25–32m, wb It explains male fl more conspicuous than female fl so as male to be visited first 155 28–34m (*Buchan White, Spengel*) 158 34] 210 13cæ 337 wt Dimorphic one protogynous & proterandrous 2–3m/[338 30–35m 342 2–4m 343 15m/w Read 27–28m/ 28w Read 344 1–7m, 21–24m, 24–29m/25–26w Read 346 11m, 12–14m/15w Read 347 19m/w Read 348 8m, 10m/w Read 14–15m 349 25m/w Read 351 31m


DENTON, William *Is Darwin right?* Wellesley, Mass.; Denton; 1881 [Down]

DESCRIPTIVE AND ILLUSTRATED CATALOGUE of the fossil organic remains of *Mammalia* and *Aves* contained in the Museum of the Royal College of England London; Richard & John E. Taylor; 1845 [Down, I by President and Council]

DESMAREST, Anselm Gaëtan *Mammalogie ou description des espèces des Mammifères* Paris; Veuve Agasse; 1820 [CUL, pre-B] beh, hy, phy, rd, sp, ss, sx, sy, tm, v, y

NB (<  up to "")

p481; p840 to; p.499; 434; 437

Dog p190; Cats p233x  Tortoiseshell; 391

414 Hybrid Zebra & Horse

499 Ox

p347 Rabbit white star on forehead Important So silver grey has this when

young on head – I think Fancy rabbits have star on forehead No Brent says not particularly often

439 Cervus of Marianne Isld

☞ p193 (he means 198) Canis jubatus with curl of Hair along back female not differ from male Sexual selection

p392 Babyroussa female with lower canines smaller than male.– Wd Bartlett kn any waits (ie weights) & body proportions of animal SB □β

190 Classification of Dogs – nothing particular, but I daresay good

233 Tortoise-shell cats all female

347 Young Hares always white star on Forehead (Silver Grey Rabbit has this)

391 Mongolia Pigs when young are striped

414 Hybrid Zebra & Ass band on legs

421 Corsican Pony small

430 Cervus elaphus smaller than common form

437 Cervus Marianus bad specimen – Sumatra species very close to

480 Goats, Horns absent in female of some Races – Horns differ in sexes & abort in some vars, either in one or both sexes

488 Wild Mouflon. Female either with small Horns or destitute of do

500 Little Zebra, Horns rudimentary periodically cast (like Deer Horns)

Do not mow but grunt

504 S. American cattle several varieties! Perhaps from different stock introduced

47 wt Primates to p. 107 61a 17–19m, 18–20m 61b 20u±, 48–50m 65a 42u↔, 53–54u "somet|crête" 65b 1–2u "parties|chair", 4–16m/4u "Sensiblement|petite"/8–9u "crêtes|saillantes"/12–13u "canines petites"/12m/w Canines 16–17u "là|occiput", 29–30m/u "indice|vertex"/w yet male 66b 6–15m, 16–18w see p65 20–24m/21u "par|touffus"/22u↔ 67a 21–23m 67b 14–15u "dout|cornet"/w ear 45–49!, 50–51u "poils|haut" 68a 1–4m, 1–3m/2u 68b 1–2m 69a 38–41m 69b 35–36m, 36–37m 70b 34–35m, 44–51m/44–50m 71b 19–30m/20–21u "par|pelage" 75a zt, 3m, 24–27m 75b 4–8m, 17–18m 79b 28–35m ♦ 80b 35–37m 98a 21–29m 100b 10–12m 101a 1–6m 107b 34–36m 189b 16–18m 191a wt xxx 195; xx 292 191b 37–38w Greyhound 192a 16–17m 193b 17–20m/18u "Chien courant", 38–42m/39ud 194a 24–27m 195a 30–31m/30u ♦ 195b 8–9m/8u ♦/8–9u ♦, 34–41m/36u ♦, 46–50m 217b 28–30m 219a 50–52m, zb 223a 37–42m 233a 3–5m, 22–23m, 43–49m, 50–51m 233b 23–24m, 30–31m, 37–38m, 50–53m, 55–57m 241b 3–7m 241a 25u "mâle adulte",

27–28u "Cariné|moyenne" 243a 17u "improprement|blanc", 20–28m, 20–23u±, 27u "marron|noir"/29u "reste|est", 33u "bifurcation|les", 51–52m 246b 15–19m 249b 46–51m 250b 42–44m/43–44m 253a 9–11m 256b 46–47m 267b 24–27m 304b 35–38m 347b 2–4m/w is this not common character of Rabbits? 349a 49–52m 349b 55u "Mais|terriers" 350b 4u "ne|terre", 46u "queue|dessus" 351a 43–44u "une|joues" 351b 8u "ne|terriers", 37u "un|sous" 352a 17u "ne|terriers" 387b 48–50m 390a 15–18m, 23–24u "canines|défences" 391a 31–33m/w RoD Q, 44–46m/44u "oreilles", 44u "très|pointues" 391b 1u "Siam", 2u "Guinée" 410b 17–19m 412a 23–24m 414a 12–22m/15u "la|membres" 421b 14–19m 425a 32–36m/33–34Q 427b 5u 429b 15–17m 433a 46–48m 434b 38–40m, 44–50m 435a 40–47m 437a 3–6m, 12–13m, 19–25m/20u "envoyé|Sumatra"/21u "à|voisine" 438b 53–55m 445a 22–27m/23w Horns 36–38m 450a 22–25m 452a 37–38m/w female hornless 453a 10–13m/w hornless 453b 53m 454a 42–43m/43u "Corine" 455a 27–28u "brosses|pouce", 38u "brosses|larmiers", 37–39m/w Horns smaller 455b 31u "celles|minces"/w Horns smaller 32u "les|corine"/w p454 457b 28–30m/29u "dans|seulement"/w 17 species 466b 28–33m/30u "dans|sexes"/w 2 species 468a 30–34m, 44–45u "existant|seulement" 470a 3–7m/4u "couleur|généralement"/w Hornless 470b 30–34m/32–33u↔/w Hornless 471a 3–4u/m/w 1 species 471b 12–13m, 41–42u "quelquefois|femelles" 473b 18–19u "Cornes|sexes" 476a 54–55m/w Hornless smaller 477b 42–44m 480a 45–47m 481a 32–34m 482b 34–37m/34–35u "les|uniformes" 483a 31–35m, 47–50m/48u "qu'en|étant", wb x differ in sexes & abortive in some vars. 483b 17u "Point|temps" 485a 12–15m, 23–24m 485b wb 10 varieties in world 487a 43–46m 487b 33–37m/34–35u "des|mâles" 488b 25–27m 491a 8–21m, 45–48m, wb 8 vars with subvars. no particular account of French vars. 492a 3–7m 493a 13–17m 498b 30–32m 499b 19–21m, 27–29m 500a 10–12m, 12–14m, 24–26m, 30–31m, 33–40m 503a 2w Holland wb 16 French vars of which one said to be introduced from Holland – some of these vars. have sub-vars. and there is appearance of truth about whole account. 503b 42–47m 504b 3–12m, 17–20m, 29–31m, 41–45m 505a 20–26m

DEVAY, Francis Du danger des mariages consanguins 2nd edn; Paris; Victor Masson; 1862 [CUL]

beh, br, he, mn, pat, t, v

DEVAY

NB p97 Close interbreeding cause of mutants?

p103 Albinism very unsightly inheritance

p116 correlation of Deafs & Blinds - Cats

see Boudin p125 Deaf-mutes

p141 Ohio laws against marriage of cousins
Q₂

97 24-28m/25-26Q₂, *wb* Fish & Dogs are
103 7-8m/8u, 11-18m 117 26-28m 119 17-20m
125 21-24m/7-24w if true cause of variability
141 21-26m/23Q 142 3-11m

A *DICTIONARY of chemistry* compiled by A. Ure; London; Thomas Tegg; 1823 [CUL, pre-B, S]
che

NB1 *cc*

Mem 1880 Assuming our well water to contain 15gr of Hard \clubsuit Matter per gallon (some water contains 20) it would require 20gr (say 21gr) or \uparrow sample to gallon to precipitate the Lime - It is said that oxalic acid is poisonous when 2 or 3 drachms (ie 60 x 2 or 3) are taken.

NB2 *cc*

ix 28-29u "Evaporation | dew" xi 5-9m 74a 10c "by"/10-59w carb of amm of shops carb A 55 Amm 30 Water 15 75a *wt* Nitric acid 731/3 262/3 nitrogen 8-46w Org carb of am 56 carbon & 43 ammonia *wb* Amm 82 nitrogen 17.6 hydrogen 75b 49u \leftrightarrow 80a 59u "= 4.5" 157a 39u "17.64" 385b 9m/u "16° colder" 386a 44-46m 386b 43-46m 387a 25-39w swandown best substance 387b 36-39m, 40u "Charcoal | rust", 42-43m 578 *wtcc* 582a *wt* Ammon. a.-Chrom. a 10m \diamond , 11m, 12m, 14m, 15m, 16m, 17m, 18m, 19m, 20m, 21m, 22m, 23m, 24m, 25m, 27m \diamond , 28m \diamond 584a 2-26m, 45-50m 587a 26-29w/35-36w/52w/57-58w/64w (weights of meteors) 587b 3w/4w/7w/19-20m/w/24-25w/34-35w/37-38w/41w/45w/51w/55w/60w (weights of meteors) 588a 4-5w/12w/16-17w \diamond /22w/31w/36w/54w (weights of meteors) 806a 17-18w cc , 19m, 30m, 37m 806b 18m 807 zb 810 *wb* 100 = 180 811 table divided by red and blue vertical lines, *wb* x/x/x/x \clubsuit 814 4-10w cc

A *DICTIONARY of chemistry* compiled by H. Watts, 5 vols. & suppl.; 2nd edn; London; Longmans, Green & Co.; 1871-1872 [Down]
che, phy, tm

vol. 1, 118 33w cc 125 *wt* Morphine 591 5-7m 727 28-30m/29u "1/1000" 781 15-26m 866 41-46m, 54-62m 922 36m

vol. 2, 21 56-64m 639 11-13w Albumin &

Oxygen 60-64m/62u "homogeneous substance" 640 30-37m/32-33u "albumin | composition" 643 47-49m 829 15-17m (Liebig)

vol. 3, 721 28-33m, 55-60m

vol. 4, 199 57-60m/60u "and | acids"/w | used best of common 730 3-7m

vol. 5, 349 37-40m 950 16-33w the products of organic \bullet which have played their part in the animal organisation 20-21u "the | oxidation" 1016 1-6m, 18-21m 1019 5-8m 1020 65-66m 1021 1-7m
supplement, 974 4-13m

A *DICTIONARY of the English language* compiled by S. Johnson, 2 vols.; 4th edn; London; W. Strahan; 1770 [Down, S of Josiah Wedgwood]

DICTIONARY of the Spanish and English languages compiled by Newman & Barrett; 5th edn, vol. 1, Spanish-English; London; Longman, Rees & Co.; 1831 [CUL, pre-B]

NB rebotar to rivet; chiquechaque, a Sawyer 75 12-17m, 60-62w rummage 84 *wt* nasty, narky 446 30-32m

DICTIONNAIRE classique d'histoire naturelle vols. 1-17; Paris; Rey & Gravier; 1822-1831 [Down, pre-B, on B, S in vol. 1]
beh, gd, sx, tm, v

vol. 1, 17b 17-22m/19-20u "Celle | analogue" 323a 52u "Aurifera", *wb* no Gymnoflora. 323b *wt* 1815. 3u "Lepas", 4-9m 324a 16m, 20m, 28m, 32m

vol. 2, 145a 11-15m/15u "Balanus" 146a 45-48m 451a 5-22m, 13-15m, 23-25m

vol. 3 SB Article Chameau; 450 Nothing; Balancement; Bones & Hair correlation; But see the references to "Anatomie" & "Armes" 97a 10-14m 98a 9-13m/10u "bifurcus" 376b 39u "au | mai", 41-43m, *wb* males an interval of eight mnths 447b 18-21m 448b 28-33m 450a 19-21m, 21-26m/w In Brompton O Dog reverse 49-52m, 50-54m 451a 52-54m 451b 6-9m, 24u "deux | garrot" 452b 20-23m, *wb* 3 varieties 454a 53u "Don | Theran" 454b 27-29m, 43-45m/43-44u "une | Alpaca", 50-54m 455a 1-6m

vol. 4, 8a 18-24m (Cuvier)

vol. 5 SB 274 on Cyprinus; 277 on varieties of Gold Fish -
118a 14-16m, 17-18m, 24-25m, 28-32m, 34-41m, 43-47m 261b 1-5m/3u \leftrightarrow 262 1-5m 274a

9u "guère que" 274b 21-27m 275a 49-52m 276b 27-40m, 47-54m 277a 2-10m, 8-10m, 14m/u "une grosse", 20-43m/31-33m 277b 18-20m, 46-47m 278a 3-5m, 8-9m

vol. 7 SB 499. frog introduced from Madagascar into Mauritius

120a 17-21m, 47-49m 120b 5-9m 121b 28u "quinzel queue", 35-39m/36w Pte 122a 32-34m/32-33u↔ 122b 15u "une retardé"/13-16m/Q 137a 24-25m 487a 26 "Grefte".w read 488a 24-29m 499b 46-54m

vol. 8, 274a 29-32m, 31-34m, 33-34m, 36-37m 324a 17-18m 329b 23-24m 336a 30-54m 405a 29-31m, 34m/u "M.S.Ch.E."/wb Kolreuter↔ refers to these 405b 2-7m, 26-28w Potato, Dahlia 28-38m/29-39m/29u "les espèces" 406a 7-17m, 39-40m 406b 4-8m, 8-21m, 43-47m/46u "ovules avortés", 52-54m 407b 5-10m/??/7u "de structure" 467b 8-12m/w teeth like points

vol. 9, 150a 48-53m 151a 9-16m/9-16m 324a 36-41m 324b 11-25m 428a 25-26u "secondel mâchoires"

vol. 10, 121a 3-6m (Buffon), 15-23m, 30-34m/31?/32u "entièrement" 121b 3-5w only colour 34-36m, 37-38m 492a wt What direction did it arrive How many degrees of Longitude 30-32m 569b 33-43m

vol. 12, 305a 43u "clitandre", wb Preface 305b 23-24x, wb Preface 39-44m/w explanation of diffren. 48x/u "rétinacte", 50-54m/53?/u "Belardia" 306a 18-21m, 22-23u "illogé" 307a 14-21m 307b 16-19m, 42-50m

vol. 13 NB Lesson; 419 Sea Elephant Penny Encycl & Vries; 402 Stematope F. Cuvier & Gratton○ 361a 22-26m 361b 14-20m, 21u "plages", 22u "entièrement découverte" 402b 40-43m 418a 45-54m/46-47u "à lamours" 418b 1-5m, 32-37w Polygamy 39-41m 419a 13-14m/u↔, 25-28m 610a 38-40m/38u "Rana Pipa"

vol. 14, 10a 25-27m (Lamarck) 10b 48-51m 131b 29-30Q

vol. 15, 18b 30-31u↔, 33-34u "entièrement verdâtre", 35u "roux", 36u "élevées"

vol. 16, 195b 24-25u↔ 194a 45u↔ 196a 48u "Tetrao lagopus" vol. 17 ♂

DICTIONNAIRE raisonnée, étymologique, synonymique et polyglotte des termes usités dans les sciences naturelles ed. A.J.L. Jourdan, 2 vols.; Paris; J.B. Baillièrre; 1834 [CUL, on B]

vol. 1, 286a 45-49m/47-48u "nom Candolle", wb Coelosperms 286b 1-2m 342a zb

DICTIONNAIRE DES SCIENCES NATURELLES, Planches Paris; F.G. Levrault; 1816-1830 [CUL] che, v

NB Vol with Conia 1818

Lépadiens w PL. 115, fig. 3.w x (2) back of plate 2 same size as B tulips in Brown - 2a good size for valve; all same size Balanides (first plate) wt PL 116↔, fig. 2.w | largish fig. 5.w versicolor or Mitra colour. back of plate 1.- size of B. suleatum in Brown 4.- size of B. perforatum in Brown Balanides (second plate) wt PL 117↔, fig. 1.w 3d size fig. 4.w 2d size

DILLWYN, Lewis Weston A descriptive catalogue of recent shells arranged according to the Linnean method with particular attention to the synonyms 2 vols.; London; John & Arthur Arch, Cornhill; 1817 [CUL, pre-B] gd, v

vol. 1 SB ↔ (CD copies out detailed summary of distinguishing features of the following 35 shells: Chiton, Lepas, Pholas, Mya, Solen, Tellina, Cardium, Mactra, Donax, Venus, Spondylus, Chama, Arca, Ostrea, Anomia, Mytilus, Pinna, Argonauta, Nautilus, Conus, Cypraea, Bulla, Voluta, Buccinum, Strombus, Murex, Trochus, Turbo, Helix, Nerita, Haliotis, Patella, Dentalium, Serpula, Teredo) (untranscribed w: CD writes "B", meaning "British")

6 25w 8 7w 11 6w, 20w 12 1w 13 11w 14 9w not British 11w not B 20w, 21-22u "interstices", 23w 15 3m, 4m/u "communis"/w no 6m, 17w, 19w (2) 37w copied! 40u "and f."/w 16 7w, 10-15w (3) var of crenatus or balanoides 11w, 17-19m, 25w, 30-36w (4) B. punctatus? -Yes 37-38u "substances | abundance" 17 6u "Lepas borealis"/->/wt L. borealis 1w, 4-8w is this Ch. Chthamalus○ 4-5w (5) 19w, 20w (6) 28u, 41-42m/41w, 42w 7 18 1m, 1-9w♦ can this be Cranchii○ 16-18w Cranchii○ 29u "narrow glove-like", 32w (8) 35-36w, 37-39w = sulcatus 19 9m/u↔ "p. 101", 15u "striatus | Brit"/?↔, 21-22m/21u "Cape | Bruguiere", 29w not recognisable 20 20-24w amphitrite? var cupidus○ wb not to be recognised 21 7-15c/6-10w not to be recognized 19-22w B. amphitrite? or idoneus? 32m/31-34m/w this is curious 22 11-14w var of tint 27w♦, 28-32w var of tint 38w, wb 9 24 zt, 1-8m, 21w 25 18-20!! 26 24-25?/u "Kurile Islands" 27 12w 28 25-27w | 27m, 27-36m, 28m/w 1806? 30-31w 1815? 29

DILLWYN

24w 30 5w, 27w, 34m 31 11w, 13u "Montagu test"/w 1803 22w, 22-23w ● of Lamarck 25-26u "Ellis 1557" 32 3-5w var 11w 33 10w Lithotrya, 12-14m/13u "p. 197", 25w, 30u "Seba"/28-30w 1734-65 29m/w 1815 30a "Poli." 1791 33u "membranacea"/w 1808 35 7w 36 40w 38 1w, 6u "striatus", 26w 40 3w 41 10w not B 14w not B 17w 42 16w, 38w 45 24w, 26u "distorta"/w Ligula 36w 46 8w, 21w, 30w 47 3w, 16w, 20u "Ligula prismatica", 29w, 32u "Ligula substriata" 49 19w, 22u "Mya pictorum" 50 25w, 29w Mya ovalis 52 16w 55 1w, 17w 57 11w 58 29w, 41w 59 32w 60 7w, 22w 64 24w 65 6w 69 30w 70 26w 77 24w 79 1-2w, 5u "Solen vespertinus" 81 25w, 28w Tenuis 86 10w, 22-23w Pandora inequalvis 89 33w 90 10w, 14u "Tellina Laskeyi", 41w 91 11u "Tellina inaequistriata", 23w, 29u "Tellina squalida", 41w 92 30w 94 25w 95 12w 96 8w, 13u "Tellina polygona", 37w 99 1w, 18w, 39w 100 15w, 38w 101 2u "Tellina solidula", 21w 102 17w, 23u "Cardium discors" 103 27w, 33u "Cardium arcuatum" 104 10w, 25u "Cyclas cornea", 41w 105 5-6w Cyclas lacustris 15w, 18w Cyclas amnica 113 27w 114 24w, 40w 116 5w 123 12w 127 19w 130 30w 131 4w, 16w, 30w 138 3w, 8u "Cardium"/w Edentula 304 5w, 12u "Mya Pholedia"

DIPPEL, Leopold *Das Mikroskop und seine Anwendung* 2nd part; Braunschweig; F. Vieweg und Sohn; 1872 [Down]

DIXIE, Florence *Across Patagonia* London; Richard Batty; 1880 [CUL, I]

DIXON, Edmund Saul *The dovecote and the aviary* London; John Murray; 1851 [CUL] af, beh, cr, cs, phy, sl, sp, t, tm, v, wd

NB1 Read Willughby & Aldovrandi Latham NB2 Columella 8/8 Ch.; & Pliny L10.53; & Varro 1X/2; & Aelian B3/15 Greek Read Read Aldovrandi in Royal Soc Willughby in Royal Soc translated by Ray Read Latham Royal Soc.- Sloane Birds of Jamaica not in Royal.- Brisson Aves p437 Royal 1760

Read - Ray; Frisch some German Book mentioned by Riedel

Read - Albin Royal p428 1731-38 p57 -18 days - Cocks on nest at 2 oclock

SB1 Mr Dixon

How Carrier taught to cross the sea.- p.165, p166 ♦ rather hard to accuse of Atheism because created - worthy of quoting - are you not open to same on account of feathered pigeon legs. - or even

more or less feet - Can you show that you p.275 do not in this exalt "the idol nature in an

Turbit p77 wd be good to get.

Linn Syst. Nat (my copy) vol.2.769. vars of Pigeon. Read

(over) p.6; p.11 to 184; p.237; p.247; p.428

SB2 □β

14 Pigeons feral in Norfolk Isld Q

88 Case of Phas. colchicus & versicolor in Q. Review 1850 - cross between the two Pavos Q

97 Some crosses Runt, Fan-tail & Nuns p110 Q

155 Blue Rocks do not like other Pigeons (Ch. 6/ p.156 Q

247 Guans very tame, but breed slowly

428 Every Goose domesticable

6 10-12m, 26-32m 7 1-3m, 7-11m 11 22-27m 12 31-33m 13 6-8m 14 7-11m, 20-22m/Q 15 26-32m 16 11-14m 17 1-3m, 8-11m, 17-20m, 28-30m 18 22-25m 20 20-22m 27 25-27m 33 21-24m 54 26-28m/27u "five|old" 55 1-2m 57 5-10m, 12-13m 58 3-5m/3u "eighteen days" 64 4-8m/6-7u "These|eye", 10-12m 70 13-14m/13u "It|a"/14u "ever become" 71 1-3m 72 21-23m 74 3-6m/1-15w no argument of what wd take place by caging 9-12m, 14-16m, 21-26m/17-27w there is now little object in selecting new slight vars. 76 1-13w even if we admit several species; these must have altered. 29-32m/31w no 77 1-4m, 13-16m, 18-20m 79 20-22m, 26-27u "Short-faced"!? 80 27u "more"/24-27m/w Geology!! 81 23-26m, 28-30m 82 15u "the|be" "1637", 17u▲/18u▲/19u "Persian|Turkish", 19u "not"/17-24w yet never feral 83 13-15u/14-15m 85 10w 7 11w 8 12w 9 13w 10 14w 11 15w 12 - p120 87 10-14m, 28-33m 88 2-6m, 9-12m, 17-20m/Q (Blyth), 28-32m 89 5-6m, 10-17m, 19u "Willughby"/w Date 22-23m/23-24u "than|six" 90 19-22m 91 2-4m, 11-17m, 20-24m, wb It wd be worth to ascertain numbers in all the species in Brit. Mus. 92 16-20m 93 6w 1.31/2 10w 11 18m/w 1.111/2 94 1-6m 96 11-13m/12u "second degree", 14-16m, 17-19m, 23-25m 97 18-21m, 22-25m, 27-29m, 30m 98 18-19m, 24-27m/26u "Runts|may"/w var. 99 26-27m, 29-32m 100 3-6m, 24u "are|black", 28-31w 2 vars. & subvars. 102 29-31m 103 4-6m, 22-24m, 29-32m/31-32u↔ 106 4-11m/4u "mottled", 27-28z, 33-34m 107 1-4m, 8-11m, 23m, 24-27m, 31u "Dutch|bill" 108 22-24m 109 1-3m 110 25-26m 111 14-16m, 29-32m 115 2-5m, 19-21m, 20-22m/w No 117 8-24m 118 4-10m, 9-13m, 13-16m, 17-23m 119 6-8m 120 25-28m 122 21-25m

123 2-5m/3u "very|them", 9-15m/w Nothing about powting 126 4-10m 132 22-31w How the Seas? 27-32m 133 24-27m 136 16-23m 137 2-4m/1-15w because direction not known or acquired but they probably cd guide themselves if this known 17-23m/? 139 14u "fleshy excrescences", 20-22m/21u "still|slim" 140 9-11m 141 7-9m, 11-12m, 26-29m 142 5-7m 148 17-19m, 21-24m, 26-28m 152 27-33m 153 1-4m, 13-14m 155 5-8m, 25-30m 156 10-15m, 16-19m, 24-27m/26u "attributed|Moore" 157 18-22m 158 1-3m 159 26-28m 161 wt Bull-dogs wd not go wild 2-6m, 12-14m, 29-33m 162 29-32m 163 2-4m 164 25-29m, 31-33m 165 1-10m/3-6w does Blyth say so 27-28m, wb this ought to be considered a 4th species, if affines be a species.- 166 2-6m/w How close! 7-13m, 15-19m, 31-33m/w I wish certain 167 1-3m, 11-14m/13u "remarkable|struck", 25a "intermedia" no. ● 168 7-16m 176 1-5m 184 5-7m, 12-13m, 25-27m 237 6-11m 247 5-10m 252 17-18m 428 17-21m/Q

DIXON, Edmund Saul *Ornamental and domestic poultry: their history and management* London; The Gardeners' Chronicle; 1848 [CUL, I]

beh, br, cs, ds, ex, gd, he, hy, mn, rd, sl, sp, sx, t, tm, v, wd, y

NB1 ♦

Though, perhaps or probably several of our domestic breeds may have descended from several wild stocks, yet I think others cannot probably have come from their crossing - on account of one absorbing the other & without systematic selection, the difficulty of making thus any true Breed.

NB2 x; xiv to end; p34; 48; 69-79; 83; 87; 90; 97; 101

p.188 good case of Hereditary accident with growth

Fox thinks Cochin, Spanish, German, Bantam originally distinct breeds

Geese p142.

SB1 p.103; 110; 112; 118-122; 125; 128; 137; 139; 146; 174; 183; 188; 196; 200; 202; 205; 251; 264; 273; 277; 281; 285, 6; 291, 2; 300; 305, 9

SB2 □β

p.314, p.200 Cross-bred Fowls sitting

p8 Peafowls fighting & preening their feathers

34 - The chicks of Norfolk & Cambridge Turkey different

48 Old Canada Geese wd not breed with Audubons, unless the young of same species whereas the young of same species wd

79 Guinea Fowl rolling strong eggs into Nest
87 Slight variation in China Goose

101 & 103 Contrast in Teal & Wigeon breeding in confinement

111 White Peafowl of inferior size

115 3 vars of China Goose (so the goose can vary)

118 Duck could fly in Columella's time Q

Mem Read all about Ducks

122 - Become feral in Marshes Q

137 Goose origin of - Apt to pair quite as widely with other species as own Q

139 Gander always white - - Prolificacy increased by high feeding

146 Barnacle Goose is increasing in power of breeding in confinement

183 Cocks not created in Aristotles time

202 Hybrids between Guinea-Fowls & Fowls NQ

♦ 253 Chickens of Spanish Fowls 264 of Dorkings 273 Cochin 277 Malays; 285; 287; 306; 309; 325 of Polands; 324 chicks of 273 Cockrels of Cochin do not show rudiment of tail feathers till oldish Q

325 Golden Polands partly webbed O Q

326 Distinction of sex comes on late in Polands (true) Q

81 Peahen makes first advances to Cock

x 2-7m, 13-15m, 26-30m xi 5-7m, 10-13m, 16-17m xii 24-30m xiii wt Look at the oxen of every different country of Europe - look at dogs of do - look at men - if their variations are denied - my work might be closed 1-12w Mr Dixons opinion & Van Mons show permanence of varieties, it has same effect on them, which wild species has on naturalised, I know the feeling myself.- 12-16m xiv 13-18m/9-20w tell him about Bull-dogs xix 3m, 5m 8 11-13m, 14-17m/15u "frequently|other", 17-19m 12 3-9m, 8-12m 34 22-23m, 35-38m 48 20-22m 49 4-7m 59 35-38m 60 33-35m 63 3-8m, 18-20m 66 25-27m, 29-31m 69 18-20m, 27-28m 72 10m, 30-35m 76 33-35m 79 7-9m 83 9-10m/10-11u "tubercle|neck", 24m/u "harsh|ceremonious", 34-37m 84 6-10m, 24-26m 85 16-17m, 35-36m 87 7-13m, 16-17m, 25u "clanging|trumpetings" 88 9-10m, 34-38m 90 21-24m 97 4-11m 101 2-3m, 18-21m 103 8-10m/w contrast with Widgeon 110 3-16w Thinks original species now dead 22-24m 111 1-2m, 4-8m (Lamarck), 20-24m 112 11-16m 113 12-18m, 29-33m 115 1-6m, 9-11m, 12-13m 118 15-24m, 27-32m/Q 119 5-7m 120 25-35m 122 18-36m/24-26w NQ 125 17-19m, 29-31m/30-31Q 126 6-18m 127 35-38m 128 24-39m (Audubon) 136 31-35m, 36"... 137 1-4m/

DIXON, POULTRY

Q³/3...", 18-22m, 23-27m 139 5-7m, 13-15m 142 19-23m 146 3-9m 150 5-8m 152 19-23m, 19-24m/20-21Q³ 173 35-38m 174 11-12m, 16-24m, 35-37m 176 22-23m/23w No 32-40m 179 17-18m, 29-31m, 30-32m 183 28-35m 185 29-36m, 37-38m 186 23-27m 187 37-38m 188 15-21m, 20-23m, 22-26m/22u "grew" 189 21-25m 190 26-38m 196 29-34m 197 11-23m, 35m 199 32-33m 200 1-5m, 30-33m/Q³, 35-38m, wb He does not appear to have any facts.- 201 14-17m 202 17-21m/w NQ 36-38m 203 1-3m/2u³ "five ears", 4w³ 1 7w³ 2 9-10w³ 6 205 23-27m 247 3-8m 249 5-7m, 29-30m/w pencilled & spangled 251 wt seem very upright - apt to jerk their heads 33-34m 252 1-3m 253 1-2m, 8-16m 254 33-34m, wb I saw Aug 55 an Andalusian Fowl all slate colour 255 8-18m/w Spanish Fowl 34u "blue colour" 264 18-22m 265 17-20m 273 7-9m, 14-18m, 24-26m, 33-35m 275 8-12m 277 36-38m 281 34-38m/→ 285 31-32m 286 29-31m 287 21-25m, 31-33m, 34-35m 288 14-18m 289 9-10m, 18-20m 291 3-9m, 33-34m 292 7-9m 305 26-28m 306 10-12m 308 16-20m/18u "Aldovrandi", 26u "Coral Greys" 309 9-12m, 36-38m 310 33-35m 311 21m 312 18-19m/?, 26-29m, 31-34m 314 20-23m, 24-27m 315 9-13m 316 12-15m 318 9-12m, 13-17m 320 5-8m/Q 321 16m, 25-28m, 30-34m 323 38m 324 18-20m/18u "white breasts" 325 20-23m/Q³, 26-28m, 29-38m 326 8-12m, 19-22m, 33-36m 327 1-5m³ 332 10-13m 333 28-33m 342 1-13m

DIXON, Frederic *The geology and fossils of the Tertiary and Cretaceous formations of Sussex* London; R. & J.E. Taylor; 1850 [Down, I by R. Owen]

DOBELL, Horace *Lectures on the vestiges of disease* London; John Churchill; 1861 [Down, I] \emptyset

DODEL, Arnold *Die Kraushaar-Alge, Ulotrix zonata* Leipzig; Wilhelm Engelmann; 1876 [CUL] fg, sx

NB 125; 126 I must allude to this 124 12m, 35-38m 125 24-32m/w if the sexual zoospores do not copulate, yet they germinate 126 2-4m, 3-8m/3u "Pringsheim", 11-14m 127 28-31m

DODEL, Arnold *Die neuere Schöpfungsgeschichte nach dem gegenwärtigen Stande der Naturwissenschaften* Leipzig; F.U. Brodhaus;

1875 [CUL, I] sl, tm

ix 27m 112 wt In Grey seedling a few hairs on the leaves, as a protection, may determine which out of a 1000 seedlings will survive 1-5m 115 21-22m

\emptyset

DOHERTY, Hugh *Philosophie organique: l'homme et la nature* Paris; Didier & Cie.; 1881 [Down] \emptyset

DOHRN, Anton *Fauna und Flora des Golfes von Neapel* 3. Pantopoda Leipzig; Wilhelm Engelmann; 1881 [Botany School] \emptyset

DOHRN, Anton *Untersuchungen über Bau und Entwicklung der Arthropoden* vol. 1; Leipzig; Wilhelm Engelmann; 1870 [Down, I]

DOLFUSS, Gustave *Principes de géologie transformiste* Paris; F. Sary; 1874 [Down, I]

DOMESTIC MEDICINE, *a handbook* London; Bell & Daldy; 1872 [Down] \emptyset

DONDERS, F.C. *On the anomalies of accommodation and refraction of the eye* trans. W.D. Moore; The New Sydenham Society; 1864 [CUL]

NB 573 \diamond \emptyset 574 1 9-10m, wb 10

\emptyset

573 18-21m 574 6-17m, 26-28m/27u "tension accommodation", 32-35m, 37-40m/38u "with-out"

DONN, James *Hortus Cantabrigiensis* 10th edn, ed. J. Lindley; London; C. & J. Rivington; 1823 [CUL, pre-B, ED] mhp, tm

facing 66 w (CD?) NB Lobelia in Linnaeus is Syngenesia monogamia \clubsuit & Lindley says stigma with rings of hair wipes pollen out of anther in same manner as in that order (many other markings, presumed to be by ED)

DONNEGAN, James *A new Greek and English lexicon* 3rd edn; London; Sipkin, Marshall & Co.; 1837 [Botany School, ED]

DOUGLAS, John William, & SCOTT, John *The British Hemiptera* London; The Ray Society; 1865 [Down] \emptyset

DOWNING, Andrew Jackson *The fruits and fruit trees of America* London; Wiley & Putnam; 1845 [CUL]

ad, cc, cs, ds, fg, gd, he, hy, no, oo, pat, phy, sl, sp, spo, sx, sy, t, tm, v, wd

NB1 262 Walnuts

NB2 Catalogue of Books at Beginning p. viii
SB1 Catalogue of Books p.viii; p.10 to 12; p55; 60, 9; 75; 106; 115; 116, 9; 124; 130, 4; 139; 150, 3, 6, 8; 161; 171; 176; 184; 192; 195, 6, 8

Does Thompson give origin of Fruit Varieties
D It is important as showing what in small things makes variation. is the sporting from true kind, when grafted.

202; 210; 215, 6; 220; 248; 250; 252, 4, 6, 9; 260, 3, 5; 278; 280, 4; 304, 7; 310, 12, 17; 317, 29; 330; 340; 356, 8; 366; 379; 396, 99; 419, 21, 22; 447, 8; 460 to→ 5

(over)

p.469; 470, 3♦ to 502; 517; 524, 25, 31; 542, 7; 553, 7

SB2 □β

p.5 On fruit-trees not being true, when grafted – Good

8. Facts against. Van M. viz old var. producing good plants

9. Crossed apple with fruit different at 2 ends

60. Every district has its fruit best adapted to it. (Mem: Chinese)

75. A marked American Apple

116 Italian tender apple – Several hardy ones mentioned in County of Wick & p.124 – Several sub-vars mentioned as (p.130) several Reinettes &c

150 Difference in hardiness in Almonds p473 in Peaches (u) p488 do Raspberries p.517 – Strawberries p.533

157 Hardy apricot

176 American Cherry p.184

↪ 192 Sporting Cherry

195. Cluster Cherry; a flower has several pistils & each produces a fruit – Flemish peculiar cherry

↪ 198 a var. of cherry liable to attack of insects more than other vars.

220 Mildew stops culture of Grapes in U.S

248 The wild native vines differ in quality p.253, p254, 259/p.261. do. vars of wild Hicory

256 A cross between old world & new world Grape

270 Purple Plums much most attacked by certain diseases, never yellow vars. Many vars. of Plums raised in America p289, 292 & Peaches (u) p.469

284 – Siamese Plum – attached together on one stalk

304 Groups of Orleans Plums, when known to have descended – many plum hereditary

317 Pears not native, many vars – Pliny says ♣ heavy most only good when cooked

422 Washington, a very distinct pear discovered in Hedge

Γ 462 The yellow disease originating with American Peaches 466 Yellow Peaches much most affected

470 Classification of Peaches by glands on leaves & serration & size of Flower–

476 Most Peaches either free or clingstones, but one is on same tree always either♦↪ both↪ cling or free xx scores of instances cd be given of this

492 Some Peaches very variable by seed, others constant & so it was with Plums

501 Smooth-skinned fruit destroyed by Curculios

↪ over

(over)

502. Nectarine from Peach & now true by seed

525 on selection turning Hautbois hermaphrodite

553 Northern Apples will not do in Southern States

viii 33–37m xi 5m xii 28–29m xiv 27m 1 zb 2 5m/u "chance when" 3 22–24m, 37–42m 4 10–14m, 35–37m, 45–48m 5 16–22m, 19–29m/22u "to|of", 23–28m 6 15–19m, 24–25m, 33–35m, 46–48m 7 4–8m, 10–12m/11–12u "subdue|luxuriance", 16–17u "hel|shortens"/w this does not look like excess of food 18–20m/19u "vigour|trees", 29–31m, 36–42m/w why more in America than in Europe 8 6–8m, 9–10m, 40–45m 9 34–37m/w are these species V. table 40–42m, 43–47m/w any case of crossed species like this 10 1–2m 55 1–2m/1u "single|moths" 60 5–9m/w Is this selection or adaptation. latter I think 69 16–17m, 27–28m 75 11–13m 106 4–5m 115 28–29m, 32–33m, 36–37m 116 36–37m 119 14–15m/w sub-var 124 23–24m 130 21–22m, 37–44w/wb 4 Reinette; several Pearmain; several Russett; several Sweeting; p.139; Spitzburghs 134 wt 4 11–13m 139 32–35m 150 4–9m 151 5–9m 152 20–23w Study all. I have only skimmed 153 43–45m 154 ↪ 2–4m, 3u "have little", 6u "Stone|bitter", 35–39m, 39–41m, 44u "adhering somewhat", 45u "Kernel sweet" 155 ↪ 7u "Kernel bitter", 12–14m, 15u "compressed", 32u "Flesh separating" 156 12–16m↪, 13–15m 157 24m, 31–35m, 38u↪ 158 19–21m 161 13–16m 167 1–3w p9. Heart & Bigarrieu have been

DOWNING

crossed by Knight 171 25-29m 176 2-5m, 3-6m/6u "called" 184 10-15m/13-15w Mem Graft 189 18-21m 192 6-11m 193 5-8m, 9-11m 195 1-5m, 39-40m, 41-42m, 48m/→ 196 4-6m, 34-36m, 35-37m 198 16-17m, 24-26m 200 35-37m 202 4-10m/w I suppose only one original species & no possibility of Hybridising 204 15-22w vars in size of berries & bunch colour sweetness & time & fruiting 25-26m 205 7-9m 210 12-13m/13u "perhaps | hardest" 213 10-11x/10u "one fourth" 215 25-28m/27u "149 | considered" / 28m, 38m, 40-45u± 216 4m/u "Early", 20u "obovate" / 22u "oblong" / 24u "oval" 217 14u "hangs", 33u "flavour | rate" 220 31-34m, 36-41m 248 25-36m 250 46-48m 252 34-38m / 34u "Prince | describe" 253 2-7m, 23-24m / 23-24u↔ 254 15-18m / 24-28m / 30-34m / 1-37w all this sporting must be in state of nature & seized by Selection as owing to little general cultivation of country 255 1-3m, 35-37m 256 17-18m / 17-18u "habit | here", 24-41w Ascertain whether this comes under the Fox (V. Labrusca) p. 253 group or under some other (V. adlum or Prince), if so case of two species blended by crossing, though unintentionally crossed. 25-26w p240 Old World Grape; a native Grape 257 43-44m / 44u↔ 259 1-12m 260 7-10m 261 18-21m / Q 263 3-6m, 20-41w the number of American plums really surprising *wb* x it cannot be extra food which makes so many new vars. of apples Peaches & plums in N. America - V. further on - climate or soil very favourable 265 33-35m/→, 39-46m 266 22-27m 267 48m 270 9-13m / 7-21w colour & constitution - is there not something about peaches & nectarines? 42-46m 271 29-30w 1 272 22-23w 2 30-31w 3 41w 4 273 11-12w 5 275 7w 6 17w 7 27-28w 8 37-38w 9 276 9-10m, 40-41m 277 21w 10 24-26m, 38w 11 278 31w 12 32-33m, 34-35m, 43-45m 279 3m/3-4u "has | shoots", 11-12m / 12u / [...], 33w 13 280 31-32w 14 34-40m, 34-39m 282 4-5w 15 33-34w 16 284 15-19m / 17w 17 31w 18 35-36m 285 10m/u "handsome round", 22m 287 39-40w 19 289 13-19m / 13w 20 38w 21 291 28-32m / 28w 22 292 19-20w 23 22-33m 293 5w 24 18w 25 24w 26 35w 27 296 8-9w 28 299 29-30w 29 300 7m, 10w 30 301 8-9w 31 302 5-6w 32 303 12w 33 37w 34 304 6-38m/w There have been several cases of fruits thus classed, where reproduction is known or inferred 305 1-3m/w 35 307 *wt* I have noticed that most of the varieties differ in all respects as well as in fruits 1-2m 309 3-4w 36 13w 37 33w 38 310 12-13m, 41-45m 312 37-39m 313 36-38m/w 39 314 7-

8m 315 16-17w 40 317 24-26m, 39-46m, 46m 329 7-12m 330 1-6m 340 1-5m 356 19-25m 358 4-8m, 12-14m 366 33-38m 379 34-35m 391 37-46m 396 37-39m 399 8-9m 415 33-36m 419 3-6m/w numerous cases such as this 421 40-44m 422 13-15m, 13-16m, 19u↔ 442 19-25m 447 3-5m 448 39-41m 460 17-19m, 21-22m / 22u "twenty years", 25u 461 44-48m/→ 462 17-22m, 23-24m, 36u "established | question", 39-40m / 43-44m / 39-45w new disease originated in America 463 7-9m, 18-19m, 31-33m / 32u "many | peach" 465 37-38m, 41-42m 466 15-17m, 20-22m, 23-25m 469 10-15m, 11-13m, 17-22m, 26-28m / 21-30w almost certainly though probably derived from Eng. seeds 41-48m 470 1-4m, 13-16m, *wb* I rather doubt how far genealogical wd be best it wd be the most scientific classification of varieties even putting crosses on one side *wb* 4ss for p.475 not hereditary 473 20-22m 475 20m, 36-41m, 36-41m, 37w H. 40u "absence | glands" 476 14-18m, 30-31w many American kinds 478 11-12m 485 32m 488 29-32m / 30u "garden | New" 489 10-11m / 10m, 23u "is | variety", 34-38m / 34-38m / 34m 492 13-14m / 11-19m/w others contrast p489 p494+ 493 1-5m 494 1-5m, 2-5m / 4-5m, 7-9m / 7u "reniform", 15u "without glands", 25-27m, 44-45m / 45m / u "frequently | with" 496 21-22m 501 12-14m, 15u "smaller", 26-31m, 27-29m, 33-35m / 34u "all | soils", 39u "Vol. 14, p.53" 502 23-26m, 24-25m / 24u "was | a", 36-38m, 37m 505 19m, 35m, 37m 510 13-18m 514 21-23m 517 17-18m/w V. p514 523 34-38m 524 1-6m, 1-4m, 11-13m, 26-30m 525 (u) 15-17m, 17-18m / 18u, 19u, 21u, 22u, 23u, 33-47 / 37-40w selection producing 526 1w N American 527 22-23m, 22-23m / 23u↔, 28u "seeds | imbedded", 35-37m / 36u "Fruit | size", 38u↔ 528 25w Surinam 531 7-8m, 7-8m, 20-21m 532 2-3m / 3m / 2w Pine 13-15m 533 3-5m 534 12-14w English origin 37-40m 535 15-17m 542 26-29m 547 41-42m 553 35-41m 557 17-21m

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gd, sh, sp

NB 8 No Fresh-Water Shells

9 Many land-shells Endemic – very few Marine – peculiar

Species common to Mediterranean Canaries & Antilles

Much Sargasso weed

p26 2 sp of *Littorina*

8 31–32m/1u "il Açores" 9 9–13m/12u "Antilles", 23u "139", 25u "75"/w 5/75 new 29u "70|30", 30u "inérites"/31w perhaps more endemic 11 5–17m, 22–24m 12 5–6m 13 8u "nombre|doublé" 24 19–22m 26 3–6m/3m, 11–14m 34 17–20m

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NB O/

∅

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beh, h, phy, t, y

NB 2 woodcut of facial (rest ◊)

SB □✕ ↶

Duchenne 8vo Edit

Part I

p.31. showing absurdly how all examples created.

38 ♣ describes facial muscles continuous.

seem quite aware of many sources of error – Huxley says discovered muscles.

Part II

p8. eyebrows – move least under will

–29 separation of pyramidal & frontal

36, 43, 53 antagonism of sourcilier & frontal
75 triangular of lip

(not CD) 180 On the pyramidal bringing down the brows

184 In a false laugh the zygomatic is alone contracted

Part 1, 5 4u "1805"/4–5m, 6–7u "a composé" 20 15–18m 22 22–26m/w only one muscle used!! 26 17u 18–19m 18u 29 15–22m 31 ↑12–1"..."/↑10–6u±/ ↑11–2m ↑12–9w♦ (as in the many Limb movements of our limbs.) ↑11–6m/! w♦ good to show how theory fails ↑5–1w♦/wb♦ Praise his book. Well-known for other excellent Treatises, & add much undervalued, in my opinion, by other writers – a vast step in advance wb♦ After speaking of the movement of the limbs, he turns to the ph. of the face, & remarks 33 20–22m 34 17–20m 36 10–12m 38 1–5m/w All muscles continuous – says it is an illusion 25–26m 39 1–3m, 7–8m, 21–23m 40 11–14m 42 11–25m 43 1–34m, 17–18m/17–21w in Laughter upper palpebrae, also; but these diurnal in young because associated with intense & painful attention. 47 3m/w eyes 51 13–16m 52 10–12m/w No. endurance 53 7–10m 59 3–5m

Part 2, 2 fig.w (identifying little and great zygomatic) 8 15–17m 16 12–15m 26 2u "ces| gonfle"/w by mere corrugator 27 7–8m/8u↔ 28 5–8m 29 7–11m, 23–25m 30 5–8m 31 8–10m 32 3–6m/w The contraction of orbiculars by themselves do not give look of Hardness 36 7–9m 43 8–11m/3–16m/w Judging by his experiments, the movement does seem entirely due to something which I suppose opposes sourcilier 18–21m, 23–26m 44 1–2m, 3–5m, 6–7m 53 1–3m 56 10–11m 61 21–24m 62 15–16m/15u "paupière inférieure", 17–22m/w See Large Plates 63 13–14m, 21–26m 73 16–18m 75 15u "lèvre", 16u "peu lavant", 20–21m 76 1–4m 78 10–13m 85 7–10m 87 22–25m 89 10–12m, 15–17m 90 6–13m 91 6–9m, 10–13m 92 23–27m 104 22–24m 105 1–3m 106 3–6m, 26–27m 107 21–23m 176 23–26m/w the eyes being open to see 180 14–21m 184 13–17m

DUFRENOY, Pierre Armand, and ÉLIE DE BEAUMONT, Jean Baptiste Armand *Léonce Mémoires pour servir à une description géologique de la France* 4 vols.; Paris; F.G. Levrault; 1836 [CUL (vols. 3 and 4 only)]
geo, mi, se, t, ti, ve

vol. 3 SF1 ♦

There appears to me great force in De Beaumont opposition to lava basalts (which certainly have been most fluid) stretching into wide sheets at inclination as great or narrow streams of lava on planches of cones –

p.255. says superficial basalts of Auvergne resemble those of submarine at Teneriffe ?? forgets flatness of bottom of sea–

DUFRENOY & BEAUMONT

p.254. Proofs of recent elevation at Canary Islds –

(over)

p256 M. Babbage says part of crust, when volcanic forces have acted most likely to be elevated –

With respect (p257 &c) to thinning out of lava, round craters of elevation, not at all satisfactorily explained

It is very foolish giving one theory to any craters of elevation –

States that beds thicken towards source – are strata upset at Cantal? Yes–

The foundation of Theory original explosion

Says Vesuvius &c all active volcanos put out of the question by both parties. C. Prevost

p.315 Bull. Soc

SF2 Are the lower trachytes of M. Dore subaqueous?

p.241. Cantal different streams, unequal contradiction to first statement

Good god leaves out the Sea

Says Basalt must have had greater fluidity –

Which agrees with supposition of being under water –

p.243. Basalt Terrestrial

p.246 Cause of no cones subaqueous Good.

(over)

Is it certain Basaltic platforms lavas of Ccantal flowed in air?

Is Cantal perfect crater

is basalt so uniform

He himself slightly contradicts himself on latter point.

His rigid comparison with Etna alone most unsophisticated

p.217 important on inclination of lava without becoming basaltic

243 15–22m/19u "plaines|plateaux" 246 12–19m 287 18–23m 288 21–26m 291 1–8m 295 15–19m 302 22–24m, 25–28m 303 1–2m 309 *zt*

vol. 4, SB1 (6 numbered pages)

1

Élie de Beaumont Recherches sur les Terrains volcaniques des deux-Siciles

↳ Vol. IV. Memoires pour servir a une description geologique de la France

p57 M.G. Rose first published fact that (Annales des Mines 3° Tome viii p3) ♣ lavas of Etna↳ Labrador Pyroxenes & some peridot, fer Titane↳

also Stromboli & some streams in Auvergne ↳ have lava of same constitution

p95 as far as argument has yet gone, no proofs of the ancient lava being ancient –

↳ N.B. though no proofs every one seems to consider they are ancient

– & therefore all this argument about small quantity of recent ejections trifling

p98 says the successive ejections only tend to make cone of Etna L° of 8.– or rather ♣

uniformly less than Central gibbosity – p.97 compare it with ♣ volcanos – ??

↳ seems to leave out of question case of all eruption being from centre

♣

2 (top line ◇)

can scarcely doubt Ascension○ a ♣ cone if eruptive, but no proofs

(part ↳) The whole argument appears to me founded on assumption that eruptions must always have ♣ proceeded from the same points as they now proceed.–

p.102 Theory of Etna given in few words

p103. dike theory, p115, p116 clearly given

p.106 matter thrown applicable to separate volcanos in Cordillera

p.118 – Theory well given of Etna: ask will it not explain domes of Trachyte

p331 (he means 131 – text erroneously has 331)

dike ought to incline ♣ outwards in Val del Bove ↳ if the strata had been originally nearly horizontal

p331. parallel Bands of cellular rocks in dikes from stretching ↳ – theory of Keihan's dike.–

p133 Etna dikes are often accompanied by faults – how are Cordillera dikes? ↳ in this respect? ⇔ great difference in formation ↳ of the kinds of dikes

3

p.132, some dikes join like roots to streams.–

*] Dikes generally run to ENE & therefore the elevation (cause of them) does not tend to form "noyau centraux

p137 Valle del Bove like the Taoro in Teneriffe↳

p141 argue badly against cavity under Etna 142 – then argues fluid near surface, & hence eboulement of Val del Bove; & hence elevation of noyau centraux (non sequitur)

p144 are not centres of elevation, now all given up (see Bull. Soc) No↳ are they not all Eboulement.–

p.145 Wishes now to consider dikes as mere feeders of ancient lavas

↳ & forgets by his own argument they show elevation.–

4

p.149 argues that dike T the union not minutely ●; viz thickness at point of junction; coarseness of lapilli at spot

↳ the loss of parallelisms ♣ which he says would surely happen if streams hot flowed

over great slope, rests on supposition of lower cones being points of eruption instead of solely upper ones.— ♣, is their ♣ breadth ♣ is a quality so explained

p151 Volcanic cones are generally from 18° to 40° in inclination

p158 the argument of gibbosity from his own showing here, may be invalidated because this is tending to form two kinds of slopes, where ♣ everything takes place from one point.

◇

p161 —Talus depends on form of fragments ♣ & is the same in air & under still water ! good.—

5

p161 — curious error repeated at 182 in reasoning could not have been formed beneath the sea because they are recent —? Perhaps they overlie Tertiary strata??

♣ Gradual elevation of the slope would exactly counterbalance the decrease of slope from the thickening of the end lava stream at bottom of cone.—

♣ There is a fallacy (165 166) in arguing as if Val del Bove was entirely formed from loose matter & not partly from lava

p182 says streams have great horizontal extension — how ascertained — ♣ by section at head of valley

p.188 seems to consider ♣ elevation of Etna quite sudden

p.do♣ line of elevation in Etna — not true "crater of elevation"

6

p191 considers Val del Bove engulfed like Papandugong.—

192 considers subsidence of Val del Bove like the pits formed on the crevasses in Etna — ♣

193. thinks elevation sudden because of discordance between ancient & more modern lava.— N.B. part must have been gradual whether dikes point to centre or not

194. Think it was so because subsidence probably sudden why was it not for collection of gaz

♣ De Beaumont talks of the play of the fragments on Etna excellently expressed p.116

♣ Etna must consist of two volcanic hills from the point of eruption having changed & the older part dislocated & inclination of beds — added to from distension.—

SB2 Dufrenoy

p.286. Somma extensive 26° strata 23°–30°
349. Tuft of pumice Siliceous infiltration Pompeii

354 soda in Vesuvian formations potash in Volcano of Camp-Phlegreens Read Naples geology in Lyell

356 Trachyte first, Somma beds 2 Trachy 3. Veins lava of Ischia Vesuvius & Mt Nuovo
(over)

p.361.— I conclude when the great eruption of Vesuvius took place, there was accumulation of Pumice & Trachyte Matter in Upper part of Volcano — Somma being base of ancient great cone, the summit of which was trachyte. If Teneriffe fell & was then then blown out, first great eruption would be trachy & the central one might be basaltic like flank— Study Lyell — The tuft on Somma shows central trachyte mass.—

p374. Lava streams diffuse composition or surface — in body —

(over)

p.382. Feldspar & Albite not ♣ in Lava! ∴ little Silex

Compare the Analyses of the substances from upper & middle part of stream p372

112 12–15m 131 26–28m 173, 174 (pages cut and restuck) 175 wt (CD transcribes part of p. 174) 178 12–15m 183 21–27m 191 19–20m 272 15–18m 371 1–8m

DUHAMEL DU MONCEAU, Henri Louis
Traité des arbres 2 vols.; Paris; H.L. Guérin & L.F. Delatour; 1755 [CUL, pre-B]

vol. 2, 233 21–22m/21u "racines | endroits"

DUMONT, Léon A. *Haeckel et la théorie de l'évolution en Allemagne* Paris; Germer Baillièrre; 1873 [CUL]

NB 15

7 2–5z 15 12–16m, 26–27m

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DUNCAN, Andrew *The Edinburgh new dispensatory* Edinburgh; Bell & Bradfute; 1826 [CUL, pre-B, S Charles Darwin 1826] che

106 25m, 27–33m/29u "pounds | grains", 39–41m, wb Correct by Almanac wb♦♦ 107 10–12wcc, 11–14m/w Correct by Almanac 110 wtcc 111 wt 8750 = 1 Pint of distilled water ie 1/8 of 10lb or 70,000 \$w♣ Penny Encyclop says 280 grains \$w♣ Mr Baxter says 1 fluid oz of distilled water at 60F certainly contains 437.5 gr. apothecaries or

DUNCAN, A.

Fl oz; *cc*, *wb* correct I do not doubt x 437.5 x
 ● Almanac *wb* 1 fluid oz contains 455.77
 grains 480 grains

DUNCAN, James Matthews *Fecundity, fertility, sterility and allied topics* Edinburgh; Adam & Charles Black; 1871 [CUL, I] beh, br, ds, no, sx, t, v, y

SB ∞

53 Variation of weight of infant according to age of mother

59 of length of do according to do.

100 on Twins produced chiefly by women between 25–29 years old.

252 on ages at which women may marry & produce only Malthusian numbers of children NB 53; 59; 64; 100 Summary on Twins; 262; 334 Important Descent; 382 do. Death of males

53 7–15m 59 8–12m 64 14–24m 100 18–23m 262 25–30m (Malthus) 297 23m 302 6–11m 334 13–21m 382 24–25m

DUNCAN, John Shute *Analogies of organized beings* Oxford; S. Collingwood; 1831 [Down, on B, I to Lord Widmouth]

NB 54

54 25–28m

DUPONT, Edouard *L'Homme pendant les ages de la pierre* Bruxelles; Macquardt & Cie.; 1871 [Down]

45 5–11m, 16–24m

DU PREL, Karl Freiherr *Der Kampf ums Dasein am Himmell* Berlin; Denike; 1874 [Down] 2nd edn; 1876 [Down]

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NB O/

DURAND, Jean Pierre de Gros *Les origines animales de l'homme éclairées par la physiologie et l'anatomie comparatives* Paris; Baillièrè; 1871 [CUL] ig, phy, tm

NB 32; 88; 138 Eyes imperfect Helmholtz; 90; 93; 138 Lamentin, 141 Hallotherium allied to; ♦ 137 Steenstrup on Sole & Turbit SB 88; 158 on Eyes imperfect; 93 The hinder legs of Lamantin subserve as tail 141 on gradation in structure of Talpa, with figure of Humerus

43 31c *pas* 64 16w *qui* 88 7–12m/w Does this apply to normal organ p.332 90 18–25m 91 9–10m 92 26u/x 93 5u "queue anatomique", 6u "résidu|destitué" 129 6m/w (refs. to figs.) 130 10a/w, 12a/w (refs. to figs.) 131 1a/w, 2a/w, 7a/w (refs. to figs.) 132 4a/w, 5a/w (refs. to figs.) 137 10–14m ♦ 138 11–14m 141 19–25m 144 28–32m 158 1–6m

DUTROCHET, René-Joachim Henri *Mémoires pour servir à l'histoire anatomique et physiologique des végétaux et des animaux* Paris; J.B. Baillièrè; 1837 [Botany School]

DUVAL, Joseph *Histoire du pêcher et sa culture* Paris; De Roret; 1850 [CUL]

NB Nothing

DUVAL, Joseph *Histoire du poirier (Pmys sylvestris)* Paris; De Roret; 1849 [CUL] phy, wd

NB ∅

p.2 Certain Pears known to have been wild seedlings

∅ 32 p41 p47 ♦ ∅

Two Pears which do not take well on Quince stock

2a 61–64m 2b 16–20m, 44–57m, 59–64m 5a 49–52m 32a 31–39m 41b 4–12m 47a 32–41m 48a 22–30z

DUVAL, Joseph *Histoire du pommier et sa culture* Paris; De Roret; 1852 [CUL] beh, wd

NB O/

2a 2–8m, 57–59m, 57–64m/w origin probably of orchards

EATON, John Matthews *A treatise on the art of breeding and managing tame, domesticated and fancy pigeons* London; the Author; 1852 [CUL]

beh, br, cs, em, f, he, phy, sl, t, ti, tm, v, y

NF1 Annals & Mag. vol. 19 1847 p.105 variability of Pigeons

NF2 Of noblemen & c p.vi coming after p88

NB1 p.62. Powter grand Passage; p.vi

NB2 Facility of ♣ crossing & Keeping Breeds pure – Value as Carriers –

It will be all important to find whether the vars. vary in the points, which characterise them as vars.

Questions

About fertility of crosses; Young Birds; Feathers in tail of Fan Tail.

NB3 First Part

p iv; p xiv; xvii Buy; p26; p34; p.40–50, 52–to; p.62

Second Part

p.iii to vi; p21 – Important about not telling qualities of Birds in nest.–; p.22; p32; p.37; 41

p.vi 2d part funny Passage

noblemen & gentlemen vi of Almond Tumbler (not CD)

SB □β

Special facts on Pigeons not given always

x XV advice to young Fancier to keep to one kind (Ch I) 1/2 quoted S

40 Total length of Carrier Q

46 On tendency to degenerate in highest-bred breeds, ie selection not perfect S

49 Mayor on flight from Bury St Edmunds to London in 2 1/2 hours

51 Length of Pouter Q 65 Fashion varies

56 On ill effects of not intercrossing Pouters p.v about changes effected during last 100 years Q

vi "the field is as still open for competition as it was 100 years ago" Q (on limit of variation)

9 Advice to keep on Goldfinches head S

x 11 Advice to young Fanciers not to try for too much Q S

11 on great variability in feather in Almond Tumbler – Selected first & now variable

21 on difficulty of judging young Tumblers

33 believe many of the shortest beaked birds perish in egg Q (Ch 6)

p.32 Beak may still be shortened S

Part 1, iv 4–6m xv wt Hence many vars. 1–3m/2u "this|knowledge"/3u "Turke|Morocco" vi 21–23m, 37–42m xvii 4–9m, 23–24w This Yarrell has 27u "1765"/...][..., 30...][...,

36m/w I have Delamers work published by Routledge 40u "Bees|Rabbits"/→/36w Buy it wb A Treatise on Domestic Pigeons, London Printed for the Proprietors (no date) 2.6.old. lent me by Mr Evans – before 1809 for owner name has this 26 26–29m 34 48–49w 1765 40 wt Did old Aegyptians keep Pigeons? 8–9m/8u "Tavernier", 11u "but|the", 22–26m/23u "fifteen", 33–35m 41 wtcc, 3–4m, 34–38m, 48m 43 28–30m/30u "of|half" 44 15–17m, 19–21m, 29–32m, 33–36m 45 18–23m 46 1–3m, 31–37m/32–33u "there|back"/34u "cast offs", 39–41m, 42–45m 47 1–5m 49 2–3m, 10–13wcc, 17–18m 50 8–14w very different from now 27–28m/28u "Horseman|Cropper" 51 1–3m, 9–11m, 15w in 1765 21–22m/22u "wanting|quarter", 41wcc, 41–42u "mere|inches", 42u "seven|it", 43u "in|length", wb Ask Mr Bult 52 1–3m/1–4x/w Marred 17–19m 58 1–4m, 9–19m/9–43w The Horseman being thought by some to be a cross between Carrier & Powter 21w Dutch Powter 59 1u "English|miniature" 61 33–41m 62 20–24m, 35–38m 63 18x, 21–25m/22x 64 2u "jowler|eye"/1–8m/w Rollers? 33–34x, 39–42m 65 1–3m, 5–12m/8–9Q, 15–17x, 29–33m/31u "bald|beard", 40–44m 66 4–9m 67 1–2m 68 35–38m 70 5u "turned|duck", 7u "bending|swan", 8–11m/9u "his|bird", 29–30m 71 3–6m/4–5u "three|long", 5–7m, 22–27m/23u "Runts|Runt"/27u "have|half", 41–43m, 45–46m 72 11u "and|more", 12–14m, 23–26m 73 3u "blues"/wt probably bars 1–2m, 5–7m, 40u "sometimes blue" 74 9u "six|feathers", 20u "there|blue", 21–23m 75 8–24m, 29–30m, 33–34m 76 2–4m 77 19–21m, 22–24m, 30–31m, 36–37m, 45–47m 78 wtcc, 11–12m/u "six|tail"/w var. 81 3–8m, 26–27m/2–28w This shows variability in the tumbling fraternity 5u "though|this", 12–14m, 20w Probably the same as Finnikin & Tumbler 23u "Dutch|Drager", 24–27m, 48–49m/49u "Archangel" 82 5–12m, 6–8"..." 83 4–11m, 51–56m, 51u "Antwerp|sharp", 52u "sharp|cunning" 84 1–4m/1u "Roman nose" 86 44–49m

Part 2, iii 41–43m v 46–56m/46–50m/47u "seven-eighths", wb V. p.9xx vi 6–9mQ/6–7"...", 30–36m/x/"...", 49–51m 8 19–21m/14–21w ie variable 9 5–6m, 8–12m/xx/u "five-eighths", 13u "three quarters", 16–18m, 19–26m/"..."/20u "the|beak" 10 6–13m, 51m 11 3–6m/3–4"..."Q, 7–10m, 12–16m, 25–29m, 34–38m, 40–45m 20 50–51m 21 1–9m/6–8m 22 37–41m 32 50–57m 33 13–17m/w Q Ch 6 37 47–55m 41 34–40m

Part 3, ii 14–16m

EATON, John Matthews *A treatise on the art of breeding and managing tame, domesticated, foreign and fancy pigeons* London; the Author; 1858; [CUL, bound with:]

MOORE, J. *Columbarinus, or the pigeon-house, being an introduction to a natural history of tame pigeons* London; J. Wilford; 1735 [pre-B] beh, br, cs

NB p60 Pouter; carr p44 Carrier
Frontespiece Tumbler 100 Barb; Jacobin; Fantail; Turbit

SB 78 Q^h

86^h Fashion goes in extremes with Fanciers.— Q^h

120♦ in Beards

Q^h 145 Blue Tumbler bred from Splash Cock & Kite Hen see p.

78 53–61m/55u "original Columbarian" 79 24–30m 86 43–55m, 57–60m 120 48–53m 127 42–45m 145 3–6m

ECKER, Alexander *Die Anatomie des Frosches* 3 vols.; Braunschweig; F. Vieweg & Sohn; 1864–1882 [Down] ⌀ (some marks by FD)

EDGEWORTH, Michael Pakenham *Pollen* London; Hardwicke & Bogue; 1877 [Down]

EHRENBERG, Christian Gottfried *Mikrogeologische Studien* Berlin; K. Akademie der Wissenschaften; 1873 [Down, I]

EHRENBERG, Christian Gottfried *Vorläufige Nachricht über das kleinste Leben im Weltmeer, an Südpol und in den Meeres-Tiefen* Berlin; L. Voss; 1844 [CUL, I in each part, S] gd, geo, ve

Part 1, 3 9m 4 13m, 31m 5 9m, 17m, 26m, 34m 6 1m, 21m 7 8m, 14m, 23m, 25–28m, 29m 8 9m 10 27m 14 17m 15 3m 16 13m, 15–16m, 31–36m (Darwin) 18 8m, 13m, 25m, 36m 19 8m, 32m

Part 2, 12 21a/ct

Part 3 title page w Nothing

Part 4 title page w Matter Dust

Part 5, 11 32–34m

Part 6 title page w Patagonia –Infusoria– B. Blanca – Pampas 10 19w^h 25 11 15–19w with some fragments of Infusoria 12 14–16m/4–16w volcanic character more clear & number of Infusoria increase each time 13 13u/w^h 14 5u "verglüheter", 25c "A", 26–32m/27c "B", 27m/w^h, 29m/w^h, 30m/w^h, 31m/w, 32u "8" w (locations of species), 33u τ , wb land

forms 15 3w though near 8u "Süßwasser", 9u "verschiedenen", 10–16m, 14m/w, 15m/w, 16w (locations of species), 25c^h "A", 26–31m/29c^h "B"/ 30m/27w p90 wb p.175 16 wt no. Infusoria 1–4m, 1m, 2m, 4m, 5–6w 13 7–9m/7u/w^h/9u/w^h 19 11–16m, 19–24m, 34–38m♦

Part 10, 51 8a/c^h ^h

part 11 title page z 333 26m/26c/w^h 339 12a/c^h ^h 359 9–25m

Part 12 title page w Nothing

EICHWALD, Eduard von *Geognostisch-palaeontologische Bemerkungen über die Halbinsel Mangischlak und die Aleutischen Inseln* St. Petersburg; Buchdruckerei der Kaiserlichen Akademie der Wissenschaft; 1871 [CUL] ⌀

EIMER, Theodor *Untersuchungen über das Variiren der Maureidechse* Berlin; R. Stricker; 1881 [CUL, I]

204 10m 212 10m 219 2m

ÉLIE DE BEAUMONT, Jean Baptiste Armand Louis Léonce *Leçons de géologie pratique* Paris; P. Bertrand; 1845 [CUL] beh, ch, geo

137 11–17m 140 22–27m, 22–24u "terre | diminution", 26–29m, 27–30"..." 141 16w Buildings 17–19m, 19–20u⁺, 23–27m, 29–32m 142 1–7m, 2–3"..." 143 23–32m 145 23–32m 148 24–29m, 25–26u "permanence | végétale" 149 8–13m, 22–25m 150 1–5w has changed very little 2–6m, 3u "l'an 451" 152 wt He did make sections, & I shd thought may have been steeper 1–6m, 30–32m 153 1–4m 160 wt Tumuli in many parts 164 4–9m 165 1–11m, 17–22m 168 6–10m, 6–29w I think earth-castings when they come to bottom of slope must be carried away 169 21–25w He forgets new Humus formed 182 26–32m 187 29–33m 189 20m 226 29–32m

⌀

ÉLIE DE BEAUMONT, Jean Baptiste Armand Louis Léonce *Note sur les systèmes de montagnes les plus anciens de l'Europe* Paris; 1848 [CUL]

124 17–29m

EMERY, Carlo *Fauna und Flora des Golfes von Neapel 2. Fierasfer* Leipzig; Wilhelm Engelmann; 1880 [Botany School] ⌀

ENCYCLOPAEDIE der Naturwissenschaften Breslau; Trewendt; 1879–1882 [Down] ⌀

ENGELMANN, Wilhelm *Bibliotheca historico-naturalis* vol. 1; Leipzig; Wilhelm Engelmann; 1846 [Down]
gd, wd

NF ~~ccc~~

NB1 Any of Nillson in French?; 305 Is Nillson's Handbook in German or Swedish?— I think not; 367 Wagner on Geog Distrib of Mammals; Pritzel Thesaurus Literaturae Bot. 2.2 (in Athenaeum Club); Steudel Nomenclator Bot. 33 in Linn Soc.

NB2 Tidsskrift p133

Danish Tra. p57

p289 Vermischte Zoolog. includes domestic animals

Ancheria p749

Sardinia p157

p531; p.636; 73; 142

ix 11m/w~~cc~~, 12m 38 46m, wb England & Amer p38 France p61 48 9m 57 51m 61 35m 103 17m 133 22m 157 49–53m 240 wt● 303 6m 304 3m/w Meyer – got 45m 311 48m 320 31–34w 1st edit about 1816 36m (Cuvier), 38–39w this is mine 338 39w~~cc~~ 339 43m/w out of print 341 39–47w/wb~~cc~~, 44–45u "1789–1813" 429 42m 486 31m 527 31–32m, 41–43m (F.L. Delaparte) 531 30u "R. | XXXIX" 554 3–7m 749a 19m 754b 5m 785b 44–48m

ENTEN, Schwanen und Gänsezucht Ulm; Ebnerschen Buchhandlung; 1828 [CUL]

f, v, wd

NB p.25; 28,36; 78; 83; 87; 143; 144

SB □β

p25 Goose sometimes top-knot

p36 Wild Goose 10–12 Eggs p28 tame lays 13–18

p87 Tame Duck will lay 80–100 Eggs in year
p143 Details of Rearing wild Ducks in Sweden – Tiburtius reared them for 3 generations & they did not vary in least in taste or feather.

25 12–14m 13u "selten isabellgelb" 14u "Straus" 28 ↑7–5m 36 ↑10–9m 74 1u "un"/? 78 ↑10u "wilde | Art"/!! 79 14u "Busch | Kopfe"/ w what ↑10u "hängende", ↑3–1m/↑3u "China | Vaterland" 83 ↑4–1m/w/wb one considers the handsomest tufted Ducks those, whose tufts are made of many little tufts. 87 6–10m 143 13–15m/15–25w Has reared & formed useful Ducks from wild Birds Q~~cc~~ 144 5–10w Have kept for 3 generations feathers & taste like wild Ducks

ERCOLANI, Giovanni Battista *Nuove ricerche sulla placenta nei pesci cartilaginei e nei mammiferi e delle sue applicazioni alla*

tassonomia zoologica e all'antropogenia Bologna; Gamberini & Parmeggiani; 1880 [CUL, I] ∅

ERCOLANI, Giovanni Battista *Sull'unità del tipo anatomico della placenta nei mammiferi e nell'umana specie e sull'unità fisiologica della nutrizione dei feti in tutti i vertebrati* Bologna; Gamberini e Parmeggiani; 1877 [CUL, I] ∅

ERICHSEN, John Eric *The science and art of surgery* 5th edn, 2 vols.; London; James Walton; 1869 [Down]

ERNEST, J.A. *Dictionary, Graecium lexicon* London; J. Rivington; 1816 [Botany School, pre-B, ED]

ERRERA, Léo *Sur la structure et les modes de fécondation des fleurs* Part 1; Gand; C. Annot-Braeckman; 1878 [CUL, I]

v

NB 212; 62, 65, 66 Cleistogamic Flowers; 70; 117; 144; 123; Plantago 170 variation passing from Entomoph into Anemophilism; 129 Table of terms; 133; 146 Index of terms; There is also much on variation of Pentstemon

62 3–19m 65 5–25m 66 26–28m 70 12–24m 84 22u "à | guêpes", 24u "Linaria striata" 85 4u 111 1–23m (Sprengel) 122 17m 123 5–17m, 18–21m 124 6–10m 133 5–21m 135 28–30m 136 16–27m 154 11–19m 196 22c "portaient" 212 24–31m 213 20–24m

ESCHRICHT, Daniel Frederick, REINHARDT, Johannes Theodor and LILLJEBORG, Wilhelm *Recent memoirs on the Cetacea* ed. W.H. Flower; London; The Ray Society; 1866 [Down]

NB not read

57 32u 66 13–17m, 22–24m/22u, 30–39z 74 6–9m 78 26–31m

ESCHWEGE, Wilhelm Ludwig von *Beiträge zur Gebirgskunde Brasiliens* Berlin; G. Reimer; 1832 [CUL, on B]
gd, sh

NB 36 66 486 Shells at Bahia & St Pauls
The last chapter I have marked, but must be read again carefully

36 6–12m/7u "aufgeschichtet"

∅

469 24–25m 471 5–7m 472 1–2m/u "Bergbau | getrieben" 478 7–9m 479 12m 483 1–11m 484 9u "Granitmassen"/9–16m/u "nichts"/15–16m 486 6–16m 488 9–13m, 34–38m

ESPINAS, Alfred *Des sociétés animales; étude de psychologie comparée* Paris; Baillière; 1877 [CUL]

beh, co, in, oo, or, sl, t, ts, wd

SB □β

p14

47 Instinct of Aphides

54 Actions performed without distinct reasoning – good

☞ 196; Much on instinct

& the mental qualities of animals & individually on sexual selection, but I have not read all carefully.

p.300

☞ 305; 308; 317

(over) ♦ ☞

Except in the coral instance I do not believe that either corporeal structure or mental ability are ♣ due ♣ to the preservation of single individuals

☞ I have never alluded to the very useful work of definition, but it seems to me that the term social ought to be confined to ♣ animals which are induced☞ to ♣ live together through mental attributes, independently of any physical bond, & if so corals &c cannot be said to be social even in the lowest degree, any more than the buds on the same tree.– but it is rather beyond my line of work, being too philosophic or ●

I have now read your work, but I have nothing particular to say

It seems an interesting & very valuable Work & you have been great adaptable in acquiring great knowledge from all sources. Every one alluding to the mental power & nature of animals wd be bound to study it./p54 As you hardly admit to principle of evolution we view all subjects from such widely differt points of view, that it is not surprising that we should often differ. Allow me to point out that you have unintentionally misrepresented me at p.47 I have not discussed the origin of the instinct of domesticity, & have only alluded to them with respect to the question whether the aphides have any advantage from giving to the ants the social○ instincts○ I shd have added differs from conscious

14 2–5m 47 16–24m 54 14–31m 55 1–12m 57 7–17m 196 1–9m☞ 300 7–13m/w fear makes cluster more together? 305 1–8m☞ 308 1–3m☞ 309 wt a Cat & a Dog brought up together will love one another 9–12m☞, 21–23?☞ 317 8–12m☞ 351 12–18m

EURIPIDES *Hecuba* Oxford; J. Vincent, H. Slater, J. Mawman, Deighton & Sons; 1836 [CULR, S Charles Darwin, Christ. Coll.]

(here and there, translations and paraphrases of text)

EYTON, Thomas Campbell *Osteologia Avium* 2 vols.; R. Hobson; Wellington, Salop; 1867 [Down]

FABRE, Jean-Henri Casimir *Souvenirs entomologiques, études sur l'instinct et les mœurs des insectes* Paris; Ch. Delagrave; 1879 [CUL, I, S] beh, v

NB p122; p.129; p174; p.211; p241; 271, 2
SB → 121 p.122 124 variation p.122 124
Instinct good; 129; 176–177 some variation of; 211 on finding way; 241; 318.
⇒ 168 cutting off Antennae; 172 shutting up cell; 177 parallel case
title page u (author, title) 73 26–27m 121 31–35m 122 wt Gauchos killing by pitting○ 6–17m, 36m 123 19u "criquets|habituels", 36m 124 1–3m 125 32u "dernier siècle" 126 28u "guêpe" 129 33–36m 168 31–35m, wb antennae or palpaes when former cut off 169 17–20m/19u "tous|palpes", 30–36m/→ 170 2–5m/3–4u "six|oviscapte", 19–22m 171 34–36m 172 9–15m, 17–22m 174 2–13m 176 31–36m 177 1–4m, 14–22m, 25–31m 211 15–24m, 27–29m 241 25–32m, 33–35m 262 14–29m 271 21–28m, 32–35m 272 27–32m 274 wee 296 18–26m 297 18–24m 299 26m 311 8–21m 315 30–36m 318 28–32m

FAIVRE, Ernest *La Variabilité des espèces et ses limites* Paris; Germer Baillière; 1868 [CUL, I] ct, em, f, he, phy, spo, sx, t, v

SA (pp. 12–13) □R →

Dom. Animals

Faivre Var. des Espèces

◆ p. 44. various sports enumerated some good.-; p.100 on certain cult. plants which lose their character in certain sites

p71. for Pangenesis. on special action of poisons Cl. Bernard ◆⇒

◆ p 111. Pangenesis on embryonic limb grafted & developing itself. p.132 do; p114 on permanence of new race of *Datura Tatula* obtained by Godron.

◆⇒ 119 Cases of Reversion by seed.

155 vitality of pollen

⇒ 112 good (on *Canna*)

7 13–20m, 36–37m 10 36–37m/30–37w
Termites 8 forms!! 22 2–9m 23 1–14w or rather a state of Direct action Polymorphism 16–31m 25 36m 44 24–28m/26–27w Sport 36–38m/w Sport 45 4–7m, 12–17m/w Sport 37u "Carrière"/37–38m 71 35–38m 90 9–16m 95 27–35m 100 10–37m 101 2–18m 102 21–36w yet has said before few ♣ natural races!! 103 11–21m 110 33–35m, 36–37m 111 wt Pangenesis 1–4m, 38m 112 1–6m/2u "membre anormal"/4u "cette|plan"/1–2w Pan 114 11–

15m 119 9–16m 132 34–37m 133 10–17m 141 33–35m 155 12–14m, 25–28m, 36–37m 156 15–19m 158 15–18m, 16u "Balisiers", 16–19w Canna Dict. class. 159 9–11m, 19–24m, 26–30m 177 8–15m, 18–22m

FALCONER, Hugh *Palaeontological memoirs* 2 vols.; London; Robert Hardwicke; 1868 [Down, I in vol. 1] tm

vol. 1 NB 577 Canines; 581

xv 18m xvii 16m, 18m, 20m, 28m

∅

577 24–25m/25u "canines|jaw" 581 33–40m

vol. 2 ∅

FALCONER, Hugh *Report on the teak forests of the Tenasserim Provinces* Calcutta; F. Carbery; 1852 [Down, I]

NB 30 30 11–22m, 25–31m 31 34–39m 32 20–24m 33 6–10m

FARRAR, Frederic William *Chapters on language* London; Longmans, Green & Co.; 1865 [Down, I] beh

NB Gesture language 104

104 1–19m 113 w (not CD)

THE FARRIER and Naturalist edited by a member of the Zoological Society of London 3 vols.; London; Simpkin & Marshall; 1828–1830 [CUL, pre-B] ch, sl, tm, wd

vol. 1 NB Those struck out read in Vol I; 338◆; 380◆; Q 452◆; 466 change in Wool in sheep; 469◆; 547◆ – Guinea-fowl on St Helena in 1588

338 1–3m/Q 380 6–13m 452 wt All Q 17u "the sorrel", 20–21m, 26–28m/26u "often"/27u "black|dark", 28u "often"/Q 32m, 45m 453 1u "sorrel", 3–5m, 25u "tinctured|claret" "brown", 25–31→/31u "dappled", 39–41→ 455 5u, 7–8m/7u "fallow", 10u "because|goes", 12u "thence|backed", 19–21m/19u "fallow|duns"/20u "faintly dappled", 40m 456 26–30m/w Q colour 466 32–41m 467 1–7m 469 33–35m 547 21–22m, 26–27u "pintados"

vol. 2 NB Dog

◆ 151; 349; 365; 368; 379

Allude to Wilson Essay

151 25–33m 349 26–31m 365 24–26m 368 10–14m 379 20–24m, 39m 380 7–12m

vol. 3 NB ◆ 17; 115

Rabbit & Hare not crossing Q→

FARRIER

17 9-20m, wb no selection by men 115 16-25m

FAUNA UND FLORA des Golfes von Neapel, Monografien 1-4 Leipzig; Wilhelm Engelmann; 1880-81 [Botany School] ♂

FAYRER, Joseph *The royal tiger of Bengal* London; J. & A. Churchill; 1875 [Down, I]

FENWICK, Samuel *The student's guide to medical diagnosis* 2nd edn; London; J. & A. Churchill; 1871 [Down, FD]

FERGUSON, George *Illustrated series of rare and prize poultry including comprehensive essays upon all classes of domestic fowl* G. Ferguson; Beaufort Library; 1854 [CUL] af, beh, br, cc, cr, cs, dg, f, fg, he, hy, in, sl, sx, wd, y

NB I must be careful about trusting this man.- Mr Tegetmeier says not known as a Farrier. Mr Brent does not know, but says he offered to sell Coops & Aviaries - so must at least have kept Birds.-

Tegetmeier has commented The whole Book a pack of lies & compilations

SB1 ☐X ♦♂

iv♦; iv; v♦; v; vi♦; p.v♦; vi

23; 27; 31; 32; 35; 49; 67*; 69*; 75, 75*; 82; 85♦; 91; 93; 108; 151; 162; 163

♦♂ see p. 27 to explain

♂ a good deal of remarks on Polish Spangled Cock & Hen; Cocks & Hens almost always different Spangling v. wild Hen which is I think barred

(☐; ♦♂) Cuckoo Poland; Cocks & Hens almost always different from part Spangling & barring planned○ in Hens

SB2 317; 320; 333; 342

(♂; ♦☐) Always put after Page names of Breeds (Shangae) (Game) &c; connect perhaps ♣ by dots (See p. 27); Clean well the pencil marks.-; Keep Book Clean.; Write smallish on one side, number your pages.

(over)

♦♂ → ♂ Mr Norman put in name at top

171; 172 ♣; 176; 177; 186 ♦♂ Good example of Malays; 187; 192; 201; 206; 230; 254; 260; 262; 277; 281; 284 ♦ Kissing○ each other; 296 see Weight of Malays 297; 299; 302; 304♦; 305; 311; 313

(♂; ♦☐) Look at weights of Malays over

SB3 ☐β ♂

p vi. no ancient selection Q☐

p. 23 Black-red Cock Shangai resembles game Q☐

- 27 on power of male Cochins in courting shy females

35 Shangai eggs granulated Q☐

49.- slowly feathered

75 Prefer breeding from bad bird of good pedigree to good bird with bad pedigree

83- experiments on interbreeding Spanish ♣ causing Degeneracy.

93 Grey Dorking like male X☐

108 about ascertaining & selecting flavour of flesh when killed ♣ preserve brother: with respect to neuter insects.- X☐

162 Fanciers select each point to excess. a little peculiarity ♣ valueless - a great more valuable or. - quote.- X☐

172 All birds more readily acquire than lose a peculiarity.- Polish Fowls heads very hereditary ☐ see Poultry Chronicle ♀ Easily grafted by a cross

186 O☐ Malay Hen 10 caudals - crow peculiar.- individual differences

(over)

192. Deist - believes of multiple origin Q☐

201 Hybrids with Pheasant - Lies (u.☐)

285 on proportion of Male & Females - Males in excess.-

297 Eggs of Black Bantam different shape Q☐

302 Cuckoo Bantams Q☐

311 Highly-bred Birds - many eggs unproductive

313 - change of locality lessens injurious effects of interbreeding

317 Freemans Game stock degenerating from interbreeding

iv 14-20m v 23-30m, 34-35m/34[... vi 1-10m/3-4Q 23 13-17m 27 1-6m, 20-24m, 26-33m 28 1-10m 31 16-21m 32 8-17m, 18-23m 34 12-13m 35 11-21m 49 22-26m 67* 28-33m 69* 30-33m 75 30-33m 75* 1-4m 82 24-31m 83 1-5m 91 5-8m 93 31w Grey Dorking 32-33m 108 5-11m/Q 151 11-17m 162 24-32m 163 1-3m, 4-15m 171 19-28m 172 5-12m 176 28-33m/30w Dixon 177 3-17m 186 7-10m, 29u "13"/28-32m/w see Bantams 187 17-22m 192 2-5m 201 4-29m 206 20-29m 230 25-28m 235 10-16m 252 33u "The|varies" 253 1u "from|cream", 7u "hens|unusually" 254 26-31m 260 4-8m, 13-16m, 17-18m, 18-24m 261 15-25m 262 24-33m 277 32-33m/wb Pencilled H. 282 1-4m, 7-11m 284 31-33m 285 1-2m, 9-15m 287 6-11m 296 2-6m, 15-17w Cock & Hen same plumage 19-22m, 29-33m 297 15-22m/19z 299 8-12m 302 wt Cuckoo Poland mentioned 1-3m 305 11-15m, 23-26m 311 30-

33m 312 1-5m 313 5-10m, 20-29m 317 11-32m 320 3-9m 333 1-8m 342 7-11m
(67* means second p. 67 etc.)

FERRIÈRE, Émile *Le Darwinisme* Paris; Germer Baillièrè; 1872 [Down]

NB O/

FERRIÈRE, Émile *Le Darwinisme* Paris; Germer Baillièrè; n.d. [Down, another copy]

NB O/

FERRIS, Benjamin G. *Origin of species, a new theory* Ithaca, N.Y.; Ithaca Democrat Print; 1871 [Down]

FICHTE, Immanuel Hermann *Die Seelenfortdauer und die Weltstellung des Menschen* Leipzig; 1867 [Down]

xlvi 9-46m/10w●

FISKE, John *Darwinism and other essays* London & New York; Macmillan & Co.; 1879 [Down]

FISKE, John *Outlines of cosmic philosophy based on the doctrine of evolution* 2 vols.; London; Macmillan & Co.; 1874 [Down]

vol. 1, 129 7m, 8m

FITTON, William Henry *Notes on the progress of geology in England* London; Richard Taylor; 1833 [Down, on B?, I]

FITZGERALD, Robert David *Australian orchids* vol. 1 i-vii, vol. 2 i, iii, iv, v; Sydney; Thomas Richards; 1877- [Botany School, I] f, fg, gd, sp, tm

vol. 1 i, 1 26-27x^o, 27m, 28u[▲], 34u[▲]/34-39m, 35-38m/36-41w How in other parts of range? 40u "in|seed"/x^o/w seed with every 44-47m/44u "or|time", 49-50m/x^o 2 wt Is this native rate - Try with own pollen F. Muller & Scott (in Fs letter one is perfectly fertile if own pollen placed on stigma) 1-3m, 34-40m/?, 50-52m 3 1-5m/x^o, 5x^o, 12x^o, 16x^o/w^o rare 4 1-6w As the seeds did not germinate, it cannot be told that nat fertilisation occurred 13-15x^o, 16-17m, 26-30m, 47-49m◆^o *Pterostylis longifolia* 8-9m, 14-19m/15u "from|half"/16u "one|five", 22-27m/22u "instantly carried"/24u "two|pollen", 33-35m, 36-39m, 40-42m, 43-44m *Caladenia dimorpha* 7u "lip|column", 7-9m/"..."/w Genus like 10u "without|such", 24-26w are

not the calli nutritious

vol. 1 ii, *Spiranthes* 15-17m/x/16-17u "touch|stage", 20x/u↔, 23-27m/x/26u "under|fertility" *Adenochilus* 14-16m/x *Saccolabium* 2x

vol. 1 iv *Thelymitra* 13-17m/16u "have|the", 18-25m, 28-42m

FITZROY, Robert and KING, Philip Parker *Narrative of the surveying voyage of H.M.S. Adventure and Beagle* 3 vols and appdx.; London; H. Coburn; 1839 [CULR, 2 copies of vol. 3, one marked by FD]

gd, geo, gr

vol. 1 NB ◆ 2; 8; 56; 136; 140; 204; 210; 258; 306; 328; 337; 363; 375; 385; copied out

SB (not CD)

2 15-17m 3 21-27m 6 3-6m 8 1-4m 56 31-34m/w Feb 57 22-24m 58 1-3m 59 5-7m 87 14-16m 133 29-33m 136 6-10m, 29-34m 140 9-12m, 19-20m, 22-28m 204 20-28m 210 18-25m 258 22-26m 306 3-9m 307 22-26m 328 9-12m 329 9-10m 337 1u "some|which", 14-21m/16-21w 168 ft!! 42ft 126 28-31w^{ee} 343 7-8m 363 10-13m 375 20-28m 385 1-6m 398 24-30m

∅

vol. 2 NB1 ◆ 251; 277; 415; 418; 420 copied out

NB2, SB (not CD)

39 30-31m 43 13-15m 65 5-7m/w no 131 (markings not by CD until) 251 33-34m 277 30-33m 412 20-25m 413 10-13m, 18-20m, 22-28m, 33-36m 414 1-13m, 15-23m 415 1-7m, 18-20m 420 5-15m 421 1-7m, 33x/u "twenty toises" 485 31m 486 17-18m 488 22-23m 490 23m/m/u "1832" 496 27-30m 498 11u "James Island", 12u "side|Charles", 8-14m/w the leeward side compared with 502 9-11m, 35-37m 504 19-22m 505 15-18m/16u "north-west", 30-34m, 36-37m

vol. 3 NB 209 & 210 Law of succession of life in S. America

153 Distribution not always

(many markings not by CD, except) 153 1-4m 154 17-21m 184 w^{bee} 185 w^{tee} 201 w^{tee} 209 4-6m 210 6-9m 215 31a "The"/31-33c/31-37w/wb puma, with the condor on its train follows & preys on the guanaco (Habits of.) 216 1-7c 272 16-17m, 25-26m 273 9-20m 307 w^{bee} 460 4-7m (Henslow) 556 3-4m 585 3-15m

Appendix NB p.145 p.143 p.146

131 1-10m 132 11-20m(CD?) 143 3-12m 145 15-18m 146 12-16m

FLEMING, John *A history of British animals* Edinburgh; Bell & Bradfute; 1828 [CUL, pre-B]

br, tm, v

NB p.264 – Analogous to Pigeons – on vars of *Helix nemoralis* coupling together.–

(untranscribed w are page-number references)

59 9w, 37w, 42w 60 4w 94 1w 116 20w, 33w 117 1w 148 15w 162 13w, 35w, 49w 177 wt acanthopterygious 22w, 37w 178 1w, 19w, 29w 202 2w, 8w, 29w, 36w, 39w 203 1w, 11w, 22w, 38w 224 9w not in this volume 12w 225 4w, 8w, 9w, 10w, 14w, 15w, 17–19m/w, 21w, 25w, 26w, 28w, 29w, 31w, 33w 226 12w, 25w 264 13–20m/16u "Reverend! Sheppard"/14–16w Linn Trans? 27–29w 281 33w, 34w, 36w 296 3w Scutibranchia 12w, 13w, 15w, 20w, 27w, wb Cryptobranchia Heart entire detached from rectum Scutibranchia Heart with two auricle traversed by the rectum. 297 12w, 16w 328 5w, 12w, 17w, 23w, 29w, 32w, 36w, 39w 329 1w, 2w, 5w, 8w, 10w 381 11w, 22w, 29w, wb Siphonida. Cloak more or less closed forming syphons 408 382 1w, 9w 408 2w, 10w, 26w 409 1w, 17w, 32w, 43w 410 1w, 7w, 14w 467 23w 472 3w, 7w, 9w, 13w not in this volume 473 8w, 10w, 12w, 13w, 18w, 20w 474 9w, 17w, 20w 505 2w, 3w, 5w, 7w, 10w not in this volume 506 9w, 24w, 27w, 35w, 43w 528 3w, 5w, 12w, 19w 538 10w, 16w, 23w, 27w, 31w

FLEMING, John *The philosophy of zoology* 2 vols; Edinburgh; Archibald Constable & Co.; 1822 [CUL, pre-B, S in both vols.]

beh, br, cc, fg, gd, is, mg, oo, phy, sx, t, ti, ud

vol. 1 NB1 See Class Index in next volume.

NB2 almost all first relating to Instinct

20; 50; 52; 221; 224; 229; 231, 2; 236; 241 – good; 246; 254, 6 to 268 to 274; 277; 298; 302; 308; 409; 425; 427xx; 429; 430; 432 20 10–15m, 27–34m/30u "instinctive | injuries" / 28–32w how loosely worded 50 19–21m 52 15–18m (Linnaeus) 220 8u "Association | Ideas" 221 2–6m/6u "recollection", 9w dreams 224 19–23m/?, 23–26w ♦ 225 2–8m/w how known? 229 7–9m, 32–33m 230 26–30m 231 23–27m 232 4–9m/w like Audubons Water-Dog 10–17w Old Greyhounds will not run if Hare starts at a distance 233 25–31m 235 23–32m 236 5–11m/w shamming death ♦ My Rio de Janeiro spider shows insects know their 241 ↓w/wt The individual who by long intellectual study acquires a habit, & can perform action

almost instinctively, does, that in his life time, which successive generations do in acquiring true instinct:– instinct is a habit of generations,– each step in each generation, being intellectual for in lowest animals some intellect? No! 23–25m/27–28m/u "rather | impulse" / ↓w the distinction between these habits perhaps important wb It is strange according to my theory that habit which results often of intellectual processes, – Habit may result from any train ie only incidentally effect of reason or (of intellectual processes) – is so related to instinct, which analogy of plants leads one to believe to exist, independently of intellect.– 243 5–9m, 10–16w How wonderful young of Kangaroo sucking 247 wt/1–6w & turning round before sleeping – covering dung &c show that principle may possibly be laid down that every instinct preserved is not changed & some of these may once have been important. 7–10m/x 254 4–6m, 7–8m, 31–34m 255 12–13m 256 19–23m 257 1–4w station & home confounded 258 29–32m/w monkeys pulling things to pieces – looking behind looking-glass 259 28–32m/30u "immediate | individual", 33–34m 261 8–14m, 26–30m 263 1–2m/w monkey with dogs 265 wt the sudden way insects recover from feigning death shows it is not effect of fainting – do insects such as *Byrrhus* contract their legs in dying??? 3–7m, 11–12m, 12–13u "Affections | pain", 14–17w !!! Baby's affect. to Mother!! 268 1–3m/w difficult to be accounted for 9–12m, 19–22m 272 27–31m/w difficult 273 17–20m 274 4–7m/w dogs – wolves porpoises 277 9–13m/w By nerves in ♦ some compound animals 298 2–6m 302 9–16m/w !!!dogs running Hare p304 304 18–21m, 29–35m 305 10–17m, 23–30m 308 24–26m/21–28w What are active powers? 309 1–6m 409 19u/a "neuter" / 17–19m/w of both sexes my theory like plants 425 1–4m/w Has true Eggs 15–17m/15u "to | confined", 19–29m/w I think infusoria properly breed 426 1–2m 427 5–18m/13u "Soc. | 268", 23–30m/w argument not conclusive also x by flowers not being permitted. wb Hypothesis – such plants were originally long lived and have become annual, having been transported (by nature) to cold climate. 428 11–14m/w ♦ in course of time, every 25–28m/w this is merely same as successive buds on trees 31–34m/33u "acotyledonous", 36–38m, wb Hence one can only say – strongly tempted to believe, only true reproduction is seminal– 429 wt/1–6w makes vast distinction between plants & animals 7–9m/8–9u "preventive |

aversion"/w ?assumed V. p. 430 note.- 27-29m, 29-34m/? 430 7-8m, 29-30m, 30-32m/32u "which exhibited" 432 9u "procreating", 10u "of species"/10-12w only applies to plants

vol. 2 NB1 The sexes of Nightingales arriving at different times, is illustrated by sexes separating as in chaffinches, where there is no migration.-

NB2 good Chapt on migration of Birds 5; 6; 8; 10; 12; 30; 33; 35; 40, 3, 4.; 108; 140; 149; 355; 356; 362; 379; 407; 530; 535; 578; 618

SB □ \mathcal{R}

231 C. cornix breaking shells & 233 All here excellent illustrations of reason in animals.-

241 some good remarks on instinct vol. 2

10 Horse in Zetland pregnant only biennially Q

42 Flight of Birds Rate of - Hawk-case.-

44 On birds knowing time & direction

149 on masculine instincts in old Females

356 Fecundity of Fish

5 24-30m 6 9-10m/10u "excite|vomiting" 8 12u "produced|stature"/w sometimes 14-16m, 19u 10 20-21Q 24u "his|year"/25u "twelfth"/26u "above|years"/24-29m/w How other horse - goodish - How in cattle 12 9-33m 13 16-20m 30 8-16m 32 34u "leafing|elm"/28-34m (Linnaeus, Stillingfleet) 33 1-5m/2u "leafing|sycamore", 19-24m, 31-33m 34 wt/1-5w

These facts show how much influence small differences of temp - have upon - distribution of Birds 5-9m 35 2-22m, 21-24m, 30-32m/w Zoology of those Islds 36 1-7m, 9-13m 41 1-8m, 25-34m 42 wt In Montagu Dict it is said from Dr Show that a Falcon of Duke of Cleve flew out of Westphalia into Prussia in one day - but this too vague. 4-37w In Montagu Col. Thornton estimated that a Falcon after a Snipe went at rate of 9 miles in 11 minutes = 49 miles per hour but independently of numerous turnings 43 3-7m/w all correctly quoted 8-13m, wb "certainly 100 miles is not beyond a fair computation for migratory continuance". Montagu. 44 7-26m/15-19w =very good= 20-23w Pacific also wb proves a faculty - useless in indulge in mere conjecture as has been done, showing ♣ that electrical currents 108 9-11m, 30m, 31u "fallow-deer", 32m 109 25-27m 140 5-30m 149 3-16m, 19-21m

⊗

355 1-4m 356 1-4m, 20-35m 357 21-24m, 27-29m 362 1-5m 366 28-32m 379 10-12m/w Secondary male characters 21-22m 407 21-

24m 530 6-8m, 35-38m 535 6-10m, 33m

⊗

578 14-23w is presence of neuters universal in these genera

⊗

619 4-8m/w possibly serve for reference 10-16w See about Royston Crow

FLOURENS, Marie Jean-Pierre *Examen du livre de M. Darwin sur l'origine des espèces* Paris; Garnier Frères; 1864 [CUL]

NB 48 64 nothing

48 1-5m 64 8-9m 65 1-9m

Catalogue ⊗

FLOURENS, Marie Jean-Pierre *De la longévité humaine et de la quantité de vie sur le globe* Paris; Garnier; 1855 [CUL]

br, ch, cs, f, geo, he, hy, pat, t, ta, tm

NB p.50; p.84; p.105-9

p120; p130; p146; p.148; p156; p.173; p185

SB □ β

109♦ 143 Hybrid Dogs & Wolves sterile from 4th generation - p.156 - Q

p144 On Prevalence Q of types in crossing Ass & Horse Dog & Jackall &c &c

145 reduced in 4 generations to pure form Q

148 It is succession, not resemblance which makes "a species". (Ch. 4)

185 vis medicatrix

title page u (author, title) 50 ↑15-1m 84 ↓w/wt How utterly the law fails in insects, How in Birds? Pigeons mature very quick; yet they live pretty long 104 ↑4-1m!! 105 5-8m 106 ↑11u "le thur"/↑11-8m 108 ↑6-1m 109 6-12m, ↑8-4m, ↑2-1m 120 4-15m 130 ↑7-1m/wb Has a Man seen an escarpment worn by the sea? 134 wt argues against an inherent tendency to change. 135 6!/u "aucune|espèce", 9-10m 140 ↑15-1m/wb Yet Cuvier believed in Dogs. 141 ↑15-1m/w (a) wb (a) shows only the difficulty of deciding 143 ↑1u "dès la"/w at wb context shows this meaning 144 wt This shows, means in & in. The interbreeding may have aided, only aided, the natural sterility of the Hybrids. 1-2m/w (a) 4u "bientôt", 6u "Mes expériences"/6-8m, 12-13m, ↑10-9m, ↑8-6u±, ↑6-1m 145 3-6m, 7-16m, 18-19m/w crossed with pierpoints Q 146 2u "bientôt", 4u "bientôt" 148 ↑6-4m 149 12-13m/? 154 ↑12-10m 156 4-8m, 9-12m/w 161 male 133 fem ↑7-5m 157 wtee 173 1-4m 185 10-15m/w always forming the bones & therefore capable of forming a lost part V. ante

FLOURENS, Marie Jean-Pierre *De l'instinct et de l'intelligence des animaux* 2nd edn; Paris; Paulin; 1845 [CUL]

beh, br, cs, ex, f, h, hy, mg, sp, t, ta

NB p.26; p.32; 50; 57; 85; 88; 97; 101; 106; 110; 130; 141; 175 (he probably means 173); 191; 200

SB □β

27 Condillac on instinct Q

32 Instinct a Primitive Force, Q like intelligence

50 man alone reflects

57 Q F. Cuvier has compared instinct to Habit – Well discussed

85 On Breeding of Monkeys & Hybrids in confinement, 88 do

97 On Breeding of Chacals & Hybrids of

101 Camel & Dromedary produce sterile mules

106 Breeds of sheep all fertile & with Mouflon

108 Zebra – crossed with Cattle Hybrid fertile

111 Q Beavers always amassing material in Cage

121 Thinks Fox & Dog will never couple p 131

131 Dog & Wolf sterile from 2d generation (Think of savages)

191 Cat exercise Kitten with Mice NQ

200 He saw bear wash poison off cakes NQ

26 12–15w He thought it actual habit 27 7–9m/w in that generation 32 15–18m 47 wt bird modifying nest not migrating 18–19m 50 17–20m/1–21w except by consciousness of oneself, how can this be told? if not there are no proofs that animals do not reflect 57 8–11m 58 3–6m, 13–20m 60 11c "habitude"/11w intelligence 19–21m 85 (at top of page a portion of *The Times* is stuck, concerning Duke of Northumberland giving *Cercopithecus griseo*, *Grivet*, and *C. viridis* to Royal Surrey Zoological Gardens; dated 10 August 1847), 10–12m/w p.88 14–17m 88 4–9m/6u "maki blanc" 97 11–14m/15u↔, 18–19m 101 3–4m 106 4–6m, 19–21m 107 16–19m 108 6–7m, 12–14m 110 9–13m/Q 111 9–11m 114 2–5!/m, 11–14m 116 2–6m, 9–15m 121 9–15m 130 wt/1–10m/w no doubt Pallas theory presupposes the extinction of many aboriginal species 14–23w only tenable by getting a little blood of some other species in.– 131 7–10m, 20–24m 132 14–17m/1–18w the Pig good to state Pallas hypothesis from. 133 19–21m 141 11–13m 173 18–20m 191 11–12m 200 1–2m/1u↔

FLOWER, William Henry *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals contained in the Museum of the Royal College of Surgeons of England* part 1; London; David Bogue; 1879 [Down]

FLOWER, William Henry *An introduction to the osteology of Mammalia* London; Macmillan; 1870 [CUL, S]

af, ds, phy, rd, sx, tm, v

NB 64 Caudal Vertebrae ♣

p.265–268 – good for ♣ plates of Homologies of Limb-Bones

270; 279 Analogy; 291 Rudiments; 294 Descent

Descent 325 spur of male Echidna

296 Ligamentum teres

303 Rudiment

321 foot of Marsupials origin

SB ♣ Flower Osteology of Mammals

p.265–268 excellent figures of Homology of Bones of Limbs

♦ p.270 va

p.279 – good case of analogical resemblance in bone of foot

p.291. Rudiment of Limb in Cetacea, used for attachment of Bone of Penis

p.296 List of animals which do not possess Ligamentum teres to thigh-bone – Orang is one. Have I not read case in Man doubtful? Mivart says cavity in Orang & Chimps variable

303 Rudiments of Limbs present in an ancient Sirenia, but absent in all existing species

64 13–15m/14u, 18–21m 270 24–30m 279 1–8m

291 25–33m 292 5–10m 294 12–17m, 22–24m

296 1–7m 303 1–6m, 15–17m, 18–21m 321 28–

33m 322 1–6m, 7–12m 323 1–33m 325 3–5m

FLÜGEL, Johann Gottfried *English–German & German–English Dictionary* part 1; Leipzig; G. Liebeskind; 1838 [Down] ∅

FOCKE, Wilhelm Olbers *Die Pflanzen-Mischlinge* Berlin; Gebrüder Borntraeger; 1881 [CUL, S, I]

∅

464 5m 483 10m

FOL, Hermann *Recherches sur la fécondation et le commencement de l'hénogenie* Genève; Henri Georg; 1879 [Down, I]

FOLLEN, Eliza Lee *The life of Charles Follen* Boston; T.H. Webb & Co.; 1844 [Down]

FORBES, Edward *On the Asteriadae found fossil in British strata* (offprint) [CUL, I]
af, ds, em, fo, sp, t, ti, tm

SB1

p.458 &c

↪ p526 This paper must be read after looking over Von Buch

to end – I am not at all convinced by it –

SB2 □β

458 Crinoidea & Echinidae essentially "chronomorphic"

– Knowledge of Fossils confined to N America & Europe, evidently one region.–

460 Silurian star-fish a recent genus

526 Table of affinities of Echinoderms, showing that does not go with age p531

457 1u "Asteriadae", 2u "Forbes", 12–16m 458 1–6m, 10u "chronomorphic", 14–20m, 42–43m

459 21–25m, 35–38m, 43c "corresponding"/w↪

Silurian 460 11–13m 461 3–12m 463 33c↪

"Lower" 464 5c "Lower", 21c "Lower" 526 wt/

table.w↪ How absolutely without Law is the

development of groups ie nothing like ♣

embryonic metamorphosis 1u "Echinidae"/

wt↪ doubtfully palaeozoic p458 1u

"Asteriadae"/wt↪ existing genus Bala. ∴

oldest p.459 3m/w carboniferous ?Older?

table.w↪ Silurian table.w I do not see why

Cystidae may not have been the parent

form & given out 3 lines; as well as be

inserted between Crinoidea & Echinidae.

table.m "Crinoidea"/w Lowest order ♣ order

wb I do not see why Cystidae placed above

Crinoidea; the only sd. argument ought to

be derived from simple organization.– 527

25–27m↪ 531 16–23m↪, 33u "first"/w I fancy

not in time 532 11–12!, 13u "negative | polar",

24–36w absolutely unintelligible 533 8–9!/9u

"exactly | value", 15–17!, 38m, 39–40!

FORBES, Edward *A monograph of the British naked-eyed Medusae* London; The Ray Society; 1848 [Down]

sy

NB ♦ 40 Remark on nomenclature

FOREL, A. *Les fourmis de la Suisse* Zurich; Zurcher & Furner; 1874 [CUL, I]

beh, cs, em, fg, he, ig, no, or, pat, phy, r,

sp, sx, tm, ud, v

SF □β ↔

Kreisirrenanstalt Munich

NB Page III

13–19 121–134 144–147 116–121 258–269

272–274 ↪ 276–283 285–293 299–300 308–

310 341–351 314–315 371–374 386–388

391–396 440–449 443

SB1 □β ↔

All marks from beginning to end

SB2 ↔

p.14 on differences of worker Ants

p.123 Brains of male female & neuter very curious

135 Ants clean each other, 152 take old nests & modify them to their own use

p.203 Make or work on roads.– 206 invent new methods & vary their work.

208 adjoining colonies friends 248 in cutting off heads of other ants – knows position of ganglion

249 courage varies according to number of community. 250 ♣ attend to slightly injured ants – leave badly wounded.– 251. Friendly

ants rather perish than attack each other for food. 258 263 allied ants of distant species–

274. In fighting tactics of different species different. 280 association of 2 species

286 On ants recognising each other for a time & at last forgetting – Huber error

296 A few ants determine course of others – 301 signal communicated

304. Ants get mad with rage when fighting & are calmed by the others

307. Stupidity of Rufescens in not taking cocoons on ground, because will try to find

entrance to supposed nest. p.321 number of slaves 20,000–25,000 under 1 year by P.

rufescens They examine previously the nests to be attacked.

343 In one genus concludes that all crossing except between Brothers & sisters male

cannot leave Nests (dimorphic!) (but I think courting ●)

(over)

p341 a slave-maker.– 347 gradation towards perfect slave-maker.

p.359 F. sanguina number of slaves very variable p.363 Errors of F. Smith

363 Different tactics of 2 species in fighting

365 364 var of rufa F. rufa normally makes slaves 366 ♣ number in nest –

367 sick one attended to by comrades 367 play

373 Mixed colonies, not explained.

394. Nymphs of Ants cannot open cocoon for themselves, without aid from others,

often aid them in removing the skin

397 same female fecundated by several males – 398 fecundated female does not enter old nest

399 females fecundated are often caught & brought back by force to natal nest, & these

must have been fecundated by males of same nest.

FOREL

417 not known how new colonies established.

419 very curious evidence how rarely ants of distinct nests intercross.

421,422 Ants protect their Aphides from all enemies – so mutual service.

440 excellent summary of Whole; approves of what I have said of origin of slave-making

441. thinks atrophy of ovaria in Neuter may be due to development of their brains.– 441

trace of castes in neuters very general – about intercrossing 446 Indecision of Mind & Struggles between opposed instincts.

14 9–16m, 18–24m 15 1–4m, 6–8m 7u "règle | distincts", 11–12m, 16–4m 18 16–20m 19 1–5m 123 18–16m, 113–10m 135 14–12m 152 11–16m 203 6–8m/8u "travaillent | les" 206 10–12m 208 5–11m, 12–17m 209 16–1m 248 15–19m 249 12–9m 250 1–4m 1u "exceptionnellement", 113–1m 251 10–12m 258 18–15m, 19–5m 262 1–3m, 10–14m 10u "fraîchement écloses"/11u "travaux | des", 18–20m/19u "trois | jours" 263 3–7m 274 14–12m/14u "tactique | est"/w of different species 280 18–2m/w association of 2 distinct species 286 15–20m 15–16u "Voilà | origine" 287 1–4m 1u "compagnes | mois", 18–22m, 23–24m 296 18–14m/18u "la | donnée", 113–1m/13–2u "elles | arrière" 301 12–7m/10u "un | toutes"/19u "dans | direction"/w clearly signal 302 15–12m 304 10–3m 307 8–15m, 16–18m, 20–24m, 17, /u "esclaves | reconnuent" 308 11–8m/10u "Revue | scientifiques" 321 11–16m, 17–4m 325 5–6m/w ponte larva 16–18m 17–18u "tandis" 343 4–1m 344 1–5m, 17–5m/17u "P. rufescens" 347 13–1m 359 18–4m 360 4–9m 362 6–8m 363 2m, 4–8m 6u "faisaient | du", 15–1m 364 14–15m, 17–20m/18u "savoir | plus" 365 18–16m 366 19–3m/18u "5000 | 500,000" 367 17–19m, 16–1m 369 14–11m/14–13u↔, 18m 373 10–1m 394 7–11m, 13–20m 395 13–9m/12–11u "se | seules" 397 20–22m 398 4–5m 5u "de | diverses" 399 15–11m, 10–9m, 7–5m 400 12–1m 402 14–10m 417 12–15m 418 14–12m 419 11–28m/m 421 5–8m, 9–11m, 12–9m 422 7–9m 436 12–1m 440 14–6m 441 1–7m 5u "le | du" 6u "atrophie | secondaire", 10–12m, 18–20m, 21–23m 442 1m, 15w Sexual differences 17u↔/15u "travail | tout"/19–6m/w not transmitted, but given to neuters & thus indirectly acquired by by males & females. very curious. 15–4m, 13u "au | autre" 443 8–9m/w | ought to read again about Strong. testaceous 10–13m, 19–22m/21u "dans | manière"/22u "d'une | d'autres", 24–26m/w & most dominant on earth 13–1m 444 2–10m 3u "tandis | besoin", 9–12m 445 12u "les | sont", 120–18m,

113–11m, 17–4m, 13–1m 446 3–15m, 10–7m, 17–4m 447 1–3m

FORSTER, Johann Reinhold *Observations made during a voyage round the world* London; G. Robinson; 1778 [CUL, pre-B, S]

beh, co, gd, geo, gr, is, se, sp, ve, wd

NF Classes Islands p14

2 p.27 Tanna volcanic and has I certainly think elevated coral on coast

NB ♦ 21; 22; 179; 183, 5; 187, 9; 193

(Abstract)

187 Besides two domestic Mammals only Bat in Western isld; & Black Rat in Society, Friendly & New Hebrides p188 in Tanna 2 species of Bats.

p188 Hogs of same breed in the several isld 193 Natives of Society & Friendly Isld catch & tame Pigeons & Parrots –

14 2–23m, 7u (place-names)/5–8w Maatea a little to SE of Tahiti V. p 93 8u (place-names)/w close together 17 4–5m 20 1–2m 23 18–23m/20u "formed of corals" 24 1–5m 26 20–23m 27 16m 69 8–10m 70 18–22m 147 7–16m/7u "one | only"/w V. 173! 10–14w NB In Cooks voyage nothing is said about Forster landing here 17u "Turtle Island"/15–20w ?ought this not to be written Savage Isld In journal (his own) says passed by it, no anchorage 155 18–23m 173 8–16m/10–11u "raised | water"/13u "grew | without" 179 17–19m/→ 180 1–5m 183 18–21m/w stuck to rocks 185 22–24m 187 4–6m, 18–19m 188 7–9m, 16m/14–16w implies same var. 17–20m 189 8–16m/9–10w implies same var. 193 9u "at | size", 12–15m 229 15–18m 235 5–9m 237 14–17m 238 1–7m, 26–27m 251 23–24m 326 1–3m 327 18–19m 364 11–13m 384 17–5m 403 4–5m 432 22–23m 450 13–15m 459 6–8m 554 19–8m, 12–1m 560 1–4m 561 12–16m 562 20–26m 567 18–19m 569 9–11m 588 15–21m 589 1–4m

FORSTER, Thomas A *synoptical catalogue of British birds* London; Nichols, Son & Bentley; 1817 [CUL, pre-B, S Charles Darwin 1826]

sp, y

facing 2 w The Ringtail in Turton's British Fauna is made a distinct species, under the name of Falco Pygorgos – as does Lewin & Wolcot facing 11 w 77.78 These are considered by Turton, on the authority of Dr Latham, as only the young & very old ones of E. Nivalis

FOSTER, Michael, and BALFOUR, Francis M. *The elements of embryology* part 1; London; Macmillan & Co.; 1874 [Down]

FOSTER, Michael, and LANGLEY, J.N. *A course of elementary practical physiology* London; Macmillan & Co.; 1876 [Down, I]

FOURNIER, Eugène *De la fécondation dans les Phanérogames* Paris; F. Savy; 1863 [CUL] dic, fg, gd, mhp, oo, sx

NB 56 Read; Fert of Liliun p.52.- Lopezia curious contrivance for fertilisation

◆ 61 Drosera

68◆

73 Flowers under water make ball of air -

◆ 117 to 130

61 Parietaria like Nettle (wind)

117 on fertilisation of grasses

118 Dichogamy

120 Moicous like Dioicous in fertilisation

Cucurbita Pepo monoicous & dichogamous

52 15-20m 56 2-10m 57 25-30m 61 2-13m/5u "acide cyanhydrique"/5-6u "les |acides", 23u "Pariétaires" 62 12-21m 66 6-11m 68 13-25m (Hofmeister) 70 3-9m/1-5w no doubt wd visit occasionally 73 10-14m 117 18-25m 118 14-16m, 26-31m 119 22-26m 120 9-12m

FRANCISQUE-MICHEL *Du passé et de l'avenir des Haras* Paris; Michel Lévy Frères; London & Edinburgh; Williams & Norgate; 1860 [CUL, S]

beh, v, y

SA (pp. 81-82; a fragment)

NB 7 Horse imported into France 705-7

47 different colour valued by end of 15th cent

X² 50 Arab do

◆ 84 only end of 8th century - Charlemagne gives precise valuation about Stallions; 90 Prince of Wales bring a Stallion in 1305

SB ◆ p7; p.47; 50; 84; 90; all classed

title page u (title, author) 7 2-4m/3u "arabis", 15-19m 47 6-8m, 11-13m/12u "liart pommé" 50 wt/5w◆/7w (not CD), 5-10m/w arab superstition about calves Hoof 51 19-21m 84 1-2m, 6-7m/6u "des |reproducteurs", 11-12m 90 9-10u "Edward | Canterbury", 11-23m/13u "et | étalons", 15u "beau | servir", 16u "prêter"/20u "bien | ramèneront"

FRANK, Albert Bernhard *Beiträge zur Pflanzenphysiologie* Leipzig; Wilhelm Engelmann; 1868 [CUL, S] mhp, t

5 26m 8 26-28m 9 30-31m 10 20-26m/w 1 28-31m/w 2 11 14-20m 15 27-28m 16 30-31m 17

26-28m 19 11-21m/14-15u "muss | auswärts", 25-27m 25 23-33m 26 26m 32 11-12m 38 22-25m 39 25-26m 42 15-18m 43 8-14m, 22-23m 44, 24-25m 46 13m 47 22-24m 54 33-34m 55 30-32m 56 11-17m 57 3-5m 59 7w 15/9 17-27m, 28-30m 61 15-17m, 21-22m/21u "Die | völlig", 25-26m 70 table-columns.w V' X' V X 72 17-23m/17-19m/18-19m 76 6-8m 77 wt Good Boy 78 23-25m/24u "inneren Schichten" 80 4-19w inverted radicles, quite perpendicularly yet moved downwards 81 1-4m/wt Explains by growth not being equal all round 83 32m 85 18-27m/21u "Heliotropismus"/24u "Geotropismus" 86 4-5u "hängenden | trauernder"/w geotropic 13u "Sie | während"/12-14m/w capable during whole growth 88 7m 90 17-20m 91 2-6m, 17m, 19-26m/20u "Decandolle", 23w BR 97 1m, 3-5?, 24-27m, 26u "concentrirte Zuckerlösung", 27u "Krümmung unverändert" 98 wt◆, 1-3m, 12-14m◆

FRANK, Albert Bernhard *Die natürliche wagerechte Richtung von Pflanzentheilen* Leipzig; Hermann Weissbach; 1870 [CUL] ad, beh, cc, mhp, phy, t, v

SB1 ☐☒

From final chapter

p.90 Organs will grow in all directions some favourable & some hurtful - will change into favourable position - I suppose individ. movements.-

Movements become so firmly associated with certain external influences such as light & gravity that the latter suffice to cause the same process of growth or movement.

good/ like instinct - compare with chicken seeing food & eating it an associated habit in this case

over
(over)

We must say that we ◆ take nearly the same general view as Frank does about the manner & means by which all the parts of plants adapt themselves to the position in which they stand & to external agencies; but with this considerable important difference that we now know that each growing part is continually in circulation, ie bending to all sides, & if it be advantage to a part & to the plant, for it to bend in any direction with respect to the remainder of the plant, or to any external agency, if this agency produces any effect which can be perceived by the plant, then the circulating movement can be modified to or for such agency, or the time of such movement can be modified in

FRANK

atten.○ to such agency as in the shape of ♣
Leaves.— no darkness may be cause, but
not of direction.

SB2 □β ↻

A.B. Frank Die Natürliche Wagerichtet
Richtung von Pflanzentheilen 1870.

p.2 speaks of sense for attraction

17 says position of all horizontal stems due
to gravitation & light; but at

18 Light always preponderant over gravity

20 *Fragaria* stolons see to this movements
very slow.

45 leaves stand at right angle to light —
inclined when light strike one side

46 leaves rise up in darkness — ie are
apogeotropic & light causes them to be
horizontal.

In short an organ will put itself in any
position with reference to light which may be
advantageous; but then the rising in the
evening is odd.

52 twisting confined to petioles.— & not to
joints○ how different from Pfeffer.

62, 64 leaves of tree which do not rise in
darkness.

75 Hofmeister nearly discovered trans-
verse○ — geotropism & Heliotropism

2 *wt* a sense for attraction of gravity 2u
"ein für" 17 12–18w↻ at least often get
into horizontal position by epinasty 18–23m, *wb*
Nothing ♣ else 18 10u↔/10–12m 20 22m, 33–
34w *Fragaria* 35–39m, 40u "erfolgende |
gediehen", *wb* takes place very slowly 21 9–
13m, 13–16m 22 10–12m, 24u "vertical
aufrecht" 23 7u "Achsen", 14–19m, 24m 24 8–
9m, 26–27m 25 33–38m 26 14u "aber | die", 15u
"der | gleich", 24–27m 27 25u "horizontaler
Richtung" 28 31–35m, 36m, 38–39m, *wb* He
overlooks epinasty 29 17–20m 30 27u↻ "eine
Incurvation", 29–32m 31 ↻ 7–8m, 12m, 14–
16m, 36–38m 32 ↻ 1–4m, 34–37m 33 ↻ 1–2m
34 ↻ 17–22m 35 8m 36 ↻ 12–16m 45 18–21m,
21–22u "Beziehung | steht", 24–27m/w inclined
when one side shaded 29–36m/31–33w
evidence of 46 11–16m/w leaves rise up in
darkness 15–24w & is an apogeotropic but
says that light causes them into horizontal 52
9–15m/10–11u "eigentliche | übernimmt"/1–12w
♣ twisting confined to petiole; ♣, 19–21m/19u
"der Stiel"/17–25w How different from Pfeffer
53 1–10m/w Use of compound Leaves 14–
17m/w especially when fixed by tendril
19–21m, 33u "Clematis"/→/22–25w *Mutisia*
Bignonia Fumaria ○ 55 11m 59 23–28z/zb,
34–39w This might be tested by Klinostat 60
3m, 28–38w/wb This is the same thing as
epinasty Orlyg caused by light afterwards

guided by geotr. 62 26–30m/23–34w I thought
he said rise in darkness 32–33m/32u
"Letztere | und"/33u "ihre | horizontal" 63 32–
35m/33u "wenig | aufrechter" 64 1w in dark-
ness 3–7m, 8–13m/8–9u "durch | können"/12u
"ausgeprägte | Lichte", 13–17m/14u "Schwer-
kraft | Licht", 35–39m 73 5–8m/6u "Achsen"/7u
"anderer | durch", 10–15m, 23–27m 74 21–27m
75 1–3m/1–2u↔/2u "Hofmeister" 76 15–19m,
25–32w goes on growing 34–37m/w *fulvinus* I
believe error Pfeffer 77 11u "der | in"/14–17m/
11–17w seems to consider it a direct result
and not mere excitement 26–30m/27–28u
"Transversal | Heliotropismus" 78 34m, 35u↔
81 *wt* I seem always to consider the
movement direct effect of light 5m, 9–32w
this assumption appears to be merely lazy
so it is 85 28m 89 ↻w He believes that the
individuals which originally chanced to have,
for instance, plumule erect & radicle ver-
tically downwards, would survive; but this as
yet does not apply to movements, & still less
to cases like sleep-movements.— 90 2m, 3m

FREKE, Henry *On the origin of species by
means of organic affinity* London; Longman &
Co.; 1861 [Down, I]

FRÉMONT, J.C. *Report of the exploring
expedition to the Rocky Mountains in the year
1842, and to Oregon and North California in
the years 1843–'44* Washington; Gales &
Seaton; 1845 [CUL] ♂
beh, br, gd, is, sl, y

NB1 It might well happen, as in Horses of
Falkland, that the old animals might live
at ease & not be driven to search new
countries, open to them (as is evidently the
case with the Buffalo) and the pressures are
chiefly falling on the young.— It is important
to observe that no selection cd aid Horse in
Falkland.— or Horses in Paraguay except
strength of constitution & breeding at diff
time of year; but that cd be effected only if a
little earlier or later was more favourable
NB2 Windhorn Mountain Lat 43°N; 84; 124;
174; 144
166 ♦

Abstract Feb 57

p144 The Buffalo only crossed R. Mountains
lately owing to persecution

84 44–51m 124 45–49m 144 43–46u±, 49–53m
166 *wt* ♦/↻w ♦ Previously there was good
evidence of the Buffalo having been driven
into new districts by Hunters one race of
Indians much obliged for this

FREY, Heinrich *The histology and histochemistry of man* trans. A.E.J. Barker; London; J. & A. Churchill; 1874 [Down] Ⓟ

FROHSCHAMMER, Jakob *Das Christenthum und die moderne Naturwissenschaft* Wien; Tendler & Co.; 1868 [Down] Ⓟ

GALLESIO, Georges *Traité du citrus* Paris; Louis Fantin; 1811 [CUL, pre-B but read later: S C Darwin Feb 1842]
cc, cs, f, fg, gd, hy, ig, mn, oo, or, pat, spo, t, tm, v

NB1 p146 Orange; 143

32; 40; 46; 62 to 85 to 167

line across page (hereafter page-numbers by CD but some words possibly not)

193 to 222 Hist of Citron, marked but unimportant

to 286 – ditto ditto

p.292 &c &c Sweet Orange different from bitter & later introduced

p.297 ♣ Origin of Sweet orange

p.321

p.327 to end

p.359 the only passage on acclimatisation of orange

NB2 Nothing important in all these extracts below the cross line → (to NB1 line across page)

Nov. 47 I think that experiments cd be worth looking over again.–

Look at the Synoptical Tables first.–

SB ☐✕

34. Sweet & bitter oranges & almonds & Peach & nectarine always true

40 orange fruit affected by pollen of Lemon!

46 crosses with pinks analogous, striped & some pure white & red.

67 The Lemons which depart most from type, (or are monstrous are sterile) p331

147 Mixed orange, lemon & citron

⇒ 359 curious case showing how slowly & rarely real attempts have been made at naturalisation (u⇒)

a poor Book

30 23–25m 31 11–13m 32 18–20w It is not different in W Indies 20–22m, 22–24m 34 1–2m 40 18–23m 45 24–26m 46 1–5m/w Like chrysanthemums latter prbly a cross of 2 vars. 12–16m 47 ♣ 12–15m 62 9–15m/10u "grande | mélanges"/w polyadelphia ♣, 13u "nombre infini de races" 63 9–11m/9–10u "plusieurs | évènements" 66–67 wt xox according to this view, a plant as soon as it became accustomed to new conditions, would produce more seeds, & therefore in most cases would produce ♣ less fruit & hence would be said to degenerate!! 66 7–14m, 16–17u "ils | variétés"/15–22w ♦ shows how little weight he puts to character of sterility 25–29w for he certainly admits ♣ varieties distinct from hybrids 18–19m/w both hybrids 66–67 wb♣, part ⇒ * This is quite new view of varieties being born sterile, it is

GALLESIO

certainly case with many pears, apples &c &c not due to mere effects of conditions on the actual ♣ plant, but ♣ is born with xx tendency to be sterile (& hence good fruit or fine double flowers are produced) – think Kolreuter found certain individual hybrid-crosses ♣ more sterile than others, thus if pear seeds are sown, some seedlings are more sterile than others 67 3-4u "celles|stérilité"/1-5m, 13u "leurs|toujours", 20-21u↔, 22-28m, †w↔ in animals out of conditions no case of offspring being born sterile (? do not perhaps get full fecundity for some generations?) but in plants it is very frequent case ||= very important:= view – ☉ xxx XOX 68 17-18u "pour|distinction"/w fiato oxen!! 71 10u↔ 73 7-10m 83 2-5m/2u "ces noms"/ 3u "innombrables" 85 4-8m 90 27u "plusieurs siècles", 28u "conservée" 91 1u "variétés", 3-5m, 3u "Dès|colline", 5u "multiplier|semence", 6-7m 92 26-28m 95 7-8m, 11-18m 96 2-3m/3u "souvent" 97 16-20m/19u/wt 100 15-17m 102 20-22m/u±/wb This is not like Kolreuters certain hybrids 103 3-8m 109 12-14m 116 20u "vulgo Pomum" 117 19-20m/20u "jamais pu" 118 3-5u±, 9-12m 119 12-14u±/10-16w Every one of his hybrids as yet conjectural wb Has the Bergamot seeds?? 121 9-11m/10u "Il|semence" 125 27-28m 126 1-3m 129 4u "n'offre|jaunes" 130 14-16m 133 24-25m/u "ils|dépine" 135 4-5?, 22-23m/u↔ 137 8u "feuille|crépue", 9-10u "la|limonier", 12u "orangier", 21-23m/23u "hybrides|se", 26u "variées|proportions" 140 18u↔, 23-24m/24u "en|1270" 143 22-28m/22u "Ses|especes"/23u "blanchâtres" 146 6u "1644", 24-27m 147 6-10m/1-10w/wt X are the several cases of citrus above given with flowers & fruit of different ♣ forms cases of hybrids sporting.– 11-20m, 22u "aussi|point"/24-28m/25u "une|de"/wb/8-28w These are extreme cases of sporting & hybrids – no more probably like Laburnum – like mottled Hollies sporting back to pure leaves 148 1-2u "arbre|formes", 4-7m/7u "oranges|sans", 14-16m/15u "orangers|cédrats", 18-21m, 22-25m 154 6-7u "qui|d'épines", 7-10m, 11u↔ 155 4-6u "et|ordinaires", 8u "quelquefois|semis" 156 19-21m/20u "couleur|de" 157 3-5u "ne|chétives", 6u "c'est|fécondation"/7u "il|pépins", 8u "se|semence"/5-8w not a hybrid because no ways intermediate 9-24m/23-25m 158 27m/u "exclusive|Chine" 159 25-28m 165 13u "du|de" 166 7-9!/9u "qui|espece" 167 18-19m 194 10-11m/11u "en Médie" 197 17m, 18u "Palestine" 198 19-20m/19u "Théo-phraste"/20u "description dans" 203 4-5m 207 1-2m/2w conjecture 11-23m/17-20u±/7-22w

proofs of old cold climate V. Arago 25u "quel|vigne", 28u "elle|point" 208 3-5m, 6-8m/7u? "certainement" 210 20-21m 217 8-15m/8a "Paludius"/15u "dans|siècle" 218 14-16m/15u "le|quatrième" 222 20-22m 223 3-5m/4u "plus|transmigration" 227 12u "Maderel|Canaries", 13u "dès 1463" 252 20u "1383", 22-24m 257 5-8m 270 13-15m 287 14-17m 292 9-12m, 16-19m 293 11-16m 295 1-6m 297 5-13m/8u "de|transmigration" 321 10-11m 326 27m 327 1-3m, 9-11m, 15-16m, 22-24m, 26-28m 329 1-2m 330 6-8m 331 4-6m/6u "celui|stérilité", 8-9m/8u "cette|singulière" 334 1-6m, 18-22m, 25-30m 344 9-12m, 24-26m 345 11u "d'Acosta", 11-22m, 22-25m 349 7-10m, 13u "l'Espagne", 14u "un|orangers", 16u "tous|greffés", 19u "demi|commencé", 20w to sow seeds of Sweet Orange †3m/u "oranger|Sauvageon" 351 15-17m/ 15-16u "Dans|adroite" 352 1-7m 355 11u "1709|Ligurie" 357 4-6m, 7-8m/w in Liguria 17u "une|portât" 359 1-6m

GALTON, Francis *The art of travel, or, shifts and contrivances available in wild countries* London; John Murray; 1855 [CUL, I, S]

NB1 (by FD)

NB2 91 Authority; 115

2 7-9m 3 1-3m, 6-13m 4 13-14m 5 23-26m 8 31-32m 9 12-15m 14 10-14m 15 7-8m/7u 16 5-12m 17 1-3m, 26-28m 18 26-27m 26 5-6m 31 25-29m 35 23-25m 91 16-17m 115 25-30m

GALTON, Francis *English men of science: their nature and nurture* London; Macmillan & Co.; 1874 [Down, S]

(markings not by CD)

GALTON, Francis *The narrative of an explorer in tropical South Africa* London; J. Murray; 1853 [CUL, ED]

GARROD, Alfred Baring *The essentials of materia medica and therapeutics* 3rd edn; London; John Walton; 1869 [Down, FD]

(markings not by CD)

GARROD, Alfred Henry *The collected scientific papers* London; R.H. Porter; 1881 [Down] ø

GÄRTNER, Carl Friedrich *Beiträge zur Kenntniss der Befruchtung der vollkommeneren Gewächse* 1. Teil; Stuttgart; E. Schweizerbart; 1844 [CUL]

cc, cs, dic, em, f, fg, gd, he, hy, in, is, mhp, no, oo, pat, phy, sp, sx, t, ta, tm, v, wd

NB ♣ N.B. p 137. on varieties of *Verbascum* crossing used
p.212 Fruchnoten (*ie Fruchtknoten*) =
Germen; griffel = stylus; narbe = stigma
SB ♣ Oct. 1855 This book abstracted &
abstracts & references distributed.-

SA1 (pp. 622-3)

This is Index of whole volume

p75 on Honey to p92.

p.104 on time of shedding pollen

to p119 on contabescence

to p128 on richness of pollen; 137 on pollen

varying in species & individuals of *Dianthus*

p137 on fertility of vars of *Verbascum*
according to colour

to p.148

p.220. p222

p242; p250 on concepcion. to p. 253.

p.328 on periods of concepcion; to p367

p.440 on abortion p.444

See over Page

(over) p528 on ♣ dispersion of *Lychnis*
(quoted from Tausch) diurna & vespertina in
hermaphroditism.- I presume the number of
seed here refers to cultivated Plants

p539 on crosses taking place at distances
p.550. do

p560; p564

p571 on crossing &c to 577. do.

p598. on number of seed in *Lychnis*
vespertina-diurna; p600

p366 self-fert often fails in ♣ *Lycium*,
Tropaeolum, *Mirabilis* & *Campanula* &
Lycium -

All these references have been recopied out
into papers in ♣ Hybrid Chapter

SA2 (pp. 622-3) □β

136 368 386 497 - 138 - 134, 135; 136;
386 567 595

✓ p.128 on quantity of pollen.

135 Each embryo requires more than one
pollen grain -

226 Narben-fuchte (*ie feuchtigkeit*) secreted
from stigma at various points

236 secretion of stigma of *Nicotiana* took
months to dry - so very different from that of
Orchis.-

256 Reichenback Vol.I p.120

345, 347 quantity of pollen required for full
fertilisation

351, 600 Successive application of pollen
necessary
for *Orchids*

(over)

◆ In *Corn* & *Hemp* Fields & *Palms* clouds of
pollen p107 ●

Cop

p116 Contabescence

SA3 (pp. 622-3)

Dichogamy Gärtner Kenntniss s.539 on
plants 6-800 yards fertilising each other very
good. p551? p573-577

(Keep)

xi 6m/w Read 7-10m/10w Read 12-15m/13w
Read 17m/w ♦ Read 20m/w Read 21m/w
Read 32m, 33m/33-34w because it will show
crossing 34m, 35m/w read 36w read, 37w
read

φ

75 2w read 18-21w nectar before opening of
flowers 76 5-6w after pollen 18-19u
"Wandelbar faden"/w secretion variable ♣,
no doubt due to conditions 24u ♣/24-25m/w
no ♣ secretion 31-38m/w sometimes honey
in hermaphrodite, but not in unisexual flower
of same species. Sometimes in male
sometimes in female 77 7-13m/w quite
absent in many flowers 78 14-15w increases
♣ flower falls 79 1-7m/w quite sterile Hybrids
have nectar 80 1-10w They do not seem to
know about Vetches 85 9-16m/w does not
think nectar can be accounted for by for
insects alone to favour fructification 87 9-
11m/11u "Tilia europaea"/8w No nectar!! 11-
12u "Tilia odorata"/11-14w small & nectar do
not go together 89 wt generally the period of
concepcion, the spreading of pollen,
secretion of honey, & opening of flower all
together. 1-4m/3u "den meisten", 8-10m/w
often put out by circumstances 16m, 18-20w
Sometimes nectar before opening of anthers
23u "Leguminosen | Cruciaten"/23-26w In
these most nectar, when pollen is mostly or
quite shed.- 90 22-27w Thinks no relation
between secretion of Honey & density of
Pollen - many Families have no nectary 31-
34w no relation in quantity of pollen & nectar
91 1-2u ♣/w Pollen not dusted yet much
Honey 3u "Dichogamen"/4u ♣/4-7w Male
flowers of these no nectar - but females
have 8-9m/w castration no influence on
nectar 12-14w Absolutely sterile Hybrids
have nectar 18u "Leguminosen | Cruciaten"/
19u "Dehiscenz | Antheren"/17-19w in these
nectar begins after opening of anthers. 20-
21w But then in Legum: pollen is brushed
out by stigma 26-30w When fructification has
taken place nectar ceases though pollen not
shed. 95 10-11m 104 11-16m/w pollen shed
before opening of flower 19-33m 106 4u ♣/5-
8m/8u "verstäuben"/1-8w Pollen usually
dispersed in air, except in families where of
large size as these. 10-14w a cloud ♣ 1 1/2
inch in diameter 107 22-25w clouds of pollen
in corn & Hemp fields. 108 12u "6-8"/11-15w

GAERTNER, BEFRUCHTUNG

emptying the anthers takes these hours.—
 109 12–13m/u "Malvaceen | scheint"/w wind
 much influence 113 23–28w castrated flowers
 seldom visited by Bees, than even quite
 sterile Hybrids 117 1u, 2u♣, 3–4w
 Contabescence of anthers 17–19w colour
 often changed of anther 27u♣/26–27w
 sometimes filled with Water 28–29u♣, 31w
 grain ill-shaped 118 31|/1–3m/w even no
 pollen anther shrivelled up. 5–8m/w rarely
sometimes only 1 or 2 anthers or 1/2 anther
 thus affected 13–16m/w Generally all flowers
 affected 17–22w When one flower has one
 another affected, all flower more or less
 affected. 25a "superbus" Europe 25–36m/33–
 35u "Wenn | haben"/26–27w gradations in
 contabescence 29a "barbatus" Germany 119
 wt N.B The contabescence probably due to
 effect of conditions on parents, at least in
 many cases.— 1–4w these anthers can be
 perceived at earliest period of development
 10–12w affections permanent in individuals
 14–15w except in Silene 17–19w cannot be
 altered by cuttings &c or in new soil &c 19–
 20u/a♣ Europe, England, Germany/w These
 species continued so for 4 years 22–23u♣/
 22–31w a plant taken out of wild of Lychnis
 did not alter in the least. 22–31w Nor did
 these alter when moved from pots to plain
 ground. 18–5w Doubts whether hereditary,
 for experiments give different results 1–25w
 This is a point of resemblance to Hybrids
 which keep sterile during whole life.— wb A
 All this vehemently against my notion
 of change of conditions, indeed, almost
 disproves it.— I am not so sure any pecu-
 liarity wd be propagated by layers○ 120 7–
 10w concludes since an individual in earliest
 stage.— 10–15w seems to occur in all plants,
 but more common in some than others, &
 most common in Hybrids. 14u
 "Caryophylleen"/w most common in free &
 cultivated Caryophyllea 18–19w next cases
 20a♣ England, S. Europe, Britain, Italy 22–
 23u±, 27u♣, 28–30m/→/28u "Unfruchtbarkeit |
 Gewächse", 34–36m/w/wb In these female
 flowers, sometimes stamens occur in same
 state as the contabescent flowers 121 17–
 28w In these, contabescence hastens
 conception period, & praecosity of stigma
 always connected with contabescence; yet
 perhaps not necessarily allied 122 8–23w
 Contabescence has no destroying influence
 on female organs: but this not universal, for
 has observed instances with both sexes
 imperfect, very in → (to "Verbascum",
 "Dianthus"), 12u♣/10–17w These species
 with quite sterile stamens produced normal

number of seeds & no more wb
 Contabescence no effect on lengthening life
 of plant, even when conjoined with female
 impotence 123 wt [Must never forget the
 great fact that exotics most subject to these
 affections.] 1–5m/w above shows that
 contabescence confined in its action to the
 stamen alone. 7–10w Generally female organ
 not affected, when stamen are contabescent
 20u♣/16–22w many have attributed this
 affection to planting in damp earth; but his
 found in light sand on mountains 26–30w
 These plants produced more pollen when
 nourished by pure water. wb (no doubt
 cause of contabescence, must be very early
 in life of plant, we know that state of plants
 one year determines its fruiting next year
 C.D) 124 2u♣/2–17w These plants were quite
 sterile for 4 years on female side but
 produced pollen.— affects from it became
 quite contabescent & female organs re-
 maining sterile 116–1w/wb 3 of this plant was
 quite fertile & all flower & ♣ twigs which had
 flowered were cut off, & then all the flowers
 which came were more or less contabescent
 & many with precocious stigma & small
 corollas: (a) subsequently perfect flowers
 were again produced.— (b) Repeated same
 experiment with same results next year 125
 14–16m/w (a) note on last page 24m/w (b)
 26–28m/26–33w never saw a male of this
 species with contabescent anthers, thinks
 therefore state is connected with
 hermaphrodite condition 126 5–12w/→/wt
 Thinks that contabescence of Hybrids & pure
 species must be something distinct. It is
 evident there is no difference in appearance
 in the two classes of facts 12u "Treviranus"/
 14–19w Trev attributes to fungi; G. inclined to
 think this is a secondary cause. Leaves it all
 unexplained 127 wt Pollen when some
 degree ◊ part gathered & placed in water or
 in transplanted plants, but female capacity
 much more easily injured — 1–11m/4w (a) 128
 wt I do not doubt this shedding has caused
 belief in impregnation in closed flowers C.D.
 1–3m/w In these anthers shed pollen
 when closed. A 12u "ungekörnter"/11–13w
 ungrained pollen powerless 23–24m/23–30w
 Richness of pollen always great [I think can
 only be explained by crossing.] Of course
 dioecious & Monoecious plants must be
 excepted 113–2u "8–10", 112u "80–96"/w has
 ten times too much 129 32–34m/w some
 monoecious plants little pollen 131 29–35w
 no relation between size of stigma & quantity
 of pollen 132 29–33m/w quantity of pollen has
 no relation to wind or insects 133 7–8m, 10–

12w little pollen few seeds 20–22w few seeds richer in pollen 31–32w many seeds little pollen 134 6–7w many seeds much pollen 135 11u "ein Eychen"/11–15m 136 12u▲/13u▲/12–16m/w great size of pollen; yet size varies greatly in some of the species. 24–28m/w size of pollen no influence on hybridising 30u "Kleinheit | Unförmigkeit"/31u "bestimmten"/32|| 137 11–13w Pollen different in Petunia 16–21m, 21u "Tulpen", 16–25w Pollen generally same throughout genus but different in different species of Dianthus & in varieties 34–36m/31–35w most important compare Kölreuter experiments & Gaertner's wb good pollen known by bright colour as well as regular shape 138 25–35w Proved that pollen in same species of different shapes, but G. doubts whether all effective 145 15u "Caryophyllen", 16u "48 | kräftig", 17u "Conception"/w 4–6 days 20u "dritten", 33u "9."/w 9 days 147 6–16m/w Henschel's cases in fact showing natural crossing; did Henschel castrate? if so useful facts.– 148 9–16m/w in water all the grains do not explode, but some become transparent 153 wb Finished from 104 – to 153

∅

220 21–37w N.B When many pistils, then number variable [when many of any organs apt to be variable; Why. Hairs &c &c vertebrae of serpents] wb Nature does not keep count 222 15–22m/w says anthers open in Labiatae before flowers open & implies impregnated then 226 11–15m 229 wb Read to here 236 9–11m 241 9w Read 242 5–12w concludes ♣ all C.C. Spengels dichogamy depends on the abnormal praecosity of pistil!! 247 28–35w Mere opening of stigma of Mimulus does not show yet ready for impregnation 250 17–26w power of conception varies in individuals. sometimes absent without apparent cause 251 3–7m/2–13w want of power of conception most often observed in exotic from warm countries. as in examples. but sometimes observed in home plants. 17–28m/w influence of fresh air, & light seems necessary to fertility of some plants, as in these when placed in pots in chamber, though pollen was produced. 27atm/w (a) 114u/wt, wb unhurt roots appear very important for conception for plants ♣ if they have not ♣ mourned over transplantation, But seldom give good seed.– has often experimented on this.– 252 wt In many cases Plants in pots with roots coming out of vent-hole in bottom, taken up with greatest care, & with pots placed in saucer with water, though development of flower

continued as much & pollen good was produced, yet ovarium was ♣ remained undeveloped & unfertilized – so never in cut-flowers in water 253 wt But Digitalis has stood transplanting out of open ground into pots, & has yet retained capacity of being fertilised.– 1–7m/w (a) wb Chester Read wb/ → (to "Brassica Rapa") But roots were left p333 wb/ → (to p. 252, 23m/ 31–34m) cases of Coniferae producing seeds in cut flowers & cases of Monocotyledons plant doing same.– 328 1–14m/w From general way of speaking of coincidence of stamens & pistils evidently does not believe in Conrad Sprengel 23–28m/w In these Fam. pollen shed & partially spread on stigma before flower opened 118–1m/w occasionally within flowers 329 1–6m/w/wt In these sometimes corolla ready before stamens 9–18m/w Pistils generally ready after stamens 117–3m/wb The relation of development of flowers & organs of fructification not very fixed, especially in Exotics 332 11m, 13–20m/w From this it almost follows that artificial self-fructification was done in House 333 1–2m/wt Many plants more fertile in wild state than in Garden or greenhouse. 11–12u "Gräsern | u.s.w."/13u♦/14u♦/15w Nothing 5–15m/w In some, rich food makes more seed, in others a withdrawal of food. In former, those with dark. 16u "Henschel"/w Has written on the above 335 11–12w aid of insects overrated by some, underated by others 13–14u "Labiaten | Irideen", 35–16m/20–25w admits to considerable extent service of insects in impregnation wb Ch. Morren worth reading 336 22–31m 337 4–16m/w In most flowers stamens & pistils so near together that by the twisting of anthers must be impregnated; & the co-temp ripeness of both bears on this point. 20m 338 12w Campanula 344 11–16m/14–15u/11w Kölreuter 22m, 25–27m/24–31w In these genera, one stamen suffices to impregnate all ovules 2u "Geum"/w 1/8 345 23/w 10 pollen 26–27w failed 30w 20 pollen 112–1w 30 gr failed 346 wt Malta 1–16w Some grains seem used to exact position of capsule &c 5u "Vierzig"/w 40 15–16u "diel versehen", 18 → (to p. 347, 110), 21–29w In Malta 40 grains required for even imperfect impregnation 347 6m, 23w S. p.351 119w saturated 349 6u "15 | 20"/7w failed 14–15u "30 | 35"/w failed 26u "vierten", 34u ↔ 350 36u "nicht | von" 351 5–8m, 16u "wiederholte" 353 11m, 27–31m/w signs of fructification slower after evening fructification than after morning fruct. Is not this like Hybrids.– 358 32u▲/31–36m/w/wb became more fruitful & almost

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exclusively female by the destroying of male flowers – Bernhardt has observed opposite in Cannabis 364 $\uparrow 8-1m$, *wb* When seeds few number constant, when many seeds variable.– Law of variability – Lower animals, generally most vegetation. 365 $1-10m/w/wt$ (a) In artificial impregnation number of seeds \clubsuit often more variable, accounts for it by isolation out of free air $11-15m/w$ But in some cases can hardly account for difference $17-20m/w$ some \clubsuit are as fruitful in Chamber as in free $22w$ not castration *wb* All above shows how easily & inexplicably fertility is affected– $\downarrow w$ All these observations show that he must have considered all causes affecting his standard of comparison for Hybrids *wb* \approx p.600 important experiment showing the repeated application of pollen necessary for full impregnation & this is not done artificially 366 $13-15m/12-23w$ How observed pollen out of another individual in these 3 genera more efficacious i.e. advantage of crossing – $\uparrow 11-1m/wb$ artificial self-impregnation often entirely fails, for reasons quite inexplicable – Very odd that he never seems to have included Primula in this Category.– 367 $6m$, $11u/wt$, $12u$ "verharren", $14u/wt$ 439 *wb* Read & skimmed 440 $15-18m/w$ Thinks quantity of pollen merely for security of impregnation. $20-23m/w$ But pollen is perfected. 441 $19-23m/w$ abortion commoner by artificial than in nat. fruct. 442 $36u$ "500 Eychen"/ $33-36m/w$ In polyspermous plants, always some ovules abort.– \ll 443 $13-14u\clubsuit/17u\clubsuit/12-35m/18-26w$ curious experiment try to remove fertile flowers & see whether sterile wd become fertile 444 $28-33m/w$ cuttings & c give plants apt to abort $33-34w$ luxuriant fruit 459 $36m$ 528 $\uparrow 20-3m/w$ p618 Tausch in Flora 1833 p.225 533 23!! 535 $26-32w$ 1 2 3 539 *w* above 500 experiments we thought it sufficient if our experimental plants were from 6–800 steps from their like kind, when castrated, but was much deceived $8-11m/9u$ "hinreichend"/*w* (a) $11-12u$ "der hatten", $16u$ "zwei"/*w* 2/2 flowers $20-22c\leftrightarrow/w$ 0/2 $23-25w$ 3/5 flowers gave good seed $31w$ 2/2 $35w$ 6/9 540 $\downarrow w$ [numbers of flowers giving good seed, as previous page], $\uparrow 3-2w$ 25 were impregnated *wb* In these castrated flowers no doubt stigma wd remain far longer ready for impregnation than in hermaphrodite yet it shows how much pollen of same species is carried to same flower (V. p145) 550 *table.wcc*, "After-befruchtung 202"/*w* Very striking this many out of 520 flowers dusted with foreign pollen *wb* No doubt others refer

to pollen left in flower or brought from outside 560 $\uparrow 4-3u\clubsuit/w$ Is this Lilac, if so no seed. Yes it is 564 $9-10m/12u\clubsuit/8-17w$ Many exotic plants produce fruit but no seed, rather owing to bad pollen than female organ.– 565 *zt* 571 $34u$ "Frühzeitiger"/ $34-36m/33-34w$ precocious good word *wb* Power of conception in frühzeitig stigma causes impregnation before flower opens 572 $2-6w$ stigma in such cases goes on growing $20-26w$ chief cause of after-befruchtung lies in act of Castration. 573 $10-12m/8-15w$ has observed after fruct in Nicotiana when 80–100 yards distant; on account of fineness of pollen.– $16m/w$ read. 574 $5-35m/13-15w$ all cases of after fruct. $16w/26w/29w/32w/wb$ (number of species and genera totalled) 575 $2w/1-4w\ll$, $12-14m/wt$ 576 $4u$ "520"/ $6u$ "202 Afterbefruchtung"/*w* 499 (remains 29 whose seeds did not grow) *wb* 8 577 *wt* 8 $31w$ 70 *wb* The fewness of these after befrucht have compared with those given before in experiment out of doors, show that the latter received pollen from other flowers, I think 598 $5-9m/7u$ "234" 600 $5-17m/w$ repeated impregnation necessary to full impregnation of Tropaeolum 604a $23m/w$ Kolreuter on Contabescence $25m/w$ What books is this of Sprengel V. Pritzel (I have looked & there is none) 610b $26-27m$, $30-33m$, $34u$ "1838 Vol XII" 611b $6m$, $36m$ 618b $41-47m$, *wb* on distribution of some Lichnis \circ 619a $3m/wt$ Mustel on fruit in glass cases not having seed

GÄRTNER, C.F. *Versuche und Beobachtungen über die Bastarderzeugung im Pflanzenreich* Stuttgart; 1849 [CUL]

af, br, cc, che, cs, ct, dic, ds, em, ex, fg, gd, h, he, hy, ig, is, mhp, mn, pat, phy, oo, rd, sl, sp, spo, sx, sy, t tm, v, wd, y

SF \approx Oct. 1855 \clubsuit This work is abstracted & abstracts distributed, except the Bundle herein enclosed.

\Rightarrow p521 top. p524 on germination of Hybrid seed. & all seeds.

The abstract has been carefully compared with those of all Kölreuter & Herbert & c & c

NF1 Gaertner Bastard When read make Abstract; & read one abstract of Koelreuter & make abstract of Herbert & look over Portfolio When finished read Berkeley Criticisms on ...

NF2 I think began Sept 15/54/ 1849 \approx

NF3 p602 Mothers name first
 p.444 Definition of Gemischte & Zusammengesetzte Bastarde & Ausnahmen typus
 p502 Better definition & examples
 Griffel style
 p.602 Nicotiana glutinosa female mother – perenne male father
 p429 Explanation of Kolreuter "aufsteigenden Grad" absteigenden grad p.451
 NB Books of great importance to Refer to Note 62 67 17 p.734 of this Book
 p.157 Seeds long retaining vitality
 p142 See to this important
 p577 fertility of dogs
 Has he ever experimented with the umwandlung of Varieties?
 ♣ p.640 Genera which produce good pollen & ovules & yet require pollen of other species to fertilise them
 p.418 Ask Author
 p.387 Digitalis for comparison with Herbert
 There are facts on variation.–
 Ask Author: p.84 Were any of the Mongrel Peas reared? p.92(?) ♣ Stet p.102 =Table of Primula= p577 p578 p.579
 86 duration of pollen
 322 Maize p292
 Treviranus ought to be read. He seems a Lamarckian.
 SA1 (p. xvi)
 The real odd thing is in Hybrids, that not ♣ varieties not thus affected & 2d that offspring are sterile.
 Does he give any case of two wild varieties when crossed, producing a more variable offspring than two true species? in first generation, because the difference in variability he makes so important distinction in vars & species (p581)
 (over) Hybrids
 Does pistil or stamen ever become monstrous?
 Stigma ♣ becomes more divided
 In Hybrid offspring Does Male sex sometimes fail & sometimes female or always both equally? which more often
 Relation of Hybridisation to Variability
 Dissimilarity of Mongrel offspring
 Did Kolreuter cross many Silene vide p.140 of Gaertner?
 Do not two Hybrids breed easier together sometimes than each with self – for this wd upset Gaertners explanation of weakened pollen.–
 SA2 (pp. 728–729) ♣
 ⇒ For p.178
 (a list of species, and some editorial comments)
 (not CD; note on application of the terms

"calycantha", "communis", "veris" and "officinalis")
 ⇒ (C.C. Babington)

vi 17–21md viii 26–29m/29u "Uebereinkunft"/w great agreement in animals & Plants in Bastardising xi 6–7m xiv 21m xv 15w
 Compounded 5 11–12w confirms Köelreuter 7 15u/wt 8 7–19m/w under apparently similar circumstances produce diff quantity of seeds. Hybrids few seeds 26–27u↔/24–28m/w these have succeeded only once or twice.
 9 12–14m/w cause of failure chiefly in female organs. 10 1–2m, 5/7/8u/wt, 21–22w ♣ Herbert p.371 22u/wt, 25–29w all injurious influences more injurious to hybridising. 11 wt N.B. As damp & rain so injurious to fructification it makes it odder that flowers are not ♣ regularly impregnated in closed state, for they can be impregnated haufig in this condition. In cases of Campanula which are impregnated in bud, are these foreigners? & wd they open in own country. 11u "häufig | Blume" 12u "bloss", 14u/wt, 22u/wt, 25–29m, 31u/wt, 33u/wt, 34–35m 12 10–12m/w some effect of variability on hybrids Q 14–17m/w no great difference in hybridisation of wild & cultivated 19u/wt, 28–31m/w Disputes Herberts case of fertile hybrids 35u/wt, 35–37m/w thinks has mistaken the fertility of some hybrids, with the results of a first impregnation. 13 1u/wt, 2–5w some hybrid fruits are richer in seed, than the fruit produced by first union. 3/6/9/23/27/31u/wt 14 30u/wt 15 5/10/24/26u/wt 19 21u/wt, 23–26w condition of pollen on stigma changes sooner or later according to relationship 21 1u/wt 22 9u/wt 23 5u/wt 28 17–21w fruit falls off, from imperfect impregnation 29 6u/wt 30 wt It is not Hybrids – but Hybrid-fructification. Most important distinction which I have overlooked. 18–21m/w Hybrids never produce full abundance of seeds. 21u/wt 32 7–10w Hybridisation requires all outward circumstances favourable. 34 7u "fremden"/w Never the least effect.– 35 23w no mixed effect 31u "rustica"/w female prefers paniculata 32w female 33–34w prefers Langsdorf 43 22–27m/w pure & hybrids out of same capsule, but no tincture. 45 11/27u/wt 46 5–6m 50 1–8m/w Q case of variety with characters like other species 3u Ansätze | Zähne" 52 10u "dreifach | gemischten"/8–10w 3 sorts in same capsules 55 18–22w ♣ Herbert believes in tincture 56 1–16w This is what might have been expected mere physical difficulty? 17–28w This slowness is important as it is character in parents & not

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in hybrid. 29–32m/w injures the other ovules 58 28u/wτ 64 10u "einem|Pollen", 12u "rustico|Langsdorfii"/7–14w In Hybrids father or mother's pollen makes own powerless. so does quite foreign pollen sometimes 15u/wτ/16u "erotischen", 20u/a "Lobelia" Example 15–22w In some pure, specially exotics, own pollen will not impregnate, whilst that of other undivided, or even other species, get own pollen good.– 28u "W. Herbert", 28u "Zephyranthes"/27–31w p.355 so Herbert with Zephyranthes but not good example see xx next Page. 32u "Bosse", 32a "Hippeastrum"/wb Amaryllidae p.371 – in this case it is Hybrid with hybrids 33–34u "Passiflora" 65 wt xx This like Herberts Zephyranthes case; P. racemosa can be fructified by pollen of coerulea, but stigma of coerulea cannot be fructified by pollen of racemosa or by its own – we may say female organ of coerulea injured. 3u/wτ, 5–9m/w xx 10–12m/w takes the view given above xx 13/14/19/25u/wτ, 21–23m/w compares with snails 66 28–31w seldom any pollen has no action on stigma 67 5–9m/w sometimes stigma decays & flowers fall without slightest fructification. 68 16–20w gradation of affinity shown by time of decay of stigma & flowers 69 27u/wτ 72 9–19w Thinks the fruit of hybrids is not due to pollen-influence, but to that power of forming fruit, which the most sterile hybrids without any pollen do produce Repeated p106 73 1–3m/w mother not more powerful than pollen 13–15w Hybridising generally no effect on seeds. 22–24w apple half sour half sweet.– 28/29/31–32u/wτ, 29u "liess", /–34w castrated pear-blossoms in orchard bore much fruit, showing crossing 35m/w thinks experiment not careful enough 75 10u/wτ, wb Disbelieves (perhaps very truly) all these cases of direct effect of pollen on the mothers fruit.– 76 11u/wτ, 19u "Pelargonium"/w ♀ sport in 23u♣/w sports in 24u♣, 28u♣/w sports in wild 77 2/5/9u/wτ 78 1–5w Discussion on Koelreuters 3 cases of seeds directly affected by Hybridisation. 14–15m/w seeds vary much. wb Disbelieves seed ever really affected; the only difference he has ever observed being solely in size.– 80 wb see p499 & p135 81 ↑w♦ This most important, ♣ if crossing varieties ♣ has had anything to do with diverse coloured seeds, then they are crossed naturally by Bees.– wb♦ Has tried Wiegman experiments with quite different results, ie seeds never affected see next several Pages ↑10w All a mistake. ↑7–6m/↑6u "reine"/w♦ The self-impregnated flowers gave same result as the

castrated & cross impregnated & these showed colours altered 82 1–2m/w most constant vars. 19–25m/w here seeds were coloured 28m/w♦ were these mongrels 83 2–3/5/10/16/34u (colours of seeds) 84 1u/wτ, 20–24m/22u/wτ 85 10–11m/w & Berkeley's 10u/wτ, 13u±/w see account p.14 15u "geringer Fruchtbarkeit", 18–25w plants from Wiegmanns Pisum oticia he rather thinks varietats-Bastard rather than a hybrid, because, flower impregnated with common impregnation & pollen of Vicia had no effect. 29w ie offspring of Wiegmanns Pisco-vicia 86 25u "sondern|war"/w Conclusion mere variety, & says nothing about mongrel. 30–33m/w cd not make any of them cross. 31m/wb Loudon makes these distinct species besides vulgaris 87 1u/wτ, 6–8m/w Leguminosen opposed to Hybridisation 8–12w If then mongrelising takes place easily; yet cannot at all between Wiegmanns hybrids 13–15m, 18a "annua" Cruciferae 18–21w W doubts about seeds in Matthiola what to say 19/21/23/25u/wτ, 33u "einer|die"/31–35m/wb Mays not affected 88 wt also Berkeley did not artificially cross.– 89 wt xx It seems he does fully admit that cross fertilisation does in Pisum affect seeds, & as Wiegmann did not artificially impregnate, shows that Peas, when ♣ not castrated, are crossed naturally. Be sure read Book mentioned in note 62 p734 (How strange considering sweet Peas) 9xx, 12/15/21u/wτ 90 17–19m/w female sterility transmitted in cross. 17/18/19u/wτ, 30–35m/wb The tinctures on half-bastards of Koelreuter, Wiegmann & Herbert are upset.– 91 10–17m/w Father & Mother element more powerful in some 11/16/17u/wτ, 21–26w Hybrid pollen more effect on own stigma than on other pollens; but the converse no effect 31–33m/w another severe case of different effects. 92 8u "Lychnicucubalus"/w Hybrids, I suppose 10u "Lychnis diurna", 22–24w colour & size of pollen no relation to fructification 28–30m/w most important see his other work. 28u "Varietäten"/wb speaks p181 of species so holds good with species too From table at end really species 30u "fruchtbare"/wb more fruitful, ∴ crossing cross colours less fruitful ∴ perhaps Hollyocks thus accounted for. So he says most distinctly in his Beitrage p137 in regard to Verbascum. 93 19–20w (a) wb (a) Koelreuter ♣ confused imperfect impregnation in the first cross, with the imperfect fructification of Hybrids, but this shows how similar the case is.– 94 5–12w imperfect fructification differs from no fruct, in

seeds being more perfect 7u "Grösse", 9-11m/10u "ohne|worden", 17-20m/u±/w first cross ♣ never quite fertile as of cross of pure species. 96 10-12w no relation in state of capsule & state of seed. 17-27w fertility of original act of hybridisation so different, that even in flowers of same plant, that it is difficult to make scale of fertility or consequent relationship. *wb* (a) ♣ Grades of Fructification, imperfect to normal & perfect pollen no more effect than foreign dust; occurs even not seldom in species of same genus, "from want of sexual affinity"- (mere words) 97 3-4u ♣ 101 16-17u "er|aus"/Q 20u "schwachen|Leben", 21-24w out of many imperfect seeds & 1000 buds apparently perfect, ♣ not one germinated. 25u "nicht|gekeimt" 102 1-2x/wt every gradation of imperfection in capsule with one or more seeds, capable of germination. 4-7m/w Important 7u/wt, 12-14m/w most fertile hybrids 103 2u "Sageret", 1-2w See to this Annales des Sciences Nat 105 2-6m/wt can the effect of pollen of plant in producing capsule be analogous to Ld Moreton's case? 108 11u "Morton", 12-17m/w Morton attributes power of hybridisation to capacity of domestication.- 109 9u "grosser"/8-9w greater number will not hybridise 11u "700", 12u "250" 12a "Bastarde" different sorts? ↑14u "versagt", ↑13-11m/w unions which failed with Kölreuter 110 ↑15-14u "eine|Elemente"/w a certain sexual harmony necessary for union.- (I presume in contrast to general affinity) ↑14wt, ↑15-3w pollen does not adhere to stigma 111 8-15w even when pollen does cling to stigma fructification very often fails In hybrids the stigma fails ↑10-9u "wie|scheint"/w (a) ↑10-9w Only certain individuals can be hybridised *wb* (a) I cannot but think hybridisation commoner with animals than plants.- 112 3u/wt 113 11u "Prof.", *table.w* shows natural crossing ↑10w 14 genera ↑9u "Alle|Samen", ↑9-5m 114 10u/wt, *table.c/w* no scarcity○ *table.w* List of Families which have admitted of hybridisation 115 *table.m/w* failed with these, but experiments not numerous enough to show cause.- 116 *table.u* "Primuleae"/w easy *table.w* Fams. of easy manipulation 5-7m/w capacity for hybridisation not lies○ in Family Character.- 10u/wt, 13-18w ♦ In families with regular species, subdivided into not real genera, most hybridisation 19u/wt, ↑9-8u ♣/↑11-6m/w The spec of most natural Families very ● resist hybridisation ↑2u/w No hybrids in Compositae 117 22u "Apocineen"/w is not this ♣ Vinca 25u/wt, 26-30w thinks

Orchideae & Asclepiadae wd be hard to cross. from structure of flower 119 7u "Gymnogramma", 17w Disputes from hybrids, thinks only variations observed only in Gymnogramma 120 16-20w Dioecious less easy hybridised than hermaphrodite 121 3-5m/wt The capability of ♣ fructification ♣ lies in more special character, than those characterising any whole family 2-4m, 13m 122 2-10w No distinct relation between polyspermous & oligospermous plants & capacity for hybrid. fruct.- 123 wt Dioecious plants a longer capacity for impregnation. wt I see uses Dichogamous = Dioecious 1-2m/u "in|Blüthe", 4u "neun", 5u "zu Conceptionskraft" "Lecoq"/w a book on Hybrids ↑11-9m/w (a) *wb* (a) Dioecious plants less capable of Hybrid-fruct: at least than some hermaphrodite 125 7m, *table.w* (asterisks added)/w other observers have succeeded, though he failed 126 8wt, 9wt, ↑16-5u "Aquilegia"/w ♦ Hooker thinks all same species ↑10-1w/wb closely allied genera differ greatly in tendency to hybrid-fructification several examples & I believe quotes Kölreuter but observes only few species in each experimented on.- 127 6-12m 128 2nd *table.m*, 8wt, 10u "Afterbefruchtungen", 13-14u/wt, 15wt, 3rd *table.m/w* All this shows that when anther removed, how much crossing can take place from adjoining plants - i.e. intermarriage 129 1wt 130 ↑11-10m/w I do not know whether Kölreuter or self. he succeeded anyhow. ↑7-5u ♣/w Dichogam crosses ↑11u "wiederholten Versuchen" 131 1wt, 3w€, 2-3u "vergeblich|hatte"/m/w (a) wt (a) Reverse case which always failed with Kölreuter succeeded once with him,- but was very difficult Hybrid Plants no ways different - 14w€ 132 4-12w none of these bigeneric seeds germinated. though some had embryo ↑10-4w only ones known Bigeneric crosses w€ 134 ↑8m 135 11-14m/w universal law that pollen of parents fructifies hybrids more than own. 20w€ 136 ↑13-1m/u "Canis|Mouflon"/wb ram or he goat 137 ↑3w€ 138 wt (a) Against limit of genus being determined by power of crossing, even Herbert does not pretend all species can cross, though when any true species do cross, he says they must belong to same genus - so the "reverse crosses!! & cases of Crosses which after years succeed only once, go against law of genus by crossing being connected. 8-22m/12-15w sense given above (a) ↑3-2u "inneren|Arten"/a "in" power of uniting depends on 139 1-2u ↔/w Hence a sexual & systematic

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relationship 15w ϵ , 17-20w genera formed of diverse \clubsuit characters 140 wt When two genera have united, the species do not always in these genera readily unite. Tormentilla & Potentilla, though so close, will not unite. 1w ϵ , 1-3m, 6-16m/ \rightarrow , 17-30w it is quite wrong to infer because some species within a genus, will cross that all will; generally only a few. Herberts cases, however, rather contradict this. Hippeastrum, Azalea, Calceolaria 141 wt (a) Sections of genera will sometimes unite & sometimes not 1-5m/w (a) \uparrow 18-10m/16-14w Sections of genera \uparrow 8/ \uparrow 6w $\diamond\epsilon$, \uparrow 6-5u "blauen | gelben"/m, \uparrow 1u \clubsuit 142 8-12w in his Treatise speaks of species see to this 9-11??, 12m/u/w $\diamond\tau$, 13/15w ϵ , 13a "Pepo" pumpkins 14a "Citrullus" Water melon 15-17w Girou succeeded in these 15w τ , 19w τ , 20-30w The list of sections of genera which will not cross, shows no necessary relation of genera & crossing.- 143 6u \pm /6-15w sexual affinity belongs only to species, & often to only individuals, & cannot be externally recognised. Different Times of flowering do not prevent hybrids. \uparrow 3-2u \diamond , wb \diamond Bush with plant? 144 1w τ , 3-6w annual, biennial & perennial cross. 16-19w evergreen with deciduous cross 21w τ , 22-32w many hybrids wh succeed in summer, & fail in Autumn - some succeed so seldom may be called accidental. \uparrow 2-1m, wb the most different varieties can cross.- 145 3u \clubsuit /w can cross 14u "Lecoq"/w see to this 147 \uparrow 12-10u "Nicotiana | glauca"/15-7m/w Pollen of some plants can impregnate others, but not be impregnated by them. \uparrow 7-1m/w case of Nicotiana which will neither impregnate or be impregnated by other close species. wb \clubsuit 8 specs 148 \uparrow 1u "jene"/wb species 149 wt Van Mons thinks stability in first generation & variability in first distinctive character of species. 1u "diese"/w varieties 8-11m/w analogous to some organisms not varying in domestication 8-10u \pm /9-15w some hybrids as these keep constant in 7th & 8th generations but this rare.- 14w τ , \uparrow 12u "Blyth"/w see to this \uparrow 10-9w τ , \uparrow 3w τ , wb I had better give cases of closely allied & identical species in different climates to show species, & very different species in similar climates to show not direct effect of climate 150 1w τ , 1-15w I quite agree very near or identical species may have been created, but this has to be decided. 14m/u/w τ , 20w τ , 17-22m/w (a) 20-30w Seems to agree with Blyth, I must study him - wb (a) A great power of place - attraction has no

relation to geographical range.- in direct opposition to my view, but agrees with Hooker on Compositae. 152 9/11w τ 153 5/6w τ , \uparrow 10w τ , \uparrow 1u \leftrightarrow /w genera with many doubtful species 154 2/6w τ , \uparrow 7/ \uparrow 6w τ 155 18w τ , \uparrow 5w τ 156 \uparrow 12/ \uparrow 11w τ 157 \uparrow 4-1m/w seeds long retaining vegetating Power 158 1-12m/8-12w Wheat-seed identical \uparrow 14-8m/w These plants identical before So cross with recent. 159 \uparrow 17-13m/w says varieties go back 160 \uparrow 15w τ 161 1w τ , \uparrow 8w τ 162 \uparrow 17w τ , \uparrow 9w τ 163 10w τ , 15u "nahe verwandte"/w \diamond hybrids from close species when united with another, show their differences even plainer than whilst pure 8-11w I think it means only the result of A.B.C where χ differ from each other (a) 15u "nahe verwandter", 18-19u "z. | fulgens"/15-21m, 21-22u "geben | Bastarde", 22-28m/w Remarks This very odd if these close species descended from common ancestor. \uparrow 8-3m/w The existence of species consists of fixed sexual relation to other species wb (a) Is there any case of two close vars. when united to a 3d var. producing very different mongrels. 164 11w τ , 16w τ , 17-18u "die | fruchtbar", 16-20w Kolreuters Law of sterility can hardly be accepted. 24u \clubsuit /w do they seed? 23-30w These 2 Penstemons though so like, as to be considered varieties, cannot be crossed. wb \clubsuit || rarely certain individuals will not be impregnated see G. Beitrage. 165 5w τ , \uparrow 17-13m, wb X There are two P. gentianoides in cultivation the one commonly so called is the Hartwegi so misnamed - the true gentianoides is rare in cultivation differently shaped and not red 166 9u "der | seie"/8-12m 167 \uparrow 14-11m/w nearly related but will not cross \uparrow 4u "H. Lecoq" 168 1-5w I fancy that this is only that parents have originally crossed. 3w τ , 12u/a "Vareitatsbaste" I do not understand. are circumstances \clubsuit as the second generation of species - bastard Will explain more afterwards 13w τ , 14-24w Holds good with some wild \clubsuit species which fructify each other but do not sport like true vars whereby these plants are characterised like true species. 19-26m/w Get information on these - wild \clubsuit species Fertility tested by himself \uparrow 6m/w (a) wb (a) Genera with species agreeing in Habit, as above, hybridise most, Yet some species of these will not cross. 169 4-8m/w These species cross easily, yet other others of the genus, will not cross. 9-17w Though power of crossing sometimes goes with external resemblance yet the most natural Families & genera as here do not hybridise well.- 14-

16u♣, ↑13wt, ↑12m/w Hybridises differently 171 2u "Umbellaten"/w No Hybrids tried on Umbellifera ↑16-12w Thinks wd hybridise from being so variable ↑9u "Cruciaten"/↑9-5m/w all failed 172 ↑17u "Labiatae"/↑17-10w Labiatae little tried, but I know that Mimulus has succeeded 173 1-4m/w Most Natural Family 9-11m/w all failed ↑10u "Sageret" "Lecoq"/w quotes from Sageret ↑9u/wt, ↑11-9m/↑11-1w Sageret & Lecoq has found vars of Cucurb. will not cross promiscuously (References hardly bear out conclusion) 174 1-6m/wt cases of only few species in very close genera uniting, new species which are hard to specifically characterise.- table.w cases of very close species ♣ or more exactly, species having the same habitus which will not unite.- ↑5u♣, ↑5-1m, wb cases of species having very different habitus which do unite, chiefly from Herbert, except darks○ 175 1-7m, 9wt, ↑14-7m/w So Kolreuter shows, that propinquity does not go with power of hybridising ↑6-1m/w other examples of the same law 176 11-13m/w so says Morton of Beasts 14-20m/w The non-success of reciprocal impregnation clearest proofs that hybridisation not ♣ result of affinity. ↑13w♣, ↑11-3w cases of non-reciprocal fructification 177 2a "Langsdorfi" cannot be fructified by the 4 named sorts, though it can fructify them & some easily. 10-20m/w even when mutual crossing does take place in closely allied species, yet facility not alike (this is new) 21u♣/m/w closely allied, yet unite with difficulty & will not be reciprocal. 178 wt♣ ||officinalis & acaulis not in Loudon.- p721 officinalis = veris = Cowslip - I see it is barely possible without consulting Babington to know which is which wt Here are vars which will not unite 1-2w Most important 3-4u/wt/w on Babington's authority see Table 4-8m/w♣ Compare these very difficult 10-14m, 11-15w very different in Habit, yet unite easily.- 179 7-11m/8w Herbert 10u "Cereus", 11u "schon längst", 13-19w Cactus or Cereus Melocactus Echinocactus, Echinopsis, Phyllocactus 20u "H. Neubert", 21-22u "Cereus | Ottanis", 24u♣, 24-25u♣, 25u♣, 27-28u♣, 24-28w Neubert has succeeded in these crosses 180 3-6m/w Mongrels sport & he has seen same thing Cucurb. ↑19-16m, ↑12-8w Flowers very unlike yet cross ↑4-1m/w Colours of Verbascum 181 1-5m, ↑9u↔/m 182 9-13m/w These succeeded with G. having failed with Koel: ↑10-2m/w shape of pistil no effect in hybridising 183 ↑7-3m/w size of pollen no effect 184 ↑6-5m 185 ↑7/↑6/

↑2wt 186 6-8m/↑18w cause of Hybridising a Vital action & allows that the sexual relations is mere word 15wt, 19-20u "sondern | beide"/m, ↑12-1m/w Summary but nothing new 187 1-15m/w Summary but nothing new ↑16-8m/w cases when fructification has taken place, once after repeated failures.- 188 6-14m/w cases of plants differing chemically, compare this with difference in their sexual affinity 10wt, 15wt elective affinity 189 13-20m/w The closer or less close affinity. is shown by action of pollen on stigma & corolla.- ↑10-7m/w a chain of graduated affinities 191 10-13m/w♣ Yet in table does not put K. but i a 15-17m/w reverses with fewer seeds 194 wt Fertility of Hybrid, ♣ is in even less reation (<ie relation>) to affinity of parents than facility of first ♣ union or hybrid-fructification. It seems no relation between case of getting 1st hybrid & this hybrids fertility. This is case with the common Mule.- 4wt, 7wt elective affinity 3-13m, 11u "manche"/12u "leicht"/10-15w many plants easily cross, whose hybrids are quite sterile 11-16m, 16u "sexuell | verwandt", 16u "49", 17-18u "waren | fruchtbar", 22-25m/w and fertility of similar Hybrids very variable 25wt, table.w Hyb. fruct. of great difficulty wb I think Verbascum is case in point. 195 ↑16-14w seeds in pure ♣ parent cross ↑15u "80 | 120", ↑12u "paar | Samen"/w numbers of seed Hyb.fruct. ♣ when crossed ↑10u "151"/↑9u "29"/wb numbers of seeds in reciprocal (u↔) Hyb. fructification wb (hyb.-fruct. best expression) wb (pure. fructification) 196 wt ⚡ Bad simile We might as well as deny that the different were really different, because they had no "elective affinity" (I use word of Gärtner) whereas other two had strong elective affinity & wd unite & make a third.- 4w sexual non-reciprocity of the "elective affinity".- 197 wt The reciprocity of sexual alliance is not only different in strength, but is often entirely deficient 1-4m, 6-8m, 12-24m/w cases of slight unequal reciprocity in very closely allied species, some even thought to be varieties. table.m/w cases of more unequal reciprocity 198 ↑10-1w cases of sexual non-reciprocity 199 4wt, 14-15u♣/w most striking example ↑13w (a) wb (a) Special potency of pollen to impregnate other species of genus occur in Verbascum nigrum & Geum ♣ coccineum 200 wt In cases of entire sterility of one side of the reciprocal union, the other side generally only slightly fertile.- 1-4m 201 wt (z) || The absence of perfect reciprocity even in nearly related species, shows that male & female

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power of union do not go together: but the difference of male & female has no effect on the hybrid offspring 8m/w (z)→ 202 ↑16-1w/wb Hybrid A + b, crossed with pollen of C, hybrid is always like C. Repeated on p.273, & speculates, but does not explain says vital power of Hybrid is subordinated to the pure species.— 203 wt (a) N. rustica will not unite with N. glutinosa, but hybrid N. paniculata – rustica, will with glutinosa, & the character of rustica is seen in offspring.— 8-12m/w (a) ↑7-5w → do 205 1-13w as in Primula & Verbascum (?) But thus question of what species are is begged – 15u "Kölreuter", 16u "hybride Befruchtung", 14-17w First cross ♣ never bring so many seeds as nat. fruct. ↑4u "jedem Eichen"/w from each ↑2-1m, wb Remarks that Herbert's Crinum was not growing in own climate – But he says every ovule was impregnated. 206 2-4m/4u "Calceolaria bemerkt", ↑12-5w The number of seeds in Hybrid though dependent on conditions does not pass certain maximum 207 wt (a) Can judge of scale of elective affinity by number of seeds in hybrid-fruct., as compared to normal fruct. 1-18m/w (a) ↑16wt, ↑9u "nicht constant", ↑8-7u↔, ↑2-1u↔, ↑15-1m, wb an average of seeds taken from a number good plant growing in open nature 208 ↑15-12m/w seeds variable in colour & size wb as far I understand this, properly to count good seed, all ought to be tried by germination & growth, but then more elements of growth & death of seeds come into play 209 ↑11-6m, wb on account of unfavourable conditions, we take maximum of seed of hybrid cross. 210 1-6m/w always requires repeated experiments.— ↑13-8m/w only single instances of these unions. 211 2x, 13-22m/w in wild Plants number of seeds do not differ so greatly as to cause much difficulty in estimating numbers. ↑5-1m/w There are ♣ differences in flowers of same plant in being impregnated by foreign pollen.— 212 3-8w as individuals differ in some respect, as last page, several must be experimented on.— 8-9m/u↔, 16-19m/w cases of individual plants wh were femally sterile ↑14-1w as the difference between nature & artificial self-impregnation is never so great as in Hybrid fructification; he has taken wild plants as base of calculation, which seems to me to be an error. ↑4-3u "selbst | käme"/wb Effects of crossing every plant by self injurious.— see Beitrage p.366 213 ↑14m, ↑8wt 214 ↓w Sexual affinity calculated by maximum of good seeds till further experiments ever increase this

maximum ↑7-1m, wb experiments shd be tried at different times on different plants. 215 wt (a) Take average of number of seeds capable of germination under normal circumstances as the standard for comparison of best fruits 5u "vollkommensten"/m/w (a) 14u "keimungsfähigen", ↑6-1m/↑4u "20 Versuchen", wb very important, if this smaller number be not due to ♣ art used in the fructification. 216 table.a "polline" naturally ♣ impregnated table.w Scale of sexual elective affinity, inferred from maximum seeds from hybrid-fruct, not from Hybrids themselves 217 ↑8-3m/w (a) wb (a) Gärtner thinks that these tables of affinity show that pure species are aboriginally formed sterile.— It is contradicted absolutely by his vars. 218 ↑1w Silene of Steudel wb Here a genus more fertile than other species wb 777/7000 219 wt ee, table.w 3 genera before other species 220 4u "Kreuzung"/w with G. & Kölreuter implies reciprocal fertilisation ↑2-1m/wb cases of non-reciprocal fructification. 221 17w Reciprocity holds good generally when hybrid is intermediate in character. 20-23m/w Reciprocal case ↑3-1m/w (a) wb But when hybrid takes after mother or father type. then reciprocity will not take place.— This seems very curious 222 4w Mother type 6-9w Father-type most numerous. ↑14-11m/w (a) ↑7m, wb I fancy that the predominating power of one of 2 species, as shown in the hybrid – prevents reciprocity.— But there are exceptions. 223 1-24w self & Köelr. find the reciprocal crosses exactly alike. 19u "allgemeine"/w This is general rule, specially in wild plants, which are not varieties. 22-23u "Abweichungen | Farbe", 26u "Ausnahmstypen", ↑10-1w/wb Difference from animals as Mule & Hinny also hybrid animals differ in same litter; but in animals all half domesticated 224 1-5w Diff in animals & Plants owing to sexes separate in animals. ↑16-12m/↑15u "Differenz | Habitus", ↓w In comparison of sexes we must suppose habit the same, & form of parts direct result of sexual peculiarities. Whiskers in Man!! ↑7-6m/w Hybrids varied wb Whiskers & Mane cannot be thus accounted for wb No difference in Habitus of Plants, when sexes separate (because I say do not struggle for female: so lower radiata. 225 8-12m/w exceptions to uniformity of reciprocal crosses ↑18-8w curious exceptions in Genus Digitalis; not reciprocally alike 227 17-20w slight variations in hybrids 228 14m 230 ↑17-12m/w Double flower raised from male or female 231 wt Differs from animals for sex no effect on

Hybrids 4-9m/w a 10-14m/w see to this 232 13-19m/w Form of hybrids stable in 1st generation 20-24m/w → does not hold good with animals. 233 8-10m/w experimented with wild plants 234 ↓w/wb It is proved by long course of his & Köl's experiments that bastard even in 1st generation from same parents are always alike; & return in constant course to either parent when repeatedly crossed with such. → (a) Thinks this evidence of permanence of species; but I do not see more than ordinary generation keeping true; perhaps tests the trueness in another way: but a plant does not vary in first generation, when part out of normal conditions. ↑13-4m/w (a) Notice this argument 235 wt (a) Hybrids unions therefore follow same law in first generation as the union of pure species.— 5-7m/w a 6wτ, 9-19w Thinks the few exceptions to this normal structure of hybrids is due to variation 19-21m/u↔/w (a) ↑13-5m/w (z) wb (a) Rather hard, it seems to me to draw distinction; but Gaertner (z) urges the resemblance of Hybrids made at same time & after long intervals from same pure parents. 236 8-14w The normal Hybrid type keeps constant in succeeding generations only in the most fertile hybrids, generally. 237 1wτ, 6-14w very rarely sometimes single sports in a set of normal hybrids out of same fruit; & 9u "einzelne Bildung", 11u "sehr einem", 12u "doch mehreren" 238 2m/w "Digitalis, Lobelia"/wt only genera in which these exceptional types have been observed: (z) These exceptional types from same species always resemble each-other!! 12-15m/w (z)→ ↑12-6m/w on two years a peculiar yellow rare, so unlike as might be thought different kind. The mother type prevailing 239 12-17w From this cross obtained common normal & abnormal type. 240 5-8w one species of abnormal type. wb I observe that these abnormal types often take after one parent 242 2-5m/wt 2 plants of Passiflora differed from each other. 243 6-8m/6-12w neither father nor mother exclusive influence on abnormal types but depends on likeness to one or other. 15-17→, 19-22m/w These abnormal are not vague, but fixed production. ↑7-1m/w similar unlikenesses occur in these several cases 244 11m, 16-23w ↯ abnormal types generally quite sterile; (this very curious) ↑9-4w compares these abnormal types to atavism ↑6/↑4wτ 245 11-15w In abnormal types like both parents but most like one. 246 2wτ 247 ↑16w (a) These varieties seldom repeat each

other. ↑9-7m/u↔/w They occur chiefly in such species as are so closely allied, as to be held mere varieties wb The irregularity of reappearance, & slightness of differences seem only distinct differences with his abnormal Hybrids of the previous chapters.— 249 12-16m/w (a) wb (a) The abnormalities in Hybrids has observed only in plants, long cultivated in gardens, & not in wild plants; but I remember that only one side wild in Kölreuter is sufficient 250 ↑11/↑6wτ 251 20-25w not seldom ♣ in Hybrids one side or species prevails over other; & their prevailing is not accidental but is constant. 252 ↑4-1m/→/wb most difficult which of two parent-forms a hybrid comes nearest to 255 3-7m/wt Does not believe that Hybrids are ever unlike both parents 256 ↑20-15m/w cases where one side in Hybrid preponderates. ↑14-13u♠/w strongest instance ↑7-6m/w (a) wb (a) N. paniculata is almost lost in N. paniculata-vincaeflora, whereas in N. quadrivalvi-vincaeflora, vincaeflora is almost lost.— 257 5-7m/w Father type in this mixture prevails 13-16w seldom in Hybrid two parents of equal force. 258 wt (a) When two hybrids ♣ unite, & one offspring takes almost exclusively after one side, hybrid is sterile. 1wτ, 5-7m/w (a) 11u♠, 11-12u♠, 14-18m/w♦ one spec took most closely after father; was fertile. 259 13-16m/w Hybrids generally higher than pure; seldomer dwarfed. 261 4-5m/w Hybrid Verbascum generally woolly in Pots. 262 ↑13-1w odd that this hybrid no rudiment stamen, considering structure of both parents. ↑5-3m/w (B) wb (B) Female organ generally shows no signs of imperfection even when perfectly sterile. 264 ↑10-9m/u↔ 265 9u "Thiervarietäten", 19-21m, wb The entire differences, of different authors in ascribing more or less to Father or Mother shows there no real rule. 266 ↑15-12m, ↑15-14"...", ↑13u "pater major"/w seems pretty true 268 ↑17-11w in Plants neither father or mother has exclusive influence 269 ↑12m 273 3m, 5u "oben | 202", 1-24w See in Kolreuter whether vars. with a species give very similar Hybrids — 19a "Specifische" (a) 19-20u↔, 23u "Stramonium | Tatula"/22-25m/w (a) different species because hybrids different ↑13u "ganz | Bastarde", ↑11-9u♠/w These with N. glutinosa give quite similar product & therefore considers them vars. ↑9a "asiatica" not in Loudon ↑9/w and these vars. of rustica wb (a) (On Datura see my Abstract of Kolreuter p.8/Bis) I see no reason why varieties shd not equally show this

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distinctness in same way. Does not Ancon sheep impress offspring very remarkably?? 274 11-15w External conditions no special influence on character of Hybrids. 275 4-8w Hybrid *Dianthus* more stabile than other genera- 12u♣/w ♣ Mongrels follow different laws to Hybrids 13-16w *Digitalis peculiar* in its sporting, & exceptional. ↑17-15m/w G ↑8w In embryo plant no alteration in Hybrid from Mother ↑7-6m/w embryo of mother wb G Thinks the by far greater number of normal to abnormal Hybrid types opposed to their resulting from external circumstances. 276 wt In Hybrids, form of the cotyledons affected 277 12-19m/w differ 20wt, wb/↓w I think children of pure parents, thus go after either one or other or intermediate but as he says for Hybrids how ♣ difficult to judge & compare 279 ↑17-10w Exactly intermediate in number of segments of Pistil, & in sterility of stamens ↑17a "ruber" of same parents 280 wt In the cross *Lychnis* quite prevails over *Silene*, so that Hybrid is like var. of the *Lychnis* 2-4m, 7m 281 table.w Really intermediate Hybrids Kölreuter thought they too many intermediate ↑9-4m/w most difficult to settle whether plant most like Father or Mother 282 2-5m/wt commonest in close species 19w When one part more resembles (but is never identical with) Father, another the Mother; this part this, that part that &- 283 9-15w This gemengte character constant in those species, where it occurs. ↑16-1m 284 3w sterile 14o, 18w sterile 20-21u↔, 22o, 24o, 27o, 30o 285 13-14w Puts strongly how these 3 classes blend into each other.. 14w When a hybrid most strongly resembles either parent ↑1u "decidirt | mütterlich", wb These terms used when the two have been crossed not reciprocally - Relativ-vaterlich &c used, when they do cross reciprocally & takes after the father in cross specified.- 286 10-15m/w No relation in closer resemblance to Father or Mother to fertility of Hybrid 15-17m/15-23w reciprocal crosses take place though ♣ the offspring take decidedly after one parent. 20a "syphilitica" Decided types generally sterile, but not always as in *Lobelia* ↑14w strongest example ↑3-1m/wb ♣ These Hybrids, ♣ are a cross of Hybrid ♣ & a third species - ♦ How is it called when two Hybrids cross? 287 6m/w strongest case 288 5-9w some exceptional types ♣ come into this class. 289 wt Perhaps gemengte (or 2d class) the commonest p.282.- 4m/w (a) ↑7w (a) wb (a) So there are species of genus which a prepotent fertility ♣ power on other species; so others have predominating

influence on structure of Hybrids; but these two are not connected 290 5u "Gattungstypen", 4-10m/4-25w These kinds specially influence structure of Hybrids of other species, as → These are generally very distinct species.- Even these are sometimes overborne by other species; or rather there is a series of these gattungstypen 291 1-2m/wt Even in the mixed types, one part now resembles one parent, now another part the other parent.- 292 wt No relation between facility with which A will impregnate B or be ♣ impregnated by it, in different cases, & the resemblance of hybrid to the parent.- 10-17m/10w (a) ↑2-1m/wb This seems a Lamarkian 293 1wt, ↑10m 295 wt (a) Always something new in appearance of Hybrids; but not absolutely new, but appear so from odd unions & opposition of parent forms 1-3m/w (a) 7-9m/w (a) 17u "Mirabilis"/w cases of in 17-20w N.B Both sporting genera 296 ↑18-11m/w Day sleep of *Lychnis* blended ♣ & modified 297 15-20w power of reproduction by shoots &c Much exceeds that of pure parent 298 ↑8u "Morton"/↑8-3w Dogs vary from 10-6 nipples; thinks owing to crosses 301 ↑17-12w Colour variable often, in crosses & unexpected 302 13-20w Variations in colour in Hybrids 303 13-18m/w flowers do not take after Mother or Father in colour.- ↑2u±/↑4-1w/wb Some simple Hybrids retain in successive generations their colour as in *Dianthus* &c. But generally (next Page) case very different; colour most variable 304 wt variation said to keep true.- *Vinca rosea* a store Plant. *Syringa* Lilacs p743. The Book quoted probably cd not be consulted 2-5m/ →/3-4u "Vinca | coerulea", 8-14m/w very variable colours in successive generations of Hybrids 19-24w complex Hybrids even more variable in colour. ↑10u "zusammengesetzten"/ ↑10-4w These hybrids take almost always colour of father. 305 wt Sports 1-5u±, 3-7m, 8u "drei | verschiedenen", ↑14u♣/w Sport 306 ↑10m, ↑9-7m/w (a) wb White flowers commoner here than more South.- 307 wt Important on account of ♣ Kolreuter *Verbascum Lychnite* with white flowers rarely with yellow on sandy Places - (So Kolreuter case goes for nothing) 1-4m/w (a) 8-12m/w seed from yellow gave chiefly white 14-20m/w when crossed colours did not mix, but came pure yellow or white 6-20w See 3d Fortset. p.35 308 ↑13-12u "gelbe | Blume"/w vars. 309 ↑10-6m/↓w In Henslows List considered as varieties: I am nearly sure has been experimented on. Watson in Cybele

seems to consider them distinct: says perhaps or probably 2 species both varying. Refer to experiments of Magazine of Nat Hist V. p.493. & VIII.634 & Phytologist 2.164
 ↑6m/↑10-6w Ask Babington.- 310 ↑12-8m/w colours changing during summer 312 ↑15wε
 313 10-12w Blue & Yellow seldom unite 19-22w curious ways colours unite. 323 wt (a) In Mongrel Maize self-impregnated seeds of two colours 6u "selbst"/4-8m/w (a) 324 4-17w in 2d generation of Hybrid Maize seeds variously coloured 325 ↑8-4m, wb It is decided that seeds of Zea not affected immediately as in Pisum. Yet Next Page 326 15-17m/16u "wie | Pisum", ↑7-2m/w The Peas in second or hybrid generation varied in colour independently of immediate action of Pollen.- 329 ↑8-7m/w (a) wb (a) Hybrids are affected especially in Male organs, with exceptions 332 5-11w anthers & pollen in appearance sometimes good yet hybrid quite sterile 333 ↑9u "Liliaceen"/w often mentioned ↑9-5m/↑8u "und | Gewächsen", ↑9-1m, wb/↑9-1w In these plants, pollen, though in appearance good yet no impregnation follows ♦ (may be faculty of female organs) C.D] pollen though swells, does not burst, in water, yet admits it may be owing to female organs, or structure of roots 334 10-18m/1-18w But in cases, where plant can be impregnated by other individuals or species, we can infer pollen is bad. 12a "candidum" p745 Duvernoy 18m, ↑12-8m/w In most fruitful hybrids, pollen is unequally developed.- 336 6-9w The contents of pollen grains commonly fails. ↑6-2w seldom give out contents when placed in water 339 wt (a) In this hybrid M. Jalapa-longiflora, own pollen more powerful than own conception power.- 2-7m/w (a) 340 18-21m/w in Hybrid Birds no spermatozoa ↑6-1w thinks in animals as in plants, male organs more deficient than female. 344 13-17m/w even in most fruitful hybrids normal number of seeds never produced & always mingled with bad ones. ↑14-11m/w compares this fact to result of Hybrid fructifications. 346 7-10w Kolreuter failed in this Reversed experiment 347 ↑14m 348 19m 350 ↑7-5m/u "dass | vermögen" 353 8-12m/w Power of fructification in Hybrids always weakened 17-22m, wb Speaks of bisexuality as quite exceptional in vegetable Kingdom- 355 wt (a) insists male organs more & earlier affected in Hybrids than female 10-15m/w (a) 356 17u♣/15-19w case of pure species with female organs impotent while male perfect 22u♣/w so Passiflora ↑9u "freien | erzogenen"/↑8u♣/w so this ↑2-1m/wb

On other side pollen fails, yet female organ quite perfect & potent; in some Dianthus, this happened only with individuals plants.- 357 ↓m/w The wonderful cases, where in Lobelia, Verbascum & Zephyranthus, pollen wd not impregnate own stigma, but wd impregnate other species; these ♣ stigmas being also impregnated by pollen of other species ↑8/↑7wε 358 wt (a) The foregoing cases seem chiefly in plants brought from a warmer climate.- 1-4m/w (a) 5-9m/w Such anomalies much plainer in Hybrids 14u↔/w Hybrids 3 forms of sterility 17-18w cases of I. 359 1u♣/1-5w case in single individual of the Hybrid ↑20-1w Gaertner has great advantage that the sexual organs certainly are weakened, as producing so few seeds ↑7-3m/w (B) ↑2u, ↑1u/wr, wb (B) Puts this under category, that male less potent than female in each case; but surely Herberts is more true, viz advantage of crossing. - See to Herbert.- 360 wt (B) In this III. pollen of Hybrid wd not act on self, but in both parents; & pollen of latter impregnated Hybrid. accounts for this (not as I shd by advantage of crossing, & which I still think must hold in Herbert's case) but by believing (& it is probable) that both male & female organs weakened & cd not act on each other but only pure parents, or even the Nicotiana on a 3d species. 4u/w (B) 5-8w Is there any parallel III case in pure species? 10-25w These (I, II. & III) cases in Hybrids wonderful parallels to what happens in joining pure species!!! 361 wt (a) Reurges male organs fail first & most in Hybrids 1-4m/w (a) 17-20m/w says above ♣ analogous with animals 21m, ↑13-10m/w (B) ↑8-2m, wb (B) In Dioecious plants not hybrids, in females, male organs sometimes imperfectly developed, yet can fertilise; but in male rudiment of pistil never acquires power of conception. 362 1-25w/wt In L. Vespertina, in female flower, the rudiments of stamen much smaller than in L. diurna, & consequently only in latter are anthers sometimes found. Does not this well show that a rudiment has something essential & real in it - Very Good We can prove Mammæ in Male to be a reality.- Wings in insects & Here we can prove in another way. Gaertner somewhat suggests in Carrot to cut off the fertile flower early & see whether other flowers wd become fertile. At p345 & p.330 long description of crosses of Dioecious plants study it all.- ↑14w (z) ↑11-5w Similar changes take place easier in Monoecious than in Dioecious 363 15xx,

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↑12-8w In doubling male organs always change first *wb* Reasons why male organs more affected than female; seasons quite worthless.— May it not have some relation to Falconers Law of external parts first affected 364 *wt* accounts for hybrid breeding easier with parents than with self by own pollen having less strength; so in cases as below (zz) 1-6m/→, ↑8/↑7u▲/m/w (zz) ↑5a "333" 357 ↑5u▲, ↑5-1m, *wb* I cannot see how his explanation holds good, for the pollen of *L. fulgens* (s.64) did impregnate two other pure species. 365 *wt* (a) says much experience has shown him that hybrids, after 8-10 generations, have their procreative powers weaker & weaker; & hence cannot be prolonged.— (But then all crossing avoided) 4m, 8-13m/13u "*wie | hat*"!/10w (a) 366 2w quite sterile 11-15w Some individuals of these Hybrids quite sterile. ↑16-1w/*wb* Degree of fertility in most Hybrids, except the quite sterile, generally very variable, even in Hybrids from same capsule & reared alike (This shows how innate, & is opposed *<written over "compared">* to its being a character of species, as species.) — (P) Hence different accounts by different authors, as follows.— 367 *wt* A) This unfixeness of fertility of Hybrids, their special character, & not observed in pure species.— 5-6m/w A 13-23m/13w (B) *wb* (B) Some Hybrids, produce only seed at end, or middle, or (generally) beginning of their flowering, & are at other times sterile.— This a peculiarity, confined (when so pronounced) to Hybrids.— 368 ↑10-7[]/w Does not believe 369 *wt* Cases in pure Dioecious plants of changes in sexual relations 1-3m/w (a) 7-12m/w Female sterility of *D. Japonica* transmitted to offspring in Hybrids. ↑7-3m, *wb* Hybrid Plants which produce an extraordinary number of flowers & are quite sterile; caused by sterility p.372 370 *wt* Same thing sometimes occurs in pure species 1-6m 373 *wt* ??In Hybrids crossed with either parent, & thus assuming fertility & the ancestral form, yet fertility variable in such individuals; in the successive generations.— 2u "*eigenen*", 5-8m/w (a) 377 *wt* (a) seems to attribute sterility of Liliaceous Plants to state of roots.— 13u "*der | Liliaceen*"/w (a) ↑5-1m/w all sterile Cape of Good Hope Oxales 378 *wt* My point that plants often sterile & yet not unhealthy not touched on.— G. gives only obvious cases of infertility. 12-15m/w Hybrids in pots more fertile than in open ground. 20-22m/w In fruitful years more birth from domestic

animals 24m, ↑4-3m, *wb* More often cause of infertility on male than female side; as in *Caryophyllea* & *Verbascum* 379 12-16m/w cases when pollen good but female organ 17u "*manchen | unseren*", 20-30w often in exotics, pollen & female organs are ready at different times, & so can be impregnated artificially X ↑10-7m/w insects less important than wind!! ↑4-1m/w Infertility through long cultivation by layers & c *wb* * Would he say that C. Sprengel's facts were due to climatic influences? 380 1wτ, 2-5w Reported by Reichenbach 10-30w case of wild *Verbascums* & in pots, with certain flowers sterile & certain fertile; cannot explain. like Kolreuters cases 381 ↑13-10w Female mules in warm country breed. ↑7u "*erwähnt | Crax*"/ 7-5m, ↑4-2w Black swan with white 382 6u "*männlichen*"/w Male Hybrid pheasant sterile 15-19m/w Morton thinks relation between capacity of Hybridising & domestication ↑5u "*Fruchtbarkeit*"/w (a) *wb* (a) Fertility a fixed attribute of pure species (in natural conditions C.D) Mem. cases of moss not breeding, (these are probably Dioecious) in Hybrids a varying attribute. 383 3wτ, 7u▲/w fertile according to Kolreuter 384 12-14u↔, 15-19m/16u "*immer*", 16-18m/w In pure species artificial impregnation has not always yielded full number of seed ↑7-5m/x/↑10-5w I do not think G had GreenHouse he always speaks of ZimmerO *wb* Hybrids always less seeds than pure parents, as in following examples.— 385 *wt* See in *Beitrag* p398 *Lychnis vespertina* — *diurna* gave with own pollen 234 seed. 1-4m/w see to Kolreuter about *Datura* 3u "200-280", 4u "600-800", 7u "192"/8u "210 | *Samen*"/7-8m/w differences between natural & artificial impregnation ↑6-2m/w (B) *wb* (B) Great differences in different individuals of same hybrids & in different years, in fertility striking.— 386 2m, ↑12u↔/↑14-12m/w Genera with most fruitful Hybrids 387 1u▲/wt Henschel says this fertile, but reverse quite sterile. See Henslow. 13-20w No relation between fertility of pure parent & the facility of uniting, or with these Hybrids having fertility ↑12/↑9wτ 388 1wτ, 5-8m/w Hybrids nearly as fertile, but never quite as pure parents.— *table.w* The reverses of these not equally fertile. "*Lobelia*".w (K) in Table "*Matthiola*".w This not in list → as repeated at p.402 → The table is probably wrong "*Verbascum*".w Some great mistake Not in List!!! *wb* in little degree fertile, which is commonest case 389 *table.*"*Verbascum*".→ to previous table, 8u "*Absolut unfruchtbare*" 390 *table.w*/1-5m/w

The above numbers show that in Hybrids greater inclination for sterility than for fertility. $\uparrow 9-7m/14-3w$ Fertility so variable at different times, & in different individuals, that simple classes of fertile & infertile Hybrids will not do. 391 *wt* (B) Here are 4 cases, in which other authors find fertility whereas Gaertner finds great sterility: was he bad Gardener? $5-10m/w$ various striking cases of difference fertility, as found by different authors. $8u$ "unseren", $8w$ (1) $9u$ "total steril", $11u$ "bei uns"/ w (2) $13u$ "bei total", $14-19m/w$ one year so fertile as to self sow, in next year very sterile. $\uparrow 14u$ "immer total"/ w (4) (B) $\uparrow 6-3m/P$, *wb* (P) cases of Hybrids out of same capsule, of different degrees of fertility & some quite sterile.— 392 $7-15w$ In the greater number of Hybrids sterility belongs more to the individual than to the kind; (ie some are or may be fertile) $\uparrow 14-3w$ in same category stands fact (χ) that Spring or first flower of Hybrids only bring seed generally. 393 $5u$ "ersten Früchte" $7u$ "40 Samen", $8u$ "2-3"/ w Examples of above laws χ $\uparrow 11-6m/w$ In pure species the difference in no. of seeds in early & late flowers inconsiderable $\uparrow 9u/w$ 394 $7m$, $8-14w$ Variability of Fertility cannot be accounted for by luxuriance $17-20w$ In pure species, when periodically infertile not very luxuriant $\uparrow 4-3m/wb$ Fertility does not stand in inverse relation to their Luxuriance 395 $9-14w$ Herberts' case of fertility after 16 years might be due to pollen of pure parent. $\uparrow 6-1w$ No art or \clubsuit culture will alter or improve the organs of generation in Hybrids. 396 $10w$, $16z$, $\uparrow 9-7w$ Fertility does not go by genera $\uparrow 5u$, $\uparrow 4u$, $\uparrow 4-1m$ 397 $\uparrow 8-1w$ The inequality of fertility in hybrids from same generation, shows that fertility cannot depend on outwards circumstances 398 $2-4m/1-8w$ Hybrids in pots easier bear seed than in open land, because too much luxuriance thus checked $11-16w$ tried experiment to see effect of different culture &c & *cd* perceive none.— 399 *wt* \clubsuit || Certainly a priori, one wd have expected a gradation in fertility of hybrids & old mongrels as Dogs In Gaertner Tables there is app \blacktriangleright to this. $4m$, $\uparrow 11w$ 400 $3-13w$ Contradicts Wiegman that maternal or paternal types fertile individuals sterile. $\uparrow 13-1w$ Chief conclusions (1) Unfixity of fertility in same hybrid The varying form of the \clubsuit Hybrid is the abstract which can be divided into following classes. 402 $\uparrow 2/\uparrow 1m$ 403 $4-6m$ 404 $\uparrow 2-1u$ \leftrightarrow 405 *wt* (a) Hence resemblance of Hybrids to either parent no marked influence on fertility.— $1u$ \clubsuit / w male $5-7m/w$

(a) $\uparrow 20-12m$, $\uparrow 20w$ (B) $\uparrow 10-3m$, $\uparrow 10w$ Examples $\uparrow 7u$ "256", $\uparrow 5u$ "diesen Bastarde", $\uparrow 4u$ "absolut unfruchtbar", $\uparrow 3w$ Examples $\uparrow 2-1m/\uparrow 1u$ "49", *wb* (B) These authors think law of relation between fertility of Hybrids & the affinity of parents; but if we judge of latter by seeds yielded, there is no relation to fertility of Hybrids when reared from them 406 $9-10m$, $9-11m/8-13w$ We conclude that fertility of hybrids stands in no near relation to \clubsuit elective affinity of parents.— $25x/16-19w$ Yet strong exceptions on next page $20-30w$ When plants cross easily both ways, hybrids most commonly fertile. This fertility seems to depend on resemblance in Hybrids of parents, but with exceptions 407 *wt* (a) In Hybrids from reversed crosses, even when quite like each other, Yet fertility not same, & in one case even on one side quite sterile. X \clubsuit Important as shows not in essence of Hybrids.— $2-12m/10u$ \leftrightarrow / w Yes for see p.385 $13-16m/w$ Ease (he probably means Case) when reverse cross easy, yet Hybrid sterile $\uparrow 6-2m/w$ (B) *wb* (B) From \clubsuit facility of union cannot infer fertility of product 408 $9-10u/8-13w$ It seems that systematic affinity of Parents favours the fertility of Hybrids see p.410. $\uparrow 7-5m/w$ Above law it seems has been discussed *table.w* see p.414 Hybrids from these have remarkable fertility & were considered by Kolreuter as varieties. *wb* When we consider these facts we might conclude that fertility of Hybrids indirect relation to affinity of parents 409 $1-20w$ But on other side (\rightarrow this other side seems most strong) many close species will not unite, & (2d) that some species will unite & produce more fertile hybrids than more closely allied species. examples. $18-20m$, $\uparrow 13-12m$ 410 $1u$ "Herbert", $5-7w$ Examples as before 12||, *table.w* Examples of nearly related species having hybrids quite sterile $\uparrow 8-4w$ Most unlike dogs breed & produce fertile offspring. $\uparrow 1m/wb$ concludes that likeness in Habitus cannot be ground cause of fertility or sterility of Hybrids. 411 $12u$ "constitutionellen"/ w considers this an unknown element $\uparrow 8-5m$, *wb* Repeats that as fertility varies in Hybrid from same parents, it belongs to the individual & not to the Kind 412 *wt* Even in quite sterile plants in both sexes, yet flowers remain longer when stigma dusted with pollen of either pure parent so in truth not utterly sterile $2-7m$, $8-11m$, $\uparrow 8-1m/w$ argues against the several explanations of Herbert of special cases of sterility 413 $14-18w$ not on account of evergreen & deciduous leaves. 414 $13u$, *table.w* considered varieties

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 by Kolreuter from fertility "*Datura*",
 "*Malva*".w ia (others).w o o means not tried
 by Gaertner "*Dianthus*".w XX 2nd table.w o
 not tried These 2 are added, though
 Kolreuter cannot dare to call only vars. $\uparrow 4u$
 "parum vel", wb XX. V. My M.S. p.19 on
 Kolreuter, showing that all Botanists agree in
 thinking these only vars. 415 table.w/wt ia But
 as several of these are probably rare it is
 very important that G. says not so fertile as
 pure parents, for we get then a series table.w
 also highly fertile Hybrids "*Matthiola*".w
 Bentham says var. 3-5m/w but yet not so
 fertile, in any of above cases, as pure
 parents. 3u "allen diesen"/3-10w Yet he has
 not tried all Koelreuters must mean these
 last alone 4u "ausgezeichneten", 5-6u
 "niemals hervorbringen" 417 wt (a) Agrees
 with Herberts constitutional doctrine (which I
 think means only some internal difference.
 3-8m/w (a) 418 $\uparrow 12-8m/w$ (a) 5-2m, wb (a)
 The most fertile hybrids always lose fertility
 in successive generations.- some sterish
 plants if artificially fertilised increase in
 fertility 420 12-25w In 2d & other generations
 of Hybrids, fertility becomes unstable & often
 less, so that even parent-pollen will then
 have little or no effect. This sterility,
 however, varies much in different individuals
 & depends especially on the individuals 13-
 18m, $\uparrow 9-6m/w$ A $\uparrow 5-2m/w$ Fertility never
 greater in 2 generation, than in first. $\uparrow 1w$,
 wb (A) In Mongrels, fertility even greater in
 second generation, than in first. see further
 on; for this perhaps implies less fertility in
 crossing varieties.- 421 wt (B) This decrease
 of fertility in second generation has been
 observed in less fertile hybrids of *Nicotiana*,
 & fertile *Dianthus* hybrids, as in example
 given. As this is only second generation
 cannot be due to want of crossing.- 1-4m/w
 B 8-9m/w So in animals according to Morton
 15-25w sometimes fertility increased after
 repeated artificial impregnation in succeeding
 generation, but this plant has commonly
 gone back to either father or mother type
 20wt, 25-27m/w D wb (D) Many very fertile
 hybrids propagate themselves, with
 unaltered type like pure species, as in list,
 but always with decreasing fertility. 422 3-
 4m, 5-10m/w In 2d & succeeding generation
 hybrids sport much \clubsuit $\uparrow 6-1m$, wb some
 remain like hybrid others go back to either
 grandmother or grandfather 423 wt (a) The
 \clubsuit manner in which type divides, & goes
 back, varies much.- 2-8m/w (a) 13u \clubsuit /w
 offspring of this varied more than from
 reverse 15u \clubsuit /w greatly & $\uparrow 15-9m/w$

Kolreuter compares these with hybrids
 crossed with pure parents. 424 15-21m/w
 The exceptional or abnormal hybrids, when
 fertile, generally produce normal hybrids.
 $\uparrow 8m$ 425 12u \clubsuit /12-16m/w with own pollen 4
 seeds with pollen of *D. barbatus* 10. seeds.-
 16u "29 gute"/17u "67 hervor"/16-17m/16-23w
 so again, & thus often.- & likewise so with
 very fertile hybrids.- $\uparrow 8-3w$ & so with quite
 sterile hybrids, corolla remains longer when
 dusted with either parent pollen.- 426 11-
 14w examples as last page $\uparrow 12-1w/wb$ when
 parent & hybrid pollen mixed, latter rendered
 quite ineffectual, so that no need to castrate;
 just like when foreign & own pollen applied
 to a plant, own eliminates quite effect of the
 foreign.- This Curious. 427 wt (A) Pollen of a
 third kind will sometimes produce more
 effect, than own hybrid pollen. 1-2w (A) 3u \clubsuit ,
 5u \clubsuit /3-6w 13 seeds with own pollen;
langsdorfii 16 seeds. 18wt 428 15-19m/13-
 30w The pollen of the two parents has no
 regard to their sexes in the effect they
 produce, but that pollen, which has most
 power of metamorphosis or *umwandlung*,
 which will be discussed afterwards, I
suppose that pollen which soonest converts
 hybrid into pure species, produces also most
 seeds in Hybrid. $\uparrow 18-7m/\uparrow 13w$ A wb (A)
 Niger again variability of offspring of self-
 impregnated hybrids.= so mongrels are.- 429
 1/2/4wt, 12u "aufsteigenden", 16wt, 17-18u
 "väterliche Bastarde"/w Paternal Hybrids - are
 offspring of pollen of \clubsuit same species twice
 $\uparrow 6u$ "2"/wb If this \clubsuit hybrid had been
 crossed with pollen of *atro-purpurea*, it wd
 have been a "Muterliche Bastard" or
 "absteigenden" grade p.451 430 1-8w by
 Father pollen more seed generally than by
 Hybrids own pollen, but generally not so
 many as in first cross of pure parents 14u
 "einfache", 15-17m/w much unfixedness in
 this class of Hybrids 17m, 18-30w Like
 second generation of simple hybrids, these
 Paternal Hybrids vary much & differ much in
 fertility, out of same capsule. So very
 different results from repeated experiments
 with same species. 431 1-3m/1-10w The
 more fruitful hybrids vary less, & go back
 more to paternal type, but have often
 reduced fertility, as, - examples 9wt, $\uparrow 17-7w$
 When they take less after paternal type &
 are much less fruitful, so vary much.-
 generally under 3 types, in accordance with
 resemblance to ancestors & parent.- $\uparrow 10u$
 "schwächeren"/? 432 wt Different species
 have different tendency to communicate their
 variability; old cultivated plants 9-11m/w (a)

↑14-1m, wb In these cases the ♣ type which normally approaches to father or double pollen side is less fertile 433 wt I am not quite sure that these two pages are fully understood 8-13m/w Here the type which came nearest father was most fertile. 17wτ, 18-25w all sorts of variability in type & fertility ↑2u 434 2m, 16-20m/w It is clear that fertility does not always at all increase ♣ in resemblance in succeeding generations, with ∞↔X ancestor ↑12u "fünf"/↑16-12w 5 different types out of this "paternal" hybrid ↑10-8m/w Here case of coming near the paternal type with considerable fertility 435 wt A Commonest rule or appearance in this stage of conversion is that the more the hybrids differ from mother & approach the paternal type, the more they suffer in fertility.- Thinks the reverse more probably really the law. 12-16m/w A 18wτ, ↑12-6w Female organs recover first their powers.- ↑4-1m, ↑1u♣/wb Fertility in this in such as → always very variable 436 4-8w Examples of above variability in fertility 10-30w These "paternal" hybrids are when self impregnated, generally more fertile, than in former generation, & of themselves tend to approach the paternal type; ie even when self impregnated & are variable in structure. ↑10-9u "in | Generation", ↑10-3m/↑8w B wb B This particular hybrid came by itself more fertile, which he seems to consider normal result of repeated impregnations of own pollen 437 wt Think the above like avatismus in Animals 1-4m, 8-9u "in | Generation", 8-12w when go back to Mother, not quite & unequally. 16wτ, ↑10wτ, ↑9u "Puis" "Van Mons"/↑9-4w So these authors wrongly dispute tendency to avatism 438 8-12w Thinks all variation from cultivation when free tend to go back. 19/20wτ, 19-22w tends more to mother than Father ↑10-4m/↑9w (A) ↑3wτ, wb Happens oftener with same genera than with others; never in the very fruitful Hybrids- 439 6u "Lavatera | Generation", 7-10w This first time more to mother in another case more to Father. 14-20w In these going back progeny○ of Hybrids, fertility less, sometimes gone, never increased. ↑13/↑8wτ 440 10wτ, ↑16-4m, ↑9wτ, wb I believe he here argues that going back of Hybrid offspring, & of varieties not crossed, is evidence of aboriginal foundation form of species. ☞ So it is some evidence - V. p.455 my Note. Good. 441 wt Thinks the former Laburnum case a proof of sterility of species & tendency to go back. 1-3m, 9/10wτ, ↑13-3w The occasional approach to

father in simple Hybrids or in second generation of Paternal Hybrids, is rarer than the approach to the mother. 442 8-13w amongst simple Hybrids Those that approach Father are more sterile. 19u/19-20m/w These are apt to tend to Father ↑12-1w The Paternal Hybrids in 2d degree which go back to father have increased fertility. These cases liable to error. 443 6wτ, 6-9w All the above facts like avatismus in animals. 444 1wτ, ↑3-1m/↑2u "weiteren Generationen", wb in very fertile hybrids these goings back to mother or father have not been perceived, so prevented apparently by strength of sexual organs. 445 wt (A) These goings back agree with the Abnormal types, except these latter are the result of the crossing of pure parents: they also are very sterile. 1-3m/w Law of variation 6-7m/w A 17-20w In successive generations more variability ↑13u♣/↑13-11w These sorts of Hybrids give most variation. ↑8w D. barbatocarthusia,- carthusium. ↑7u "väterliche Bastarde", ↑7-3w variation seldom then in last case (♣ next Page on do) ↑2u "paniculatorustico-glutinosa"/wb These hybrids always with one exception approach father (or 2d species) & commonly totally sterile Yet I think they were sometimes more fertile than with own pollen.- 446 4m, 6-10w Male more power in causing variation than female. ↑14-6w Cause of variability lies in act of generation perhaps aided by circumstances 447 ↑16u♣/↑16-12w not to be distinguished from pure N. rustica, but less sterile ↑8u♣/↑8-6w & even in this generation less fertile z/wb Mother Father♦ pure ♣ paniculata Grand Father♦ Mother Gt Gr. Mother (3) Grt Grt grandFather (4) was paniculata 448 1-8w Different species are changed at very different rates with the paternal type, but this varies in same species 449 3wτ, 8-10m/3-10w colour of flower does not vary more in later generation than in first, which is different from other variability ↑15w A ↑7u♣/↑7-1w Even some of these quite sterile in both sexes wb A In some case, especially such as are slow to be converted, the fertility is lessened, especially on male side, even when hybrid has gone back nearly to paternal type. 450 wt A Such Hybrids with own pollen improve fertility & of themselves go nearer the paternal type. 1m, 1-12w Even some fruitful paternal hybrids in 3d degree were quite sterile on male side. Generally with higher degree of Paternal hybridism, so much more fertile. 14u♣/w A ↑13wτ, ↑12u♣, wb In each paternal degree this became

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more sterile on female side, because it approached *D. Japonica* which is naturally sterile on female side. 451 $\uparrow 10w$ 452 1-4w More fertile than corresponding paternal Hybrid 9-12w varies more \clubsuit than paternal hybrid $x \rightarrow$ chinensis-barbatus female barbatus male *table.w* These bore 6-15 varieties $\uparrow 10-1w$ Most of the vars have approached very close to pure maternal type 453 *wt xxx* I shd think caused by female side of Hybrid being most fertile & other side being crossed with same type, through a male, caused their greater fertility. & is partly proof of more fertility on female side. 8m, 10-14w More fertile than corresponding Paternal Hybrids *xxx* 17-28w But even here amongst those most closely resembling Maternal type, quite sterile individuals are found. Here also male side fails in fertility more than female. $\uparrow 12-9m/w$ A *wb* A In further generations, when self impregnated, become of themselves more like mother & more fertile & less variable- 454 10-20w The more fruitful stick to the hybrid type longer than the less fruitful. Rate of going back varies according to Kind 455 *wt/1-5w* A Neither var. shd be an aboriginal form. This makes me believe the reported fact that Mongrels go back: Bell insisted on this to me one day, in regard to Pigeons, & I think Dixon did. \clubsuit So Gaertners remark that this proof of Real Species fails, for applicable to Varieties 1-15w \rightarrow But it might be said that one var. was an ursprungliche forme.- 8u "*zur Stammutter*", 7-18w The law that these (I fancy both paternal & maternal, anyhow the latter) of themselves, self-impregnated go back to type of Mother, most important. (A) 22-23w The metamorphosis of one species into another like a variety into another seems opposed to species being something distinct as Entity.- XX $\uparrow 6-5w$ In Tollets case of Malay Fowls so long affecting breed is case of a var. with stronger tendency than others to go back, like species *wb* XX It is argued that the sterility of hybrids, shows that species are a distinct entity, then surely the points in which they agree, may be fairly adduced to show that they are not essentially different 457 $10w$ 458 $\uparrow 7-4m/w$ (a) *wb* (a) The rate of metamorphosis depends chiefly on the species employed; but also in less degree on the variety (This rate has narrow limit) of the individuals employed; on account of different degree which they go back in type 459 13-16w The shorter the period of Metamorphosis the less variable 16m, 19w, $\uparrow 14-12m/\uparrow 16-5w$ In

reverse cases, the metamorphosis at different rates, even though the hybrids from the reverse \clubsuit be alike. Thinks this proof of aboriginal creation. $\uparrow 2-1m/w$ A *wb* A Always approach to type of ancestral form before organs of generation quite perfected; ie these are last restored. 460 *wt* It is not likely we shd understand the slow restoration of the generative organs, as long as we remain so ignorant regarding the essential action of these organs; & why two sexes necessary.- 8-10m/6-16w Not seldom quite like pure parents & yet even quite sterile, specially male organs; sexual organs universally \clubsuit in some degree affected 11-12u "*allen* | *Ausnahme*", $\uparrow 16-12m/w$ Law, that male organs not only more easily affected but slower restored. $\uparrow 7-1m/w$ do not understand. 461 $\downarrow w$ extreme variability of fertility during the *umwandelung*, not connected with any law.- Never suddenly appears by a jump. Yet one almost exception by Kolreuter, with unusual approach to pure type, and Gaertner one other case with relatively little approach to pure parent. These cases show that the gain of fertility \clubsuit is due to peculiarities of the individual 17-22u \pm 463 *wt* (A) As in first generation, decided types (Given in last page & p285) arise close to one parent, so it is evident the number of generations required for metamorphosis must vary much. 6-12m/8w A *table.w* on average 464 $\uparrow 13-7w$ As far as yet known never requires more than 6 or 7 generations $\uparrow 10/7w$, 6m 465 *wt* A Attributes the variability not entirely to the difference of the going back of individuals, but also to variability due to long cultivation, for has not perceived it in the wild-growing, nor in the more fruitful hybrids.- 11-19m/12w (A) $\uparrow 14u$ "*oben* | 220", $\uparrow 13z$, $\uparrow 13-1w$ In reversed crosses, even when hybrids are alike yet they are not metamorphosed with equal readiness, which shows some difference in their nature \rightarrow $\uparrow 2-1u \leftrightarrow w$ example *wb* \clubsuit Thus Dianthus 466 *wt* Hybrids may be considered as a united brother & sister 17w 467 *wt/1-10w* Would not "Reduction" good be term for *Umwandelung* = inversion in Dict. \rightarrow Absorption by Father form *wt* Reduction by the Father or of mother or by paternal pollen or maternal pollen 7-10m/7-17w (B) Fertility of hybrids stands in no special relation to capacity for metamorphosis: Examples,- very sterile & yet in 3 power almost reduced to *D. car.* 13u \clubsuit , 16u "*dritten Grade*", 20-24m/w fertile but require 5 powers & c & c $\uparrow 2m$, $\uparrow 1w$ other

reasons for (B). 468 $\uparrow 8-5m/w$ A *wb* (A) Generally with less ♣ "sexual affinity" of first pure parents the Reduction ♣ slower, & the reverse with ♣ more fertility 469 $8-10w$ Exceptions to ♣ last rule $\uparrow 15-12w$ Examples of above rule 470 *wt* Foregoing examples show no fixed relation between periods of Metamorphosis & sexual affinity of Plants.— $1-2m/w$ A *8u* "*der | Typus*" / $6-15w$ A species with this power of producing a decided type will reduce a species in the reverse manner $\uparrow 13-10m/w$ There is also relation to systematic affinity of species. *wb* Systematic affinity must mean "likeness of characters externally visible. 471 $\uparrow 14-6m/w$ Examples of last Rule $\uparrow 3-1w$ Exceptions to 472 *wt* (Q) The different powers of reduction in hybrids from reversed crosses, show no fixed relation to "systematic affinity of parents $9-13m/w$ Q 473 *wt* (B) Returns to parent-forms through self-impregnation are very slow, & require many generations. $11-15m/w$ (B) 23m 474 $6-10m/w$ The goings back seldom observed in wild plants when experimented on 12a "428" 438? $13-20w$ Conclusions (1) Facility of Reduction not absolutely depends on sexual or systematic affinity.— (2) Returns more often to Mother than Father. $\uparrow 8-6w$ Not all embryos affected alike. 475 $\downarrow w$ I suppose he wd say there was a hatred in the Vegetable Kingdom to these crosses: perhaps his argument directed against those; like Herbert who believe in hybrid origin of species. $2w\tau$, $16-17u$ ♣ / $13-18w$ In reduced hybrids traces of parental character may be yet discovered. $19w\tau$, $\uparrow 13-8m / \uparrow 11-10u$ "*unzweidentigen*" / *w* (a) $\uparrow 1w\tau$, *wb* Thinks the Reduction of species affords "unequivocal" proof that the limits of species confined & fixed. How curious. I can see force in this argument in reductions by self-impregnation.— 476 $1w\tau$, $1-6m/w$ Excessive care in preventing parent pollen, Kept in chamber.— $\uparrow 9-8w$ The old stories of Grasses changing into each other.— $\uparrow 4w\tau$ 477 $8w\tau$ 478 $5w\tau$, $4-6w$ Hornsuch defender of transmutation $13w\tau$, $17u$ "*Berg*" 496 $\uparrow 7w / \uparrow 4w / wb\tau$, *wb* Amongst seed of Vetch, some chickpea, which produced 2 vars. like Vetch 497 $\uparrow 7-5w$ Amongst the seeds he found 4 vars. 498 $18-23w$ 4 vars of Peas, very slightly different, raised out of bought seed.— 499 $8-16w$ no variously coloured seeds produced & it is clear he wd like pairs to prevent crossing $\uparrow 11a$ "51" 3 correct $\uparrow 3 / \uparrow 2w\tau$ 500 *fn nos corrected*), *wt* (a) Remarks that many plants when put out of proper conditions do not vary, & those that do, their

union retain & power of union suffer much less $7-10m/w$ a $11-16m/w$ Cases of change of Form chiefly in Lecoq $16-18u \pm / m/w$ these very fixed $\uparrow 14w\tau$, $\uparrow 10-8w$ long cultivated plants as $\uparrow 6u$ "*Cerealien, Leguminosen*" / $\uparrow 4-2u$ "*Dianthus | Tabacum*" / *m/w* vary 501 $1m/w\tau$ same cause makes them ♣ easily depart from normal Bastard-type $7-9w$ varieties tend to go back; no facts given $8w\tau$, *fn nos corrected*), $\uparrow 12-6m$, *wb* Quotes Herbert, that domestic variations do not affect organs of generation 503 $22w\tau$, $23-24w$ There are 6 of these classes. 504 $5-8w$ Simple Hybrids of own type *2nd table.w* I cannot think why Reduced Hybrids per patrem are here omitted *wb* → (a) & (b) Hybrids alike & so also (c) or Reduced Hybrid per matrem. 505 $9m$, $11m$, $23m/w$ (C) 506 *wt* (a) It is only the quantity of blood from either side which makes a difference. $4-17w$ Thus these are alike (a) But when one factor is more powerful in its influence, then there is a difference, as. $12-17m/w$ very variable & generally very sterile with exceptions. 507 $1w\tau$, $2m/u$ "*aus | Faktoren*", $19u$ "*sind | steril*" / $15-19w$ Excessively variable & generally absolutely sterile $22-23w$ compounded. 3 species same as last only mother a hybrid $\uparrow 2-1m/wb$ In type always (yet a prepotent type in any species has some influence) go to Father: ♣ but in different degrees.— (So Kolreuter also says) fertility varies generally little.— 508 $4-5u$ "*vermittelnde*" / $3-5w$ are very distinct from class 5 $6-10m/w$ In this subclass the 3 pure parents are somewhat allied *table.w* very little fertility in one folling case very considerable fertility $\uparrow 2-1 \rightarrow 509$ $\uparrow 7m$, $\uparrow 5w$ (A) *wb* (A) In the second subclass, species are used which will not cross without the intermediate & 3d species, & therefore are very little allied in sexual affinity.— These always most closely resemble pure father. Excessively sterile 511 $14-19m$ 512 $13-15m/w$ a tendency to vary even in individual plant $17-24m / 22w$ (a) *wb* This extreme closeness to father very singular & against ordinary laws of Hybridism, explained by greater potency of pure pollen of Father, as likewise is shown in the 3d class, in which Mother is pure & yet it seems no leaning to either side. 513 $\uparrow 19-11w$ ♦ It seems that where pollen pure & ovules hybrid, then appr to pure & less variability $\uparrow 9-4m/m$, *wb* not so variable, apparently owing to the potency of effect of pure parent.— 514 *wt* A Conclusions (1) that hybrid ovule or pollen cause of variability. (2) that the pollen, even of hybrid origin has preponderating influence over

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 female !!! I do not see how second
 conclusion 1-6m/w (A) 5wτ, 6m 515 4wτ,
table.w Here whichever species has the most
 typical strength, the offspring resembles it –
 quite sterile *table.w* Not one is Double 516
table.w 4 species united *table.w* In this the
 several offspring resembled all four parents
table.w Excessively variable, no two
 individuals alike. Fertility lost. 517 wt It is
 clear that the more complicated the unions
 the more variability ensues. ↑14-11w Hybrids
 can be told from pure only by variability ↑16u
 "schon | ersten", ↑15-3u "niemals | Arten" /m/w
 repeated over & over again ↑1m 518 2m, 3m,
 8m, 10-13u↔, 14m, 15m, 16m,
 17-18m/w not more subject to mal-
 conformation than pure species 18-19u↔
 519 wt Some hybrids can be much more
 easily impregnated when growing in pots
 than in open land, because too much
 luxuriance checked.– Good instance of ease
 of effect of too much luxuriance 1-7m/3w (a)
 ↑4-2w some seeds look poorer 520 1-10w of
 these many seed fail quite or seedlings live
 very short time or rather longer or only just
 flower 16-17w examples of above ↑13-4w
 The above one exception to rule, & may be
 due to greater susceptibility of outer causes
 521 ↑14-13u↔/x, ↑11-10u "Sageret | aus" /↑11-
 9m 522 1u♦, 18u "11 | Bastardarten" /m/x/1-
 18w♦ Period of germination in Hybrid seeds
 very various 523 13-14m/x, ↑18u
 "Bastardsamen | Art" /↑18-16m/x, ↑15-13m/x/
 ↑13-12u "weil | werden", ↑12-11m/w (a) ↑8-
 5→, wb The typical strength of a species
 over the other is shown in affecting period of
 germination of Hybrid seeds 524 13-17m,
 ↑16-15u "daher | grosse" /↑16-8m 525 ↑4-1m,
 wb Hybrid seeds do not appear to keep so
 long as pure seeds 526 ↑4-1m/w all
 observers agree about luxuriance of hybrids
 527 5w long stems ↑12-8w Easily
 propagated by cuttings &&c ↑9u "stocken
 sich" /wb Even in stocks "make offsets" ↑7-
 6m, ↑4u "Seitenästen" 528 8-9w *Proliferus* 17-
 23w Thought to be related by Kolreuter to
 sterility of Hybrids 21wτ, ↑9-1w/wb Opposed
 to this is the fact that luxuriance begins
 before development of sexual organs I do
 not think this objection 529 3-8w (3) all very
 sterile hybrids are not luxuriant 12-17w (4)
 These hybrids which are most fruitful are the
 most luxuriant ↑14-10w concludes luxuriance
 a peculiar quality of Hybrids. ↑9u/wτ 530 4-
 10w Hybrids flower earlier with exceptions
 531 13-19w unseasonable flowers This is
 odd. Is it not like double flowers? ↑11-4w
 stamens & stigma increase in number

sometimes, but not both *wb* rare exceptions
 to above, when very distinct species united.
 532 13-25w Kolreuter accounts for above by
 sterility, but doubts as most fruitful * Hybrids,
 are those which produced most flowers 17u
 "diejenigen Bastarde", *wb* * Yet these are in
 some degree sterile 533 ↑16-8w absolutely
 sterile hybrids have ♣ their flower long
 preserved, when dusted with pollen of either
 parent.– 534 ↑15-13w Flowers longer ↑2-1w
 some exceptions 537 ↑18-5w Because Bees
 freely frequent quite sterile hybrids, for
 Honey, thinks no close relation between
 dissemination of pollen & nectar. ♣ Might as
 well as say elytre not connected with
 protection of wings, because present in
 apterous insects ↑11u "Fruchtungsvermögen"
 539 ↑6-1m/w Thinks Kolreuter wrong in
 concluding these are only vars 540 ↑20-15m/
 ↑20-5w Never gives so many seeds as pure
 parent. As pure species are often sterile
 sterility cannot be taken as proof of
 hybridism 541 wt can offer no explanation of
 Sterility 1-6m 542 wt Duration of plants
 whether 1 or 2 years always very variable 3-
 5m/5u "Koch", 7-17w Hybrids longer lived.
 strong character of such plants, as below
 ↑4-3u↔ 544 ↑3-1m, *wb* attributes above
 partly to sterility, but – 545 4-15w objects
 that some quite sterile are only annuals, &
 objects that castrated parents have not life
 prolonged. 17wτ, 16-18m/w (a) ↑17-12w In
 crossing hermaphrodite to 2 unisexual plants
 sexual organs repaired. *wb* In dioecious
 plants organs imperfect of one sex. in
 Hybrids perfect, but functionless 546 wt
 Hybrids become decrepid in successive
 generations. 1-4m/w (a) ↑15-1m/w Hybrids
 can bear cold better than parents, which is
 connected with their tenacity of life 548 5-
 10w However Some hybrids from little
 related species are tender. 549 ↑18-17u
 "den | Tulpen" /w These vary during life of
 individuals but then variable flowers ↑16-1w
 In This Hybrid (perhaps only a mongrel iy)
 some of the flowers in middle of summer &
 autumn went back to Mother in flowers 550
 3-5w other cases of above 14-17m/w
 Suspect the 2 *Tropaeolum* only vars, yet
 very different. ↑7-5m/w a ↑7a "speciosissimo"
 female ↑7a "phyllanthus" male *wb* (a) This
 hybrid for first three years had angular 5
 sided stigma, & then became like
Phyllanthus.– 553 12-13u↔/15u♣/10-20w
 cases of hybrids in which type has kept very
 constant, in this case for 10 generations, but
 with lessened fertility 19x, 21x, ↑8-4w
 above only examples of progeny of hybrids

not varying 554 2-18w Fertility even more variable than other characters. Rarely becomes more fertile in 2d generation but generally, even in most fertile Hybrids, much more sterile. 556 wt The tendency to go back, he argues, wd prevent new species being formed by variation; but overlooks any mention of selection picking out the new form adapted to new end.— 1-5m/w (a) → ↑16-8w Local & constant varieties are different as long as new conditions are present, but change them & the species will go back 557 wt (a) as opposed to those who believe genera are made by crossing of species, brings case of *Verbascum* with species most difficult to distinguish, yet most sterile.— 1-6m/w (a) 9-15w Thinks monstrosities not occurring more in Hybrids than pure species, though Kolreuter did think so.— 558 wt Has made 1000 artificial impregnations 1-2u "an|Befruchtungen" 559 ↑17-13w cases of Dwarf Hybrids enumerated by Kolreuter 561 11u♠/14u♠/11-16w The doubling of calyx & colouring of do., even in these genera, not once observed. 564 wt Hybrids become double like pure species— Does not seem more apt to be double 1-3m/2u "Jäger"/wt Has described double flowers in all classes. 565 8-12m/w rare case of double hybrid, if parents single ↑11-8m/w sparing & retarded dusting with pollen, most apt to bring double flowers ↑5-2m/w (a) wb (a) Hybrids more inclined to double than ♣ pure species 566 10-15m/w It wd appear that this stock was impregnated by Plants 100 yards off — 567 7c/w♠, ↑14c/w♠, ↑13-7w luxuriant growth no doubt necessary for doubling, but some other cause shown to exist ↑3-1m/w near Hot Spring several Plants double 568 1-4w cases of wild flower double ↑4wτ 569 wt (a) This seems to agree with male organs being most easily rendered sterile in Hybrids. 4-7m/w female organs more often spared from changes in double flowers (a) 7m, 10-14w The coupling of stamens in Hybrids the opposite of Doubling. ↑10-5m/w Pistil more often converted into Petals in pure species than in Hybrids. 571 ↑13-10m/w Monstrous Sea-hound with 2 heads 572 7-10w It is remarkable that vegetative strength owing to sterility does not disturb rest of flower ↑15-1w The Pollen & ovules themselves must have to be modified: the variation is not due to mere mixture of two kinds of cells ↑3-2m/w/wb very strange that corolla as altered ♣ stamen is not modified in Hybrids. wb In the second generation of Hybrids we have much

variation, which is kind of monstrosity 574 wt xxx This remark very curious & bears on what I have shown The large genera var most. I do not know whether remark applied to wild or tame. If wild ♣ as I fancy all is right. If tame it wd indicate that my explanation of spreading & favourable conditions must be superseded by some new law. Could it be tested by Loudon, ascertaining the proportion of genera with single species. by Lindley??? 1-2w Shd this rule hold for domestic plants, then we may account for it by variability being necessary to improve plant. 2-3w As I thought of doing with Domestic animals. Wd it be good to take domestic Plants & see proportion of species to genera??? (or do it all by Loudon. that wd be best) according to Nat Family & whole Kingdom. 5-7w Maize has one (or two Molina!?) species) 8-10w Rye has only 2 species Rice only one? ↑12u♠/w Hardly vary at all anywhere ↑10-9u♠/w These vary vastly ↑10-4m/w (B) ↑7-4m/w xxx (a) ↑1w aescutus Horsechesnut 1a "macrostemma" Red Horsechesnut wb (a) Q Some have thought that single species of genera do not vary (Man!) much, but case of *Platanus* given wb (B) But the *Platanus* of Pavia have more than one species as far as I can find out 575 wt Admits the crossing in cultivation must check the *ausartung* of plants but doubts whether this holds in wild Plants!!! 1-9m, 15-18m/w variation affects every part of Plant. ↑13-7w crossing of species & varieties an evident cause of variation ↑4-1m/w variability quite ♣ owing to mongreling than to external agency 576 1-3m/w Van Mons 2 kinds of variation 13-17m/w some varieties are constant but crosses of where vars. very variable 18-22m/w White Dahlias not one white seedling ↑3u "zum Theil"/↑5-1m/w/wb all agree that vars cross & produce partly more fertile ♣ offspring, than the pure parents.— But exceptions as on next Page 577 3a "von"/wt at p.87 says these two vars grown in garden always kept pure. 3-4u "*Cucurbita major*", 3-8w These unite with great difficulty, but offspring very variable & fruitful 8-10m/Q♠, 8-10m/w says some vars of Dogs, some crosses are more fertile than others Ask 14-18u♠/w K. calls these stabile vars. (Gaertner the following; some Botanists consider as species 21u "unserer|fortpflanzen"/w finds like Herbert the vars of Hollyock constant. 23u "*Lychnis*"/24u "*phoenicea*"/w (A) ♣, ↑11-5m/w Mongrels like offspring of simple Hybrids, only more variable, (which surely might be expected

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C.D) $\uparrow 6-1m/w$ case of variability in varieties *wb* (A) These true species in relation to variability like Mongrels, in fertility like Hybrids.— Yet *Lychnis* is wild & not cultivated Plant see p.582 at top 578 *wt* In Cucurbitae, on same plant often two kinds of fruit in shape & flavor $1u \spadesuit / 1-4m/w$ (B) $6w\tau$, $7-8u \leftrightarrow / w$ Important $8w$ intermediate & this is commonest in close species see p.283 $13u$ "früher" / $16m/9-20w$ The uninjured & often increased fertility of mongrels, accounted for by luxuriance of Hybrids (I do not see this) & says he finds garden Plants varied from crossing vars. are earlier than ordinary vegetables. (The earliness is hardly same as greater fertility.) ? ask table. ✓ to each line/w On account of greater but not equal to pure species fertility. Kolreuter considered these as only vars: ♣ G. thinks from actual experiments ♣ only the *Hyoscyamus* as true varieties, because by cultivation one turned into other. *wb* Steudel makes *agrestis* a Synonym of *H. niger* G. says they turned into each other 579 $5-6u \spadesuit / w$ same conclusions regarding these $7u$ "Bastard", $10u$ "Bastarde" / $11u$ "absolut" / $8-14w$ says fruitfulness of Hybrids not absolutely ♣ proof of parents being only varieties $7-8m$, $9-11m/w$ ask author, I fancy means only some fertility. *wb* Examples of Hybrids very fertile but not as fertile as pure parents *wb* ♦ These are not hybrids, but nearly the union of two pure species. 580 table.w The hybrid from these quite sterile $\uparrow 20-1w$ seems to admit quite the crossing of varieties left to themselves & may be cause of return of vars to parent forms. says mongrels in their variation in successive generations may be classed like the Hybrids, which he has classed. 581 *wt* Says besides infertility Mongrels differ from Hybrids in ♣ varying in the first generation whereas Hybrids vary in 2d or in paternal & maternal reductions. He gives no case of wild varieties, when first crossed varying more than mongrels; at least I cannot remark any. $1-4m/w$ (a) $6u$ "andere | Bastarde" / w in other respects like Hybrid only more like to pure species. $8m$, $10-25w$ He evidently considers these very important characteristic differences (just respecting p.273) between ♣ crossing species & varieties $\uparrow 4-1m$ 582 $1-4m/w$ mainly repeats p.577 $9-10w$ more accessible to impregnation of other vars $12-13w$ More tendency to revert to parent form $14-17m/w$ more variable $18u$ "gewöhnlich" / $18-19w$ commonly more fertile $\uparrow 6-1m/w$ (a) *wb* (a) Lecoq states great variability in Iris,

supported by observations of Berg, hence suspect that there may be variety-bastards — So necessary to show no need of crossing look at Potatoes & Maize & Rice!!! ♣ 585 $4-7w$ The smaller proportion of Hybrids are "intermediate" 586 $\uparrow 14-12m/w$ speaks of law of both organs being ready at same time! 587 2a "Wimmer" * 15/ all folling numbers wrong $\uparrow 10w \neq$, *wb* see Corrigenda 589 $16c/w \neq$ 590 $2u \spadesuit / w$ Natural Hybrids $5-8m$ 591 $7-17m/w$ cases of *Verbascum* self-formed Hybrids, yet offspring these Hybrids excessively sterile. 598 $\uparrow 15-11m/w$ (a) *wb* says not know how long & in what limits keep true. but wheat shows how long can be preserved under same conditions. 601 $8-10m/w$ The inner nature of Plants cannot be judged from outside.— 602 $4u$ "paniculata" / $3-6m/w$ He puts Mother first & Father after, some have followed an opposite course 605 $\uparrow 8-3m$, *wb* Thinks the facts of Hybridisation show that original species forever remain true 606 $6-7w \neq$ all Q $\uparrow 4-1m$, *wb* as varieties can generally be propagated, as known for centuries, any alteration, if they ever occur, requires careful observation.— 607 $\uparrow 8-3m/w$ (a) *wb* Points in which grafted Plants do differ from same raised by seed 608 $6-10w$ sometimes less fruitful, sometimes more.— 10?, $16u$ "vollkommenere" / $17u$ "zahlreichere" / $18u$ "Geschmack | Früchte" / $16-22w$ seedlings generally bear more perfect & more numerous seeds than when grafted. $\uparrow 13-7w$ sometimes life rendered longer, sometimes shorter $\uparrow 4-1w$ longer in foreign trees 609 $10-14m/w$ evergreen oak grafted on common cast leaves & *Daphne laureola* flowered in winter $15-22w$ effect of one Pear grafted on an earlier kind was to make it actually later! $23w\tau$, $\uparrow 10w$ ♦ 10 true is right $\uparrow 6w\tau$, $\uparrow 3c/w \neq$ 611 $\uparrow 11u$ "Oleander" / w cases of mottled leaves affecting the Stock. 613 $5-9w$ Even the wood keeps distinct at place of grafting. 620 $2u$ "allein | vermischte" / $5u$ "selbst | zu" / $1-10w$ a statement that two kinds of grapes — branches split & joined longitudinally produced striped fruit & crossed foliages. G. does not believe. $\uparrow 8-5w$ other similar cases 621 $9-13m$, $\uparrow 12-9w$ objects that these are cases of sporting $\uparrow 5-2m/w$ ugh O 628 $5-25w$ case of sport in common Laburnum with flowers like C. Adami Is not this like the orchard case? Were they sterile? The sport & parent in Austrian Bramble are sterile. (Herbert has shown are sterile. in Hort. Journal) *wb* (B) He is dreadfully puzzled about the Laburnum case & says not analogous to anything known 629 $4-12m/8w$

B $\uparrow 14-4w$ Power of grafting \clubsuit much longer than of hybridising; even very different genera (A) (It makes it the more remarkable that certain vars. shd. not do well together.) $\uparrow 11/\uparrow 9w\neq$, $\uparrow 7/\uparrow 6w\tau$, wb (A) I think I have heard it said same Family. wb Syringa Fraxinus Olea Chrisanthus – all Oleaceae 630 $w\tau$ The relation of the different kinds which can be grafted on same stock is very different from the relationship on which hybridisation depends 2–7m, 8m 631 7–13w A certain affinity necessary beyond doubt. 11c/w \neq , $\uparrow 16w\tau$, $\uparrow 15u$ "organischen Structur", $\uparrow 9-8u$ "die Individuen"/ $\uparrow 11-5w$ The above influences not only possibility of graft, but \clubsuit fructification & duration of life $\uparrow 5-1m$, $\uparrow 6u$ "Familien-Affinität"/ wb Family affinity, though greater difference between the graft & stock in wood, yet permits the graft. 632 8–9m/u "schlagen | Die!" / Q/3–13w great difference in powers of grafting. Pear & Apple though altered will with difficulty graft.– Difference in reverse case 18w Will not hybridise. $\uparrow 15-12m/w$ can be grafted but not hybridised 633 11c/w \neq 635 5–7m/5–12w Puvis speaks of grasses modifying but not exactly crossing. Has Wiegman shown that grasses cross? $\uparrow 10-4m/w$ 2 colours in turnips not capable of crossing 639 $\uparrow 14-11m/\uparrow 14-1w$ Genera which have perfect pollen & ovaries, but produce commonly no good seed, but will produce if impregnated by pollen of same species, specially by pollen of another individual 641 $\uparrow 4m$ 648 9–12w Mainly how they worked p.354, 369, 374) 15u "Herbert"/m/w See 651 $\uparrow 8-7m/u$ "Unkenntnis | Gewächsen", wb Ignorance of process of fructification in some plants has caused \clubsuit failures 653 $w\tau$ cases in wh he failed but others succeeded 4–7m/7u "oben | 126", $\uparrow 13m$ 654 9–13m/w has never seen ill effects from castration, except when all castrated. $\uparrow 9-5m/w$ (a) wb Dichogamous plants less \clubsuit capable of hybridising; & very liable to crypto-hermaphroditism.– 655 1–20w (Can the pollen of another individual or var overpower own pollen?)– 8–9m/8–12w Best generally to castrate at moment of opening of flower. 19u "Leguminosen", 20u "Malvaceen"/18–22w Necessary have cut or open or partly or wholly cut away petals 22–23u \leftrightarrow /25–28w Oenothera Epilobium Fuchsia Clarkia 22–23m/w (a) (Quoted) $\uparrow 9-7w$ Lecoq says pollen of Fuchsia not shed for 3 days after flower opened $\uparrow 5-1w$ even whole corolla can be removed without injury to seeds wb (a) Anther \clubsuit ripe before opening of flowers in these Families & the fructification takes place not only some

hours, but even days before flowers open. Then how do Cruciferae & Peas cross?? 656 16w Pincers 657 14–18w cut with scissor or pull off stamens, not touch anthers 658 $\uparrow 16w$ (a) $\uparrow 4m$, wb Stigma of Lobelia in own climate seldom protrudes till lost capacity of being impregnated, & hence species bears no seed, but if anthers drawn over stigma produce plants.– I think this is meaning. 659 1–2m/w Pistil grows in Geum after impregnation. $\uparrow 15-11w$ By many plants pollen & ovaries not ready at same time $\uparrow 7-4m/w$ Impregnate easily, because Pollen keeps its strength wb Stigma generally ready when flowers open, but sometimes not ready for some time afterwards 660 9–12w Repeats impregnation several times. 662 $w\tau$ Cultivated in Pots so thus excluded from cross impregnation 1–4m 663 $\uparrow 9-1m/w$ The artificial impreg of many flowers on same plant injurious to it.– 664 $w\tau$ (a) The impregnation with own pollen, \clubsuit fertility always greater than in any Hybrid, & equal or at least near Natural fertility, but sometimes less.– Really this accounts for the (i a) of Hybrids.– 2–10m/w (a) 10m 665 11–15w Plants to be fertilised in chamber facing S.E. 666 1c/w \neq 667 11–15w Many Hybrids bring seed in Pots, but not in open land. 670 1m/w τ Isolation only superfluous in exotic plants when only one present 4–5u "Die | Nothwendigkeit"/2–8m/w speaks of the absolute necessity of isolation (& so does Lecoq) which all shows how some crossing goes on. 8m, 14–16w cutting off all flowers injurious 674 (fn nos corrected) 675 3m 677 (fn nos corrected) 678 $\uparrow 5u$ 679 4u "ganzen Habitus", 5u "M. longiflora", 14u "5,2", 15u intermediate 16u "12,5", 17u "3", $\uparrow 10-9u$ "Farbe | Jalapa", $\uparrow 8u\leftrightarrow$, $\uparrow 10-5m/w$ seed of this Hybrid returned to two distinct parent forms. $wb\clubsuit$ & so in Maize I am nearly sure 2. vars of seeds in Mongrels 683 $\uparrow 18-15w$ fertility varies more in different experiments. 684 $w\tau$ (Get Hooker to read over this list) There are important facts \clubsuit in this Table not noticed in my abstract or results. 3–7w instances of series of fertility 12–13w count how many pure species have (K) when self impregnated See whether any difference in two vars., I have seen to Verbascum 22w Mothers name first $\uparrow 12w$ succeeded with Kolreuter $\uparrow 11w$ = arvensis Loudon Cat. $\uparrow 10w$ = arvensis Steudel $\uparrow 8u$ "9", $\uparrow 15-3w$ I do not think same species Herbert succeeded see p.653 are these the English species? (yes.) $\uparrow 1w$ no of flowers no of fruit wb See how many genera no result, & genera I believe

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with close species: this bears on vars. *wb* I shd trust this more ♣ (see case p.706) more information given ? of results of self impregnation The very near to approach to (K) & yet the rarity of actual (K) makes me think the effect of artificial fecundation. 685 *wt* Hooker thinks that probably *Canadensis* & *atropurpurea*, are merely synonyms: Hooker thinks *Canadensis* & *vulgaris* distinct 5*w* *Siberia* 8*w* var. Hooker 9*w* of *vulgaris* ?? 12-13*w* Steudel var of *atro-purpurea* 14*w* This means hybrid crossed by Father 22*w* What Ask author Steudel makes var of *atropurpurea* 26*w*/27*w* var of *vulgaris* 28*w* var of *atropurpur* ↑13?, ↑10?, ↑3*w* var. of *vulgaris* *wb* *viridiflora* is a Siberian species of Pallas var. of *atropurpurea* according to Steudel 686 *wt* In this country Hooker says *C. littoralis* or *maritimum* is considered a very close but distinct species 1*w* var of *vulgaris* 3*m*, 12-15*m*/*w* Steudel makes synonyms 13*w* Prop. Poll ↑23-17*w* Dr Hooker considers undoubtedly vars. except *steticum*○ ↑22*w* Prop pol ↑19*w* wild var ↑18*w* Prop poll *w* wild var ↑16-1*w* In text p.197 & elsewhere *Maritimus* is spoken of as crossing with *C. Behen* Must be a misprint. anyhow *C. Maritimus* = *S. inflata* according to Steudel.- ↑15*w* very different Hooker ↑14*u*, ↑14-1*w* all these i a & c are from crossing varieties. *wb* (*species names equivalent to Silene inflata Steudel*) Some authors think *Silene italicus*, *pilosa* There is nothing in Loudon Catalogue to make me doubt the conclus 687 19*m*, 25*w* = *incornis* of Kolreuter 688 *wt* Asa Gray considers the *D. tabula* as var of *D. Stramonium* & introduced into America Dr. Bromfield in *Phytologist* says he has tried every gradation between these two forms & yet here not fertile (K). This then is case of some sterility, if we are to trust the same class of facts as we infer sterility from.- ↓*w* See p.385 for degree of sterility of *D. tabula* & *stram* ↑23*w* Acta○ ↑13*w* = *plumaria* Linn. 689 ↑20*w* Prop. Poll 695 17*w* Prop. Poll. 696 ↑18*w* Croatia ↑11*w*♦, ↑1*w* perhaps var. 697 *wt* [p.225 Much important on reciprocal crosses in *Digitalis*.] 11*w* var of last Lindley makes 12*w* perhaps ♣ var 17*w* some think var of 2. last 17*w* *ambigua* of Kolreuter p.175 *ambigua* anyhow probably distinct 19/20*w* perhaps var ↑19*w* var. of *ferruginea* acc to Lindley 698 2*m*/*wt* = *angustifolium* Steudel {*u* henceforth: numbers in cols. 2 and 3} 6*u*/*w* Prop pol 7*u*, 6-15*m*/*w* crosses more fertile than with own pollen. 10*w* Yet Newman says quite fertile 15*u*/*w* Prop. poll. 22*w* Prop. Poll. ↑8*w* Dr

Salter Bell says quite fertile *Phytologist* 699 18*m*, ↑19*w* = *niger* ↑18*w* = *niger* Probably vars. ↑13*w* = *niger*? ↑12*w* = *niger* ↑12-11*w* perhaps vars. *wb* p.578. G. says *agrestis* = *albus* as known by experiment - Steudel makes *albus* distinct - 700 10*w* = *undulata* ↑20*w* I think♦ Herbert p.345 succeeded & they sowed themselves. ↑19*u*/!, ↑13-12*m*, ↑8-7*m*/*w* Prop. Poll 701 ↑13*md*/*x*♦, ↑7*x*/*w* Prop. poll 702 7-8*md*, 11*m*, ↑18*w* Prop. pollen ↑13*m*/*w* Prop Pol ↑10*w* This is *speciosa* fertile according to Herbert p.346 703 14*w* = *sylvestris* 15*w* Prop pollen 15-20*m*/*w* see my slip of Paper about Synonyms 18*w* var. self im 20*w* = *dioica* 23*m*, 24*w* = *Silene nicosa* ↑18*m*, ↑13*w* = *Silene* *wb* It is evident from Steudel that *Silene*, *Lychnis* & *Cucurbitum* all most closely allied 704 9*w* p.385. contradicted ↑16-12*m*/*w* Here it is evident that first cross normal ↑16-7*m*/*w* Prop. pollen 705 22*m*/23*m*/25*m*/23-25*m*/*w* see *Beitrag* p.598. & compare with p.385 of this Book. Shows that (K) is quite correct ↑13/↑12/↑11*m* 706 4*u*/1-4*m*/*w* What differences 19*u*, 20*m*/!, 24*m*/*u*, 25*m*, 27*m*, 19-27*w* (This very important) see Koelreuter about this. 23*m*☉, 30*m*☉, ↑19*x*/*w* Loudon ten week start ○ ↑18*m*, ↑16*x*/*w* smooth ↑15*m*, ↑7*m*/*w* Prop. poll. *wb* These seem distinct ♣ 707 2*m*/*w* Kolreuter raised them 4*m*/?, 25*m*/*w* Sageret raised them p.35 ↑5*m*, *wb* according to Steudel nearly all these are true species of *Nicotiana* 708 26*m*/*w* f 29*m* 709 ↑15*m* 711 ↑9*m*/*w*☉ Prop P. 713 4*m*, 9*m* 717 27*w* = Lamarckian ● 718 22-23*m*/*w* p.168 some authors think vars. ↑19*u*/*m*/*w* Prop ↑18*u*, ↑18-11*m*/*w* More fertile than with own pollen ↑12*u*/*m*/*w* others have succeeded 719 6*w*☉, 9*w* or *cocanus* 16*w* *cocanus* 20*w* = *vidacea* St 22*m*/*w* see Herbert p.379 More fertile than either parent 720 3*w* = *vulgaris* 14-30*m*/*w* Here are plenty of undoubted vars. producing only i a.- Great effect of artificial impregnation or separation in House. 14*m*, 15*m*, 20*m*, 21*u*↔/*m*, 29*m*, 30*m*, 32*m*/*w* This really only cross between two peas 32*m*, 33*m*, 34*m* 721 *wt* number of Flower *wt* of Fruit 5*w* Prop. Poll 15*w* Prop pollen 22*w* vars fertile ↑24*w* Florist var of Oxlip. Oxlip primrose ↑24*w* Not normal or K ↑23-21*m*, ↑20-19*m*☉, ↑17-15*c* {*c* henceforth: entries in cols. 2, 3 and 4 crossed out}, ↑14*w* Oxlip ↑13-3*w* p.247 it is evident that he did cross *elatior* & *officinalis*, Table not correct ↑13-12*m*, ↑11*c*, ↑10*c*, ↑9-8*m*, ↑7-5*m*/*w* cowslip ↑4*w* cowslip *Elatior* ↑4-1*m*☉, *wb*♦ If this be *elatior calycantha*, most strange 722 *wt* I see he has not tried *Primula proprio polline* 3*c*,

4c, 5w Cowslip 6w primrose 6-7m, 8c, 9c, 10w Oxlip var 11w Oxlip. 16w = floridum ↑16w Prop. poll. ↑15w *Silene inflata* ↑14m/w S ↑13w *S. pilosa* ↑12w *S. italicus* 723 26w Prop Polline ↑10w Prop. poll. *wb* | see Moerch considers same species p549 Gaertner says perhaps only varieties 724 *wt* It is impossible to make out whether vars. *albus* & *luteus* are put first & second on principle or by chance 3u, 3-4w, 4w Yellow? Yes says p.280 5-7md, 10w, 8-14w. Colour? If Yellow half agrees & opposed to rule of vars. of same colour most opposed 21w agrees with 20-25m, 30w 1845 1827/ 18 ↑14w *Blattaria* ↑8w Colour? ↑8m/*wb* *Stuedel* make = *virgatum*, which is yellow ↑1x/w 286 161 725 3-4m, 9w yellow 10-13md/w opposed to rule 17w Probably yellow, both parents being yellow 17-27w Even Babington admits there are 2 coloured vars of *V. lychnitis* 20m, 26m, 29→, 30c (*c* henceforth: whole entry crossed out), 32c/w These lines merely guiding 34c, 37c, 39c, ↑13/↑7/↑4/↑3/↑2c, ↑10/↑8/↑6/↑5/↑1m, *wb* 226 182♦ 119♦ 142 x 726 1w Colour see Index not in index 19m, 25w yellow 26-28md/w, ↑21w yellow ↑9-↑20→, ↑9?, ↑9c, *wb* 234 x 83 727 3w yellow 5m, 6-11→, 7-8w opposed to rule 11c/w why *luteo* put first? 15w Purple 28w yellow ↑20w why *luteo* put first *wb* 179♦ 201 x 68 728 *wt* years no of flowers number of seed 1w bright yellow 2m, 4-9→, 19w yellow 20-23→, 22-28→, ↑13-12u (first 4 columns)/w x 138 84 ↑11w = *Scrophyll* ↑8-1m/↑8-1m/w vars yet all i B. & i g. *wb* 22 730.b 62m, 73m 734 62w at Hort Soc.? account of experiment with Peas, see to this 67w Berg Read variation of *Leguminosa* 17w Read 736 82m, 110-112m 737 129m, 137w♦ 138 140-141md, 145/146m/w Read 149-152m/w Herbert ♣, 152 Worth reading or consulting p.145 of Book 157w See to this Blyth 738 186-188m/w seeds retaining long vegetating power 191w *Omalus* disputes vars going back 207w See to this 3m, 25-26w Read Girou on vars of *Cucurb* crossing *Sageret* do not crossing 26x 740 X.10m/x/w Read 742 18-19m/x 743 XVIII.15x 744 27m/w Read on curious sport in *Oenothera* 47-48m/w Read on the 2 *Anagallis* being vars. 745 11-12m 746 XXI.2w Read 3m/w *Beitrag* 6-7m/w Read XXII.1-2w Read 747 17w *Zuccarini* on sterility of *Oxalis* from C. of Good Hope 22w Read 24-25m/w Read 27w Read 28w Read XXIII.7w♦ Read 21w Read 748 98-99m 752 59m/w But opposed to much alteration Perhaps worth reading 54m/w cases of transformed plants

p.500 text 55w nothing 56m, 57m 753 21m/w on duration of seeds 754 8).5m, 10).3w p.540 755 13).13m/w read 756 XXXIV.2md, 3w See 4w very important *Puvis* 6w Read 12-17m, 17w *Sageret* read 19w *Herbert* 20w Read *wb* ♦ To get titles it will be necessary to look over these notes at beginning of these notes, for it is impossible to make out by Index the titles 757 23w Read? 45w *Theophrastus* on crossing plants: how old! 51w I dare say *V. Baer* quoted by *Lecoq* in *V. Berg* 52w on variation of *Iris* 759 XXXVII.2w Read Link on relation of grafting to Hybridisation 3w *Puvis* Read?? I have got impression that *Puvis* no good authority 760 46w Read? 53w x Read 761 64w *Diel* XXXVIII.5 *Puvis* on crossing of grasses 22.w x *Beitrag* on pollen & *Stigma* being ready at different times 762 45w Read 763 *Blyth*.m 778 *Lychniti-pyramidatum*.m 781.b 2m 789 *Vater*.w 253 790 "*Wahlverwandtschaft*".u/w "Elective affinity" Chemical term Dict.

GASTALDI, Bartolomeo *Lake habitations and pre-historic remains* trans. C.H. Chambers; London; Longman, Green, Longman & Roberts; 1865 [Down]

NB O/

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13 25-27m 75 6-13m 89 1-2m, 26-32m 91 19-23m 92 29-31m, *wb* Yes these are old forms generally verging to extinction *Jäger* 93 1-3m 94 9-15m, 28-32m 96 1-4m

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v 25m, 26m

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phy

NB 37 fibre-cartilage

37 21-24m/22-23u "tissu | fibreux" 38 11-15m
ø

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geo, t, ti

NB1 ◊

362 Glaciation S. of Thames

364○ Glaciation○

3◊ ◊ Glaciation ◊

405; 427; ◊; 521; 548; 550; 554

NB2 427 Post-glacial Mammoth & Rhinoceros; 547; 564

226♦; 374♦ Erratum?; p.14 at top. at ● you speak of glacier theory before iceberg theory; but I heard of iceberg theory & alluded to icebergs in S. Am. at last ● of &c but glacier theory 415♦ Holsts; Axel Blytt also p.545♦

Skertchly What a first-rate observer whom I believe always ● on sound observations

484 Glaciation in S. Hemisphere; 506 Stones standing on end

12 20m 34 11m 78 6m 85 4m 101 zb 133 2m
191 19m 226 12-23m 227 37m 326 12m 374
14a "certainly", 14c "posterior", 14w♦ anterior
386 15-20m, 22-38m 415 37-41m 416 20m 427
24u "postglacial", 27-31m, 29u "mammoth | rhinoceros" 442 7-8m 485 1-9m 487 8-9m 488
11-13m 491 16-19m 492 14-16m, 20-22m 496
13-15m, 29-31m, 36-37m 499 5-7m 502 20-
22m 504 16-18m, 25-27m 505 32-35m 506 15-
21m 511 11-13m 521 2-5m 524 2-5m, 23-26m
527 19-23m, 24-29m, 31m 528 6-10m, 16-
20m, 27-30m 529 1-3m 530 4-7m, 8-10m 531
4-6m, 31-34m 532 5-7m 533 18-20m 534 19-

20m 540 10-15m 541 16-18m, 27-30m 542 2-
4m 545 3-13m, 42-45m 547 26-30m/w sub-
sequent to great glacial deposit 548 1-3m,
29-31m 550 18-21m 551 11-15m, 37-39m 554
1-2m, 13-14m 555 15-18m 556 3-6m, 26-28m
559 4-7m 563 8-10m, 18-21m 564 18-23m,
27-30m 565 5-7m 567 34-37m 568 44-47m
613 18z

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geo

NB1 132 - brick earth covering gravel; 165
Do

409; 414; 432 or (500); 457; 335 & Chap
XIV

loess (Mackintosh Erratics of England as far
as Wolverhampton)

Mr. Kerr p230 Falkland Isds frequent

As a bay the Severn floods from melting of
snow more turbid than from rains.

101; 111; 112

NB2 166 Richthofen

(rest by FD)

38 6m 50 3-8m, 11-14m/12-13u "equable |
times" 54 8-12m 75 ↑15-11m 89 ↑9-6m 101
10-12m 102 4-8m 111 14-17m 112 ↑7-4m 114
13-18m/w Conclusions 117 8-11m 118 13m
132 ↑3-1m 154 13m 165 11-13m 166 1-5m
167 10-13m 239 ↑7m 260 ↑11m 261 zb 263
16-20m 335 ↑7-2m 347 15m 355 8m 414 ↑16-
13m, ↑10-3m 420 ↑11-9m/z (drawing), ↑7-3m
421 11-15m/z (drawing), 20-24m/z (drawing)
422 10-15m, ↑10-7m, ↑2-1m 425 ↑12m/u
"Oaks" 428 5-8m 432 5-7m, 15-17m 435 2-4m
457 9-15m 461 ↑23-19m, ↑17-16m/↑17u
"consisting | pine", ↑12-7m 462 11-15m, 17-
21m/20-21u "rot | bogs" 483 ↑2-1m 486 ↑3-1m
487 ↑7-3m 488 7-9m 495 ↑14-10m, ↑1m 544
14-16m 552 9-12m 553 ↑12-9m 554 ↑9m 555
12-15m 561 ↑9-6m

GENTRY, Thomas G. *Life-histories of the birds of eastern Pennsylvania* Philadelphia, 1876 [I] [CUL.1900]

beh, v

NB1 O/

NB2 I have read only first part

Very Dull

Variability of nesting

GEOFFROY SAINT-HILAIRE, Étienne *Principes de philosophie zoologique* Paris; Pichon & Didier; 1830 [CUL]

af, cr, em, he, ig, mn, rd, sp, tm, v

SB □β

65 Curious statement on what plan animals created (good to put at end of Chapt. 6) Q~~4~~
It is proper to speak of him shortly as M. Geoffroy
214 Law of connexion invariable
215 Properly speaking there is but one animal
215 Q Monstrosities, always resembles other species (allude to this in Ch. 7)
216 speaks of ultimate form of species as irrevocable!
218 Does not seem to attribute Unity to inheritance for speaks of it as Law

11 3-10m 12 4-15m 19 5-11m 32 18-30m (Milne Edwards) 33 5-10m, 11-15m (Savigny) 49 8-12m (Laurencet, Meyranx) 55 26-29m 56 19-22m 57 1-4m 59 23-27m/w ancestral & modern types 61 19-23m 65 12u "par | composition", 14u "ressemblance", 23-24w Curious words 26-29m, 26"...", 27Q~~4~~, 27u "bien | fécond"/28-29m, wb | demur to this alone 66 1-4m/1a "nature"/wt all this will follow from selection. The unity of course due to inheritance 69 18-31m (Cuvier, Serres) 71 12-24m 83 3-16m 111 18-22m 114 18-23m 115 1-7m 209 1-6m 210 1-20m/wt/1-5w As it appears to me strongest argument against G.H. is existence of trees, which are so hardly separate○ from animals 214 4-6m 215 1-5m, 16-28m/21-23Q/26u "développement naturelle" 216 1-15m (Tiedemann, Serres)/8-9u "irrévocablement"/!, 17-21m 217 18-26m 218 wt All this is not G.H. writing but he approves & publishes it 4-18m/10-12!/10u "laisser | distraire"/11u "des | organes"/14-15u "par | imposée", 18-21m, 24-26!/25u "créés 219 25-30m 222 1-16m (Cuvier)

GEOFFROY SAINT HILAIRE, Isidore
Essais de zoologie générale Paris; De Roret; 1841 [CUL, S]

ad, af, beh, br, cr, ds, f, gd, he, hy, ig, in, is, rd, sl, sp, sx, sy, t, tm, v, wd, y

NB ♦ Read 420 to 468 again

SB □X

1
83 With respect to rudiments Vicq d'Azyr says native does not depart from primitive model
90 old Geoffroy states never new organ – in relation to Electric Fishes 94 "Nature always works with same materials"
142 on parallel series by ♣ Geoffroy
165 Goethe believed in Balancement
167 Believed in change of species, as did old Geoffroy. "Modificateurs ambiants" sur

l'organisme". Yes this is his belief 247 Introduce in Preface

257 Distinction between tamed & domestic
260 On animals not breeding. Rein deer good case of animal not spreading not interfering with being domesticated in Ch. 2. M.S. add to case of Goose
281 argues well that F. Cuviers doctrine of Sociability not only key to domestication 286 do
292 Pallas *Spicilegia zoologica*
(over) 2
297 Art. Mammifera Dict. Class. Hist. Nat. – on colour of domestic quadrupeds
298 Cat intestine longer
299 Dog with split○ nostrils
306 We have no case of Spaniel or Blood Hound & with Savages (CD)
344 Mammals in close sub-groups do not differ much in size
350 Remarks on small isld having small mammals – see how small isld have mammals in Malay Archipelago 353 forgets Java & Sumatra! I contradict his statements flat – think of S. America formerly.
382 insists on difference of size in allied dogs. 381 Table of measurements.– All I need say is that author has insisted strongly on differences in size. compared to wild species
433 Old Geoffroy on degree of influence of external conditions on species – Mem. Acad. Tom. xi.p.93.–
(over) 3
442 Madagascar a fourth continent
445 Ceylon same mammals with India
491 On spots &c on young quadrupeds
493 Cross between gold, silver & common pheasant just mentioned Q
496 Cases of ten species of Birds which have assumed male plumage
506 changes of habit in old Hen, like cocks
513 Horns growing on old female Deer
516 – His law of Mongrels & Hybrids. N.Q.

7 5-8m 49 13-14m/?/w what 14-30m 73 20-21m (Newton) 75 3-6m/3-15w This argues against descent of species being held by the Geoffroy sect of Philosophers 76 26-28m 77 15-19m 79 28-29m (Leibnitz) 81 3-8m/4-6?, 25-32m (Herder, Demaillet, Cuvier) 82 20-23m, 26-27m (Vicq d'Azyr) 83 1-2!/u "général | regret", 6-11w compare with Pig with solid Hoofs– 23-25m, 29-31m/24-31w compare in this respect skull of Greyhound & Bull-dog–wb Decrease in size of Frontal Bone in Hornless ox: strictly analogous to the intermaxillary bone of man– 87 14-19m, wb

GEOFFROY, ZOOL. GEN.

compare this fundamental idea with what Decandolle has shown has taken place in Cabbage.— 89 7–11m 90 17–23m/17u "ill nouveau", 27–28?/u "sélaciens", *wb* see previous note for reference 91 6–7?/7u "polyptères" 94 9–10"...", 10–12m 96 22–24m (E. Geoffroy) 142 19–22m 143 3–17m/7–10?, *wb* why Man more perfect than coleopterous Beetle or Bee 144 18–21m/19u "semble" 146 18–20m 147 23–28m (Serres) 148 27–29m (Blainville, Cuvier) 151 11–17m 153 8–10m (Goethe), 23m (A. Saint Hilaire)/w Botany 165 19–25m, *wb* What is developed more in Apterix in consequence of little wings.—?? 166 1–9m 167 10–11m/u "Goethe" "Buffon et Lamarck", 12–15m/13u "modificateurs ambiants" 18u "1822", 23u "docteur Koerte"/20–25m/w see this in Goethe's Works translated by Martins 169 13–17m (Duméril, Blainville, Goethe) 199 15–21m 200 7–16m 202 2–9m/3–4? 203 3–7m 205 8–21m 207 15–17m 232 25–28m (W. Edwards) 237 4–12m, 16–21m/w assumed 26–28m, 29u "quelquefois nuls" 238 13–17m/19u "espèces sauvages", 23–24m/24u "variables inégaux" 239 27–29m, *wb* ♦ true wild varieties, would be equally ready to sport *wb* How comes it that there is species to every small variation of conditions? – so it is – How another question 240 1–9m/1–2u "rigoureusement fixée", 16–19m/w does not allude to selection 27–29m/w Man some involuntary selection 241 18–23m 243 25–27m/w don't understand *wb* rest of this section Nothing 244 12–17md 246 24–29m (Dureau de la Malle) 247 12–17m, 26m (Buffon, Goethe, Lamarck) 257 1a/u "apprivoisement"/wt tame wild 1–2m/1a/u "captivité"/wt chained wild 23–24m 258 1–4m, 10–11m, 25–26u "civettes marabouts"/w Guanaco 259 wt capital cases of non-breeding 1–3m/3u▲, 6a/u "guépard"/5–6w hunting leopard 6–12m, 8–9u "éléphant", 17–19m, 27–29m, *wb* In case of Elephant, cannot be considered as weakling – when we consider feats in war – less so than the stunted elephants in North India – 260 wt/1–19w Ferret not very tame yet breeds – not less tame than many of Renggers quadrupeds– 18–20m, 19u "mais | race", 24–25m, 25u "mais | mêmes", *wb* The effects becoming hereditary, show, that apprivoisement "tameness" has an effect on organization: hence is new condition. Hence sterility= 261 5–15w we must not assume camel could not 15–28m/18w Buffalo?? 21u "partout"/w Camel?! 22w Rein Deer. 23–25m, *wb* The present great diffusion, so different from other mammals, renders probable this is effect of acclimatisation – contrary of

camel. shows not necessary. 263 12–14m 265 12–21m, 22–29md 266 1w♦/3–8w Aperia breeds readily in S. America Rengger 267 6–8m, 13–16m/16a "oie" Canada & Chinese Geese 18–21w Fallow & Rein Deer? omitted 269 12a "lama"/8w 2 spec 13u "l'yack"/w Hybrid? 23–24u "temps immémorial" 272 fig.m 274 1–5m, 15–17m/16–17u↔, *wb* Neither Cat, nor Ferret social 277 6–7w Guinea pig No 8–13w Ass does yet – ferret – Rabbit = Fowl – 9u "sauvage"/9–10m/w because not of much use 278 27–28m 279 1–5m (F. Cuvier), 8u "solitaire | domestication"/8–10w yet many quite tame 11–28m/11u "chat | furet" 280 1–5m, 28–29m 281 1–2u±, 5–6u "importance exclusive", 8–9w Zebra 11–13m/12w untame? 282 3–6m/5u "alimenter", 16–19m, 24–29m/w opposed by monkeys *wb* this doubtless much easier in social intelligent animal – feeding on vegetable food.— 283 8–11m/w no, not in wild ducks 15–25m 284 16–19m, 22–26m 285 1–3m, 5–15w this last argument certainly shows that these species. as well as families probably were not easy to "tame". 11–13m, 14–17m, 17–22w Guanaco, would make one think some species happened to be as easy. 18–21m 286 1–4w is this so? Lord Spenser 4–5m, 9–14m, 23–25m 287 9–12m, 22–29m/22–23u "plus | avantage"/25u "et | soumettre", *wb* Australian dog shows by what little advantage may be induced to take pains– 289 1u↔, 6–8!, 14–16m, 27–28m 292 24–26w In Royal Soc Library? 25–27m (Pallas)/u "Spicilegia zoologica" 293 12–14!/u↔ "fixité | espèce"/w in France 14–15u "quel encore", 19–20m/u, 21u "variations", 22–23u "dénuées | variations"/w 1– p.L; 2 p.294 294 *wb* – only assumed there not proven – 295 2u "intensité", 9–10m (Cuvier) 296 wt would say descended from several wild types.— 1–5m, 10–12m/!, 16–22m 297 3–5m, 13–14m 298 9–12m, 15–20m 299 3u "crâne | supérieurement", 6–7w sudden varieties 9–12m/9u "autre | palmées" 300 21m, *wb* The principal value of this Sect to me is showing other motives besides facility of variation, has determined the domesticated animal – & therefore that variation would probably have occurred in nearly all, which must have been selected.— 303 1m/u "de Pallas", 13–14m/?, 17–22m, 23–28m (Roulin) 305 13–16m 306 10–15w non-selection 11–20m 307 wt The following sections not very important.— 312 14–17m 313 8–9m/9u "si | réussissait", 26–28m (Temminck) 314 6–8m 315 26–27m/w no notice of selection 320 wt Mr Blyth 10?! 1–3m/u "six espèces" 11–12m/11u↔, 19–21m (Duvaucel, Cuvier), 29–30m 324 13–15m/13u "à | degré",

wb Spanish ass & Sykes little ass 339 wt All these sections vague & of little value to me 12-17m/w Lizards unevenly so 340 3-6m, 13-19m/w Whale & smallest porpoise 342 10-12m 343 5-18m (Blainville), 13x/→wb in short in sub-genera no great diversity of size 344 1-9m, 4x, 22-26m, 27-29m, wb like what Lund says anciently was in Brazil- 346 4-9m, 15-26m, wb Polar Bear! 349 7-14m, 17-18m, 24-26m, wb ♦ was S. America once desert.- like Siberia 350 6-7u "très-petites"/?, 20-24m 351 1-5m (Virey)/2-3u "ceux|déserts"/w S. Africa 352 17-24m, 20-24m, wb Bull grows large in Falkland ?- Horses smaller.= are the White Bulls very large? 353 11x, 13-15m/w Java!! Sumatra 21-25m, 26-28m, wb X It is odd no fragment of continent - is it effect of few only being supported - their inter-breeding destroyed by men - Auroks decreased in Russian Forest 354 24-28m 355 21-23m/22u "cerfs" 356 3-5m, 9-12m, 17-20m 363 14-32m, 16-18!!/m, 17-25m 364 10-15m 366 1-3m, 24-29m 367 9-14m 368 16-22m 369 8-11m 370 14-24m/w all very loose 371 3-6m 374 12-14m, 24-28m, wb Mountains = Northern plains 375 12-18m/w How dreadfully false when thinking of Sumatra 376 wt Megalodon!! 377 16-19z 378 1-21w Fatness element peculiar to domestic animals & Greater Prolificness 12-13m/?/u↔, wb Domestic animals are forced into more various uses & exposed to more varied conditions, hence change of size more - but differs only in degree & not kind 379 7-12m/w The subsequent remarks well prove this = 23-27m/25-26u↔, wb because not selected for this end- 380 16u "de chacal"/15-16w S. America! 382 7-13m, 14-16m, 21-23m, 26u "au furet", wb do they differ more than Cats.- 383 25m (Dureau de la Malle), wb Before referred to 384 8-10m, 15-29m 385 wt/1-14m/w Aug. 1841. Saw Shetland Pony exhibited. Whose at withers I measure was 32 1/2 inches (& less in centre of back) - Beautifully formed - I presume have no aboriginal horses. 4a "taille"/8-9w 34.9 English Indes ⇒ 12m/u "froides"/w No India 14u "est|connu" 386 5-7m 387 15-18m 388 9-11m, 20-23m 389 15-20m, 28-29m 390 19-24m 392 16-20m 393 11-17m 404 24-29m (Villermé, Haller), 28-29w/wb & doubtless hereditary 405 1-m 407 10-25m/13-16? 415 24-28m 421 22-24m 430 9-12m 433 24-26m (E. Geoffroy) 434 1-7m, 7-14m, 16-24m (Cuvier) 435 1-6m 437 1-10m/3-5w dont understand 12-20m, wb He overlooks successive creations - not worth arguing against such a view as this pretended one of

Cuvier 438 1-5m, 17-20m/? 440 1-3m, 8-11m, 15-18m, 27-28m 443 11u "archipel Indien"/10-16w How absurd remarks India & East Indian islds 25-28m 445 12-22m 459 3-6m/5u "dans|individus", 18-24m 489 6-16m 490 wt/1-9w The case of Irish Hare which turns when old, makes one suspect not final cause Aquatic birds being white V Dr Fleming - At least my theory will prevent those animals being white wh would be so injured by it- 3-7m/x, 27-28m 491 13u "seul"/w ?? 15"..., 15-32m 492 8-12m, 20-24m 493 22-26m/23-24Q 495 9-11m 496 9-10u "femelle|paon", 14u "poule", 14u "canard", 20u "dix espèces", 24-26m, 27-29m (Yarrell) 498 12-17m 499 27-29m 500 1-2m, 25-27m 501 11-13m 504 1-4m, 10-13m, wb good case of adaptive sexual structure 505 18-21m, 24-26m 506 8-12m (Home), 28-32m 507 1-2m 510 4-8m (Edwards) 511 10u "poules d'Inde", 19u "encore"/w Blyth 513 8u "paons"/15-18m, 22-29m/29u "chevreuil" 516 6-14m, 17-22m/20-22u±/19-20w N.Q.

GEOFFROY SAINT HILAIRE, Isidore *Histoire générale et particulière des anomalies de l'organisation chez l'homme et les animaux* 3 vols and atlas; Paris; J.B. Baillière; 1832-37 [CUL]

af, beh, br, ct, em, f, gd, h, he, hy, ig, in, mn, phy, rd, sp, sx, sy, t, tm, v, wd

vol. 1 NB Have I read the Philosophie Zoologique

p. 241 Book = Edwards Suites Races Humaines

(?p.677 Book worth getting? most cases seem given in text) ??

p.711 Coll of Surgeons worth consulting

16 wt Embryology 1-2m 18 11-14w What is difference? 14u "l'âge embryonnaire"/m, 15u "l'âge foetal" 22 8-14m, 14-32w I do not see how the reverse could be effected even if doubt monsters start from the germ 30-31u± 23 8-11m 24 6-7m, 15-16m/16u "Loi|soi" 25 1-3m/m 39 12-17m/13u "qui|ses", 18-19m, 24-28m/u± 52 14-18m, 25-26m 53 1-3m 59 29-33m 60 2-11m/5u "leur|à", 31-33m 61 30-32m/31-32u "un|même" 62 5-12m, 30m 64 28-31m/28-29u "on|rudimens" 104 13-25m, 17-20m, 27-32m 105 26-32m/x, wb x I ought to apply it to Varieties 115 18u "un|placés" "l'habile anatomiste", 20-22m/20-21u↔, 32→ 116 16-18m/18u 129 12-13m/12u "extérieur|congéniales", 30-31m/31u "sont|congéniales" 131 16-20m/18u "foule|cas" 143 9-14m/9u↔/13-14u± 147 7-9m/8u "mais|ans" 152 12-13m, 15-17m, 19u "Dans|vieillesse", 21-23m,

25-26u "fort | moyenne", 27u "dont l'un", 28u "lui", 31-33m 153 8-12m, 31m 154 4-12m, 5-8m, 10-12m/11u "dessus | moyenne"/12u "à | nain" 158 25-27m, wb p.164 exception 159 6-9m/8-9u "bien | élevée", 16-18m, 21-30m 160 7-10m 161 13-32m 164 8-10m, 22-27m 165 7-12m, 21-22m (Blumenbach) wb Rengger gives plenty of cases 167 9-17m 183 16-19m, 26-32m 184 9-12m, 28-32m 185 24-27m 186 1-3m, 14-16m 189 4-8m, 15-16m 190 7-15m 191 22-26m, 29-33m, wb The Laws of growth & reproduction being so allied, may it explain any of the facts of sterility? Hybrids not. 192 5-22m, 28-33m 193 29-33m 196 4-16m, 22-24m/22u "transmissible"/23u "Il | point" 208 24-31m 210 17-20m, 23-25m 211 2-4m, 17-21m 213 1-4m, 19-33m 215 4-15m 216 5u "particulier", 6-8m, 29-33m 217 1-3m, 3-8m, 14-16m/15-16u "mais | tempérés" 218 29-31m 219 9-12m 220 6-9m/9m 221 1-6m, 8-13m, 21-26m, 32m (Dureau de la Malle) 222 12-14m, 23-25m 223 9-17m/w This is case of animal being smaller northwards 19-24m 224 30-33m 225 5-9m 227 8-9m, 15-17m, 26-31m 229 3-16m 231 11-13m, 14-17m, 26-31m 236 26-33m 240 20-26m, 27-31m, 32w (Last page) Coll of Surgeons. 241 33m (Milne Edwards), wb New Edit? Never published Balliere 242 13-20m/13-16u±, 21-27m, 28-31m 243 1-3m, 8-14m 253 4-8m, 21-23m, 24-26m 254 1-3m 255 28-32m/w corn==cutter 258 26-28m, 29-33m/30u "dogues" 260 31-32m 261 1m, 8-10m, 19-22m 262 wbee 263 7-8m/7u "frères | pesait", wbee 269 5-12m, 23-28m 270 6-7m, 32-33m (Aristotle) 272 6-8m/u±, 14-17m 275 30-33m 274 1-4m 276 28-29m/Q 278 1-2m, 29-31m (Meckel), wb There seems gradation between Monsters of this class & varieties. 281 1-5m, 5-7m, 14-22m/Q 282 1-3m, 24-25m 284 1-2m, 11-12m, 13-14m, 13-21m, 22-24m 285 20-24m/Q 286 1-20m, 26-30m 287 9-14m, 18-20m/Q 22-24m, 26-28m, 28-31m/28-29u↔, 29-33m 288 3-6m, 15-18m, 30-33m (Serres) 289 7-11m, 29-30m 293 21-26m 294 8-15m, 30-31m 299 1-2m 305 16-18m 306 3-6m, 13-18m/16-22w I do not agree 19-28m 307 1-7m, 25-27m (Schreber) 311 7-8m 315 17-19m, 23-25m 316 32-33m 317 20-28m 318 11-14md, 20-23md 319 18-19m 320 11-14m 324 7-9m, 10-12m, 20-23m 525 3-5m, 15-17m 326 13-15m 328 23-26m, 31-34m 334 29-30m 335 3-4m, 12-14m 337 wt Bay horses Goats Pigs Cows 1-3m/? 328 1-6m, 12-14m 344 6-11m/7u "caractères | maladies", 28-32m/20u "était | mâle" 347 17-24m 392 15-20m 400 4-6m, 11-16m 404 27-29m, 30-32m (Meckel), wb X outer reversement not so explained 405 2-9m/4-

6??, 24-26m/24-25u "c'est | uterine" 408 19-22m/20u "cils | sourcils" 409 23-24m 410 17-20m, 21u "de l'irritation", 22-24m, 27-28m/w shows how common. 411 12-14m/?/13u "bouc", 15-16m, 28-30m 413 27-30m/29u "combien | situation" 414 5-8m, 16-21m 415 11-14m, 15-18m, 21-23m, 25-26m 416 25-27m 417 1m 418 8-9m, 13-25m/w This wd go to show that any part which has changed much will tend to change more. 16-18m/Q 420 13-17m, 23-32m 421 4-16m, 24-31m 429 12-14m/w bears out embryological view 29-31m 430 12-15m 431 2-3m 434 17-20m/18-19u "le | mâchoire", 22-25m/25-26u "de | surnuméraires", 27-30m, 33u "la transposition" 435 1-5m 436 26-29m/27-28u "fréquemment" 437 1-6m, 11-13m, 19-23m 439 8-10m, 31-32m 440 18-23m 441 24-25m (Serres), 32-33m 445 11-19m, 15-16m 447 23-25m 450 18-26m 452 8-9m, 13-15m (Breschet) 453 16-18m, 26-27m 456 20-21m 459 wt/1-4w X there have been endless remarks such as this; but they appear vague, considering what endless diversity the whole series of animals must present. 5-7m/x 462 3-6m 467 1-2m 470 11-13m 473 23-25m 478 3-4m, 14-15m 479 19-21m 480 1-2m, 9-10m, 26-28m 483 16-17m, 20-21m 484 1-33w/wb Q Avoiding term of "development excentrique" I ought to say that variation parts, as trunks & branches of arteries & nerves, depend in some degree upon which are first developed in embryo, the first being most constant. 13-16m, 22-25m 485 1-33w/wt No case of hereditariness in any of these varieties, but then hard to discover how seldom father & son dissected. 11-12m, 16-17m, 27-29m 496 5m, 8-11m 508 4-7m 509 1-3m, 13-15m, 17-18m 515 24-26m 527 2-5m 528 5-8m 531 10-13m, 18-21m 532 1-5m, 12-15m, 22-25m 536 17-22m, 29-33m 537 25-30m, 31u "affinité | soi", 32m/→ 538 17-22m, 19-21m 540 22-25m/Q 24-32m, wb This perhaps may bear on some organ single in some animal & double in another.- V. Cuvier Anat: Comp: wb see next Page 541 3-4u "ordinairement médiane", 16-25m/17-18Q 32m (Martin) 542 3-7m/5u "médiane"/9m/1-9w/wt some other cases of monstrosities have been given in Man & Mammifères 544 24-26m 545 25-26m/Q 546 12-15m/Q 548 25-26m 549 1-3m 550 19-24m, 30-32m (Dr La Roche) 552 10-15m/3-15w See what Müller says on this Theory 31-33m 553 1-5m, 15m, 17-26m, 32-33m 557 29-32m 558 1-9m 561 24-30m 564 1-3m, 3-5m 565 3-7m 579 1-2m, 11-15m 580 18-21m, 26-31m 581 23-26m 582 3-6m/5u "bien | poissons" 583 1m, 21-25m, 27-28m, 29-33m/30u "nés | portée" 588 26-29m 589 24-30m

599 6-8m 601 15-17m, 28-33m 603 1-2m 604 4-8m, 11-14m 605 14-18m 606 14-18m, 29-31m 607 24-26m/w ♦ This is hereditary Dict: Med: Sci: *wb* This tendency to monstrosities by arrest of development, is perhaps allied to "avitism".— No, sporting back of hybrids, where germ affected shows no connection with arrest of variation 610 6-8m 613 1-3m, 4-5m, 7m 614 1-2m 622 7-11m, 13-16m, 22-26m 623 1-2m, 5-6m 624 8-13m 630 14-17m/16-17u ↔ 631 5-7m, 18-20m, 22-23m 632 1-2m, 3-6m, 13-14m 634 1-2m/1u ↔ 635 13-27m (Meckel)/18-20Q 21u "cuisse|pied", 32-33m 636 1-3m, 8-15m, 29-32m 637 11-14m, 28-31m 638 1-9m, 27-28m 641 25-27m (E. Rousseau) 642 17-22m, 25-27m 643 17-24m 644 5-9m (Otto), 10-13m, 22-27m 645 13-16m/14u "au|plupart", 26-29m 648 6-7m, 20-21m, 28-31m 649 14-16m 650 1-3m, 1-6m, 9m, 11-13m, 28-29m 651 10-14m 655 11-12m 656 27-30m 657 1-5m, 28-30m 658 1-4m, 26-28m (Borel, Danz) 659 1-8m, 22-24m, 28-29m (Gavard, Soemmerring), 29u "chez|nègre" 660 3-6m, 12-17m, 26-29m 662 7-11m, 12-13m, 15a "général" of homologous organs varying 16-17m, 32-33m 665 8-9m, 10-12m, 14-17m, 22-25m 666 12-13m, 16-20m, 24-26m 667 2-6m, 13-18m, 27-29m 668 1m, 5-7m, 13m 669 10-13m 670 1-3m, 3-9m 671 8-13m, 16-19m 672 17-19m 673 4-5m, 16-19m, 20w Another 21-22x, 22m, 23-26m 674 2-4m, 26-27m/x 675 24-28m 676 22-23m, 24-25m 677 7-8m/8u "rudiment", 10u "orteils|arrondi", 13-14u ↔, 17-18m/18u "que|fille", 33-35m (Béchet) 678 1-13w inheritance of diminished fingers 3-6m, 4u "leurs|incomplètement", 10-11m, 10u "étaient rudimentaires"/11u "Le père", 12-13m, 16u "de moignon"/w rudiment in the father 22u "réduits"/21-22w in granddaughter 26-29m/26u "par diminution"/28u "par augmentation" 681 17w to 702 682 3-6m, 4-5m, 11-14m, 13m 683 13-15m/3-29w How often have light monstrosities accompanied grave ones. 30-33m 684 3-10m, 12-13m/x/u "le chien" 685 wt x quite regular so is to be counted 17-18m/x 686 30-31m 687 3-4m, 9-11m, 13-15m 688 26-28m/x 689 1-2m/x, 8-10m/x, 10u "trois doigts", 18-19m/19u "cinq", 20-22m, 31-33m/x (F. Cuvier), 32-33u ↔ 690 6u "deux", 7x/1u "cheval", 13-15m, 17-22m, 18-22m 692 10-11m, 19-22m/x, 25-32m/w rudimentary organ variable 30-31u "presque|terre" 693 1-2m, 3-4x, 6-8m/x, 10-11m 694 1-2w two thumbs 2-7m, 9-10x, 23-24m, 28-29x, 33m (Bechstein) 695 6-8m, 15-16x 696 14-18m, 20-21m 697 13-15m 699 20-24m 700 8-10m, 14-15w

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vol. 2 NB1 200 Classification

NB2 "Traité élémentaire".w X

SB1 Abortive organs

Hereditariness

Period of Monstrosity supervening cause of Are rudimentary parts more variable than other parts?

(over) 26; 44; 60; 63; 110; 134; 137; 144; 196; 210; 214; 221; 223; 224; 229; 233; 234; 243; 249; 251; 262; 288; 344; 375; 382; 393; 395; 399; 403; 407; 409; 413; 415; 441; 464; 470; 477; 512; 519

Use the word anomaly for his variations or often Monstrosities Usage "anomaly" is not quite correct

SB2 ☐X

1 Vol 2

29 shells to left in vars. & species of same Family

57 & 110 ♦ on change in habits in old Hens 110 on Carps with imperfect female organ like neuters (Ch. 9)

210 on rudiments of limbs. 223 hereditary in Dog.

224. some rudiment almost always present.— 395 do.

413 certain monstrosities more common in certain species than others,— quite inexplicable.—

The intermaxillary bone when it appears in man is only a rudiment, & yet it occasionally appears so here we have a tendency in a rudiment to appear

SB3 ☐X

Vol I Study of Monstrosities

39 admits that arrests of Development do not apply to variation.

104 Correlation of Monstrosities

115 dispute M. Vernière

116 Monst like other animals X 285 Carp. X 276 Q Compensation Ch. Kidney & super-vent capill

♦ 281 Most abnormalities in abnormal

organs.

294 young spotted old mature

♦ 418 organs most change in position which during normal development change most

484 X₂ Q₂ Parts earliest developed vary least because later formed affected by earlier

635 Muscles of arms when monstrous take after legs – Homologous parts X₂ Q

692 rudimentary organs variable

Vol 3.

352 X₂ trunk so frequent in Fig.– relation between monstrosities & varieties

392 first forms tend monstrous because late organs must be affected by first formed (Andral) X₂ Q₂

402 correlation of Monstrosity without apparent cause X₂ Q

(over) 406 ♦ distinction between amount of development & of position

437 Monstrosities resembling lower animals X₂ Q

26 5–7m, 8–10m/9–10u↔, 14–21w Sowerby facts show almost hereditary 25–27m 27 3–5m, 8u "Canalifères", 12u "cinq|que", 14–16m, 16u "très|nombre", 29–32m/31u "Helix nemoralis", wb over → 28 22–25m 29 1–2m, 2–3m, 7–8m, 11u "genre|physes", 17–19m, 26–27m 44 17–21m (Serres) 57 8–9m/7–11w does not Yarrell say that they fight? 23–25m 60 14–15m, 15–36w p.57 & 110 There is analogy (?) in change of instances of old Hen-birds & mules, with instincts of neuter insects & castrated cocks 22–23m 63 17–21m 110 20–25m (Gaspard) 134 14–29m 137 13m/u "de|séminal" 144 1–7m 196 14–17m, 26–33m 197 15–17m (Blainville), 18–21m 210 24–25u "très-rudimentaires", 25–27m 211 1–2m/1u "rudimentaires", 24–27m/26u "soudés|eux"/27u "rudiment" 214 12–13u "d'un moignon", 13–15m/13u "terminé|par"/14u "imparfaits|rudimentaires" 221 21–23m 222 28–30m/28u "de|non" 223 2–4m/w hereditary rudiment 3u↔, 6u "moignons|courts" 224 1–2u↔, 2–7m/4u↔ 228 23–30m 229 3–9m (Schenckius), 27–29m, 33→ 230 15–19m/16u↔ 233 22–24m, 28–32m 234 1–2m, 3–5m, 23–28m 243 3–4m/u "on|inférieure", 13–14m, 14u "soudés|longueur", 16u "plus fréquemment", 21m/u "soudés", 31–33m/33u↔ 249 11–14m/14u "renferme|deux", 17u± 251 12–14m/14u "par|non" 262 6–9u±/wt/1–13w does not hereditariness prove this, or may same cause affect embryo in its growth? 7–11m, 20–21m 288 18u "de l'éventration", 20–24m, 31–32m, wb xx often before remarked Monstrosity in one part it seems, causes

monstrosities in may other parts 289 12–13xx/u↔ 344 2–7m 375 17–21m, wb May be mentioned as one of the laws governing variation = in what cases have we double organs in one species becoming single in another. Womb? 382 9–13m/9u "représentés", 27–28m, 28u "les|des" 383 17u "atrophie|complète", 18–19m, 18u "nasal", 19u "représente|extérieur", 22–27m/→ 385 11u "à|l'extérieur", 12u "Intérieurement|contraire" 393 15–25m (Meckel) 395 13u↔, 14–18m/16u "attentif|toujours"/17u "cartilages informes", wb It is remarkable that many of the former monstrosities of the head, not uncommon with man has never been observed in animals 399 3–4m, 29m 403 wt/1–7w There is most evident gradation in this sort of rudimentary organ 9–11m/10u "elles|rudimentaires", 12–13u "Les|celles" 407 1–9m/w this may be very important 410 22–30m 411 11–14m/12u "lapin" 413 3u "pourquoi", 7–8u↔, 15–18m 415 15–20m 441 3–6m/4–6u↔ 464 17–21/18u "atrophie complète" 470 22–24m 477 15–17m 512 7–11m 513 4–5m 519 1–4m, 27–32m 536 13–20m 537 16–18m/16u "en général", 28–33m 549 20–25m, 29–31m 550 17u "Elles|dépourvues" 551 1–8m, 10–11u "mais|constatée", 11–12u "c'est|dentition" 552 13–16m, 17–20m 560 7–9u "car|distinct", 11u "l'autre|contraire", 12u "parties accidentelles", 18–24m (Meckel)/18–22u± 561 17–21m 562 28–33m (Bichât) 564 22–25m

vol. 3 NB 187 Zoology Double Headed WormsX

Owen says this book inaccurate – M. de Serres not to be trusted; some truth in law of Excentricity V Müller – Meckel good authority p.503 Try experiments on eggs galvanize them–

SB1 □R (3 sheets)

1 Vol 3

111. The perfect union of one leg or arm of some double monsters very striking

284 – on some double monsters breeding, opposed to their sterility but then it is the one perfect which breeds 377 fertile generally.

350 domestic animals, like man, have numerous variations in veins

352 monsters occur differently in number & head in different species – a trunk specially common in Ele♦ Pigs.– 355 in wild animals very few monstrosities – there is evident relation between monsters & varieties

392. organs or parts later formed, always must be affected by causes producing monstrosities. Quote Andral – on first formed

least monstrous – (shows most monstrosities do not come on very early)

402 on coexistence of monstrosities, without any evident relation of parts.

(over)

406. distinction between arrest of development & of formation

437 Q cases of monstrosities in man resembling Lower animals resulting from permanence of embryonic condition

448 – intimate parallelism between the embryonic, zoological & teratological series.

456 again insists on law of number varying in part when numerous, & being in itself variable

456 Summary on laws governing variation – generally rudiments – (hence cause does not act very early)

462 On homologous parts uniting both in monstrosities & in Nature.– Do not some account for this by division of cells at some period of growth??

479 on germs being originally monstrous

499 arguments for monstrosities being produced late & 500 Read, 503 See Ray Catalogue).– 506,7

(over) 3 Tom. 3

347 – throws over imagination having any effect on nature of monstrosity. 392. Q

593 – summary of Laws of monstrosity, nothing new

604 on parallel series in zoology

609 good instances, showing how easily final causes may be falsely invented.

SB2 Owen

de Soi pour soi – Centripetal Law – Balancement des organes – M. de Serres – old Geoffroy; Isidore; – Meckel; – Carus

(over) Vol 3

I.St.Hilaire. Anomalies

p.89. p.111

p.134 shows how all parts go together

138 143 151

172 – at 267 ✎ skim chapters to 349

246 257 261 264 279 284 321 350 to 359

376 to 279 391 to 418 428 to 547 551

p.592 p.597 p.602 p.604 p.606 p.608

89 7–9m, 18–20u "restent | grêles", 24u "elles | même", 29m 90 1–3m 111 8–14m/x, 25–26m, wb the perfect union of the two adjoining arms or legs of some of these monsters, is very striking. 134 25–29m 135 6–7m, 32–33m (Serres) 138 4–8m 143 22–24m 151 23–27m 172 wt X this, I suppose consists of two limbs united. p.157 8–11m/9u "ce | membre" 187 4–5m, 25–27m (Pallas) 246 11–14m/5–28w case of a perfect ♣ individual bearing

another head with no trunk on it – How curious this new course of the arteries 12–14m/u±, 21u "n'avoir | aucune" 257 9–12m, 29–31m/? 261 14–17m/17u↔/12–26w because the jaw is generally only developed in these parasites – good instance of this Law of "soi pour soi" wb V.p.285 where this is discussed. X N.B I dont see why if a jaw, considered as an amorphous mass, be considered as an individual – why not an additional finger shd not? He wd answer because as additional finger makes asymmetrical part of the perfect individual:– yet why not law of "soi pour soi" put this finger in proper place – improbable 264 1–12m, 20–21m/21u "mais | oiseaux", 22–24m 279 24–26m, 27u "chez | grenouille" 284 2–3m, 4–6m, 12–14m, 16–19m, 20–22m 285 28–32m 286 15–17m, 17u↔ 321 14–21m, 13u "des | originairement"/15u "qu'un seul"/18?/w what 18u "épigénèse", 22–28m 350 4–6m/5u↔, 7–9m, 7u "ses | vaisseaux", 10–12m, 10–11u "sinon | moins" 351 19m, 20u "3,000 naissances" 352 21–23m/22u± 353 3–5m, 7–11m/x/Q 17–20m, 22–24m, 29m 354 1–3m, 8–9m, 13–15m 355 1–7m/2w♦ not domesticated? 8–14m, 20a "classes" Mammifères & Birds 22–24m/23–24u±, 28–33m 356 6u "que | cerf", 7u "lièvre | taupe", 8–9u± 359 15–17m, 28–31m 376 25–27m 377 1–2u↔, 11–16m 378 9–10m, 14–17m, 25–28m, 30–32m 379 3–4m, 7u↔, 8u "sont | ectroméliens", 11u "donc | de", 12u "monstruosités | ectroméliens", 15–20m 391 16–18m/w (a) next page 392 1–4m, 5–8m/x, 7–9m, 9–10m, 17–19m, 20–22m, 25–28m, 29–30m, 31–32m (Andral)/Q 393 1–5m, 6–8m/w a ♣ 9–12m, 29–30m/u↔, wb (a) ♣ Does not this explain variability of hair-size &c &c? Q 394 17–20m, 22–27m, 32–33m (Serres) 395 1–2m, 5–6m, 7–18w surely in embryos the heart is hear to beat very soon? V. Müller 397 7–11m 398 27–31m/w (a) (B) wb (B) Therefore applicable to any part, as skin, which has no central, uniting point 400 17–20m, 24–25m 402 4–8m/x/"/"..." /Q 403 28–30m 405 1–6m/2–3u±, 7–9m, 20–21m, 22–23m, 29–30m 406 2–4m, 15–16m, 31–33m 407 2–4m, 16–18m, 22–24m 408 10–12m 414 20–23m, 24–29m 415 1–5m 416 8–9u "faite | féminin", 9–12m/10u "de | hémitéries"/w clitoris? 13–15m, 22u "et | douteuse"/14–24m/w pooh! a tailless animal excess of development because man has no tail!! 417 11–16m, 19–22m 418 13–16m 428 14–19m, 21–23m, 28–30m 433 3–7m, 30–33m 434 11–16m 435 24–28m 436 13–15u "Les | supérieurs"/?, 17u↔, 18–24m/20–23Q 437 2–5Q 11–17m/11u "par | queue", 15u "absence | biliaire", 22u "cloaque", 22u "la | matrice", 18–

GEOFFROY, HIST. GEN. ANOM. VOL. III
 26m/25-26u "bifurcation | pénial", 28-30m, 30-33m 438 1-4m/1u "par | des", 5-23m/13-15?/13u "la | profonde"/14u "diverses cavités" 439 2-10m/5-7?, 15-20m/18-19w pooh! 20u "chez | anoures", 21-27m 440 23-27m 441 10-11m, 15-27m/19w pooh! 448 21a "embryonnaires" He means embryological 21u "les | espèces", 24-25u±/20-30w What is this? No variation from a likeness of the parents can be strictly normal - 449 4-5w V. next page xxx so be cautious- 8-10w all this he considers only analogy.- 11-13m, 16-17m, 20-26m 450 9-15m, 18-20m (Serres), wb NB in case of limbless, tailless, fingerless races (& reverse) the hereditariness must come on at nearly same age (as in horns) for the early foetus has not these parts.- 451 1-19m, wb xxx according to the bearing of this discussion, there wd be only an analogy, between a man become fat by much eating, or large & one born * fat or large; * which I think is false?- 452 5-11m 456 22-31w What is Owens law? about these organs? is it that the reduction of these organs is one step in development 24-27m/Q/26u "variabilité anormale", 27-31m/30u "constante | importante" 457 1-4m, 5-11m/6-7u±, 9-13w & more chance of exposure to new conditions? 14-16u "par | spinal", 15-20w when any connection but not in so pairs 23-25m, 28-33m/32-33u↔ 458 1-3m, 4-10m, 14-20m/18u "que | conservés", 19u "rudimentaires | formations", 27-28w no examples 29u↔, 30-32m 459 1-4m/1u "avec | des" 460 5-17m, 29-31m 461 29-32m/32u "seulement" 462 8-9m/1u "semblables | analogues", 18-20m, 21u "Loi | soi" 463 9-11m, 24-25m/25u "chez | composés", 26-28m, 29-31m 464 20-22m, 28-30m 465 30-33m 479 17-18m, 18-31m, wb I shd think the cause must be often anterior to impregnation 499 7-9m, 16-17m, 24-27m 500 wt/1-16w Hereditary * legless Dogs & Men with polydactylism show that germ can communicate such tendency 2-3m, 14-16m, 18-33w according to this male wd have no influence in producing monstrosities 22w see Ray Catalogue 22-24m/m, 25-27m/25u "t.xxxiv"/26-27m/27u "t.1511", wb Study this to see whether small deviations as long legs &c were produced - In plants we know it is from treatment of parents & out of generation - 14-16w III 501 1-4m, wb I must allude to III this when I give my view of cause of deviations to parent treatment before impregnation 502 11-13m, 14-16m, 13u "soit | simples", 14-15u "atrophie | yeux", 22-26m 503 1-3m, 2-4u↔, 27-30m/28w Where? 506 26-28m 507 wt/1-5w In plants it

may be said gestation of seeds causes anomaly - but seeing what effect male pollen can do, I shd greatly doubt 1-9m, 11-14w This applies to all slight deviations 12-15m, 20m, 21-22u "qui | même", 22-23m, 25-28m, 29u "de | anciens" 510 13-17m 515 1-3m, 4-17m, 21-23m/22u "ni | entièrement" 516 2-6m 521 4-7m 522 29-31m 523 4-8m, 9-14m 524 5-8m, 18-20m (Serres) 526 2-7m 529 25-27m 530 1-6m, 8-14m, 28-31m/29u "problème | complètement" 531 1-3m/2u "cette | force" 534 4-6m 541 4-8m 542 11-13m, 14-17m 543 13-16m 545 13-15m, 24-27m 547 3-5m, 15-19m, 25-30m 551 24-27m, 25u "congéniaux | originels" 592 3-6m, 29-31m 593 1m, 22-27m/26-27u "que | nombre", 29u "père | soi", 32→ 594 6u "Théorie | arrêts" 597 9-11m, 32-33m 602 19-22m (Cuvier), 29-30m, wb X Reflect of the possibility of classification of monsters (and many other * artificial things) is showing that classification may be quite independent of any theory of origin, as I suppose is implied in Natural Classification 604 7m/u "parallélisme | séries", 12-17w agrees with Forbes 13-18m/18-19u±, 20-24m, 30-32m 605 12-13m 606 3-4m/3u "cette | que" 608 7-8m/d/wt♦/1-15w♦ rather attributes species to monstrous births than to small changes. 28-29m, 28u "profondeur", 29u "espèces animales", 7x→ 609 23-24←X, 13-15m, 22u "encore | intelligence", 24u "qu'ils | la", 26u "ne | que" 613 13m 614 19m, 28m, 32m, 37m 615 3m, 9m 618 5m Catalogue, 1 11-12w Read Skimmed♦ through

GEOFFROY SAINT HILAIRE, Isidore
Histoire naturelle générale des règnes organiques
 3 vols; Paris; Victor Masson; 1854-62 [CUL]
 br, ex, f, gd, geo, h, he, hy, ig, in, is, sl, sp, sx, sy, v, wd

vol. 1 NB Read

SB □β

♦ 4; 10; 14; 431; a miserable Book - all words, words, words

Abstact Feb. 58

5 Dog not mentioned in Genesis

14 Goats with pendant ears

4 14-15m 5 20-21m 10 4-7m 11 20-24m 12 1-3m, 4-8m 14 22-24m, 25-29m 431 10-14m, 21-22m, 24-27m

vol. 2 NB On Man 167 to 260

SB □β

On extinction I have too much overlooked subsidence of isld like St Helena &c volcanic outburst &c &c

vol 2

185 Rank of Man ⇒ Man

◆ How are teeth in Sirenidae – yes they have but not very ample ♣ naked? Man Elephant

◆ 216; 243^h Man^h; 287; 304; 311 to; I apply races only to domestic productions

◆ 383 to 438 History of Believers in modification Say that I shall notice only the m conspic writers – when I began I had no idea of rest of catalogue

◆ p.431 – to p.438 Isidores own argument that species change.

◆ 441; 448; 474, 476; 482, 485,

488 → Reference about White Ants important for me; 498 – Must include sexes Explain that I use his race in particular man

185 2–13m (Linnaeus) 213 24–26m 216 1–7m, 9–11m/8–14w variation & sexual difference going together 17–19m/17u "lion-marin", 25u "cravate|gau"/21–26m/w I thought some sexual differences in Monkeys?? vide my Notes.– 27–28m, 30–31m, wb How in young Nylgaus V. Andrew Smith wb Mem. Eyebrows Paget's fact.– 217 2–5m, 6–11m 243 1–7m, 18–20m 244 13–18m 287 1–2m, 22–23m 304 29–30m 311 14–20m/w yet very slight differences even if inherited wd hardly be called Races – 312 11–15m (Kant) 321 15–18m 326 22–24m/23–24u± 328 18–22m 329 1–4m 333 7–8m 337 wt (a) not really known under nature, because inheritance not thus ascertained = sub-species or species 1–3m, 6–8m/w (a) does for species 9–15m 347 23–25m 383 6–8m (Buffon) 386 4–9m (Buffon) 387 6–10m, 12–15m 388 2–6m (Buffon) 390 13–21m (Buffon) 393 9–12m, 13–14m/w this will do for variation 394 7–10m 396 18–23w a collection of individuals which perpetuate ♣ themselves for considerable periods ♣ & which are sufficiently unlike other forms to deserve in the opinion of Naturalists a name○ So with varieties Add found in state of nature. 399 2u "Daubenton", 5–9m 402 16–18m 405 15–17m, 16u "1801|1803", 19u "1809" 406 27–29m (Goethe), 27u "était|partisan" 408 6u "besoins", 7–9m, 26–29m (Lamarck) 416 11–14m/w No change now 418 25–27m 423 11–12m (Cuvier) 431 5–6m 432 20–23m 437 16–19m/w not distinguished from race 441 15–16w Definition of species 448 8–9m/8–12w This refers to alternate generation & larvae &c &c 17–20m (Leuckart) 465 15–17m (Meissner) 474 22–23m/w sexes 476 7–10m (Gould)/8–9w variable? 477 5–9m, 12–14m, 31–32m 478 11–15m/w variable?? 481 7w Drilus 8–14m, 14–15m 482 26–33m (Latreille) 483 25–30m (Desmarest, Audouin, Milne

Edwards) 485 wt (a) Andrew Smith case of Birds of 2 size – Azara's case of Moloths Land-shells are all Dimorphism– 6–10m/7w (a) 23?/u "mâles" 488 16–18m, 19–20m (Lespés) 489 1–3m 498 18–20m

vol. 3 part i NB Oct 19 1860^h

I have selected ● for my 1st volume on Dom^o animals^o – Must be all gone over again & Indexed Especially for Hybridisation very good.–

Cats hybrids p.177 Used

22 9–20m 23 26–29m 27 18–22m (Dareste), 29–31m 28 25m, 26–27m 29 26–29m 34 3–5m 45 18–19m/u "Tels|soie"/w silk-worms artificially fed & well domesticated 25m 46 9–13m, 20–22m (Aristotle) 47 24–25m, 28–30m (P. Julien), 28u "quarante|siècles" 48 7–8m, 13–15m 49 12–15m/13w no selection 50 8–10m, 11–13m 51 2u "dix|oiseaux" 52 7w Colour in mimicry 8–10m/w colour & size in Turkeys 20–22m 55 2–3w Swan not varied 56 20–22m (Varro) 57 10–14m, 32–33m 58 10–12m, 19–21m (Pictet) 59 10–13m/w Guinea Fowl not much variation 60 4–6m, 13–15w Peacock no variation 21–23m (Aristotle) 61 28–29m (Pucheran) 62 7–9m/8u "Zend-avesta", 13–14m/m, 21–23m (Link), 22–23m (Pictet), 33u↔ 63 28–30m (Aristotle) 65 17–19m/17–24w Chinese swans not known form not perfectly 67 20–21w Llamas 69 21–26m (Albert Geoffroy, Linnaeus) 72 6–8m/w Guinea Pig Origin unknown 73 9–15w Ferrets probably Polecat 75 1–3m/w Rabbit not in Greece or Italy 13–14w originally Spanish 24–27m/29u "îles|Baléares"/25–30w rabbits in France & Spain before our era 77 18–19m 78 8–10m 79 23–25m (Hamilton Smith), 31–33m (Fitzinger) 82 wt/1–3w Savages may reclaim animals Caffres nato Oxen – Dogs – Pacific Ocean Ascension Dogs – Pampas Indian take to Horses so readily 7–10m, 13–16u± 83 4–9m (Dureau de la Malle)/7–8w N.Q. 10–12m 84 9–12m/Q 85 1–4m, 20–24m (Fitzinger) 86 12–16m 87 1–4m (Pallas, Gùldenstädt)/2–3Q 88 13–15m 91 10–13m, 15–23m (Pictet) wb Why shd not name of conquering races become modified & transferred 95 29–32m (Joly, Pictet)/31u± 96 2–3m 97 20–23m/w Blyth 98 3–8m 99 1–10m, 2u "Cretzschmar" 100 31–33m (Link)/w Dog w^h All Q 18–21m 102 1m/u "une|oreilles" 103 7–9m/w How about spots over eyes 106 6–13m 107 18–30m (Pliny), 35–37m/Q 108 3u "tel|Tilesius", 6u "chiens|africains", 7–9m/9u "Ehrenberg et Hemprich", 15–19m, 25u "kaukasischen Schakals", 27–29m (Gùldenstädt) 109 8–9m/8u "Rueppel", 9u "C. simensis", 10–14m/w like Greyhound 110 33–

GEOFFROY, RÈGNES ORGANIQUES

35m (Broca) 111 29-32m 112 1-4m, 6-9m (Bellingeri), 14-16m, 22-30m (Cuvier) 113 2-6m (Flourens), 14-17m 114 1-2m 115 19-23m/Q 121 29-30m/w too few recent 123 6-8w Rabbit Coney Bird 7m, 12-13m, 27u "en | transitions"/w Only Habit 154 15-19m 155 16-20m (Aristotle, Pallas), 27-29m (Dryander) 157 15m/u "L'hybridité | tétras", 21-22m 158 8-9m/8u "dindon | faisán", 15-16u↔ 159 6-8m, 11-12m 160 12-13m 161 3-4m/??/w see ♣ pp163 4u "surtout | bouc", 19-21m 162 9-12m 163 4-5m 164 7-8m 165 2m, 13m 167 19-21m, 25m 168 2-3m, 18-20m 169 29u "menstruation" 171 32-34m (Hunter), 33u "Wolf | are"/w Dogs 172 10-12m, 13m, 14-15m/w Dogs 173 1m/!, 14-15m 175 35-36m/36u "baudet | sans" 176 16-18m 177 18-19m/Q, 21-22m 179 21-24m, 29-31m/w Pheasants 180 1-4m, 7-9Q 9-14m/11-13w Pigeons crossed 25m (Dureau), 29-30m 181 5-13m 182 9-13m (Gloger) 197 7-9m 199 6-9w same rules hold in individuals 12-15w ♣ The rule holds with squirrels 17-18m 200 18-23m 203 7-9m 204 4-8m 206 13-19m 207 1-3m, 6-8m 211 24-26m (Broca)/w see p.222 216 22-26m/w Dogs & Wolves 28-30m (Buffon) 217 1-3w Q under Dog 4-5m (Flourens), 13-18m (Flourens), 27-29m/w Chacal & Dog 30-31m (Duvernoy), 31-34w Q under Dog 218 2-8m, 16-17u↔ 219 1m, 13-14m, 20m, 25-27m (Francisco de Therau) 220 9-10u↔, 24-29m (Weddell, Denis) 221 19-21m 222 1-2u↔, 18-19u±, 27-31m 223 1-2m, 4u "trois | leux", 5-8m, 9-10m, 19-21m (Broca), 24-26m, 28-32m (Rouy) 225 1-4m, 18-20m, 28-30m 226 3-9m 227 21-23m (Lecoq) 228 17-20m, 21-23m 229 4-8m, 10-13m, 23-27m 234 6-8m 254 12-28m/13-15Q/u "1784" 16u "surl | jaune", 18-20w selection 27-28w 259 12-18m/14w atavism 27-32m (Roulin) 260 1-7m (Cantal) 261 9-12m

vol. 3 part ii SB1 □R

322; 328; 336 to 377; 402; 407,409; 427; 434; 438; 41; 446; 450; 461; 469; 472; 476,8; 482; 498; 507; 529

SB2 □β

↪ 330 Falcons or Hawks caught at long distance from home.

→ ↪ Variability of species in state of Nature

↪ (Not abstracted)

↪ 402 changes in naturalised Helix ⇨ - May bear on Madeira & P. Santo peculiar species -

322 3-12m 323 ↑1→ 324 ↑2-1m 328 5-12m 330 9-17m 332 1-6m 333 1-2m, 7-10m 335 1-5m 336 ↑3-1m 337 6-12m 338 16-21m 340 12-17m 342 ↑19-9m 345 ↑15-11m 347 ↑14-

11m, ↑9-6m 348 2-8m 350 1-7m, 13-19m, 20-25m 351 1-3m, ↑13-7m 354 ↑8-1m 357 ↑11-6m 359 18-21m 360 6-12m, ↑10-5m 365 10m, ↑3m 370 ↑18-16m, ↑8-1m 373 9-13m 376 ↑19-14m 377 10-15m, ↑5-1m 402 ↑17-10m 403 wt Is this allied to Madeira or Porto Santo close species 7-15m 407 6-15m 409 10-20m 427 1-5m/w But how kn parent ↑12-9m/→, ↑3-1m 434 ↑3-1m 435 4-6m, ↑12-6m, ↑1u "1834" 438 ↑7-2m/Q↪ 441 12-21m 446 10-15m/m, ↑2-1m 447 16-18m 448 tab.w six times as long - tail not included wbee 449 ↑13-7m 450 ↑15-10m, ↑9-4m, ↑3-1m/m↪ 451 5-9m/m, 18-21m, ↑3-1m/→↪ 453 1-6m/3-6m, 14-22m 455 5-8m, ↑8-1m/m 461 ↑3-1m/↑1u 469 ↑8-3m 472 17-20m 476 ↑7-3m/Q↪ 478 ↑6-2m 479 1-4m 482 12-14m/w Cart-Horse & Race Horse 498 12-15m 507 8-13m 529 3-17m

GEOFFROY SAINT-HILAIRE, Isidore Vie, travaux et doctrine scientifique d'Étienne Geoffroy Saint-Hilaire Paris; P. Bertrand; 1847 [CUL]

ad, af, beh, em, geo, ig, mn, rd, sp, tm, v, wd

NB1 p.69; p.121; p.134; p.139; p.157; p.212 to p.218; p.229; p.238; p.245; p.258; p.281; 291,4,7; to 312; 332 336 to 357- Omalius d'Halloy on changes in species

NB2 Read 428; ? 454 Book G

SB □β

135 all organs, are same modified &c

139 never a new organ, with respect to Electrical organs

213 Relative position & mutual dependence, more important than forms or functions in ascertaining homologies - "Un organ est plutot aneanti que transpose" - (small changes)

214 Law of Balancement, quote Goethe - attributes Rudimentary organs to Balancement

229 Teeth in Birds, 238

291 monstrosities made by shaking eggs &c

294 Meckel in 1812 proved that monstrosities were arrested embryonic states

298 On affinity of same part in Monsters the same 302 in Monsters, & in normal states

337 It wd seem that Geoffroy has not propounded change of Species No p.345

347 Local conditions only causes of change

350 "Leur monde ambiant"

353 "It is problem for future"

1 16u "1772" 69 10-12m 121 26-28m 134 21-28m 135 11-12m 139 16-18m/?, 21-29m 157 6-10m 212 9-11m/1-11w in ascertaining

homologies 12u↔ 213 wt (a) because small changes will not transport 3-4m, 7-8m/w (a) 28m 214 14-16m/16u "affinités électives", 24-25m 215 1-8m, 12-13m/??/u↔ 218 3-7m 229 15-17m 238 6-8m, 25-28m 245 1-2m (Savigny), 24m 258 13-18m 259 1-3m/1?/2u "différences | est" 281 13-15m, 14u "subordination | caractères" 290 18-24m/21-22u "surtout | verticale", 24-25m 291 12-22m 294 6-16m (Meckel) 297 20-24m 298 14-21m 299 11-15m 301 15-20m (M. Serres) 302 3-5m/w (a) 24-26m, wb (a) if true parts gradually brought near wd become confluent.- 312 8-11m 332 16-20m 336 7-12m/7w Cuvier 337 wt (a) apparently, this refers to theory of change of Species 2-7m/3w (a) 338. 13-15m/w see Catalogue at end 339 22-26m 341 18-19m, 22-23m, 24-27m 345 1-2m, 16-17m/w Mutability of species. 20u "1828", 24-25md, 27-28m 347 1-4m, 9-12m 348 16-20m (Lamarck)/19u "regret", 21-22u "prêter | même" 350 wt (a) Compulsory changes of condition & habits, as in domesticated animals. 6-12m/9u↔ "monde ambiant"/8w (a) 16-18m 351 8-11m 352 12-13u±, 13-15m/14u "Lamarck"/15u "des limites", 23-24m 353 6-9m/9u "ou | encore", 10-12m 354 6-8m, 8m, 16-18m, 27-29m 355 2-5m, 13u "d'un | nouveau", 15-17m/16u "où | eux" 357 2-4m, 26-28m 423 33-39m/? 427 27-38m 428 1-40m 429 1-2m, 20-21m/w not much I shd think 454 29m, 31m

GÉRARD, R. *La Fleur et le diagramme des Orchidées* Paris; Faculté de Médecine; 1879 [Down, I]

GERLAND, Georg *Über das Aussterben der Naturvölker* Leipzig; Friedrich Fleischer; 1868 [CUL, S]

beh, cc, ex, f, h, he, oo, pat, sl, sx, ud, v, y

NB Left off p.124 ♦ ♣ 136

NB2 ↻ On Man alone

♦ p37; 56; 89; 122, 3, 4

SB (8 sides; not CD)

1 Introduction - List of dying out Races Includes all cases from whatever cause - no special account of causes

2nd Receptiveness of savage races for miasmatic illnesses, which arise spontaneously on the meeting of savage & civilized races

This first gives a great number of accounts of spontaneous illnesses. & of the greater ravages of moderately hurtful European illnesses - His theory to account for this - is not that there is some noxious influence emanating from the civilized races

2 caused by their being shut up in ships etc - but that we are all inoculated, as it were, from our earliest childhood with the germs of all kinds of infectious disorders - but that we partly by inheritance & partly by use are able to possess these germs in a latent state - These same germs being quite able to infect savage races. He gives in proof of this - that certain illness seem only to appear at certain intervals - that the

3 inoculation only lasts a certain number of years & then wears out when we are again liable to the attack of this epidemic (I suppose under certain conditions is understood - H.E.D.)

(expanding on "latent state") because we have assimilated their nature to ours & so they are not wholly inimical to us.

4 3 Directly brought in diseases The same principle applies to directly brought in infectious & contagious diseases The first introduction was the most violent but they continued to rage furiously -

The worst of all the smallpox It broke out in Mexico 1520 brought by a slaver - raged then carried to Antilles where it raged amongst the natives without killing one European -

Waiz says Smallpox has killed more than near ♣ drinking together in America. at least 1/2 perhaps 2/3rd of the Population.

5 According to Meinecke smallpox broke out spontaneously in New Holland

We now come to the original illnesses of ♣ savage races An illness raged in New Zealand before Cook - but illnesses are rare

- A gall fever raged in Central America every 100 years (4) Treatment of ♣ illness in Savage Races All dangerous illnesses are made worse thro' mistreatment

6 In America steambaths with cold washing directly after nearly always killed the patients. In Australia they only exorcise evil spirits whom they suppose the cause of all illness - They pretend to draw a bit of stone out of them. They kill the bewitcher & rub the bewitched with his suet. Or to bleed away the Magic They are cleverer in outside injuries & serpent bites -

They are buried before they are dead in Feejee so that they mayn't bother the living. In the New Hebrides they kill delirious patients so that

7 they mayn't infect others - In Melanesian it is all taken for work of demons, tho' they practise bloodletting & such means- ♣

In Polynesia the sick are not cared for. In

GERLAND

Mukuhiva they hold the nose & the mouth of the sick to ♣ keep the ♣ spirit or life firm. only in New Zealand they know better how to manage – They used hot springs, light food, & rubbing of the limbs – In Tahiti they hold it wicked to take Medicine – but they 8 are clever surgeons The Mexicans are acquainted with Medicines– but put more faith in magic.– The drawing out of the stone found in Haiti & Brazil as well as Australia. The Botokuda in Sth Am. alone use natural means Steambaths all over America Real Doctors & magic doctors The Hottentots consider it all as the work of evil spirits – & they & in the Antilles draw out the stone (or here bone) as in Australia In America & Africa they punish unsuccessful doctors

SA (pp. 52–53) □β; ♣ (4 sheets)

2 ♣

Ch VIII p48 infertility of woman only cause of dying out.– intermarriage in Botokudos – general misery & hard work of women – Lactation – &c &c –

Killing children (u) Knisteno kills female Children to save them being brought up to misery – Pooh –

(u) Guianas kill 1/2 children of both sexes – [In Upper Paraguays kill all children but own according Azara, (u) hence race almost disappearing] p51

[Abipones save – not more than 2 children (u) – Indians do not speak of child murder –

[Darish says women p.53 kill ♣ children * to save their beauty: also in Upper Paraguay Azara (u) says p.51. – Proof of Indian women valuing their own beauty.]

Many other cases of infanticide.–

[p.54 in Melanesia only bring up 2 or 3 children] & many other islands of Pacific much infanticide – especially Tahiti – || some women had killed 4, 6, 8, or so ♣ children

⇒ p57 Infanticide in Sandwich Isd

1 Austerben – Gerland – 1868

Great extinction of many races –

p.8 Poeppig "poisonous breath of civilisation"

|| p.10. Williams says healthy ships, bring disease, & not infectious disease – ●

|| s.12 If an Indian tribe is once reduced in number, generally becomes extinct – Tschudi in N. & S. America found this to be the case – In N. America some exceptions.– (u)

Ch. 2.–

Known diseases introduced. Especially small-pox in America – & in all parts of

world.–

Ch. 3

|| * Children suffer in health in p.27. Proportion of women to men in Australia according to Grey 1 : 3 – others says as 2 : 3 – female infanticide practised. (u)

Women little food – long Lactation –

Many causes against health, & so we can understand why numbers of each tribe not great & no increase, but as he says does not explain actual decrease.

⇒ Galton too unsettled to work (over)

Sexual selection

Tattooing. about being so ugly.

3 Sexual selection

|| * Arevi kill (Tahiti) all female children: Tahiti kill in order to keep (u) beauty.–

Wonderful amt of infanticide. in whole Pacific. Laziness one of main causes of infanticide – particularly kill girls – old custom – Thinks religious motive –

|| p.82 Natural physical conditions do not destroy races, viz T. del Fuego & Esquimaux.

Sense of Justice very strong in Savages – shown even by Revenge – Depression of Spirit causes extinction.

Mutual wars – infanticide – Unfruitfulness & long Lactation – diseases brought by Europea – drink &c Depression – Dissolut life –

Tribe when once reduced seldom revives again

Famine.– Unhealthy life – Hostile ♣ appearance of Whites most hurtful of all –

Psychical effects most important – Introduced diseases – When several causes so act effect marked – ♣ Savage races are not increasing, so always must be much ♣ extermination going on, & a little addition from ♣ advent of Whites, turns the balance

4 Sandwich Isld Population not decreasing Said to be increasing in Tahiti. Tonga not decreased Feejie Keep up.–

(The following passages are annotated with literal translation and/or close paraphrase of the text) 1 (title) 3 12–20, 25–43 4 19–29 5 13–22, 32–41 6 wt, 3–8, 11–27, 37–44 7 wt, 2–4, 6–14, 25–36, 39–45, wb 8 8–14, 27–42 9 10–44 10 wt, 1–23, 27–45, wb 11 wt, 1–20, 7–19, 25–40 12 wt, 1–17, 20–30, 30–45, wb 13 wt, 1–8, 3–14, 13–19, 18–40, 19–23, 26–39, 41–45 14 wt, 1–17, 1–17, 16–22, 21–41, 38–43, wb 15 wt, 1–16, 18–22, 25–29, 31–40 16 wt, 1–15 17 11–20 18 12–20, 24–27, 33–45, wb 19 wt, 4–8, 22–27, 30–36, 40–45 20 5–15, 18–22, 25–33, 35–40 21

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GERVAIS, Paul *Les trois règnes de la nature: Histoire naturelle des mammifères vols 1 & 2*; Paris; Curmer; 1854-55 [CUL]
br, ex, gd, h, hy, sl, sp, sx, t, ti, tm, v

vol. 1 NB p.282,285 Rabbits for Dom. A.

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vol. 2 NB p144 ancient Horses Selection

153 Hybrids - 2 Genera

140 Canines in Equidae absent in females

146 colour of Colli of one breed - forked stripe on shoulder of Zebra

150 vars of Ass

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GERVAIS

sinensis like Greyhound 27m 63 ↑12u "Chien crabier", ↑7-4m 64 4-5m, 22m/u "bien préférable", ↑14m/u "au Chien" 65 ↑17-12m/w if one extinct species could be believed in, one might accept these doubts 66 6-10m/Q ↑24-20m/Q/↑21u "que|genres", ↑20-19m/w V. p.76 7/8 Molars ↑18u "six|dernière" 67 ↑27-26u/"..." "Je|objection", ↑19-17u±/m/Q ↑13-12u "il|domestique", ↑7u "Le|hyéroglyphes", ↑6u resté|Babyloniens" 68 ↑9-5m 69 ↑6-1m, ↑3-1m/Q 72 6-7m 76 1-4w 7/8 ↑9-6w 4/3 87 ↑12-10m, ↑7m, ↑4m/u, ↑3u 88 3-5m, 8-10m 89 1-2m, 4-8m 138 17w All used for Ch.3. on Horse 139 ↑16m/u "dont|rudimentaire", ↑10m/u "sorte|6/6" 140 1-3m 143 ↑20-10m/Q 144 ↓w Classical period pairs taking in breeding 145 4-8m, 6Q 9-12m, 13u "v.29" 146 12u "la|Camargue", 13u "noirâtres|poils", pl.Zebra.w Fork of shoulder Stripe here much plainer 150 ↑15-9m 151 18u 153 10-12m 177 5-7m/5u "mais|vrai" 178 1-5m 183 13-18m 187 ↑22-21u "sans|souche", ↑18u "chanfrein", ↑16u "une|caractères", ↑4u "a|Afrique" 189 3-8m, 14u, 15u, ↑22u, ↑20m/u "fort|Asie", ↑14-11m 191 2-5m, 14m/w (1) ↑12-10m, ↑9w/↑8w/↑7w/↑3w 192 6-10m 236 wt Nothing to quote about Pigs 7-13m, ↑13-10m/↑11u "être|espèces", ↑8-2m 237 3-4m 238 6-9m/m, ↑17-14m/m, ↑8-3m 239 1-2m, 9-11m, 17-20m, ↑6-4m

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GIRAUD-TEULON, Alexis *Les origines de la famille* Genève, 1874 [I by author; CUL.1900]

GIRTON, Daniel *The new and complete pigeon-fancier: or, modern treatise on domestic pigeons* new edn; London, n.d. [CUL] beh, cs, pat, sp, v, wd

NB Nothing Ap. 1857

7 19-22m 9 30-34m 10 wb describes the Blue Rock by the name of Stock dove 12 32a 14 8-19m, 22-24m 15 1-3m, 12-13m 17 10-12m, 28-30m, 34-35m 18 1-5m, 14-16m 19 13-15m, 36-38m *14 1-3m, 7-9m *15 23-26m/w education *16 37-38m/wb Seems to consider all the Horsemen & Dragoons crossed breeds Can this be so considering how true? *17 17-20m, 31-34m *18 10-19m 20 3-8m 22 20-22m, 34-36m 23 1-4m/1u "with|long", 28u "four|length", 31u "the|Roman", 34u "table" 24 8-12m, 13-15m, 30-32m 31 5-7m 32 7-9m 33 1-3m, 4-5m, 5-6u "the|better", wb so that for me, it is immaterial whether originally different species, as these qualities differ in each.- 34 4-7m, 29-30m, 30-31u "much|

name", 32-35m, 36-37m 35 12-14m 36 2-7m, 17-18m/u "less|thirty"/w Varies 35u "neck|is" 37 19-20m, 23-25m, 33-34m 38 13-17m, 23m, 33-34m, wb This & following shows that domestication has produced much effect.- 39 24-32m 55 18-31m/w a curious treatment for apoplexy 57 15-17m, 23-27m

GLEN, William Cunningham *Collection of Poor Law Statutes* 2nd edn; London; Shaw & Sons; 1857 [Down]

y

12 13-15m, 31u "three", 35-38m, 45-47m 13 10-13m/10u "two guardians", 23-27m, 31-34m, 42-45m 14 1-5m 15 1-3m, 11-14m 17 8-11m 19 22-25m 22 22-29m 23 5-26m 25 24-26m, 27-30m, 45-47m 26 1-5m, 30-33m 27 43-49m 28 4-14m/9u "but|money", 20-25m, 45-46m 29 30-33m, 36-38m 32 20-25m 33 1-3m 34 14-22m 36 9-15m 46 12-20m, 32-36m, 43-46m 47 5-7m, 9-14m, 21-25m, 27-32m 48 7-14m, 31-39m, 43-46m 49 1-3m, 33-38m 50 7-14m, 36-40m 52 9-12m, 24-28m 53 3-7m 55 35-41m 57 39-48m 58 26-29m 59 14-19m 63 32-38m 64 32-36m 65 26-32m 66 26-31m 67 10-14m, 42-45m 68 44-49m 69 13-16m, 18-22m 70 25-27m 71 3-7m/3w ie under 7 years old 19-20m, 33-36m, 40-43m 72 5-8m, 23-25m 73 1-4m, 7-10m 74 26-28m, 32-38m 75 25-30m 76 26-32m, 34-38m 77 17-19m, 35-38m 78 14-18m, 29-31m, 44-46m 79 23-29m 80 24-27m 81 43-46m 82 18-21m, 45-46m 83 4-6m 87 20-27m, 35-44m 88 21-26m 89 24-34m, 42-45m 90 30-33m 93 32-33m, 38-39m 95 20-23m 97 43-48m 98 20-25m 99 28-30m, 40-48m

GLOGER, Constantin Lambert *Das Abändern der Vögel durch Einfluss des Klima's* Breslau; August Schulz & Co.; 1833 [CUL, on B]

br, cc, fg, gd, he, ig, no, pat, rd, sp, spo, sy, ta, tm, ts, v, wd, y

NB Only skimmed very poor Book all Assertion

Graba's Ornith Voyage Feroe

p42; p.44; p69; p.74, 75; 89; 98; 103; 113; 138; 140

SB1 □✕

23 tints of plumage vary with Climate

69 Nillsson on variation of Beak in Tetrao saliceti Q

70 many short-tailed birds have 1 or 2 pairs of extra-caudal. (as Kingfisher) can this be compensation or rudimentary. (allude when I talk of important♦ organs being few & not variable.-)

69 References to Bruch's papers (I have read)

74 on changes of Ducks wings & feet, tamed & Geese according Bruch

103 on spreading of sparrows with cultivation in Russia

143 *corvus* & *C. cornix*

Appendix systematics at end on doubtful species

157 on *Tetrao saliceti* & *scoticus* being same species Q

SB2 722. on variability of Head & Beak

Brehm made some of his species from single specimens & dry specimens.

722 *Colymbus* 18 or 20 tail feathers

731 Beak & length of ♀ prom in *Anser segetum* variable – so it is with domestic geese

733 tail feathers increase in number in *Colymbus* with age

♂ Is *Anser segetum* supposed part of domestic goose.–

Bruch in Isis 1828 Band XXI

do Isis 1829 Band XXII

p.629 Caudals increase with age. variable in *Anser segetum* – 16–20!

p.152 on the Sparrow Ch 4

xv 17m/w ♦ Begin xxxi 3m 2 ↑w/wt Defines "Ausartung" – a deformity, as white or cross-billed sparrow, not hereditary – not affecting all individuals under any circumstances – not exact relation to true characters [this not true as all deformities have such relations]– "Abänderung" – is, as a Spanish sparrow, where change is superinduced from climate on previous organization, & affects all; & young inherit it, & gradation into common character can be traced. Alpine plants wd have Abänderung yet not hereditary Monsters are hereditary Vague distinction wb All sports wd be Ausartungs – In Abänderungs the change will ♣ I shd think, supervene by effect produced on mature animal during generation.– 3 wt 1. Variety directly dependent on external influence 2. Variety indirectly so dependent & directly on propagating system. ↓m/w P.S. I think the upshot of his distinction, is whether the change be produced, at early period through propagating system being affected, or whether, during one or more generations, the mature being is affected & altered. 5 ↑3u "wirklichen", ↑1wt, wb true & imagined, true & false, constant & changeable skull-differences 15 6m/1–17w it appears that warm countries affect colours like age. 33–38m/w late arriving XX wb XX Quails from

hot south country with red throats. 21 2x 22 20–25m/w Nut-hatch more blue in warmer countries 23 wt X I might say according to Gloger plumage varies little according to climate wt Green seldom brighter in hot countries–x 1–3m, 22x 24 5–11m/w legs & beaks in diff climates vary in colour 25 19m 27 28m 28 21–29m, 7–34w About 1/5 of Kolreuter's white-variegated in Faro! & yet these do not pair together 29 3–7m, 4u "Schwandrorsel (Amsel)" /1–7w This Bird in Italy has in first month white bar over tail 8–29m, 29–30m 42 14–17m/w thinks same species 44 10–33w Nillson does not think Tyrol have same as Northern 69 20m (Bruch)/w V. Read 26u "Varietät durch"/w Whistling Duck 29–31m/w Bruch good See to this 34u "Pfeifenten" /34–39w Nillson says out of 30, Beaks differ in all Q 31m/39m/wb Both Read 70 13u "garl mehr" /7–13w many short-tailed birds have a pair of extra tail-feathers. 17wt, 20u? "14 oder 13", 17–25w 3 out of 12 had 14 or 13 tail-feathers instead of 12 Kingfishers in Dictionary. 74 18m/u "etwas | Flügel" /17–20w Goose shorter wings what compared with? 27m/w Duck 31–34m/32–33u "dass | langt" /33–34u "fast | erreicht" 75 1–2u "Füßel aber", 3u "schwimmt | geworden", 7u "plumperen" 76 24–25m/w Isis 89 15–25m/8–24w Nillson – Tree sparrow in N. is found about houses in greater numbers, than common sparr 98 14–20m/1–23w all cuckoos eggs in different years differ 103 24–30m/w spreading of sparrows 113 41m 117 4–5Q 138 16–34w number of deaf & dumb vary extremely in diff parts of Prussia 140 31–33m 141 14–16m 143 25–28m 152 3–22m 157 33–37m/33u/wt/33–35Q

GODMAN, Frederick du Cane *Natural history of the Azores, or Western Islands* London; John Van Voorst; 1870 [CUL] ♂ mg, ti, tm, v

NB Variation – p19

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⇒ formed in full size at close of Glacial Period – ⇒ 340

⇒ Wandering of Insects & Birds – 341

19 26–33m, 32–34m 20 9–12m, 18–21m, 30–34m 25 23–27m 43 23–27m 330 3–18m 331 4–21m 335 1–7m, 19–24m 337 25–29m 338 1–14w They seem much more modern than Madeira 340 29–33m 341 5–27m

GODRON, Dominique Alexandre *De l'espèce et des races dans les êtres organisés et spécialement de l'unité de l'espèce humaine* 2 vols.; Paris; J.B. Baillière et Fils; 1859 [CUL] ad, beh, br, cc, ch, cs, ex, f, fg, gd, geo, h, he, hy, ig, in, mg, no, or, sl, sp, sy, t, ta, ti, tm, ts, v, wd, y

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♦ no marks

341; 346 to end of volume

↪ Book of Gervais referred to. on Zoologies (over) p10 History of ♣ Believers of Mutation SB2 □β; ↪

Godron sur l'Espece ⇨ All abstracted for my 1st vol. separately.–

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77 on naturalised plants from hotter countries becoming extinct – one good case of plant naturalised, yet not getting seed – like lvy under nature

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134 Puerile to quote Pompeian & Aegyptian remains, as nothing in antiquity

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wider ranges identical.– 12–18w Alph D.C. of course gives infinitely many cases 77 8–15m, 20–24m/w this is like such cases as lvy naturally ranging where cannot fruit 78 24–27m/w not really changes 85 17–23m/w I think other characters of Alpine plants 17–23m/18w on mountains 90 1–5m, 13–20m 95 5–15m/w shows how ignorant we are 118 4–8m, 19–28m 120 10–14m/w Mentions 2 organs 121 12–15m/w analogous variations 124 16–22m/17–18w 2 forms 125 27–28m 127 6–10m 134 19–24m/18–29w nothing whatever compared to geological facts puerile to quote them. 148 19–22m 149 11–19m 154 14–19m 160 wt Did he observe its origin 1–4m, 4–8w Has it spread or increased?? 21–24m, 22–25m, 25–26m (Marchant) 161 5–9m, 15–17m 168 22–26m 169 3–6m, 21–26m, 30–31→ 170 16–23m/w shows how much crossing 27–29→ 171 2–7m, 31m 172 7–18m 173 31→ 174 4–11m 179 wt This wd be very good argument if we did not meet such difficulty in well-known countries 2–7m/5w (a) 11–16m 181 17–24m 183 1–3m 193 7–8m, 9–11m 196 5–14m 238 2–9m 239 2–18m 247 24–25m, 26–27m 249 23–27m 250 3–6m 251 12–13m 252 11–17m 260 15–27m 261 1–12m 336 16–18w↪ All used about dog 341 12–15m 342 4–7m, 18–27m/21–22u "l'arcade l'arquée"/Q 346 19–22m 348 7–11m 352 1–5m 355 5–10m, 17–18m 357 wt↪ All used about dog 8w All used Cats 358 23–24m 359 16–18m 362 6–8m 363 4–6m, 8–10m, 12–13m, 27m (Cuvier), 28m (Gervais), 29–30m/Q 364 8–10Q↪ 365 26m/26–30w↪ All quoted except antiquity of certain Breeds 367 16–19m 368 3–9m, 24–26m (Cuvier) 369 17–20m, 29m 370 1–5m, 9–23w give summary of facts for arguments – gradation of domestic race – fertility crossing when tamed, & character of those gone wild.– Q↪ 374 14–20m 375 10–12m/?, 27–28m 376 1–10m/4–5Q↪ 377 11–13m, 28–29m 378 1–3m, 4a "Cheval"/9–14w All Q in Ch. 3 on Horses 379 2–9m 382 15–19m 387 17–18m 389 6–7w p.391 Black Asses no stripes 391 25–27m 402 15–18m, 18–27m/22–23Q 406 5–7m, 19–21m, 22–25m, 27–29m 407 6–7m 409 16–18m 416 13–19m 441 21–27m 442 2–4m, 20–24m/Q↪, 25–26m 443 10–16m, 27–28m/w Black less common 30m 444 5m, 25–27m 445 6m 446 11–12m, 27m 458 11–16m 459 17–21m 460 8–10Q 11–13m/12u "2700", 18–20m/19u "1494" 461 7–10m/w is this race 9–18m/15–17m/w Dandolo 18–19m, 20–24m/20–23m 462 6–7m/6u "leur forme"/7u "bien l fournir", 8–10m, 12–16m, 25–27m/19–25w Quatrefages (They do not stick their eggs) 29–30m 463 4–5m Catalogue ↪ back cover 38–44m↪ (Boudin)

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\Rightarrow 246 to 337 About Man good.

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\varnothing Godron vol 2. sur l'Espece

\Rightarrow Much about Man. good. [All abstracted for my 1st vol.]

\varnothing 98 good case of bitter almonds not being eaten by Mulots & therefore sown in Preference for wood Q \Rightarrow

4 23-24m 6 21-23m 9 22-24m, 26-27m, *wb* effect of scanty milk when young - given in puppies - But is this hereditary? 22 12-17m/*w* Cresy's fact 27 1-7m 28 7-15m 30 1-4m 35 30m 40 29-30m/*w* read 43 1-6m/2*w* Zebra? 44 2-6m/*w* this is his argument everywhere 9-10*w* Pouters 49 22-25m/ \rightarrow 50 1-6m 52 13-19m, 25-27m 54 12-13m/*w* Turnips & Rape ?? 24-27m 55 3-6m/*w* B. canpestus oleifera 9*u* "Colza", 10*u* "Chou-Rutabaga", 10-14m/*w* Swedish Turnip 27-28m (Metzger) 56 21-24m 57 12-18m 58 9-13m 60 13-17m, 23-26m 63 12-13m/X \varnothing , 20-23m/20-29*w* differs in selected part \rightarrow so in cabbage it is only selected part. which differs 64 4-8m, 11-16m/*w* analogous variations in distinct species 18-20m/"..." \varnothing , 26m, 28m \varnothing , 30m \varnothing 67 11-12m, 22m/*w* selection 69 5-8m, 12-22m 70 11-12m/9-17*w* How are Bulbs of Hyacinth in contrast. I think they can be recognised. 71 8m 72 1-5m, 7-9m, 12-17m 73 6-8m, 14-17m, 27-29m 74 13-16m, 21-24m 75 5-19m, 6-7m/6*u* \varnothing "exactement parallèles", 7-16*w* if these all real species, still odder that not known wild 16*u* \varnothing "présente | races", 22*u* \varnothing "sont | espérances"/*w* Triticums 76 2*u* "Nous | patrie"/*w* Rye 77 10-12m, 18-25m 78 15-16*w* 3 Hordeum 19-20*w* 2 Oats *wb* 5 Triticum + 1 Rye + 3 Hordeum + 2 Oats all in N temperate parts of old world.-! = 11 species + one Hordeum & common wheat apparently known in wild state 79 9-10m, 11*u* "panicule | serrée", 13-14*u* "pourvues | d'arête", 14*u* "albumen", 16-17*u* "ne | caractères", 19-21m 80 21-23m, 29-31m 81 7-10m 82 18-20m, 21-22m 84 3-8m, 26-28m 85 8-12m, 20-23m, 27-

29m, 30-31m 86 3-8m 87 1-3m 88 *wt* In single flowers selectors only try for size brilliant colour & regularity of shape *wt* In Thyme I have noticed grt diffren in shape of corolla & \clubsuit stigma 7*w* \bullet run regular 7-9m, 8-11m, 19-20*u* "reproduisent | stérile", 21-25m, 22-31m 89 26-30m 90 1-3m, 26-29m 91 2-5m \varnothing /3-4*u* "encore | aiguillons" 93 18-21m 94 23-28m 97 1-4m 98 15-18m/*w* good selection 100 13-19m 101 14-17m, 20-22m, 24-27m 102 3-5m, 13-15*w* \varnothing what a proof of powers of variability 18-21m/*w* but so it wd be in France & England. 103 14-17m, 18-22m, 23-25m 106 3-10m, 16-19m, 21-25m 107 1-9m, 12-13m 216 10-14*w* Form of shin & heel of Negro 16-32m/ \rightarrow , 18-21*w* could not be produced by Selection 25-32*w* Different amount of Beards before mentioned - views of Huc's 217 1-11m/9-11*x* \varnothing /*w* Conditions with colour 246 16-18m 247 5-8m, 10-11*w* Migration 12-15m 248 9-11m, 12-14m, 18-19m, 22-24m, 23-28m, 25-27m 249 9-13m/1-18*w* These American facts diversity of very good to show not climate - We simply do not know 15-20m 250 1-5m, 8-12m (Humboldt) 253 11-14m/*w* like sexual selection 254 19-21m/*w* Migration good to show race 255 3-6m/*w* this looks like sexual selection 261 3-8m 263 13m 265 2-6m*d* 266 2-6m 268 *wt* This agrees with poorness of colour of productions of Galapagos & Patagonia - But then how in Chiloe? & Tierra del Fuego 3-8m 269 3-10m/*w* Compare tropical Africa & America - Tasmania 275 3-6m 276 1-5m, 13-18m, 19-21m/20*u* "mais | toujours", 28-31m 277 *wt* my notion of correlation & darkness of skin not applicable to Tasmanians for healthy climate, migration- 3-11m/5*w* (a) 24-27m 278 8-12m, 16-22m 279 10-11m 280 1-2m 282 22-25m 283 4-8m 285 8-9m, 22-23m, 25-28m 288 7-13m 289 10-19m 297 1-6m 299 6-27m/9*u* "deux"/13*u* "incisives"/15*u* "phalange | doigt"/11-15*w* mutilations not hereditary Q 300 5-7m, 7-8*u* "ce | naturelle", 9*u* "laideur"/*w* no 301 18-25m, 27-28m/22-30*w*/*wb* This wd be good to show Man exaggerates peculiarities 302 27-30m/? 308 8-9m/8*u* "poitrine", 11-14m, 15-21m 311 1-6m 313 1-9m, 18*u* "que | climat"/18-21*w* but how vague 20-25*w* p308 *wb* It may be said if conditions of life can do something, why not make Pouter & fantail, but we see no corresponding difference & we cannot believe this it seems incredible to me - especially in case of pigeons, & this other agency which is a real agency I have shown selection suffices for 322 13-20m 324 17-28m 326 15-25m 327 22-27m 333 15-

GODRON

21m 334 1-4m/w Jews 336 17-21m 337 12u "genre"/9-16m/w food & exercise 17-21m/w intellect, vistas & happiness 374 19-24m 375 12-15m

GONNE, Christian Friedrich *Das Gleichgewicht in der Bewegung* Dresden; R.V. Zahn; 1882 [Down] ☉

GOOCH, Robert *On some of the most important diseases peculiar to women* London; The New Sydenham Society; 1859 [Down]

GOODSIR, John, and GOODSIR, Harry *Anatomical and pathological observations* Edinburgh; Miles MacPhail; 1845 [Down] ☉

THE GOOSEBERRY GROWERS' REGISTER for the year 1862 C. Leicester; Macclesfield [CUL]

v

NB 192 London; Dwts; Pennyweight; 210 Hamp.O; All ♣ these named gooseberry won Prizes the one year winner?
205 wb 38 206 wb 35 207 wb 44 208 wb 36 209 wb 34 210 4m, wb 39 211 wb 17 wbee 243 kinds

GOSSE, Philip Henry *Letters from Alabama, chiefly related to natural history* London; Morgan & Chase; 1859 [CUL] beh, gd, oo, pat, v, wd

NF (list of synonyms and antonyms)
NB 106; 146; 161; 191 odd flower; Moths sucking Melons 229; 280 Mules; Beaver fur 300

SB ♣
p106 Partridges laying in Hens nest
146 Aegeria with appearance & manner of flight like wasp
161 Picus eating fruit passionately
229 Moths sucking wounded Water-melons
106 2-14m, 28-35m 146 4-15m 161 9-16m 190 22-24m 191 2-5m 229 24-29m 280 8-15m 300 3-8m

GOSSE, Philip Henry *A naturalist's sojourn in Jamaica* London; Longman, Brown, Green & Longmans; 1851 [CUL, S] ab, gd

NB p.91 Enquire; 339; 340; 386 Pigs♣; 418♣; 430X; 442, 3; 447; 469; Singing 168
♦ Wool of Sheep - Colour of Cows - Sea-Horse rabbit
SB □β
339 The Alco - or Mexican Mopsy, white woolly var. wd. only associate with another

Dog of its own Breed - becomes passionately attached to single individual Q♣
340 Feral Dog of E. Haiti different from St Domingo of Col. Smith; thought to be an aboriginal S. American feral Dog Q

386 Feral Hogs of Jamaica Q
429. Haiti tradition of Frogs brought by shower - alludes to Moreau case
431 Frogs imported & spread in several W. Indian islds

441 Rabbit feral Q but not common - Slate-coloured Q♣

447 European Ferret rendered useless from their inability to overcome Chigoe infestation Q

469 On the indigenous Capromys of W. Indian islds.-

91 ↑13-10m 331 2-3m, 6u "absolutely mute", 11-20m/ 11u "Alco"/ 12u "from Mexico", 19-22m, 21-22u "a|eye" 332 7u "Mexican Mopsy" 335 14u "Agnara|Surinam", 28-30m/Q 338 28-32m 339 2-5m 340 24-27m, 29-32m/29u "Dog|Haiti"/Q 30-31u "Feral|Domingo" 386 5-7m, 15-20m/Q 389 1-2m/Q 9-11m, 19-20u "well-toothed" 428 3-9m 429 19-22m, 24-27m/ 26u "bull-heads" 430 9-12m, 23-28m, 31-33m 441 27-29m/Q 442 4-8m, 7u "deeply"/Q 443 6-10m 447 4-9m 469 21-28m, 31m catalogue ☉

GÖTZ, Theodor *Hunde-Galerie* 2nd edn; Weimar; Eduard Lobe; 1853 [Down]

GOULD, Benjamin Apthorp *Investigations in the military and anthropological statistics of American soldiers* New York; Hurd & Houghton; 1869 [CUL]

cc, f, gd, h, he, phy, tm, v, y

NB All for Man Chapter

93; 107; 115; 116; 126; 131; 132; 134 Height; 207 Colour of Hair; 256 length of legs - not rank; 288 do in Sailors; negro 298; do - arms 301; do foot 302; Pelvis of Indian 310; do 316; Inferior vitality of Mulattoes - 319; Summary of eyes 359; Size of head 371; Size of Lungs Negroes 471; Pilosity of Negroes Q 569 ♦

SB □β; ♦♦

x♣ p93 Different stature of men of W. Virginia & New Jersey





x♣ 107 115 growth longer continued

x♣ ♦ 126 Causes of statures xp.136 do.

x♣ 134 sailors stunted

[Even so simple an affair as stature depends on concealed conditions.- Yet a direct nature for transplanted infants affected]

☉ (Military Statistics)

⇒ 206 colour of Hair & Eyes, seems effect of conditions
 ♦ 256 Length of legs in white soldiers, the most variable element in stature
 ♦ 288 Sailors in comparison with soldiers have longer legs & shorter arms, in a degree entirely disproportionate to difference in height
 ♦ 289 Neck greater.— chart — waist & hips small.— 290 instep thicker.— Direct action.— 298 in Blacks distance from tip of finger to patella differs much from Whites
 301 Blacks — Length of Humerus
 302 do great length of foot (u) 
 310 Red men very long arms — palms very broad
 316 Table of Summaries
 317 Length of two sections of arms
 319 Summary in words on differences of races ⇒ less Vitality of Mulattoes
 358 Better Summary
 371 Size of head varies with stature, not in same proportions
 471 different capacity of Lungs in Black & Whites (u) 
 569 No difference in pilosity between Black & White but this is the U. States.— [U. States Sanitary Commission]
 91 27–34m/w p109 & 111 p115 36–40m 93 13–22m 107 8–13m, 35–36m 111 11–21m 115 9–15m 116 3–8m 125 4–8m 126 5–11m, 16–18m 127 4–5m, 6–8m 131 5–7m, 11–15m, 18m 132 3u "agency|influence", 12–16m, 31–33m 134 12–14m 206 ↑18–1m 207 4–16m 256 ↑5–1m 288 5–11m, wb These cases not known to be inherited 289 5–7m/ 5u "girth"/6u "3"/7u "breadth|hips", 24m/→ 290 21–25m 298 25–30w ie distance from tip of finger to patella 32–33w see p. 253 299 1–5m 301 16–18m/17w♦, 26u "fore-arm"/w♦  humerus 30–32m 302 13–15m 310 6–8m, 19–22m, 32–35m 316 2w Summary Table 317 7–15m 319 12–13m/w Mulattoes 24–28m 359 4–9m, 14u/w  371 12–19m 471 10m, 15–18m 569 9–10m/w Pilosity 12–16m 620 ↑15m 640 wb 9

GOULD, John *Handbook to the birds of Australia* 2 vols.; London; by the author; 1865 [CUL]

beh, br, ds, f, sl, sp, sx, sy, t, tm, ud, v, y

NB 145 variation in nests

SB ♦

97 female larger & brighter Gould  Vol 1

118 Merops Young

124 Dacelo Y & sexes

130 Halcyon Y

135 — good case Kingfisher with sexes cur-

iously different — young male like female
 136 sexes with different .. Kingfisher

Kingfishers

140 Y

How are young in species in which tail differs in colour. & ring-neck.

[When adult obscure 2 like I think young always alike] no

Sexual Selection

145 Y; 168; 177; 181



193 Y complex changes; 196; 200 sexes

210 males conspicuous & shy Q

213 2nd year males assume plumage; 215 Y; 249

256 sexes & Y

260 sexes alike young different; 266 do

277; 278  N 

300 Menura visits same mounds


310 tail & nest of Menura

(over)

317 N  Nest dome — yet female obscure — strongly against Wallace  Splendid Birds during Breeding Season

(I have erased recently all marks I must look over volumes.)

[I may put the case that many Birds which differ sexually build domed nests.— & many which do not differ & are not brilliant also build such nests.]—


395 female less than half size of male Q


419 castanotis

442 Bower Bird — Give figure to 461

457 Beauty causing shyness Q

471 Corcorax displaying himself to utmost advantage 

(It wd be well to look apropos of nest, whether many of Honey-suckers are bright — 597 peculiar noise made by wings by males 

602 female never beautiful

[In same genus with sexes alike, & young either like or unlike adults.?)

All about Sexual Selection

94 21–25m 97 1–6m 99 12–15m 118 21–22m, 32u "this|deep" 119 2u "black|blue" 124 10–15m 125 12–15m 130 8–11m 134 5–10m, 15–17m/w very fertile 31–35m 135 6–9m 136 26–34m 137 22–25m 140 7–11m, 19–21m, 30–32m 145 15–17m, 30–35m 162 3–7md 168 13–15m 169 24–28m 181 8–9m, 16–18m, 18–19m, 33m 182 13–15m 193 20–21m/20u "brown", 22–26m/25–27u±, 28–30m 196 3–8m/3u "throat|back"/4u "jet-black"/7u "uniform|head", 20–21u "throat|grey" 197 10–11m 200 21u "Carnegie|Graucali", 23u "sexes|colour" 210 3–7m/Q 213 12–14m 214 12–16m 215 28–31m

GOULD, AUSTRALIA HANDBOOK

249 1-2m 256 24-27m 260 8-11m/8u "sexes alike", 8u "young"/10-14w observe bird 266 19-23m/w get/observe birds 277 1u "sexes considerable", 17-19m 278 31-33m/32u "black scarlet" 279 6-13w how is rest of plumage 15-20m/w common to both sexes whilst others differ more 280 1-4m 285 9-13m 287 12-13m, 21-23m 290 22-26m 294 16m, 18-21m 300 26-29m 301 23-26m, 32-34m/33u "appearance/roofed" 302 15-18m 303 21-26m 308 8-13m, 22-23m/22u "powerful voice", 24u "own/beautiful", 24-26m/24u±, 29u "of grounds" 309 1-3m/2u "domed", 33-35m 310 1-3m, 30-34m 311 11-14m/13u "and/in" 312 9-11m/12u "domed/one" 317 wt (a) many species all so far as known differ greatly by sex & build dome nests 6-9m/w (a) 11-13m/12u "build dome" 318 19-21m, 24-27m 319 28-29m/28u "which/shaped" 320 6-18m 323 24-26m, 33u "dome" 324 18-22m 325 3u "dome-shaped" 340 5-7m/6u "opening/side" 341 27-29m 358 19-21m 359 26-29m 362 2-5m/2u "dome-shaped" 363 32-34m 364 19-20m/19u "domed" 365 15-17m 374 2-4m/3u "domed", 33-34m 383 4-6m, 7-9m/7u "recommended/observer", 10u "domed form" 386 27-28m/27u "entrance/about" 387 19-20m 388 17-19m/17u "dome-shaped nests" 389 3-5m 391 9-12m/9u "of/form", 18-19m/18u "are/similar" 395 16-19m/17u "which/size" 407 3-5m/4u "dome-shaped" 414 7u "Plain/finch", 16u "domed form", 19-20u "absence/female" 418 2-5m/3u "pendant"/6u "offer" 419 27-29m/u "upper/white" 440 24-27m 441 3-6m 442 wt B. genera no doubt co-descended O by some ancient bird, which acquired their strange instinct. 1-3m 443 23-26m/24u "differed"/25u "third larger", 30-32m, 33-35m 444 2-4m, 3-6u±, 5-7m, 11-12u±, 16-17u "which/males", 11-14m, 19-20m/x±, 26-27u±↔, 29m±/u± "pick/leaf", 32u± "opening/the" 445 8u "blue-black", 11u "velvety/shining", 14-16m, 20-23m/w Eyes 25-27m 447 12-15m 448 2-6m, 7-9m/8u "both/these", 9-12m, 12Q 12-14u±↔ 449 14-18m, 16u "2 1/2/long", 22x±/22-23u "flying/side"/ "...", 27-29m/28u "the/pink" 451 1-2m/2u± "three/in", 3u± "beautifully/grasses", 5-6u "bivalve/by", 10-16m, 10u± "stones/within"/16-17u±↔/17x±, 21u± "round", 23-24m/24u "formed/individuals" 452 16-18m 453 8-16m 455 1-2m±/1u± "thick/4", 2-3m/3u± "Snail/berry", 9-12m, 10x±, 10u± "4/high", 11u± "some/berries" 457 20-24m/Q 26-27u "two/conflicts" 458 26-32m 459 25-28m 460 5-9m, 22-25m 461 2-6m, 8-11m, 21-26m 464 14-17m, 30-35m 471 10-14m 478 23-24m, 25-27m, 30-33m 483 19-21m 486 8-17w

generally beautiful & nest not domed, I think. 495 11-12m 496 33-35m 497 13-17m 502 14-17m, 31-33m 504 5-7m/6u "rest/shaped" 509 16-17m, 30-31m 525 6-7m 526 31-32m 527 16u "of birds"/15-17m/w nest open & cupped 531 32-33m 534 12-15m 535 22-26m 542 21-26m 547 9-10m, 18-20m/18u "denuded"/19u "knob"/20u "less lanceolate" 556 1-6m 562 3u "on/shaped", 6u "in/top", 17-22w beautiful birds 21-27m 567 22-25m 573 23-26m 574 15-17m 581 1-2m 588 14-15m 597 1-5m/3u "a hundred" 602 12-17m 603 32-33m 604 1-2m 607 1-2m 617 6-11m, 20u "the/brown", 30-31u "upper/rufous", 33-35m/33u "tail/white" 625 4-6m/w ♦ 633 30-32m

vol. 2 NB 538 New Zealand many ♣ anomalous Birds

6 18-22m/19u "yellow/centre"/20u "crest" 7 18-22m 10 7-10m, 19-21m 12 3-4m 14 33-34m 17 33-34m/w and white cockatoo 18 5-16m/8-11w Generally different 20 6-9m, 16-19m 22 4-5m 25 4-5m, 29-31m 28 20-23m/20u "the plumage" 30 10-12m, 32-34m 31 27-29m 32 1-5m, 10-11m/u "thighs/green"/w var 36 22-24m, 25u± "the/scarlet", 33u± "throat/red" 37 3-5m 38 24-27m 40 31-32m/31u "rich/glory" 41 19m 45 34-35m 46 1-4m, 4-7m 48 32-34m 49 31-33m 54 7-11m, 24-27m 55 27u "beautiful bird" 56 ↓w Hence It does not seem as if variation had occurred early in life, but had crawled backwards or invaded the young. & it seems whenever this happens it invades both sexes - & ceases to be limited to one sex. - ↑5-1m/↑5w one of the most Beautiful spec wb In other species of genus young very different - very beautiful. Shows not descent - from differently coloured ancestors 59 11-14m, 33-35m 61 22m, 24-25m 63 12-14m 66 24-25m 67 20-21m 68 25-28m 70 8-10m, 32-35m 72 3-5m, 20-21m, 22u "band/less", 23u "conspicuous/blue", 24u "bordered/above" 74 15-17m 76 18-20m 77 5-6m 78 19-20m 82 14-17m 83 12-14m, 32-35m 85 15-17m 87 35m 90 35m 92 2-4m 95 19-20m 97 18-29m 99 34-35m 101 21-22m 102 32-33m 109 11-12m, 14-15m, 29-30m 111 1-2m 112 1-3m 113 28-31m 117 22-23m 119 7m 121 29-31m 129 30-31m 132 16-18m 134 12-14m 143 18-19m 144 24-26m 147 25-28m 149 12-13m 154 27-33m 178 16-20m 180 28-31m 183 4-5m 186 6-9m, 20-22m 187 19-21m 188 10-12m 191 20-23m 200 6-7m 203 6-8m 212 7-10m 213 30-31m 215 12-15m 220 8-12m 228 30-33m 232 23-25m 234 4-6m, 23-25m 236 33-35m 255 15-20m 264 19-23m 275 20-26m 276 18-22m 283 33-35m 285 28-31m 295 29-31m 312

33-35m 319 26-28m 329 7-8m 333 24-28m
 335 18-21m 337 27-32m 351 14-15m 355 27-
 29m 359 24-26m 360 29-32m 362 18-22m 363
 31-32m 364 1-4m 366 24-26m 373 16-18m
 378 15-17m 380 6-8m 383 13-17m/14-15u
 "this | perceptible", 21-24m, 33-34m 384 16-
 19m 433 zb 491 21-24m 497 15-19m 500 31-
 35m 502 25-28m 503 13-17m 505 20-25m 511
 26u↔, 29-31m 513 6-8m 520 22-23m 527 5-
 8m 530 24-28m 531 13-15m/13-14u "straight |
 beak" 538 27-31m

GOULD, John *An introduction to the birds of
 Australia* London; Richard & John E. Taylor;
 1848 [CUL, I]
 ex, gd, in, mg, oo, sp, sx, v

NB p.8

SB1 p.8 to 18; p.23; p.30; 36; 51; 64; 70; 75;
 82; 101; 112; 134

I have forgotten to observe the relation of
 range of genera & species

SB2 □β

10 Smooth Trees accounts for no Wood-
 peckers

10 Many representative Birds in Australia of
 those of North. (but I do not know, whether
 f. in intermediate region: I did ask.

15 Vars of Birds in Tasmania, migrating in
 one & not in other Ch. 6

23 Strix numerous in species & individuals in
 Australia

36 Grauculus of Tasmania

51 vars of *Anthus* 70 vars of *Cacatua* - 75 -
 101

64 Law of representation in Australia chiefly
 holds E & W

71 Nestor of Philip Isd extinct

82 *Megapodium* 3 species Q or rather
 genera - all male keep for hatching.
 Description of Habits

8 22-27m 9 15a/8-13wε (not CD) 10 25-28m,
 38-49m 11 3-5m 15 1-3m, 6-17m, 19m, 37-
 38m 16 1-2m 17 1-2m 18 41-43m 23 22-31m/
 1-31w this wd look as if number of species
 & number of individuals were related - not
 so in plants 30 12-20w I daresay true 31-
 46m/w♦ Hence in mundane genus - close
 species represent each other in different
 parts of same continent 36 1-4m 51 41-45m/
 42u "extra-tropical regions" 64 28-36m 70 39-
 44m 71 13-14m, 38-40m, 42-45m 75 41-42m
 82 39-42m/w mother attends them p88 83
 35m/u "12-13" 84 19-20m 85 5-7m·88 3-7m
 89 17-19m, 38m 90 46-47m 91 9-10m/10u
 "lat | South", 21-23m, 25-26m, 29-30m/29u
 "six feet" 101 17-19m 110 23-26m 112 2-6m/
 wt what authority? 122 table "Name of

species".w You may shorten name. table
 "Number of Volume and Plate".w This column
 nothing (pp. 122-33, many entries in column
 headed "South-eastern Australia or N.S. Wales"
 marked with a cross) 134 25-30wεε, 34-36m

GOULD, John *Introduction to the birds of
 Great Britain* London; Taylor & Francis; 1873
 [CUL, I]

beh, cc, ex, fg, gd, is, mg, oo, sl, sp, tm, y

NB ♦ 23 S. Selection

SB ∞

5,7,8 On migration

7 Birds not common in parts of England
 where not formerly known.

11 Destruction of Birds during severe winters
 13 Protection of certain species unduly
 increases other species

16. On slight differences of Birds of Britain &
 Europe & on small size of insular Birds

21. Eggs in Holes generally white; but others
 white as with Wood-pigeons & exposed.

22. Water-birds can swim at once; & one
 kind of grouse can fly almost at once.

5 15-24m, 33-39m, 46-50m 6 44-49m 7 5-9m

8 1-7w So France is not S. 14-21m/10-20w

In Ireland no 25-29m 11 15-20m, 31-37m, 45-

49m 13 20-22m 16 1-9m, 12-22m 17 7-9m, 8-

12m, 12-14m 21 19-26m 22 2-7m 23 1-8m 42

31-43m

GOULD, John *An introduction to the
 Trochilidae, or family of humming-birds*
 London; Taylor & Francis; 1861 [CUL, I]

beh, cs, gd, ig, in, sp, sy, t, tm, v

NB1 All references seem here abstracted.
 Those not struck out, all refer to slight
 variations & doubtful species.- No doubt
 many of the doubtful species could be
 cleared up by more specimens.-

141♦; 146 var; 158 var; 161 var; 164 do;
 167 do; 170 do; 174 do; 176; 177, 8 do do

174 tips of 4 central tail feathers, tipped with
 dark green

Mem vast numbers of species are known by
 only few spec.

would it not be worth while to quote all the
 cases of doubt -

State that many of the doubtful forms would
 be cleared up. & considered distinct, on
 other hand would be connected by
 intermediate gradation.

♦ 7; 9; 14; 18; 19; 20; 22; 52 Vars & close
 species.

61 var; 62 do; 67♦; 74 ♣ close species; 83
 do; 86 var; 89 var; 91 var; 98 do; 102 do;

GOULD, TROCHILIDAE

106 do; 109 do; 112 do; 116 do; 118 do; 120, 126♦ Salviae; 127 var; 129 var; 136 var; 138 var

NB2 Mr G. says ♣ he has never noticed vars; but then he admits some slight individual variations & if he find 2 forms for 2 districts ever so slightly different, they are called species.— In the same district at same time, seem to be similar variation hardly can occur; → (to NB1, 61 var)

States as the Groups have been carefully monographed — & also confined to warm part of our Continent, good to consider ♣ what amount of doubtful species were offered — Then state within same region could hardly vary. on account of crossing — SB ♦♦

p.7. Humming Birds very confined ranges.

8. Juan Fernandez p. 141

9. West Indies distinct species.

14, 17, 18 Great sexual differences: given exhibition of ♣ p.20 nest ornamented with feathers

♦ 22 singing & beauty not together

p.20 nest loaded with stone to make Heavy & keep level

⇒ 28 pugnacity

p.35 sexual ♣ similarity

52 do ⇒ females in excess

67 ⇒ do female more beautiful gorget than male

75 ⇒ do

120 more than 20 males to 1 female — male very gorgeous.—

⇒ 49 Males Shafts of feathers expanded in male

7 5–32w Humming birds very num. & confined ranges 35→ 8 30–36m 9 20–28m, 31–32m 14 37–45m 15 wt Bates Butterflies when underside displayed this is beautiful 1–2m/m♂, 24–29m/24u♣/25u "pierce|bases"/28u "Bourcier|bird" 17 21–25m 18 1–10m/5u "beards", 14–19m, 19–23m, 30u "blue ear-tufts", 33u "bearded", 43–46m/44u "undertail-coverts", 49–50m/50u "from behind" 19 6–8m, 9–15m, 17–21m, 24–26m, 41–50m/42–44"..."/43w of the nest 47–51c↔ 20 1–3m, 36–43m 22 11–16m/1–13w because the charm suffices Nature never extravagant 18–39w However fighting & beauty go together p.28 28 46–50m/w males? 29 16–22m/19–20u "perceived|fastened", 23–26m 34 31–33m 35 1–3m 46 21–27md/ 26–28m 49 32u♣, 33–36m, 41u "similarity|appearance" 52 19–22m, 37–42m/42–47m/18–47w so that weapons of war might be gained even when males few 61

12–15m 62 8–11m 64 35–40m/26–43w Males or females more numerous? 67 17–22m, 35–38m 74 25–31m 75 25–29m 83 38–43m 89 24–26m 91 37–38m 98 28–32m 102 15–16m, 21–25m, 41–44m 103 15–17m 106 26–32m 109 13–15m 110 9–10m, 13u↔, 14u "white|four", 17–20m/18u "That|sole", 23–25w see p102 for Andes○ ● case 37–38m 111 4–9m/6u "attractive as may be" 112 29–32m, 35–39m 113 32–36m 116 5–9m 118 1–8m/6w only 119 35–38m 120 11–13m 126 11–16m 127 38–41m 129 31–34m 136 42–44m 138 40–44m 141 27–35m 146 26–29m 158 26–31m 161 7–10m, 20–22m 164 28–30m 167 15–20m 170 18–20m 174 40–42m 176 1–3m 177 16–18m, 22–23m 178 2–5m, 30–33m

GOULD, William *An account of English ants* London; A. Millar; 1747 [CUL, pre-B]

2 13w Myrmec○

GRABA, Carl Julian *Tagebuch geführt auf einer Reise nach Färö im Jahre 1828* Hamburg; Perthes & Besser; 1830 [CUL, on B] beh, br, gd, is, mg, sp, tm, v, wd

NB ♣

50 to 67; 62 wild Pigeon; 80; 102; 106; 118; 150; 187; 205

SB

51. The White Raven not fixed (Magillvray 3/745) Descript of — other ravens drive away, only at Faroe as pair together

56 anthers varying in measurements & tints & 67 Q

♦ 63 C. livia varies (read)

65, 80 Larus 2 spec. varies much in beak & tarsi Q

103 ♣ seldom found 2 birds of same kind of same dimensions — took great pains on 100s of specimens

107 another capital case of Uria, see to this Q (p150 another case of 2 forms breeding together)

118 Colymbus, beak & tarsi variable Q

205 there are migratory Birds in Faroe Q

The Pied Faroe Raven is analogue of Hooded Crow & Jackdaw & Magpie(?)

title page w♦ See about Pie-bald Raven mentioned in Macgillvry Vol. 3 end. Does Ch. Martins in *Voyage to Scandinavia* mention this Bird.— p70 1 w♂ Read 38 16–23m 50 25–28m 51 16w vol 3 p 745 of Macgillvry 17–19m, 24–25m/24u "nicht|auf"/25w not a fixed species 52 10u "Der|stark", 11–12m, 15u "sehr|vorne"/12–16w agrees pretty well with Mac. 25–28m/w exactly same

as Mac 30m/u "hornweiss" 53 16u "diel mittlern", 20u "Schwanz", 21w black in Mac. 23u "rein schwarz"/w agrees 25u "Krallen|weiss", 27-30m/w varies 54 wt very curious being produced only at Faroe 9-10m/w ornithologist 10u "Viell.|Brehm"/11u "Brünnich"/w have named it 14-17m/u "gewöhnliche|vorkommt"/w pecking him away 20-23m/u "dass|erhält", 14-2m/u "ein|Junge" 56 27-29m/w measurements not here to be trusted 57 2-4u "Mail|übrigen", 8-9m 59 1-3m 62 18-21u "das|behalten", 18-25w Description 63 17-26m/20w varies 24u "eine"/25u "eine Andeutung"/ 25-26m, 27-28m/28u "ist|gemein" 65 22-27m, 29u "Knochenbildung", wb skeleton 66 4-7m/5-6u "diel wirken", 11-13m/w very rash to trust to measurements on dried skins 19-24m/w does not trust to measurement without they are constant over 25-30m, 26u "Papageitaucher"/wb Puffin 67 4u♣, 7-9w differences of 2 specimens- 22-27m/24u "1 11/12" 80 13-15m/14u "5 Linien" 102 22-30m/24-25w Variation 103 4-8m/7-8u "und|wären", 22-26m, 23-25u "hunderte|untersucht" 106 20u♣, 22-24m, 25-26u "halben|Zoll", 27u♣/Q wb Faber wb See MacGillvry for other localities 29-30m/30u↔ 107 1u↔/wt/1-7w Uria ringvia var of U. troile. is certainly only a variety, though he at first doubted 8-17w MacGillivray 5 p.328 with picture of head. Q 7-9u "einigen|Auge", 16-17u↔, 19-21m 118 21-22m 146 14u "dunkelbrauner"/10-13w 2 other chance visitors 22-25m/w Goldfinches arrived 150 6-8m/Q 187 8-12m/9u "die Hälfte" 202 19m 205 wt Faroes about 160 miles from Shetland & further from Iceland 7-10w in Iceland I think many migratory Birds 11-12m/u↔/w migratory Q

A Graduate from Cambridge *The Darwinian theory of the transmutation of species* London; James Niskett; 1867 [Down]

GRANT, Robert Edmond *Outlines of comparative anatomy* London; J.B. Baillièrre; 1835 [CUL]

NB (back cover of each of the four parts) Nothing

Part 3, Catalogue, 18 25m 19 40m 20 6m supplement to Catalogue, 1 16-17m 3 10-13m, 45m 6 25m, 29m

GRATIOLET, Pierre *De la physionomie et des mouvements d'expression* Paris; J. Hetzel; 1865 [CUL, S]

beh, he, pat, phy, t, v

NB1 Book 14; p.311 Book; p135
NB2 p.123 Hensleigh; p137; 161; p.167
Dyspnoea; Englehart; Mouth O B

title page 1u/3u (author, title), wb See p436
for Lecture 7 1-4m, 22-25m 12 8-10m, 15-20m, 21-25m 14 17-20m 15 4-12m, 15-17m 17 5-8m/w rolling eyes 18 15-19m/? 19 17-19m 23 15-16m, 18-20m 24 3-5m, 10-21m 26 18-23m 35 19-25m/22 "... 37 1-9m/..." 42 8-13m 43 9-12m 47 5-13m, 14-17m 51 12-15m/w p256 p346 52 1-8m, 12-23m 53 9u "presque|regard", 10-12m/10-11u "mouvements|sensibles"/12u "tête inclinée", 13u "chairs du", 14u "flasques" 65 18-25m/"..." 66 2"...", 4-8m 73 3-5m 75 12-15m 78 8-13m 79 12-14m/w colour changes suddenly in Turkey 21-22m, 23-25m 81 1-7m, 15-17m, 19-22m 82 5-8m, 20-23m 83 10-15m 84 8-13m 85 10-14m 90 6-7m, 24-25m 91 4-9m, 17-22m 92 6-25w Have the capillaries muscular coats? Does Beale discuss this? (of course) 20-25m, wb This view of nervous power merely general 94 1-7m/1-5"..."/4w oh 16-19m 98 6-10m/8w Cats 14-16m 99 3-6m 100 15-20m/? 101 1-8m 104 21-25m 105 1-4m 106 7-10m 113 6-8m 115 5-23w seems to say that noise of laughing & crying the same 117 9-13m, 19-20m/?/u/wt 118 9-13m/w hence close eyes 22-25m, wb Bell wrong on expanding chest for effort 120 wb retardation of circulation 121 14-18m/5-17w to check the circulation 19-21m 125 21u "bâillement" 126 4-9m, 13-16m 127 5-7m 129 9-11m/w trembling at dawn of life 12u "l'action|froid" 144 wt to see distinctly 1-4m 145 1-4m 146 4-7m/w tears too bright light 152 5-8m 155 8-25m 157 4-7m 160 14-25m 161 11-19m, 23-25m 168 14-21m 186 17-25m 187 21-25m 188 1-3m/!/"..." 189 13-24m 206 19-21m 207 wt This is Key-stone inherited 1-2m, 4-7! 212 24-25m/"..." 213 1-4m/1-5"...", 16-19m 217 22-24m 218 19-24m 221 11-13m 230 4-11m 232 4-6m, 10-12m 233 8-9u "oublie|respirer", 10u "cet|qui" 234 11-14m 247 18u "excessive tourmente", 19-25m/→/wb shortest injured limb 248 1-5m 250 8-15m, 22-25m 251 3-7m, 20-25m 253 6-9m, 23-25m 254 4-6m, 7-9m/w astonishment I doubt 19-24m 255 3-4m, fig.m/w like Husckke 256 8-11m 257 5-9m 264 5-12m/6-8w Piderit 21-25m 265 17-20m 268 11-16m 283 wt to 287 10-14m, 18-23m↔/20w do 23-25m 284 6-10m, 10-15m, 22-25m/w ● (about placebo effect) 285 10-19m 286 wt The wish to stop crying increases it - 1-4m, 8-10m 287 10-11m/w Lemon 289 13-15m/14u "M. Chevreuil" 290 20-25m 311 5-7m 322 13-18m 323 12-18m 324 14-18m/15m/14-18u± 334 6-21m/8w

GRATIOLET

opposite feelings 335 13-15m/10-17w anger does the same 16-21m, *wb* Is it not because it has led to action see Note in Portfolio 336 5-10m, 17-21m/21u "*pousse | affreux*", 24-25m, 1-25w can pain be said to excite an animal - yes if not accompanied by fear whipping of a horse shows it - ♣ collapse soon follows *wb* (See Bell) 337 17-25m 338 4-8m 345 18-23m 346 11-14m, 19-23m 351 *wt* Antithesis to humility 1-12m 357 10-12m 358 20-24m 359 *wt* hides his face 3-6m/w shame 16-18m, 20m, 22-25m, *wb* hiding thus is wildness & distinct from shame, which makes a blush 360 1-3m 362 1-6m 369 15-18m 370 14-19m 376 16-25m 378 21-25m 384 24-25m 436 5-7m 438 *wb* p253 Hippocrates: cannot feel pain in 2 places at once

GRAVES, George *The naturalist's companion* London; Longman, Hurst, Orme, Brown & Green; 1824 [CUL, pre-B, S Charles Darwin August 4th 1825] ∅

GRAY, Asa *Botany for young people: part 2, How plants behave* New York & Chicago; Ivison, Blakeman, Taylor & Co.; 1872 [CUL, I]

fg, mhp, oo

NB 17; 18; 34; 42; 45; 12 error

12 21-24m/21u "*is | right*" 17 2-6m 18 31-33m, *wb* No, because a tendril that has caught nothing coils 34 16-23m/w insects & pollen 37 20-21m 42 5-15m 45 28-37m (Linnaeus)

GRAY, Asa *Darwiniana* New York; D. Appleton & Co.; 1876 [CUL] cs, t, v

NB1 Westminster R July 1875

NB2 357-58 Design & Purpose

Raindrops 157

Cloth 85

p338 about variations wearing out of once-crossed

iv 7-9m 11 4u∞ "*he*"/w Dana 357 29-31m 358 19-33m

GRAY, Asa *First lessons in botany and vegetable physiology* New York; G.P. Putnam & Co., and Ivison & Phinney; 1857 [CUL, I] ct

NB 51 *Sarracenia*; 165 *Proteine*

49 20-24m 51 29-38m 120 1-6m 123 14m, 25m 127 34u "*whole | ovary*", 38-40m/39u "*orange | berry*" 130 19u "*Caryopsis | Grain*", 23u "*Indian corn*", 26-29m/26u "*hazelnut*", 29u "*in | husk*" 165 17u "*Proteine*", 23u "*as | lining*", 25u "*Protoplasm*" 210 17m

GRAY, Asa *Manual of the botany of the northern United States* 2nd edn; New York; 1856 [CUL]

gd, sp, sx, t, v

NB 257 Q var. of *Azalea*

p80 *Rhamnus* dimorphic clearly

♦ p123 *Crataegus* wrong

SB1 □✕

Asa Gray

Phanerogams (*calculations showing*) 2.6 species to genera; 134 Families

(*line across page*)

Introduced by Decandolle on whole U States (*calculations similar to above*)

SB2 ✕ (not CD; lists of species naturalised from Europe; some calculations by CD in pencil similar to above)

(∅ = marks by Mr Norman identifying plants naturalised from Europe; most m/u mark "common")

4 22u 6 4md, 17m/u, 36m/u 7 5m/u, 38m/u 8 4m/u, 16m/u 9 11m/u, 13m, 28m/u, 35m/u 10 10o, 18o, 27o, 32o 11 19m/u 12 3m/u, 6o, 12o, 24m/u 13 11o 14 26m, 30m 15 18-26m/w These remarks mean nothing 19 36o 21 21m/u 23 4m/u, 18-19m/u 24 12m/u 25 1o, 8o, 11o, 14o, 20o, 33o, 40o 26 1o, 6o, 17m/u 27 7-8m/u 28 6m/u, 8o, 10o, 13o 30 9o, 16o, 35-36m, 36m/u, 39u 31 4o 32 31m/u, 32m 34 13m/u, 35m 35 11m, 13m 36 1o, 5o, 15o, 21o, 24o, 27o, 28o 38 16o, 20o, 36o, 39o 39 1o, 5o, 24o 40 4o 41 13o, 17o 42 24m/u 43 6m/u, 10m 44 8m/u, 13m/u, 18m/u, 24m/u, 25m, 27m, 35o, 39md 50 12m, 28m/u 51 35m/u 52 16m/u 54 28o 55 3o, 9o, 31o 56 22o, 29m/u, 31o, 35o 57 1o, 9o 58 22o, 28o 59 6o, 21m/u, 26m/u 60 4o, 9o, 23o, 31o 61 11o, 14o, 29o 62 10m, 14o, 17o, 33m/u 63 10o, 15o 64 19o, 24o 65 11m/u 66 2o, 5o, 10o, 16o, 21o 67 33o, 37m/u, 40o 68 1o 69 1o, 36m 72 9m/u, 15m/u 73 11o, 19o, 22o 74 9m/u, 13m/u, 17md 75 23-24m/u 77 35m/u, 41m/u 78 6m, 8m/u 79 3-4z, 6u "*Flowers often polygamous*", 41o 80 *wt* long-style & short pedicels is more Masculine *wt* In *R. catharticus* 5-6m/u 81 40m 83 23o, 38m 84 35m 85 5m/u 86 30m/u 87 22m/u, 36m, 46m/u 91 19m/u, 33o, 38o 92 15o, 20o, 25o 93 6o, 11o, 16o, 22o, 25o, 33o, 37o 94 5o 98 2m/u 99 24m/u 100 27m/u, 30m/u, 41m/u 101 11m/u, 14m/u, 32m, 41m 102 2m/u, 17m, 42o 103 5o, 9o 104 4m 105 10-11m/u, 21m, 24m, 27m 108 28m/u, 30o, 40m/u 109 30m/u 112 11m/u, 26o, 29md, 43m/u 113 12m/u 114 3m/u 115 3m/u, 22o, 28o, 31o 116 26m/u, 30m/u, 42m/u 117 30m, 42m/u 118 13m/u, 29m, 31m 119 5m/u, 41m/u 120 2m/u, 12m/u, 28m/u 121 8m/u, 26m, 28m, 29m/u, 36m/u, 43m/u 122 30m/u, 36m/u 123 1o, 6o, 14-26w NB This

was omitted by me 27o, 41m/u 124 7m/u, 10m, 13m, 17m, 34m 125 16m, 17m, 18m/u, 38m/u, 40m 126 2m, 4m, 8m, 33m/u 128 23o 129 5m/u 130 11m/u, 19m, 39m/u 131 8m, 9m, 10m/u, 11m, 13m/u 132 7m/u, 21m/u 133 4m/u, 31m/u 134 6m/u, 30m/u 135 6m, 7m, 8m/w 3 136 24m 137 4m/u, 9-10m/u, 34m 141 2o, 18m/u 143 24m/u, 30m/u 145 42m/u 146 39m 150 30-31m/u 151 25m/u 152 1o, 8o, 30m/u, 33o, 41o 154 29o, 35o 156 1m, 8m, 11m, 23o, 28o 157 10m/u, 13m/u 158 22m/u, 26m/u, 27o, 34o 160 1m/u, 12m/u 161 14m/u, 17m/u, 28m/u, 34m/u 164 3m/u, 23m/u, 41m/u 165 22m 166 18m/u 167 22m, 24m, 34m/u, 42m/u 168 10m/u 170 9m/u, 21m, 22m, 24m/u, 29m/u, 36m, 43m/u 171 2m/u, 12m/u, 13o, 40u 172 1-2w DD 7w DD 8m, 21m/u, 25u, 33-34m/u/w DD 173 21w DD 26m, 30m 174 3w DD 4m/u 176 4o, 33o, 41o 177 3o 185 19m/u, 26m 186 25m/u 188 14m/u 189 9o, 18o 190 6m/u, 28m/u, 36m/u 191 13m 192 10m, 13m/u, 20m, 24m 193 11m/u, 17m/u, 37m, 45m/u 194 10m/u, 19m, 20m/u, 27u, 38m/u 195 11m, 27m/u, 36m/u, 38m 196 25m/u 197 6m/u 198 8-9m/u, 21m/u, 26m/u, 31m/u, 50m/u 199 5-6m/u, 26m/u, 34m/u 201 21m, 22m/u, 27m/u, 32m/u 202 18m, 28m, 33m 204 23m/u, 29m, 30m, 31m/u 205 6m/u, 12m/u, 39m/u 206 19m/u, 21m, 22m, 26m/u, 31m/u, 40m/u, 44m/u 208 1o, 5o 210 20m, 38m, 46m/u 212 14m, 15m/u 213 2-3m/u, 5m, 8u, 9o, 37m 214 16m, 17m/u 215 10m/u 217 40m, 42m/u 218 17m, 17m/u, 24m/u, 40m, 41m/u 220 45m 222 4m/u, 28m/u 224 7m/u 225 4o, 11o, 14o, 21o, 23o, 29o 226 4m/u, 5o, 8o, 15o, 22o, 29o 227 1o, 35m, 37o 228 4o, 26m/u, 30m/u 229 14m/u, 21m, 22m/u, 23o, 33o 230 6m/u 231 5o, 13m, 15m, 17m, 20m/u 232 5o, 11o, 15o, 19o, 25o, 34o 233 5o, 38m 234 4m/u, 22o, 28o, 31o, 34o, 41o 235 1o, 11o, 17o, 23o, 25o, 31o 236 3m, 19m, 27m 237 7m/u, 20m/u, 33m/u, 42m, 43m/u, 48m/u 238 6m, 8m/u, 16m/u 239 39m/u 240 22m, 24m 241 5m/u, 8o, 15o, 20o, 25o 242 17m/u, 45m/u 244 6m/u, 10m 245 5m/u 247 20m, 35m/u 248 17m/u 249 24m, 26m/u, 37m/u, 42m/u 250 2m, 5m, 7m, 9m, 26m/u 251 11m/u, 29m/u 252 44m/u 255 38m/u 256 3m, 8m, 28m 257 7m, 9m, 17-19m, 36m/u 259 34m/u, 37m, 38m, 39m 260 5m/u, 19m/u 261 10m/u, 14m/u 262 19m/u, 28m/u 263 17-18m 264 23m/u 268 21o, 36m 269 1o, 13m, 17m 270 22m 272 24m/u, 40m/u 273 4m/u, 17m/u, 25m, 26m, 28m/u, 44m/u 274 9o, 15o, 40m, 41m/u 276 8m/u 277 29m/u 279 1o, 8o, 13o, 25o 280 21m/u 281 18m/u 283 22o, 30o, 35o, 39o 284 12m/u, 14o, 20o, 26o, 29o, 35o 285 41m/u 286 38m/u 288 7m/u, 36m/u 290 23m/u, 32m/u 291 6m/u, 14m/u, 16o, 19m/u, 23o, 27o, 32o 292 39m/u 293 9m/u, 22m/u,

27m/u, 35m/u 295 42m/u 296 22m/u 298 27o, 31o, 41o 300 1m/u 303 17o, 21o, 28m 304 1m/u, 10m, 14m, 28o, 34o 305 12m 306 13m/u, 26o, 34o, 37o 307 3o, 7o, 13o, 27o, 40m 308 7o, 10o, 16o, 30-31m/u 311 31o, 40o 312 3o 313 38m/u 315 26m/u, 32m/u, 35o, 43o 316 3o, 13o, 19o, 33o 317 6m, 11m, 15m, 28o, 38o, 42o 318 1o, 12o, 15o, 17o, 22o, 26o, 34o 319 40o 320 4o, 8o, 13o, 17o, 24o 321 33o 322 1o 324 4m, 22o, 30o, 43o 325 15-16m/u, 17o, 24o, 31o, 36o 331 19m 333 23o, 28o, 40o 334 4o, 29o, 34o 335 8m/u, 40m 336 18o 337 8m, 25m/u 340 5m, 13m/u, 21m/u, 23o, 29o, 32o, 40o 341 1o, 13o, 16o, 23o 343 33o, 41o 344 3o, 9o 345 20m, 36m/u 346 36m/u 347 2m, 35m/u 350 19m/u, 28m, 29m, 30m, 31m/u 352 18m/u, 26-27m/u 353 6m/u 354 4m, 5m/u, 14m/u, 25m/u, 36m/u 355 13m/u, 35o, 43o 356 24o, 30o 357 34-35m/u 358 8-9m/u, 18m/u 359 26m/u 361 28-29m/u 362 41o 363 13o, 20o, 26o, 32o, 39o, 44o 364 9o, 17o, 21o, 25o, 29o, 35o 365 14m/u, 20o 367 14m/u, 29m, 37o 368 12o, 19o, 25o, 29o, 36o, 42o 369 3o, 16o, 22o 370 5m 372 6o, 20m/u, 24m/u, 28m/u, 35m/u, 44-45m/u 373 10o, 17o, 36m/u 374 4m/u, 5m, 9m, 22m/u, 29m/u, 41m/u 375 12-13m/u, 20o, 33m/u, 35o 376 1o, 38m/u 377 14m, 27o, 33o, 39o, 45o 378 17o 379 22m/u, 36m/u 382 4m/u 383 20m/u, 34m, 35m, 37m/u 384 18m/u, 21m, 30m 386 27m 387 6m/u, 13m/u 388 3o, 21m/u, 35m, 41m 389 2o, 17o 390 4m/u, 11m/u, 15m, 40m/u 396 2m/u, 14m/u 397 14m, 17m, 19m/u, 39o 398 19m/u, 24o, 28o 399 7m/u, 23m/u, 36m/u 401 8m/u, 34m/u, 40m/u 402 28m/u, 42m/u 403 1m, 12m/u, 19m/u 404 22m, 37m/u, 40m/u 405 1m/u, 4m, 9m 406 19m/?, 22m 407 3m/u, 12m/u, 18m/u "hybrid", 43m/u 408 23m/u, 39m/u 409 1m/u, 16m/u 411 12m/u 412 33m/u, 34m 413 5m/w Omit whole genus Mr Norman 418 38m/u 419 28m 422 2m/u, 8m/u, 15m/u, 20m/u 423 11m/u 425 21m, 22m/u, 39m/u 427 11m, 11m/u, 37m, 37m/u 428 8m/u, 48m/u 430 11-12m/u, 21m/u 431 16m/u, 20m/u 432 22m/u, 37m 433 12m/u 434 24m, 24m/u, 40m/u, 44m/u 435 1m, 14m/u, 30m/u, 31m 436 4m/u, 11m/u 437 18m 438 6m/u 439 17m/u, 18m, 20m, 21m, 22m, 23m, 31m, 31m/u, 32m, 33m, 41m/u 441 26m/u 442 1-2m/u 444 12m/u 445 18m/u, 23m/u, 30m/u, 39m/u 446 10m/u, 18m, 36m/u, 45m/u 447 37m/u, 43m/u 448 25m/u, 45m/u 450 10m/u, 37m/u 452 14m/u 453 9m/u, 20m/u 454 20m/u, 25m/u, 40m/u 455 6-7m/u 456 41m/u 458 18m/u 459 22m/u 460 15m, 17m, 20m/u 461 3m/u 462 12-13m/u, 14m 463 16m, 19m/u 464 13m/u, 19m/u, 22m 466 1o, 7o, 28m/u 467 14m/u, 22m/u, 33m/u 468 19o, 28o, 37o, 43o, 49o 470 4m, 38m/u 471 5m/u, 10m/u, 27m, 27m/u 473 43m/u 474 2m/u 475 2m/u, 25m/u 476 39m/u 479

GRAY, NORTHERN U.S.

37m/u, 39-40? 480 8m/u, 17m/u, 32m/u 481
 21m/u, 28-29m/u, 37m/u 482 11m, 25m, 27m/u
 483 20m/u, 32m, 34m/u 484 28m, 29m/u 485
 14m/u 491 26m, 27m/u 492 35m, 37m/u, 46m/u
 493 23m/?, 35m/u 494 10m/u 495 1m/u, 16m
 496 12m/u, 24m, 27m, 29m/u 497 2-3u/3m,
 10m/u 498 7m/u, 17m 500 3m/u, 22m, 24m/u,
 45m 501 24m, 26m, 28m/u 502 9m/u, 14m,
 16m, 17m/u, 27m 503 18m/u, 30m 505 26m/u
 506 32m/u 507 13w Mr Norman omit 510 10u
 511 6u, 30u, 31-32m 512 6u, 24u 513 9m, 19u,
 23u, 31u 514 28u, 30m 515 6m, 7m, 8m, 9m,
 11m, 12m, 16u, 37u, 41u, 43u 516 11m, 14m/u,
 27u 517 9m 518 15m, 18m/u 519 10m/u, 13u
 521 31u, 46m 522 7u, 7m 523 15-16m 524
 20m/u 525 34m, 36m 526 11u, 14-18w
 Naturalised 527 4u 530 14u, 31u, 43u 531
 25u, 35u, 40u 532 27m, 29u 534 19m, 22u 540
 4-5m/u, 8m/u, 27m/u, 41o 541 1o, 9m/u, 17o
 542 4m/u 543 38m/u 544 2o, 10m, 24o, 29o,
 34o 545 8m/u, 12m, 42m/u 546 4m/u, 10m/u,
 15m/u, 44m/u 547 21m/u 549 3m/u 550 14-
 15m/u, 39m/u 552 1m/u, 11m, 15m 553 31m
 554 11o, 18o, 20o, 30o, 32o, 40o 555 zb 557
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 33m/u, 42o 563 28m/u, 33o 564 1o, 39m/u 565
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 567 4-5m/u, 17m/u, 25o 568 19m/u 569 3o, 7o,
 11o, 29m 570 43m, 44m/u 571 5m, 24m/u,
 40m/u 572 25m/? 573 18o, 24o, 30o, 33o, 41o
 574 22o, 29o 575 6o, 20-21m/u 577 19o, 22m/u,
 26o, 29m/u 578 10m/u, 11m, 19m/u, 34m/u 579
 10m/u, 15m, 18-19m/u 580 23m/u, 34m/u, 46o
 581 10o, 18o, 23o, 27o, 31o 582 23m 583 15m/
 u, 23m/u 584 13m/u, wb Here Mr Norman
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122 30-33m/30-31u, 33-38m/33u/35u/36u/38-
 39u 123 9u 125 17u 128 13u 130 13-14u, 20-
 21u 131 3u, 7-9u 132 9-12m, 18-21m 134 22-
 31m 135 5-7m, 16u, 18u, 27u, wb ● 136 3-6m
 143 32u, 34u, 36u 386 19-21m/20u 413 15-
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33 30-31m, 34-35m 42 9-10m/9u "viele"/10u "Verbreitungsfähigkeit" 43 13-16m, 33-37m 45 11-13m, 23-25m 50 26-29m 60 35-37m 62 21-25m 68 36-37m 83 31-32m 88 32-34m 98 35-36m

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cc, che, fg, ig, mhp, pat, phy, t, y

SA (pp. 52-3; 2 sheets) □β ↻

Dr Haberlandt Schutzrichtungen 1

p.23 The hypocoty of Phaseolus first geotropic & then apogeotropic do not allude to, as may be different in different plants

25 The coats of seed by rubbing roots causes bending which increases geotropic bending - compares with what Sachs says about Earth. p.26 shows by drawing what takes place. (mem diff. with Peas.

48 seedlings resist frost wonderfully

52 Winkler & Irmisch - the sinking of hypocotyl. axis in Earth - shorten so that cotyledon drawn into Earth

66 must break through Earth, or at least find cracks to pass through - Brakes through bowed to protect growing point p.69 do. - explain grasses breaking through the ground by turgency & stiffness of cotyledon.

69 Plants with hypo(gäisch) cotyledon break through ground bowed - The convex side of arched hypocotyl turn up through apogeotropism.

72 Helianthus annuus weight of Cots. cause bowing

79 - Allium true Knee in the Cot.

79 experiments with cutting off Cots of Barley repeatedly & did not Kill

(over) Haberlandt p. 94. Cots of Lupinus anatomically intermed between sub-► & hypo(gäisch) Cots in Leguminosae all gradation between the 2 states

98 The 2 sides of Cots. not usually so much differentiated ♣ as in true Leaves.

title page wt Can Nutation help seedling rise through earth wb p.4; 12; Time 16○; w∅ 29; Dry 61; Mangroves 63; Climate 64; See

Wiesener chlorophyll 2 10-13m 3 1-3m 4 10-13m 7 7m 11 12-16m, 18m 12 26-28m 15 2m, 31-34m 16 7-11m 17 12-15m 18 35m 23 32-37m 24 8m, 25-29m 25 14-23m 29 27-30m 30 21m, 30-33m 35 1m 37 16-18m 39 6-8m/7w (FD), 33m 43 27m, 33-37m/w weight of seed 45 6u "trockenen", 10-13m, 34-35m 48 7-10m, 10-14m/12u "Jelälter", 17-19m 49 12-16m, 27-38m 51 20m 52. 31-35m 53 1-6m, 11-15m/12u ↻ "hypokotylen"/14u ↻ "Verkürzung | Keimachse" 58 7m 61 1-5m 66. 13u "bergenden | Erdreichs", 1-14w may not sensitivity to light of Philexia○ serve to find way through cracks 30u "genannte Keimblattscheide"/21-30w short♦ stem bowed to protect bud at end ↑4u "27"/wbr 67 28-30m/w This explains grasses getting out of ground 69 wt Put * He attributes most importance to older part & partition of young plant. We have learned much from this valuable essay, though our observations tend to differ in some points 1-10m/6-8u "rückwärts | nachfolgt"/ 11m, 17-18m/12-24w This is utterly different from my view 12-24m/17-18w do not understand 28u "Raumverhältnisse | wird" 70 10-15m 71 14m, 36-40m, 36-40m/wb So he knows nothing of my Nutation 72 24-30m/w weight of Cots cause stem to bend 75 15-19m/10-20w He evidently considers this the sole Nutation 76 19m, 22-27m 77 1-4m, 20-25m/20u "Keimblatt", 24-26m/24-26u "mittelst | Rede", 33-35m/35u "Sachs | Experimentalphysiologie" 79 6-13m, 21-25m/w bears on my light experiments 85 12m 88 14m 94 4m, 14-19m/w Lupine cotyledons anatomically 15u "grünen, vergrößerten"/17-18u↔, 23u "Rückbildung", 25m/u "ausser | bau", 31-32m 95 wt Gradation 2-22m, 17w Bean 96 26-30m, 26u "Aussenseite"/26-29m 97 25m 98 1-16m/w Different function of upper & lower surface - the Upper much more active 18u "der Transpiration", 29-31m/w in Cotyledons 31-35m

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NB 20
20 29-36m

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cc, ds, em, mn, phy, t, v

NB p.79 Regrowth

p.80 & elsewhere extraordinary tendency in Larvae of Medusae to produce monsters & varieties.-

98 Monstrosity throwing light on primordial parent-form.-

NF ♦ p218; 220; 232; 233; 243; Best passages Häckel (cannot refer to this book - only 120 pp.)

36; 73; 80; 92; 97; 100; 103

79 6-12m 80 14-22m/w Slight changes in conditions cause monstrosities 81 3-4w new structures arise 98 15m/18-24w Monstrosity throwing light on primordial parent-form

⊘

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tm

vol. 1, 169 11-13w does not satisfy me 181 8m 220 21m 280 14m 287 7-15m, 17m 389 28m 394 21m

vol. 2 SB 321 about differences between spiral tendril & notochord

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af, beh, ct, ds, em, fg, h, in, oo, pat, phy, rd, sp, ss, sx, sy, t, tm, ts, v, y

vol. 1, xxvii 3m/4w skimmed 5m, 22m, 36-39m/36w R to 39-43m/41w R xxviii 2-5m/4w R 22m xxxi 21m

⊘

280 6-15m

⊘

vol. 2 SB Band 2.- Ernst Häckel

♦ p.36 add spores to test of means of propagation. or proof of internal separation given not to Hackel; 59 on eggs of insects of many cells

⊘ Vol. 2

p.242 colour of pelagic animals

244 Selectio feminina

245 Sexual selection; 246 do good ⊘ Cop

239 good criticism on my term of struggle for existence - says ought to be confined to struggle between organisms for same end - all other cases are dependance - Misseltoe depends on apple.

259 Law of Perfection ⊘

270 Rudimentary organs; 272 do

over

(over) ♦

In man Chapt I might add as proof of theory - "the progressive perfection or development of organic beings" - their diversity or differentiation"

[Under Man - allude to fullest description of Rudiments ever given by Hackell]

p278 Rudiment in Man & injurious, in what animal fully developed? Propose vermiform of intestine - see Todd Encyclop Man Cop ⊘ Rudimentary organs to p. 285.

305

♦ 361 Book order Cop ⊘

♦ p238

xi 22m, 29-33m, 33m, 35m, 36m, 37m, 38m, 41-46m xiv 9-13m/11w R 49m xv 1-20m xvi 13-17m, 36m/w R

⊘

cli wt abstracted cliii 4u↔/wt it is indisputable 1-3m (Huxley) clv wt says if no prejudice no one wd doubt affinity with tailless or anthropomorphic apes - 8-10m/5-13w next division of tailed & tailless apes of Old World 28u "Gesässschwienel"/25-30w anthropoids no callosities on rump 44-51m/w Men sometimes have large canines. wbr clvi 9-13m/8-15w none of these existing anthropoids is ancestor 36 33-42m/24-42w Formation of spores a distinct process 37 7-9m, 10-12u "solstrenger"/w ? Spores of Ferns?? 59 10u "aus | zusammengesetzt"

⊘

171 20-22m 242 18-42w Sea - Pelagic animals of many classes colourless & transparent - good 243 38-42m/w/wb larvae which are pelagic colourless and not the adults 245 10-13m/11u "menschlichen", 17-21m, 27u "Wamme | Stiers"/27-31w dewlap of Bull a defensive weapon!! 30u "Schnabelthiers"/35-37w ornith ⊘ ♦ 246 26-

32m/w X women ornament themselves to attract men 33-41w women the most beautiful & song 247 16-22m/w may act materially on both sexes 28-30w acts on intellect 253 3-12w Divergence or Differentiation of organs * explained, as I have done for species 259 1-10m 270 8-18w organs become rudimentary as slowly & as by as many steps, as they are first formed. 272 9-26w not only organ, but whole individual may be said to be rudimentary. 275 1-25m/6-8w eyes rudimentary 277 8-9w Limbs rudimentary 278 27m, 28m, 32u "Menschen | rudimentärer", 33u "Processus | Blinddarms", 36-40m 279 26-42m/28-32w rudiments of sexual organs in both sexes 284 1-20w eg Parasitic animals are rudimentary wholes. 305 2-10m 427 11-20m 428 22-38m, 22-28w line of descent 429 2-21m

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ad, cc, cs, hy

vol. 1 NB (w not CD) 43∅; 49 facts for D; 52; 108 Baer; 117 monde ambiante 5 17m 43 10c/w∅ 49 21-22m 52 19-20m 109 9x/1u "Baer" 117 4u "ambient" 118 13-18m (Naudin, Lecoq) 146 17-20m/w no 148 5-6?, 19w no 160 17m 165 12m catalogue, 79 wt hybrids crossing - Aperca○ & sheep & goats wt p118 Saporta & Gaudry 8-21w Adaptation bad term 80 wt 160 wb 13

vol. 2 NB 45 very good (by FD) errata 71; 16; 195 93; 106; 108; 111; 340? 1 4-6m, 7-8m, zb 11 13m 45 4-22m 71 19-20m/19c/w∅ 76 17c "by"/x 93 21-22m 106 17-19m 108 23-24m 109 1-2m 111 29-30m, 31u "Gnetum | Ephedra" 112 3-4m 195 22-23m/c/w∅ 197 8m 235 20m 340 7-9m 375 32m 408 zb

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vol. 1 NB 381 cause of var. 382 grt. var. of Sponges; 385 do. 462 on origin of Sponges

381 25-30m 382 15-37m/w variability of Histology of Elementaries 383 22-28w variable in the species & in the individuals 384 28m 385 22-39m

∅
462 30-33m/31u "homophyle"

vol. 2 ∅

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ad, ds, em, ex, h, he, hl, ig, in, is, mn, or, phy, r, rd, ss, sy, t, tm, ts, v

NB1 p240 I must no about embryology
♦ 390; 409; 437 to 509

NB2 ♦

∅ 469 Classification of Mammals; 492 of Quadrumana; 501 Genealogy of Man.-

Read 1st Chapt

p228; 390 to end

good p.5 - for the beginning of my Book

Nothing about Sexual Selection○

SB □β

Hack-

p.230 reduction of parts an advance in ordganisation

p235 imported rudiment-Lung

p446 anomalous forms surviving in Rivers.

p457. Manner of descent of Birds

Placentata descended from several implacentata

481 Contrast of adaptation & inheritance Lion & Sea-Lion

482 Intermediate forms

Man all used.

vii 2w Read ix 31w I have read x ↑6w I have read ↑3m xii 19w Read xiv 32m/w Read xv 19m, 31m xvi 12-13m, 13-15m 5 24-27m/?/16-28w (a) Perhaps begin my Book wb When theory generally accepted I say light will be thrown on the origin of man & his history. * The meaning of this cd hardly be misunderstood, but I can see is○ not the period of going into details. now that the views 12 23-26m/14-27w List of Rudimentary Organs

∅

228 26-32m/↑w I shd think more differences in * civilized individuals than in savages (?) Bates 230 3-5m, 11-19w lessening of number a result not cause of development 231 30-33m/31-32u "die | Rückschritt" 235 1-7m/wt Very important organ a rudimentary Lung 11-12u±/w ovaries 22-23m 236 3-5w See to this 251 17-23m, 18u "Organen", 19u "Kiemenbogen", 9-17w Branchial arches

HAECKEL, SCHÖPFUNGSGESCHICHTE

20u/wt, 27-31m 252 19-20u "drei | Schwanzwirbeln" 253 3-9m/4-7u "muss | Stammes", 21-29m 256 1-25w the lower forms change more slowly than higher Applies to Man (or I think terrestrial)

∅

390 19-32m/22-29w single origin most probable 409 20-29m 437 3-4m/u▲/w This last remnant of class 16-20m/17u "Pallas Nachtschmecke"/18u, 24u▲, 28u▲, 33m/u "während | embryonalen" 438 1-3m, 10u "weil | noch", 27u "merkwürdig übereinstimmt"/25-28w embryology of Amphioxus 439 wt X I shd say creations like larvae of Ascidians gave rise to Vertebrata 5-9m/w x Both groups out of same sources 442 29-33m/w Selachians parent-form of all chief Vertebrata 443 24-27w Selachii only in remnant 444 33a∅ 445 6-8m/w Selachians parent form 13-16m/14u "Urfischen"/12w Selachii 446 9-13w Rivers 447 11u "Flussfischen", 10-12m/w Rivers 14u "Zwischen | Amphibien", 14-16m, 17u▲/w Rivers 22-24w separate intermediate class 448 11-12u "Stammformen | Wirbelthiere", 16-20m/18u/a "Lurchfische" Lepidosiren 450 12-15m 453 13-16m 457 wt I shd prefer supposing that both classes descended from forms more intermediate than Dinosaurs & Solenhofen Birds 16-19m/18u "zweifelsohne | dieser" 461 20-23m/21-22u "Ornithodelphien | unterschied" 462 4-6m/5u "Jurazeit" 463 wt Man has cloaca 2-6m/6u "zwölfte Woche", 8-10m/w Breast bone like Birds 19u "eine | Klasse", 27-30m, wb absence of teeth a change 469 24m/w Hydrax 471 1m 472 17m 473 27-28u↔ 474 wt X Placentata descended from several implacentata or Marsupials 6-10m/w thinks X 475 27m 481 wt contrast of adaptation & inheritance Sea-Lion & Lion - 10-16m, 21-25m/w separate Lemurs from Monkeys 27-30u± 482 1-22m/w intermediate forms, leading to various orders.- 26m 495 27-33m 496 9-13m, 20-23m 497 22-25m 498 1-3m/2c/u "Rolle"/w∅, 7-8u "dass | kann", 21u "Affenähnlichkeit | Menschen", 22u "einen | Volke" 499 28u "Rolle" 503 10-12m/11u "abgekürzte Vererbung" 505 9-11m/9u "entfernter" 506 8-11m, 18-22m, 24-26m, 31-34m, 35-37m 507 2-3u "theilweisen | Behaarung", 2-3w loss 28u "aufrechte | Sprache"/26-31w 2 chief points upright position & speech 33u "Kehlkopfs"/wb Head of windpipe 508 6-7u "höhere | Extremitäten", 8-11u "Indem | Sehens", 18u "Veränderungen | Gefolge" 509 17-19m/18w (a) 25-26u "den | erblicken", 26-27u "August Schleicher", wb (a) Remember a special part

of Brain for speech 510 18-20w speech polygenitive 29u "Sprachen | Ursprache", 30-32m/wb but we know nothing about lost primitive tongues, during earliest stages. 511 15-21m/w my argument & Huxley 512 20m, 25u "Afronegern | findet", 29u "Mongolen", 30u "Mesocephali", 31u "Amerikanern" 513 25-43m 515 1u "meisten | Asien", 2u "das | Ort", 22-26m/23w islands 517 11-12m 518 6-9m 520 20-24m 554 19m

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NB *wcc*

170 col. 3 23m 251 col. 1 41m 285 col. 1 60m, 61m 287 col. 3 53m/u "Sarstedt"

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NB var insects do not vary in all localities p125
201 joints of Antennae variable - 201 Referred
125 1-4m 201 wt joints of Antennae variable

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beh, em, in, oo, sp, sx, ta, tm, v

NB Orthoptera 121- to 133
128 Katy-did calling
133 Fiddles of Locusts

SB 56, The weevil of N.A. attacks the introduced Pea

59 Remarkable variations in sexes & individuals of Brenthidæ

68- variable instincts

121 - Males musical Grasshoppers; 124,125 - Males

128, 132,33 I fancy these musical instruments, which are secondary sexual differ much in 2 sexes - Rivalry of Males

x 165- musical male Cicada

315 - Night-Moths dull coloured

373 - Larvae of Hymenoptera spin from lower life like Caterpillars - same structure in very different groups.

24 27-28w(CD?) At what season 26 10u "dors", 10u "darers"/? 56 17-20m 57 5-7m 59 26-28m, 28-29u "even|sex", wb How in different species? of genus? 68 34-35m 69 1-6m/2u "variable instincts" 121 35-38m 124 29-31m 125 1-5m, 31w▲ 128 5-8m/5u 132 1w Acrididæ 23u "the males" 133 9-15m 165 17-20m/18u "The|organization", 26-28m, 34-37m 315 33-34u↔ 373 12-14m

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gd, is, v

NB 142 Differences of Plants in Lanzarote & Fortaventura Remarkable ♂

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NB 66 Q
66 6-16m/Q 27-29m/Q

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126 8w O 127 4w oh 8-10z, 12-13w oh 128 1m 129 6m/u, 13w R

HECKEL, Édouard *Du mouvement végétal* Paris; G. Masson; 1875 [Down, I]

NB Vol of Trans Phyll◊
19 22-24m 49 3-7m, 9-15m

HEDERICUS, Benjamin *Graecium lexicon* London; J. Rivington; 1816 [Botany School, pre-B, ED]

HEER, Oswald *Contributions to the fossil flora of North Greenland, being a description of the plants collected by Mr. Edward Whymper during the summer of 1867* communicated by Professor Stokes, F.R.S.; 1869 [CUL, I]

HEER, Oswald *Flora fossilis arctica* 6 vols; Zürich; Wurster; 1875 [CUL]

⊗

HEER, Oswald *Flora fossilis Helvetiae* vols. 1-3; Zürich; J. Wurster & Co.; 1876-77 [Botany School]

HEER, Oswald *Die Miocene Flora und Fauna Spitzbergens* Stockholm; P.A. Norstedt; 1870 [Botany School, I, FD]

15 27m 17 13-15m/13-14u

HEER, Oswald *Le Monde primitif de la Suisse* trans. J. Demole; Genève & Bâle; 1872 [CUL]

HEER, Oswald *Recherches sur le climat et la végétation du pays tertiaire* trans. C.T. Gaudin; Winterthur; J. Wurster & Co.; 1861 [Botany School]

HEER, Oswald *Untersuchungen über das Klima und die Vegetationsverhältnisse der Tertiärlandes* Winterthur; Wurster & Co.; 1860 [Botany School, I]

ad, af, cc, ex, fg, fo, gd, geo, gr, is, mg, no, or, sh, sp, t, ta, ti, tm, ve

NB Read from p.115 to end

SB □β ↻

Oswald Heer N.B. Hooker says the Mull Flora Miocene according to Heer allied to that on W. Coast of Greenland.

p.116 to 120 In Iceland various Miocene Trees – with American character like rest of Europe N.B. During Glacial period would Mediterranean & Ara-Caspian joined with Black Sea prevent S. migration of temperate plants & thus destroy many forms whilst in N. America would have remigrated from N. Or is it not that greater area of Old World has caused greater advancement of consequent extinction. Odd Horse surviving in Old World & it & Rhinoceros extinct in New World.

121 Madeira Tertiary flora Diluvial not many so ancient as Iceland. Thinks some of the fossil plants formerly lived in Europe

122 N.W. American fossil pl. like those of Europe. Subtropical up to 50° North

124 At Eocene period European Flora not American (NB Nebraska lower Miocene shows affinity with Europe.) In India Miocene feeble American character which is stage in Upper Miocene – Pliocene – disappears at diluvial period.

126 It seems one palaeotherium in under-Miocene period.–

127 Considering the well-proved warmth of Miocene period, the hot parts of world were probably very large & number of tropical forms ought too to be very large

128 List of Tropical forms together with cold forms which now flourish on Madeira which show how they could have lived during Glacial in Tropics. Mem. C. Moore list at Sydney.

129 list of trees which can bear our climate, but of which few bear ripe seeds.

131 Willow seeds perish if not sown immediately – showing on what odd particulars distribution, for instance to N. Zealand, may depend.–

132 general conclusion & comparison of state of Europe during Miocene Period

135 Miocene Insects American same general results as from Plants

137 Apparently Zones of Tem. in Europe during Miocene as now

138 Reference to paper on Arabo-Caspian since Murchison & Co

143 On Proportion of American forms now in N. Europe from Martius

144 On connection of Europe & N. America in Diluvial Time – On relation of several Atlantic Isd in formation of plants to Europe – on greater relation to Europe than to Africa – On relation of living Madeira shells to extinct European species.– Relation of Madeira plants to American

148 on separation of shells at C. Cod.

149 Arguments against Hopkins deflected Gulf-Stream

150 Arguments against Lyells views on World Temperature from change of Land.–

116 19–23m/21u "*Liviodendron islandica*" /w American? 32u "*Platanus aceroides*", 38u "*Rhus*" 118 3u "*Pinus Mx.*", 6u "*entspricht Nordamerikas*", 7u "*amerikanischen*", 9u "*Alle Islands*", 10u "*sind Formen*" 119 20–21u "*nord Tulpenbaum*", 23u "*Juglans bilinica*" 120 13–14u "*jetzige hat*", 9–15w Tertiary vegetation of Iceland, like rest of Europe a decidedly American character 16–21w ♦ Iceland existed as Volcanic Is. in Miocene period. 121 1w Not so ancient as Iceland Plants 12–13u "*Laurus verschwunden*", 18u "*muss Zeit*" 122 1–4w N.W. American plants like European 3–7m, 16–21m/18–21u ± 124 18u "*eocenen*", 19u "*die amerikanischen*", 21u "*untermiocene*", 22u "*subtropischen*", 27u "*grossentheils Arten*", 28u ↔, 32u "*Der deutlicher*", 34u "*pliocenen*", 35u "*noch subtropische*", 37u "*Der das*", 47u ↔ 126 44–45u "*reicht hinauf*" 127 13–29w considering that range of Hottest countries was so great during Miocene – the number of species in Equatorial regions ought to be very great; had they not been destroyed during Glacial period. 128 wt There are truly tropical forms which flourish in Madeira, so cd have borne the Glacial climate. At Sydney some tropical forms live. See C. Moon letter to me. 129 7–19w All these trees can bear much colder climate than own, but do not get ripe seeds 46–47m/47u "*reift Früchte*" 131 41–42m/w Willow seeds perish immed. if not sown immediately 132 10–12u "*unteres treffen*" 135 2w Insects 4u "*Pflanzenwelt übereinstimmen*", 30–33m/w American Insect-forms 136 29m 137 13–14u "*Bewohner geben*", 17–22w Zones of temperature as now in Europe during the Miocene period 42–45m 143 33–34m, 46–48m, 50–54m 144 22–23m/23u ↔, 28–29u "*erstens Insel*", 31u "*weit aus Bowdichiana*", 32u "*einer Art*", 34a "*sie*" / [...], 38–39u ↔, 41u ↔ 145 3m, 4–8m/w Relation of Madeira Plants to American forms 17–20m/w Land-shells like tertiary land-shells of Europe 26–45m/28u "*527 einheimisch*" 146 41m/u "*Zur solche*",

49–51m, wb It is remarkable extinction of Rhinoceros & Horse in America & not in old World, as there seems to have been more extinction & replacement of forms in New World than in old. 147 1–3m/1u "*australisches*" /2–3w Australian forms in Madeira 46–48m/w ♦ Hooker says no *Pittospora* is Indian.– 148 40–42m 149 7x, 45–51m/w Remarks against Hopkins deflected Gulf-Stream 150 1–8m/1–2w World Temperature

HÉLIU *La loi unique et suprême. 1, Genèse terrestre* Paris; Brasseur; 1878 [Down]

HELLER, Karl Bartholomaeus *Darwin und der Darwinismus* Wien; Universitäts-Buchhandlung; 1869 [Linnean Society of London]

HELMHOLTZ, Hermann *Popular lectures on scientific subjects* trans. E. Atkinson, introduction John Tyndall; London; Longmans, Green & Co.; 1873 [CUL, S] ad, che, phy

NB 219 imperfection of eye; 227 do.; 269 do.; 390 do.

234 ♦ like *Drosera* – pressure Good – chem action & Heat

Nothing for Descent

♦ Mrs Treat preserved T.H. Farrer Answers to Donders Helmholtz

219 10–20m/10–14"..." 227 13–24m, 26–30m, 32–34m 228 3–11m 234 6–10m (*Johannes Müller*) /w so with *Drosera* 235 15–18m 269 14–23m 372 13–17m 390 5–18m 391 15–19m

HENFREY, Arthur *Botanical and physiological memoirs* London; The Ray Society; 1853 [CUL]

cc, fg, he, hy, phy, spo, tm, wd

NB xxi, xxii &c; 2; 8; 23; 42; 94; 307; 310; Book 312 X important; Book 317 X? to end of part

346; 352

116; 118 Books on Divergence of Leaves

SB □β

xxi Statement that C. Adami produced by budding – doubts p.317 to 320

xiii Nat Hybrid in *Laburnum*

3 Teeth in Whales

42 *Littorella lacustris* never flowers under water

310 Hybrid Ferns

312 Single-leaved *Fragaria*

312 On Hereditariness in Sports of certain Trees

HENFREY, BOT. & PHYS. MEM.

313 my view of cultivation, putting luxuriance very strongly forward Ch I

314 Sports

xi 10-11m, 22-27m xii 2-11m, 18-21m, 25-26Q xxii 2-10m, 14-16m 2 32-38m 3 37-38m 4 40u/w€ 8 22-29m 23 34u "multiplication" 24 12-25m 39 22-25m, 30-34m 42 9-14m, 21-27m 45 7u/w€ 46 10-12m, 33-36w p xxiii 81 33-35m 94 15-1m 95 7-17m 97 33-36m 108 30-41m 115 42-43m 116 12-24m, 27-29m, 28-31m/28u "Principles 16" 117 3-6m, 9-12m 118 wb (Fibonacci numbers in plant organisation) 119 23-30m 195 11-18m 307 36-38m 310 19-32m, 41-45m 312 20-21m/21u "Godron", 41-45m, wb Henfrey cannot trace this essay 313 5-16m, 21-24m, 32-35m, 40-44m 314 5-12m, 21-27m, 25m, 29m, 32-39m 315 2m, 6-10m, 10-11m, 11-23m/13-15w seems to think 15-16m, 20-21m 316 14m 317 1-3m, 5-9m, 18-19m/19u "Horschuch's plants", 21-23m, wb A. Henfrey says that Hornsuchs essay is long & formal essay in the earlier numbers of the Ratisbon Flora for 1848. Ueber Ausartung der Pflanze.- 318 36-39m 319 9-12m 320 1-8m 322 4-14m 347 19-20m 352 34-38m

∅

HENFREY, Arthur *Outlines of structural and physiological botany* London; John Van Voorst; 1847 [Down]

ct, gd, phy, tm

NB ∅ Aquatic Pl no epidermis no fibro-vascular bundles - but elongated cells no stomata

HENFREY, Arthur (ed.) *Reports and papers on botany* London; The Ray Society; 1849 [CUL]

gd, mn, oo, v

NB p.471 Hooker on Conifers in S. Hem.

SB1 □ 9

p263; 285; 289; 313; 319; 320; 361, 2; 384; 386; 388; 418; 421, 2; 427; 435, 7; 447; 450; 465; 468, 9; 4♦

SB2 □ β

263 on variable twisting in *Solanum dulcamara*

385 Remarkable distinction in E. & W Flora of C. Colony (as in Australia)

388 Flora of Azores

422 Central European Plants on S. Nevada & Pindus - p447 - 450 Endemic Alpine Plants

- Hooker on Islands having wooded plants of Compositae.- Summary of -

435 Thistle of Pampas not social in Europe

437 Rhetian Alps 106 Phanerogam in 23 Fams - 468 Cordillera 250 sp in 50 Fams.

468 S. American Alpine forms at great height in Cordillera, with Arctic forms

469 Hooker on resemblance of Vegetation of Pacific isld being more apparent than real.

471 Hooker on Coniferous Tree of Australia ∅

263 10-16m 284 19-21m 285 7a "case"/7-10m/w ie when style developed before corolla 15-18m 286 12-13m, 14-17m 289 10-11m, 25-26m, 28-30m 313 17-18m 319 21-29m 320 1-5m 361 27-37m 362 6-9m, 31u "general Japanese", 38m 384 29u "Rubus"/27-30m/25-28w Is this f. in Tropics 385 6-13m 386 20-25m 388 1-6m, 29-35m 389 38m 390 4-7m 418 17-19m, 22-29m, 29-32m 419 4-6m/w no. ♣ Antarctic Lands 11-12m, 30-36m, 36-38m 421 27-33m/32u "provided the"/33u "with climate", 39-42m 422 8-12m, 36-39m, 40-43m 423 1-4m 427 17-19m 435 5-7m 437 1-5m 445 27-29m 447 20-24m 450 16-24m/w species Alpine 465 5-12m/w not isolated Mountain 468 26-30m 469 15-28m

HENLE, Jacob *Handbuch der systematischen Anatomie des Menschen* Braunschweig; Friedrich Vieweg & Sohn; 1858 [CUL] phy

NB p135-162

∅

133 wt (a) Muscles all blended together 1-6m/w (a) 21u/wτ 135 wt to be reduced to 2/3 - sides cut off where I have put pencil lines (preparation of fig. for reproduction), 11-13m/w see Back 136 4w pyramidis 6-17w The Pyram is not attached to skin between Brows - I must refer only to movement, however. caused. 34u "sehr dünne"/35u "sehnig"/36w sinewy 40m/μ "M. pyramidalis" 138 38u/wτ, 42-44m, 45-50w/wb (a) It does not seem clear what muscle acts in those who can move their ears. 139 6w (B) 35-42m/38w (a) 142 fig.m/w€ 143 33m, 34-36m/34u "M. malaris"/35u↔ 144 5-7m/6w (a) 32-38m/34w (b) 145 fig.w (names of muscles) 146 14m, 38-43m/38-39u↔ 147 31m, 33u "bedeckt orbicularis" 148 fig.m/w♦ (names of muscles) 149 wt All the 3 previous muscles (ELS) sometimes equally draw up nostrils as the levator prop. 22m, fig.m/w (names of muscles) 150 24-34m/w hardly distinct from platysma 151 3-5m/w (a) 7m 154 12u "M. l sup." 155 12m 159 3-18w Nothing particular ∅

HENRY, William *The elements of experimental chemistry* 2 vols.; London; Baldwin, Cradock & Joy & R. Hunter; 1823 [CUL, vol. 2 only, pre-B, S]

HENSLOW, John Stevens *Descriptive and physiological botany (Lardner's Cabinet cyclopaedia)* New edn; London; Longman, Orme, Brown, Green & Longman; 1837 [CUL]

ad, beh, br, cc, che, co, cs, dg, ds, ex, f, fg, fo, gd, gr, he, hy, is, mhp, mn, oo, or, pat, phy, sp, sx, t, tm, ts, v

NB1 ♦ Are there yellow hyacinths for there are blue & pink—?

♦ The purple Dahlias show approach to the third colour or blue ?

♦ Does *Desmodium gyrans*. p.166 sleep * *Zostera*♦ is one of family, not peculiar characters & Ground-Nut♦ the most hostile flower p.278 to non-intermarriage theory Does not flower under ground

NB2 ♦ People constantly speak about every organism being perfectly adapted to circumstances, if so how can there be a rare ♣ species breeding power being efficient (food not sufficiently ♣ abundant is answer

NB3 ♦

If my argument see previous page be pushed to its extreme it will include every organic being — which is unfortunate. Geograph: range has ceased to argue for this &c &c &c.— Transmutation of organs have done so.— That is criterion

↪ How close an analogy between dicotyld. seed. & bulb.-food in each case laid up in a modification of leaves. for a germ

♦ I do not understand whether the bud makes the leaf, in the axilla of which it stands? p.79

♦ Where can I find many facts about monstrosities in plants bearing on laws of abortion degeneracy & adhesion

♦ Continue description of woodcut

NB4 Ask Henslow

↪; ♦ The simplicity in ultimate structure of Vegetables very remarkable

2; → 11 — ? *Marchantia* —; 28; 51; 52; 56R — ♣; 58; 71; 79; 98; 118; 114; 140; 163; 169; 188; 195 reference ask Henslow — coral; 201 ?; 186♦ ?; 220?; 221?; 223; 233; 236; 241; 249?; 253; 254; 256; 259; 261; 263?; 266 266?; 272?; 276?; 279?; 281; 286?; 288?; 290?; 294?; 300?; 303; 308; 312

[49 Twining stems]

p173. Water will not freeze till 16 1/2° in capillary vessels authority? — in relation to

roots melting.

Spiral p175.

SB □β

p.130 Variation in Phyllotaxy — Flower pentamer. & tetramerous.—

15 cylinders becoming Hexagons & Dodecahedrons — for Waterhouse view

p169 Poisons —

114 Cotyledons of Sycamore due to division
167 *Dionaea* Knight gave bits of Beef to Fly-Catching Plant.

220 Night-flowering plants with lurid flowers — *Cereus* with splendid flower only at night Coloured ??

277 The pulp round many fruits does not accelerate their growth

278 Exceptions to damp closing pericarps

1 *zb* 2 21–27m/wb Phen Life 1 Physiological description of organs in themselves & in different animals 2. Theory of cotransmutation of organs, not separate, or Descriptive Botany relation to habits & conditions, which cannot be told by consideration of separate organs. 11 13–18m/ ? 49 fig. 41.w Left hand Right H 51 12–17m 52 6–10m/w tree of life 56 4–7m 57 3–17m, 18–21m 58 1–22m, wb How can tuber be distinguished from sporule of cryptogams? by being organ for its production? 71 3–8m, 9–10m 98 3–18m 105 7–9m/8–9u "is|stone" 107 1–6m/3–4u "Lindley" 113 7–10w V. p268 13–19m 114 22–25m/24u "proven|subdivision" 118 11–29m/26–29m/1–29w is this merely apparent, will be said that parent never was regular flower? 120 11–17m/w find out some true species which is distinguished by bearing thorns 26–36m/w all this might be put strongly to favour my theory 121 1–15m 122 1–7m 126 8c/wæ 127 16u "twenty-one", 31–34m/32u "eight", fig. || 128 wbc 130 8–11m/ 8u "few cones", 15–17m 132 19c "9/34"/w 13/ 34 22c/m/w 21/54 (he means 55) 163 19–38m 164 1–10m 165 22–23u "but|depressed"/21–24m/w try this with Ether ↑1u/wb *Drosera* has duct But *Dionaea* not so 166 6–12m/w Does *Desmodium gyrans* sleep 24–28m 169 1–5m, 7–27m, 33–39m 173 14–20m 186 14u "carbonaceous matter"/15–19w whence derived primarily 188 12–19m/ 1–21w touching mutual impregnation 193 1–31m/10–26w try with *Corallina* wb if *Corallina* do, then doubtless the *Nullipora* will, although living in 200 fa. 195 11–20m/13u "feet", 17–19w where described 17–21m/wb relates to the three colours in varieties 201 19–26m/?/23u "free|exceptions", wb State in new Edit — case of species having pure colours 220 2–4m/2u

HENSLOW, DESCR. & PHYS. BOT.

"night-scented stock"/wt Is this peculiar variety 221 29-38m, 38u↔/w is there a bag here? wb how like vipers 222 21-27m, wb describe (See Humboldt) Argument for one origin how curious the similarity in products between animals & vegetables is - 223 22-27m 232 16-22m/w Oak & Chestnut - Chartworth Vol 2 233 37-39m/wb will it ever check flowering or more especially fruiting?||→ 234 1-5m 236 28-31m 237 8-19m 238 19-22m, 24-29m 240 2-12m, 29-30m 241 1-9m 249 22-24m, wb How do you reconcile this with Lemna 253 11-22m (De Candolle) 254 24-36m 256 12-21m 259 30-35m 261 19-31m/23-26w where related 262 1-8m, 10-14m, 23-30m/30u "in succession", 32-39m/37u "Stylidium", 38-39m/wb I examined this at Maer 263 1-2m/wt/1-4w has opposite tendency ♣ fact (a) 26-27u "the influence"/w Subularia &c &c 33-38m/wb How can these cross - 264 1-15m, 26-33m 265 12-16m 266-267 wb Then it is certain whole grain of pollen must be wafted even as in Palm!- where 30 miles apart 272 15u "ovaries"/w ovules? 18-20m/19u "ovules|abortive", 31-35m 276 16-22m, 25-33m 277 22-27m/24-25u "pseudospermic|provision"/w how 28-31m, 33m/u "compensation|which" 278 13-16m, 29-39m 279 21-26m/22w hermaphrodite 24-26m, 24c/a "produced|the"/w♣ is carried wb♣ But Dic Class says that the Arachis flowers above ground 280 18-22m 281 1-6m 286 13-27m 287 16-21m/?/20-21u "scarcely differ", wb Azalea, Rhododendron, Lychnis & Cucubalus? 288 3-9m, 13-18m/18u "marked|species"/16-23w is not this arguing in a circle ||11-3m/wb From the not greater number of hybrids in Dioecious might it not be argued that there might be super-foetation by the more fertile pollen?- ||5a "we"/wb a great exception Herbert & Knight 289 16-23m, 26-35m 290 4-12m/w argue against this 12w who? 12-13w Most strange doctrine, when we reflect on animals.- Potato - Dahlia even granting two species wb sowing Ribston Pippin ♣ a ribston pippin but not quite like, is produced 294 3-24m/w periodicall ♣ opening of flowers even in dark does not harmonize with this 300 32-35m/w No 303 wt Compare St Helena in distance with Sandwich Isls 10-19m 308 1-18m 312 22-32m/19-27w See Bowerbank's work wb What is the character of my Van Diemen's Land Fossils 313 28-29md

HENSLOW, John Stevens A dictionary of botanical terms London; Groombridge & Sons; n.d. [Down, S]

NB ♣ Lancinata not given

HERBERT, William *Amaryllidaceae* London; J. Ridgway & Sons; 1837 [CUL]

ad, beh, br, cc, ch, cs, dic, ds, dv, f, gd, he, hy, ig, mhp, no, phy, sp, spo, sx, sy, t, ta, tm, ts, v, wd

NF In Letter talked to me of an Appendix -

NB1 Read whole Memoir

p.8; 28; p.32

411, 12, 16 - Supplement

p.28

Any Plates of Hybrids

136 &c &c description of the Hybrids

V. Hybrid in Index

NB2 411 Labels for Gardens

♣ Oct 18/55/ This Book has been fully abstracted & the abstracts distributed.-

p412 Case of Hybrid sporting into character like other species Q

p416 Hybrid from *Rhodora Canadensis* & *Rhod. Ponticum* in Flower

8 3-30m (Lindley), 32-40m 18 20-33m 19 1-8m (Jussieu), 20-27m, 37-39m 28 38-44m 29 2-17m, 22-27m 32 32-38m/38u "on|ripened" 211 18-26m, 27-35m 283 12-19m/12m/13m/15w fertile Hybrids 20m/21w infertile Hybrids 284 1-3w note p.412 335 4-7m (Kölreuter)/w in ♣ 1775 & following years 7-8u 336 30-31u "hybridising|offspring"/w♦ what in varieties?! 337 wt (a) I see in Journal he in fact gives up genera - ie thinks some genera, which will not cross, have probably descended from one stock 3m/w (a) 6u "any|intermixture"/w Fowl or Peacock! 9u "to|genus"/9-18w Grouse & Pheasant all one genus. if term genus thus ill-used some other term must be invented. 29-30m, 34-38m/37-40w Polyand 41-42m/ 41-42m/w/wb (botanical terms) 338 16-18m/17-27w not known probably because changed gradually - same answer can be made to those, who say. when was species made? 37-38Q 40-41m/w ? where published 40u "Mentha"/wb Pallas specifies the Labiatae as plants which cannot naturally be crossed. He must, however, be refer to Snap-Dragons 42m/wb No Papilionaceous flowers Some Monoecious & Dioecious... 339 19-24m, 42-43m/43u "father" 340 1-2m, 5-7m/5u "black|pony"/5-12w instance of my law of variation agreeing other species of genus 30-33m/32u "31 sterile"/33u "quote|constitution", 34-36m 341 wt (a) contains remarks on acclimatizing of plants 1u "Sweet|Britannicus"/m/w (a) 6-9m, 9-10u "naturally|approximated", 10-15m/12u "isolated"/15u "ready to intermingle", 33-37m/34u "varieties|prevented", 41-42u "did|sterility" 342 wt + is this not error: does not

constitutional difference confer some difference in innermost organization, or rather on whole organization 1-4m/3-4u "greater|others", 7u "constitutional"/w + 8a "botanical"/w ie external 16-32w It might be worth while to consider native conditions in Kölreuter 23-24u "dissimilar|genera"/w Crinum 27-32m, 41m 343 wt Animals & plants are domesticable because not rigidly adapted, & these are easily hybridisable.- 1-2m, 5-15m/10-14m/10-11"...", 16-17m, 114w Crinum 112-4m, wb/1w Habits & c determining sterility (& hence probably intermarriage in some degree) is very important, as solving the case of willow wren & explaining great importance generally solving question of habits in determining what is species - a fact tacitly admitted by all naturalists. Habits being not fixed in domesticated animals, or indeed in plants, not exactly related, * to the varying conditions causes the greater facility in being crossed.- 344 17-23m/18w Calceolaria 29-30m/u "abundantly fertile"/"...", 32-34m 345 wt * Loudon both of Europe, figured in Bot. Mag. 99, & 2183.- 2u/w * Linaria 3-5m/u/w Mexico Penstemon 4a "gustifolium" Louisiana 10u "whole|which"/11-14m/13u "offering|fertile", 22-28m/22w Cereus 42w Cucumis 346 5-6m/u "reproduces|abundantly"/wt Did I not examine this at Maer ??? 4u/a "special"/wt p.352 properly Lowii 17.1455 Herbert Bot. Reg. 4a "speciosa"/4-7w Bot. Mag. 3604 this reference from Loudon 12-14m/12-13u "that|genera", 15-17m, 18-23m/18-20"...", 36-43m/x/wb X This would all apply to animals. but breed is. not introduced with this consideration.- 347 wt We know there is something in intimate structure of Marsh Plants which renders it wholly impossible to live in dry & vice versa with dry. & as * crossing * makes constitution half way, it affects the most important part of whole structure, - even as much as form of heart or other vital structures.- 4-5u "In|parents", 12-18m/w How exactly similar to giving dash of courage to greyhounds by Bull-dogs blood 23-24u "accidental|seedling"/23-31w This is like sudden appearance of cowslip from primrose it is analogous to Australian dogs, producing piebald young. 25-31m/26w X 33-34m, wb X against my theory.- change, however, is sudden - & not many generations.- From foregoing facts, about constitution we should expect such changes to be slow. & likewise any attempt to change aquatic to dry plant This is only one

particular, in others the change? wb/35-42w See. Sir J. Banks Vol I. Hort. Transact. Laurels not raised by success. generations 348 10u "connected|membrane"/11-14m/11-21w Now does this tendency to sport in hybrids decrease after several generations of same appearance same fact as in varieties of animals where crossed.- 22w/24w/w, 119-1m/w must be read 119m/w read 117-6[...], 115] 349 6u "the|out"/w 3 13u "cross-bred seeds", 28u "coverings"/w 3 32-38m (Gaertner, Hedwig, Kölreuter) 350 1-8m/4u "full|seeds"/wt I doubt whether Gaertner now allows this. See to it.- 25-31m, 25-28m, 38-43m (Gaertner) 351 6-11m, 27u "every ovule"/15-17w impossible to be more fertile 26-29m/m/22-27m/26u/27u "big revolution"/29-30u "Datura|laevis"/26-30w x Crinum Datura wb Might not Gartner have been a bad Gardener & so not had his plant so healthy - I think Herberts positive facts outweigh negative: he knows so well causes of error & trusts to nothing but appearance of hybrid plants- 352 8-10m/7w Lobelia 9-14m, 14-16m/15u "seeded abundantly", 18-19m/u "Wiegmann|language"/w Enquire at Linn Soc 23-26m, 28-32m, 33-38m, 41-43m, wb does the multitude plants preserve them, by allowing very many impregnations, the stigma keeping its power - with respect to wheat 353 2-8m/w Note in Philosoph - Transaction. about White Blue Peas 354 9-18m (Gaertner, Wiegmann, Knight)/12u "is|erroneous"/13u "oat"/16a "racemosa" Scarlet 18-22m"/..."/22u, 24-28m/w This must be functionally dichogamous. 27u "Calceolaria"/24-28w In Calceolaria * stigma ready before * pollen 29u/a "Pelargonium|Alstroemeria"/29-33w in these * stigma ready after pollen 116-2m/114u * 355 3-5m, 8w Zephyranthes 13-17m/w This shows two sexes differently affected by conditions: are sexes ever unequally affected in Hybrids.- 15-19m, 23-25m 356 (u) 1u/3u/4u/7u/wt Crinum, Hippeastrum 20-24m, 21u "accidental impregnation", 29-35m 357 (u) wt Pelargonium 1-5m, 8-12m, 9u, 10u, 14u, 14-17w see Sweets work on Geraniums 20u/21u, 24-25u, 27], 29w Passiflora 32-37m/34u "not|fruit"/w !! my notion of fruit improving 358 wt Note p.411 11-12w Gladiolus 10-15m/13-22w seems to leave out of question, greater indelibility of some stocks than others 16-24m/21-24m, 25-30m, 36-40m/w good step in series of infertility 359 19-20m/20-23w Rhododendron Rhodora Azalea 30-32m, 38m/u/w Nicotiana 42-43m 360 6-11m/6-14w I am sure I have heard of some such

HERBERT

facts in animals: new characters educed this is constitutional ? difference 21-23m, 112-10m/112u "fragrance", 118-6m/116u "very number", 112-1u "Altaclarae" 361 5-8m/5u "profusion", 42-43m/u ↔ 362 wt I should think it impossible that many hybrid permanent species were produced from the conditions of the place seldom being better adapted to the hybrid than to either parent. 1-3m, 1u "important", 4u "themselves | situation", 15||, 15u "Rosa", 21-24w Rosa nothing particular 25-31m, 43||/u "honeysuckles" 363 7||, 8u "magnolias"/w Magnolia 7-11||/w Calceolaria 13u "Calceolaria", 23-43m/35-36u "therefore | thereof"/26-30w (a) Q wb (a) My rule of variation from domestication producing changes analogous to those found in other species of same genus, thus is seen to hold good with varieties produced by crosses 364 5-7m/3-8w there is a case of different constitutions crossing 16-22w Calceolaria Loudon makes 12♦ many species & many vars. 23-30m/26-27u "they | sorts" 365 6-9w Gaertner tried only few, but fertile 10||/w Gladiolus 366 9u "floribundus", 18-21m/w (a) 27-31m/w Is this fact owing to these being double 33-43m/34u "almost"/36u "double"/37u "pink"/39u "although | together"/34-38w these if single, or quite fertile would be true species wb/w (a) Now this shows that some ♦ species will not cross (which cannot be accounted for by constitution), which yet by their appearance must be forced into one genus - || on other hand we have seen most remote forms forced into one genus - shows definition of genus will not serve & shows power of crossing has no close relationship to affinity, (even of constitution) but to some other causes - age - 367 27-28w Camellia 369 31-43m/35-36Q♦, 42-43m 370 wt X weakly analogous to successive generations fixing peculiarity 1-5m/2w X 23-36m/24-25w Turnips 371 wt B. This may be well introduced in my views of all organic beings marrying - 4-7m/7-14m/5-12m/10w B 6-12m/w Mr Knight makes very same remark Vol I Hort. Transact. 15u "different | aspect"/15-22m, 27-32m/27-34m/w in this case of hybrids tested probably by slight infertility (a) 116u "pollen | another"/116-1m/w my theory explains this: because offspring differ in the two cases, in one going back to parent, & in ♦ other remaining constant 113a "stock" But they do not yield so much seed with pure parent 113u "fecundate them", 112a "themselves" still stronger when with a 3d species 112a "fertilise"/wb but they fertilise less wb Probably stigma would

actually prefer pollen of other plant; as stigma ♦ remains open to choice - & as in Mammalia bred in & in, loose passion (but I do not know whether prefers other kind)- 372 7-10m, 18-31m, 30-36m/w No. note p.375 38-43m 373 wt XX I think these facts only show that constitution, or internal differences are far more important than external.- 23-30m/25w XX 28w Nerine 28-34m/31u "Loxanthus", 114u "conformity", 114u "4 | mule"/w XX 113u "verified" 374 3a "feature"/wt namely the difference of the perianth being centripetal or centrifugal, in addition to ♦ its distortion 6w P 8||/w Heaths 9-12m, 25-29m/27u "referable | genera", 33-38m/33-34u "The | especially", 115u "complete fertility"/w/wb P As constitutional differences, probably, show ♦ greater distance of common ancestor, than external differences, so as these constitutional differences can be readily discovered by facility of crossing - such facility admirable assistance.- in same way habits of animals so useful. 375 1-7m/1u "sixteen"/7u "1835", 34-35m 376 10-16m/w last step in series of infertility 114-1m 377 1-2m/wt It is analogous to the seedling Camellias recovering their simple flowers 8-16m, 18-23m, 35w Nicotiana 113-1m/112-1m/11u ↔ /wb Variation in ♦ unimportant character 378 3a/u "different power"/wt Gaertner p.262 says false 1-15m/1-7w♦ case of the passing of a plant from one Linnaean class to another. wb NB See P p.374 The value of crossing, as a test of genera & c is of little value, as the Natural System seeks to know relationship & does not attempt date of separation 379 wt (a) This cross in Gaertner i a, & i g. ie less than (K)a normal. May not much be attributed to skilful gardening ?? 9-13m/w Petunia (a) 11a "P. nycatanigenaeflora" Hardy 11a "phoenicia" frame 11-13m/13u "than | parent", 14-16m/15-17u±, 20-23m/21-23m/21-22u "in | itself", 116-4m/117w/113-1w anagallis failed with Gaertner; Hibiscus not tried by G 380 11-14m, wb Hybridise sensitive Plant & sleeping Mimosa & then try my experiment - 402 8-12m, 21-24m 411 23-33m, 37-41m/37w p.358 412 1-7m, 33-40m/35-37Q 38-40m 416 52-55m/w considered by Lindley a true genus Catalogue (New works in course of publication by James Ridgway & sons, April 1837; scored on last page against Forbes, Horticultural tour through Germany, Belgium and France)

HERMANN, Ludimar Elements of human physiology London; 1875 [Down]

105 10-13m

HERMANN, H.C. *The Italian alp-bee* G. Neighbour & Sons; 1860 [CUL] beh, ct

NB ϵ Cells Instinct &c & Marked
6 9-12m, 19m/u "Yellow Alp-bee", 21-23m 7
1-4m, 25-27m 8 17-19m, 21-24m 10 3-5m,
10-14m 11 29-30m/29u "2,000" 24 10-16m/
15c/w (not CD), 31-36m 25 1-9m

HERMANN, Ludimar *Handbuch der physiologie* 6th vol., part 2; Leipzig; F.C.W. Vogel; 1881 [Down, I]

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161 21c/a "surprising"/w some degree of 22c/w ϵ

HERSCHEL, John Frederick William *Physical geography* Edinburgh; Adam & Charles Black; 1861 [Down, FD]

HERSCHEL, John Frederick William A *preliminary discourse on the study of natural philosophy* London; Longman, Rees, Orme, Brown & Green & John Taylor; 1831 [CUL, on B]

25 8-19m 35 20-27m/22u ϵ "depending|will"
93 10m/w yes 1833 135 21-28m 136 2-8m 167
24-31m 182 1-20m (Bacon) 287 27-33m 351
5-12m, 29-33m 352 1-7m, 16-20m/16"...

HERSCHEL, John Frederick William A *treatise of astronomy* London; Longman, Rees, Orme, Brown, Green & Longman & John Taylor; 1833 [CUL, S 1838]

118 3-10m, 24-30w●

HERSCHEL, Mrs John *Memoir and correspondence of Caroline Herschel* London; John Murray; 1876 [Down]

HERTWIG, Oscar *Über das Zahnsystem der Amphibien* Bonn, 1874 [I by author] [CUL.1900]

SB □β
101 101 257
(over) O/

HERVEY-SAINT-DENYS, Léon d' *Recherches sur l'agriculture et l'horticulture des Chinois* Paris; Allonard & Kaepelin; 1850 [CUL]

sl

NB 23 219 dates; 229 speaks of History of Chinese standing w Δ 1000 years

SB □ \mathcal{R}

229. ancient precise Rule for selection p.219 This great Encyclop was published in 1737.- but it is compilation

p221. Name of this Encyclopedia
23 5-6m/10u "Ma-touanlin" 24 zt 219 3-5m 221
2u (title) 229 9-12m/10w ϵ Plot 12-14m/12-13m 239 8-9m 254 4-7m 255 7-9m

HEWSON, William *The works of William Hewson, F.R.S.* ed. G. Gulliver; London; The Sydenham Society; 1846 [CUL, I by editor] phy, v

SF (letter from Gulliver)

NB Blood corpuscles nothing particular for me, I think

p.218 p.238 vars. ∞ in vars. X in Do

⊕

218 5-7m, 18-19m, 35-37m 219 10-13m 236
39-40m 237b 47m, 48m 238a 13m, 14m, 23m
238b 18m, 20-22m, 27-29w very variable wb
what var. 239b wt send blood 6m, 46m/w
white♦ owl wb♦ which is white owl 241b 10m
⊕

HEYWORTH, Lawrence *Glimpses at the origin, mission and the destiny of man* London; Williams & Norgate; 1866 [Down, I]

HIBBERD, Shirley *The fern garden* 4th edn; London; Groombridge & Sons; 1872 [Down]

HIGGINSON, Thomas Wentworth *Out-door papers* Boston; James G. Osgood & Co.; 1871 [Down]

HILDEBRAND, Friedrich *Die Geschlechter-Vertheilung bei den Pflanzen* Leipzig; Wilhelm Engelmann; 1867 [CUL, S]

cc, cs, dic, ex, fg, hl, mhp, oo, rd, sp, sx, ti

NB p37 ϵ ; 28 abortion of Rag Floret of Compositae for ●; p20 Digitalis most fertilised by pollen first on closed stigma

1 18-22m 3 10-12m, 20-22m, 24-26m 4 8-12m
5 10-19m 7 wt Dioecious & Mon. plants
flower in Spring, when little honey in other
flowers 1-2m, 24-25m, 26-27m 9 23-25m 11
1-3m/wt Consider Thyme a case of
Polygamia 6-18m/11-25w each kind of flower
on separate tree → ash-♣ tree? 12 7-10m 13
wt It may be that lower plants have survived
owing to having this advantage of separated
sexes. 6-7u "mehr|zwitterigen"/w Doubtfully
Thinks Hermaphrodite earliest state 9-11m,

HILDEBRAND, GESCHLECHT

11-12m/ 11-15w (a) Lower plants oftenest have separated sexes 30-31m 14 20-23m/ 21u "Mehrzahl", 23-24m 15 3-7m/4w Sprengel 30m 16 14-17m (Sprengel), 18-24m, 27-28m 18 8u "Protogynische", 10-11m, 21-32m 20 12-16m 21 12-20m 22 13-17m, 18-23m 23 21-25m, 27-30m 24 9u "Protrandristen | Blüthen"/5-17m/w Rudimentary organs 14-16m 25 13-15m 26 10w p11 11-14m/ 10-16w In Thyme anthers of Hermaphrodite O flowers developed before the pistil 14-17m, 16-29m 27 6u "alle | sind", 11-15m 28 14-25m/15-18w Compositae 17u/wt, 19u/wt, 20u/wt, 26-34m 32 1-4m, 17-25w more dichogamous than non-dichogamous!! wb 2 divisions when anthers lie so close as to fertilise the stigma & when distant from stigma 36 32-33m 37 12m, 12-13u "die | übertreffen", 19-22m, 27-34m/30-31x 39 23-33m 40 1-6md, 23-27m 42 1-10m 43 13-16m 45 3-6m, 10-15m 48 11-14m/5-20w In Cruciferae, manner in which anthers open checks self-fertilisation 51 1m, 5-7m 53 11-15m 54 fig.w Viola tricolor 56 12m, 20-34w D does not know the self-fertilisation by movement of petals. 57 17-21m 59 10-15m, 15-18m 62 19-22m/w Does not Cyclamen self-fertil. 63 7-9m, 31m/w Borgni O 67 26-29m 73 20-21m/w Dimorphic 74 1-4m, 28-29m, 32m (Walz) 77 12-14m, 23-25m/w waterflower 28-31m/w come to surface wb instead of flowering under water, as we see is quite possible. 78 14-16m 79 29-33m 80 1-28m 82 16-19m/1-20w adduces Snails - I think must have been primordially self-fertile 13-16m, 12-20w Thinks flowers are hermaphrodite to favour crossing - one to favour seeds.- like bulbs & c 84 17-19m 86 13-17m 87 4-9m 90 4-10m, 14u "Alter | Gesetzes"/w age of law

HILDEBRAND, Friedrich *Die Verbreitungsmittel der Pflanzen* Leipzig; Wilhelm Engelmann; 1873 [CUL, bound together with previous item, I]

ad, fg, gd, mhp, oo, phy, sp, sx, t, v

NB p5 & 6 List of authors on Means of Distribution

p36; p.80; 104; 107; 112; 114-117; 129 to 150; 155 to end

SB ⇨

p. 5 & 6. List of works on Means of Distribution.

36 fruits eaten by birds on trees - those which stick to furry coats on branches of Herbs (p.160)

80 fruits with Arillus (My case)

104. wonderfully many adaptations for scattering seeds fleshy fruits more open.

107. fruits which do not open have only 1 seed.

112. fruits do not become coloured or tasted until ripe. (Like calyx of Polygala) & shell of seed hard as a protection

114. good remarks on coloured fruit

116 wonderful economy in the means of distribution - nothing superfluous & vary 2 ways - confined to the female flowers

129 - Bears on what useless Q

144. Cases of same sp. with 2 means of distribution

145. Means often differ much in allied plants. 150 When many seedlings of same sp. struggle together all weakened, not different sp. kill each other more easily - & thus good of distribution.

151 & parents close interbreeding

2 12-14m 4 11m 8 2m 9 zt 13 3m 20 20m 26 23m 36 1-7m 41 17m 48 8-10m 52 15-16m 57 21-23m 61 4u 73 3z 79 17m 80 2-11m 90 26-27m 99 25-26m 101 27-29m 102 22-25m 104 17-30m/w all sorts of adaptations to scatter seeds 29m 107 1-2z, 3-5m, 23-31m, 33-34m 112 3m, 12-15m/14u "hervortretende"/ 15-16u "der | Geruch", 16u "angenehme Geschmack", 26u ↔ 114 18-22m/19u "Asparageen | Früchte", 25-29m 115 5-7m 116 3-6m/3-4u "an | Früchte", 24m/20-26w Great economy in superfluous adaptations 117 1-4m, 17-20m/17-18u ↔, 23-31m 125 12z 129 19-26m 130 26-30m 144 22-34m/ 23-29w on same Plant 145 1-16m/w Means of Distribution often differ much in allied Plants 150 5-12m/1-34w When seeds of same kind ♣ sown together all struggle together & all weak - not so when different kind for then the strong kill the weak 151 22-26m 155 28-33m 157 11-14m, 18-20m 159 14-22m, 17-20m/21u "ausbilden | nicht" 160 3-4m/u ↔ /w Hooker 6u "Vögel", 7-10m/7u "an | strauch" 161 8-12m/u ± 162 wb [When pollen is brought from a distance commonly - it is possible that means of distribution wd be less necessary C.D]

HILDEBRANT, Gustav *Die Verbreitung der Coniferen* Bonn; Carl Georgi; 1861 [Down] ♂

HINDS, Richard Brinsley *The regions of vegetation, being an analysis of the distribution of vegetable forms over the surface of the globe in connection with climate and physical agents* London; G.J. Palmer; 1843 [CUL, I] gd, no, sp

SF □β

11 Greenland 2 species to genus
 36 Species of European genera in Mexico distinct – like other alpine regions no peculiar Family & few genera (Like lakes & Arctic regions
 48 Mountains of Brazil vitis, Galium, ♣, Gaultheria (Nothing)
 54 Alludes to Pisidium or Guava at Tahiti – 62
 62 Vaccinum & Fragaria on Sandwich Isd
 63 – 47 species in Low Arch, belonging to 40 genera & 27 Families (small size few individuals & therefore not new species)
 94 Relations of Abyssinia to Cape of Good H. Protea, mesembryanthemum
 NB1 What has Schow written, who is so often quoted on Bot Geog.??
 NB2 p.11; p.14 to end

11 1–2m 14 16–20m 15 2–7m 17 17–20m 20 27–28m, 28–29m 22 27–29m, 30–31m 24 16–17m 25 4–7m 27 12–13m, 16–18m 30 13–19m 36 8–9m, 13–14m/12–18w Contrast this with species being same further north; also T. del Fuego 17–19m/u "It | genera"/9–16w so lakes & Arctic regions 21–23m 39 6–11m/7u "stronger | than", 18–20m 41 17–19m 43 23–32m/27u "ribes, rubus"/28u "andromeda"/29u "vaccinium"/30u "berberis" 44 20–22m/21u "of | abies" 47 21–34m/24–25u/26–31w ♦ No European forms *wb* see to this 48 6m/7?/4–5w not species 49 20–24!/22–26m 54 14–17m/12–20w compare with mountains of Brazil p148 V. Von Martius 27–28m 58 10–13m, 15u "ribes | vaccinium", 17u "salix", 18–20m, 23m, 28–31m 62 1–2m, 16–17m, 31–34m 63 13–15m, 27–33m 64 1–2m 68 7–10m 71 1–3m 74 15–18m, 28–34m/w some of these are American ∴ ought they not to be considered mundane 79 17–20m, 20–22m 81 13u "salix | viola"/w mundane. 18–19m 82 26m 83 9–11m/11u "stronger | India" 87 26u ↔, 31m 88 24–29m 90 10–12m 94 20–22m 98 15–18m 101 9–12m 102 4–8m, 12–13m 104 1–4m 115 23–28m 117 32–34m 119 1–10m 121 14–19m 122 11–15m 125 9–12m 128 4–5m/4u "dwarf | stunted"/w so in Himmalayah 130 15–18m/15u "Sempervivum"/17u "sedum" 133 19–25m 135 17–18m 136 16–20m/17w odd 27–34m 139 7–10m, 29–31m

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K.K. Hof & Staatsdruckerei/ Karl Gerold's Sohn respectively; 1866 [Down] ∅

HODGE, Charles *What is Darwinism?* London and Edinburgh; T. Nelson & Sons; 1874 [Down]

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HOEK, Paulus Peronius Cato *The zoology of the voyage of H.M.S. Challenger: 10. Report on the Pycnogonida* London; Longmans & Co.; 1881 [Down, I] ∅

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HOFACKER, J.D. *Über die Eigenschaften welche sich bei Menschen und Thieren von den Eltern auf die Nachkommen vererben, mit besonderer Rücksicht auf die Pferdezucht, mit Beiträgen von F. Notter* Tübingen; G.F. Dsiander; 1828 [CUL, on B]

beh, br, cc, cs, fg, h, he, pat, phy, sp, sx, tm, ud, v, y

SB Hofacker

10 on Heredetary colour of Horses; when forefathers for some generations of same colour, more easily transmitted. p94

15 on confining of animals of 2 colours & offspring taking after one or other NQ

34 on handwriting hereditary Q_h

83 of Hybrid NQ canaries Birds propagating for 4 generations: inter se? Q ♦

98 on changes of colour in calves from parents of two colours. with age Q_h

107 on stags with one horn, producing a Family of. Q_h

7 27m 8 1–8w Shape of hoof &c &c hereditary 10 1–6m/5–10w approximate colour 12–13u "dem | seyn", 23u "nur | sich", 27–28m/28u "5.87"/wb colour of forefathers appearing easier in colts 11 1–5w/wt Horses of different breeding establishments of different colours 12 wt Chestnut appeared when neither parent chestnut 7u/wτ, 8u/wτ, (u: "Goldfuchs" and "Hellfuchs") 10u, 11u, 13u, 14u, 15–16m/u, 18m 13 17x_h/Q_h/w Chesnt 11–27w cases

HOFACKER

of new colours appearing 14 7-8u "braunen | Braun"/7-11m/w brown mare always bore chesnut foals 17u "Mausrappen", 17u "Braunen"/16-19w Mouse-black from black & brown 26-27m/w piebald 15 1-6w not so with Horses 8-11m/w like Hollyocks 13-14m, 15-23u± 16 1m 17 6-11w great tendency (without white young destroyed) for all animals to become white - 23 7-8w Mulattos smell like Negros 22-26m/w odours of different parts of body hereditary 24 4u "Rheumatismen | Catarrhen", 25-27m/18-27w when both parents fat young fat very early. 25 16m/u↔ 29 12-16w great strength hereditary 30 wb Genius not hereditary - [How many qualities together make Genius] 32 3-13w Hereditary genius 23u "Bach | 50", 24u "Bernouilli" 34 8u "Handschrift"/6-15m/w handwriting hereditary 35 4u "Brugnone"/1-7m/w recommends starting horse not to be bred from. 14-22w cross of pointer & shepherd dog, after many generations when become like sheep dog still pointed birds 36 21-29w/wb short & high hereditary (produced by manner of life) 37 8-10w diseases of eye hereditary in horses. 39 21u "Grösse | Geschlechtstheile", 23u "leicht | gebären"/22-23w facility of birth hereditary 43 1-2m/w 20 female cats for one male 60 15m 80 1-13w sex of plants influenced by conditions 83 17-18m, 29-30m 84 8m/w genera 18u "Perlhahn", 19m/u "Haushenne", 20u "Jungen der", 25m/w gen 89 6u "Absicht | Grösse", 10-11u "Junge | Zebra" 6-12m/w hybrids of one kind resemble father & of other kind, mother 12-13m, 21m, 27-29m/w Fineness of Hair after father 90 8-9u "Den | Vater", 11u "Den | Mutter", 13u "Die | Vater", 15u "Mutter | Ohren", 18u/wt, 23u "Schweif", 23u "Mutter" 91 2-4m, 6-11m/8-9u "Zahl | überwiegt", 11u "7:2", 12u "3:1", 13u "16:3" 93 3-4m, 14u "keine Bastarde", 20-25m/23u "Statur"/24u "Länge | Beckendurchmesser", wb Pelvis 94 wt/1-24w stallions transmit qualities more than mares. because generally former of long-continued good breeding but mares are less so & crossed. 16-25m 96 7md, 8md, 11-14m, 15md, 19m/u/wt 97 wt/1-5w Duns hereditary colour - but these are picked cases of hereditary transmission of colour (u: colours in 3rd column) 3m/u, 6u, 8u, 9u, 10-12m/12u, 22u, 23m/u, 27-29m 98 19u±, 20u±, 23-24m/u± 99 4-5m, 14-15m 100 3-4m, 6u "Männchen" 101 6-9m/w men affected by producing one mule 102 22-25m/w children like first husband 105 19-20m/u "oder | haben" 107 8-9m/9u "Burdach", 11u "Nabelbruch", 13w Hare-lip 21-25m/w one-horned stag Q[♂],

26Q[♂] 110 (u = names of diseases) 13-23m/13u/14u/18u/19u/20u/21u, 22u/22-23u, 24-27m/24u/wt, 25-28w tendency to bleed on small hurts 111 7u "Roz"/w glanders 9-10u "Exostosis | tarsi", 11u "Exostosen", 20u↔ 112 9m, 23-28m/26-27u "weder | Schauher", wb discussion on hereditary venereal diseases probably, when from father, not actual mother. 114 16u "nur | Vater", 17-18u "nur | nachkommen" 123 22-24m 130 8-13md/8u "nur Raçen" 140 3-18w many old nations married their near relations

HOFFMANN, Hermann Zur Speciesfrage Haarlem; De Erven Loosjes; 1875 [CUL] cc, che, cs, ds, fg, gd, he, phy, sp, sx, t, tm, v

NB All abstracted

p.53 Papaver somniferum self-fertile

p66 On Causes of Variation & Range of Viola lutea & tricolor

11 Adonis aestivalis self-fertilised prot-androus

Look over, some references for Good for crossing Book

p4 What he considers evidence of specific form | p27

7 causes of variability

8 Reversion

17 on the form of Anagallis blue & red arvensis cd not cross them !

22 Range of & differences of -

3 18-21m/w no - Cytisus adami 4 12m, 21-23m/22u "Blosse | Nachweis"/13-27w It comes to this that without direct evidence of descent from 1 to other forms must be considered as species! Blood Hound & Fox Hound ♣ 7 1-5m/w external conditions do not influence when no relation to chemical nature of soil.- 9-23m, 24-25u "sondern | Erscheinung", 26m/u "unabhängig | Impulsen"/24-36w Excites not direct cause !! like an illness excited on effect of a poison which I have said 8 13-14u↔, 12-17w thinks reversion prevented by successive changes of structure. 11 24-27m/24w Adonis 17 13-15m, 17-21m, 29-34m/w did not cross 18 6-10m/6u "Bemühungen | kreuzen", 26-34m, 27-31m 19 2-7m, 11m, 14-17m/w crossed with no result 30-32m/31u↔ 20 5-6u↔, 11u "isochronisch" 21 29-31m 22 2-4m/3u "sich | decken" 26 30-32m 27 wt yellow berry holly also nearly constant ∴ according to his rule a species! 3-4m/u± 28 3-7m/w reverted to parental & typical form 22-24m/w only evidence that it is a var. is above 30 34-37m 32 7m 43 31m 46 22-26m 47 23w Papaver

alpine 24–37m/27–30w Covered with net 37→
48 3–10m, 14–17m/15u "anscheinende | bei", 17–
21m/w Protandrous state variable 50 24m 53
28u "Selbstbefruchtung | kann", 33–34m/33u
"keimten sie", 35u "72 | producirten"/34–38m 59
5–7m 61 16m 66 2–4m 68 12–20m, 23–26m,
37–38m 69 19–22m 70 4–7m

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development and fructification of the higher
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Ray Society; 1862 [Down, S]
fg, tm

NB 439; 406 pollen-tubes of Conifers; 415

⌀
280 26–29m 284 1m, 11–13m 285 7–9m/8u
"third internal" 286 1–2m 287 5–7m, 12–13u↔
289 1–5m, 20–23m 290 14–16m, 32–36m 293
17–19m, 27–29m 294 28–30m 295 2–5m 296
27–31m 297 8–11m/w archegonia 298 2–3m
299 22–25m, 36–39m 406 15–20m 415 12–17m,
18u "endosperm", 19–21m/21u "end | second"
439 13–22m

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natural philosophy* London; Henry G. Bohn;
1861 [Down, S of Henrietta Crofts-Adel]

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Stuttgart; E. Schweizerbart; 1876 [Down]

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physiology* London; Longman, Brown, Green
& Longman; 1852 [CUL]
beh, y

NB Chapter on instincts – (Notes &
References in M.S. notes –) Nothing Else.–
234 Family trait long inherited
214 change of ♣ sobbing in child; & so with
laughing, pain primary
223 Habit, good

91 24c/w (not CD) 201 5–8m, 24–26m 203 2–
4m 204 17–20m 205 6–7m, 10–13m 208 27–

31m 209 12–14m 210 26–30m 211 11u
"automatic | action", 12u "from instincts", 17u
"congenital propensities" 213 18–21m 214 23–
28m 216 33–35m 220 11–14m 222 8–10m, 27–
32m (De Candolle) 223 1–5m, 28–31m 224 19–
22m, 24–25m 234 5–11m, 27–29m/Q 244 21w
instrument

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Brown, Green, Longmans & Roberts; 1858
[CUL, I]
beh, mhp, t

NB p.79–114

111 Effect of attending to any part

237 Habits in plants

239 do to quote Habit & Instincts compared
p212 Read whole Chap of Instincts & Habits

79 16–17m (J. Müller) 81 2–4m 83 4–8m, 23–
26m 85 28–31m 86 23–25m 87 15–17m 91 14–
18m/15w 193 93 4–6m 104 17–29m, 23–27c,
29–31m 105 1–6m 106 6–9m, 14–19m 111 15–
20m/15u "effect | circulation"/16u "suddenly
directed"/17u "often | immediate" 228 22–28m
237 23–30m 239 5–13m 246 29–31m

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other subjects* London; Longman, Green,
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reflections* London; Longman, Orme, Brown,
Green & Longmans; 1839 [CUL]
beh, he, pat, phy, sx, y

SB □β

10 Strong sentence on Hereditariness – 22
18 Child most like parent in feature & c
inherits its diseases

20 Hydrocele transmitted through female

25 Form of hereditariness occurring in
children & grown up people at same age

33 Disposition of members of same Family
to be affected similarly under like Maladies

35 Hereditary diseases appearing at same
age

x 25m/c/wæ, 27m xi 3m, 5m, 9m, 11m, 13m,
15m, 24m, 26m 1 10m 10 10–17m, 24–28m/
"..." 13 10u/10–11m (Whewell) 16 7–23m 17
15–21w faulty texture of skin, hare-lip
stratismus○ all hereditary 18 4–8m, 9–10m,
10–13m, 19–23m 19 2–16m, 30–32m 20 5–7m,
9...], 20–27w blindness often hereditary gives
cases also deaf & dumb. 32–33m 21 w†
disease of heart hereditary, 4 brothers died

HOLLAND, MED. NOTES 1ST EDN

between 60 & 65 – another case in their generation – obesity hereditary – cutaneous diseases hereditary – 7–8m/w case of Patella was wanting to father & son. 10–15m, 18–25m, *wb* are men more exposed – hence Rheumatism & haemorrhage?? more intemperate. – hence gout. – 22 10a "effect"/4–10m/w Pellagra of Lombardy gives Reference 20–23m/"...", *wb* Diabetes. Prout & Co ♣ Self say hereditary asthma. 24 22–24m/25–28w enlarges this strongly *wb* Suicide seems on sufficient evidence to have tendency to become hereditary Pinel Dr Rush D Burrows 25 1–31w Chomel rates as high as half proportion of rheumatism cases where patients have suffered 21–24m, *wb* Make some remarks about diseases, not connected with particular stimulus, being hereditary, as gout, scrofula. ♣ 26 *wt*/1–26w♦ I presume more men, than women are subject to gout, to ♣ rheumatism & to haemorrhagic tendency? 1–2m, 12–15m, 29–33m/4–34w♦ Consult this. – to see whether predisposing causes act chiefly during manhood, as in gout, in relation to secondary male character *wb* speaks of cases where a child escapes hereditary disease (& likewise resemblances in countenance) for one generation 27 28–32m 31 23–28m 32 1–5m 33 24–30m 35 1–10m/x, *wb* x Boerhave gives cases of schirrus, icterum & melancholia, at certain age in same family 36 29–33m 37 *wb* H. says looking over works of Morgagni gives many cases of hereditary diseases to which he incidentally refers. 65 8u "attention"/10u "direction | consciousness"/8–10m, 22–25m 66 1–5m, 13–15m 67 3–7m, 16m, 22–24m 68 2–5m 69 1–3m 70 8–10m, 20–22m 323 *wt*∅ These muscles which are subject to involuntary action (so eyelids & eyebrow∅) are not subject to Pulse.

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beh, hl, in, pat, phy, ta, y

NB1 276 Mind & Body cannot work hard at same time

NB2 19♦

24♦ Wonder that all not inherited

31 Hydrocele per female

inheritance at corresponding age & in same Family – 33 Ask – 44 good

♦ 36; 40

xiv 3m 5 10–11m 9 8m, 32a "way", *wb* as to the duration of Life, and the influences upon

health of individuals & communities the various physical & moral conditions to which they are submitted 11 4w fully 12 14–17w∅, 24–31w∅, 30c/w∅ 13 23–24m 19 11–14m 24 14–16m 31 25–29m 32 6–9m 33 1–2m/w at early age? 7–9m/w eyes 19–21m, 22–24m 35 28–30m 36 26–29m 40 30–32m (Chomel) 41 1m, 16–18m 42 2–3m 43 14–15m/w 49 16–18m, 21–22m 44 *wt* When peculiarity appears in several members of family without having occurred in parents it is clear comes on at same age – and it is form of inheritance 1–2m, 5–6w same age 6–10m, 13–16m, 22Q∅, 30–32m 45 25–27m 49 1–5m 50 21–25m, 28–33m/29u "certâ | schirrum"/31u "icterum"/33u "certâ aetate"

∅

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3 19–21m

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SB □β

Hooker Antarctic Flora

1 Auckland & Campbell Isld – Arctic Plants (G)

4 Ranunculus with hooked seeds – curious variety

23 case of wide difference in proportions of Nat. orders in Falkland & Aucklands

30 case of plant common to highest mountains of New Zealand (G)

53 Myrsine common to Cape. Abyssinia & Azores

56 *Gentiana* eminently alpine & yet not common ♣ N & S low-lands

61 *Veronica* with 3 stamens sometimes

62 Remarkable variations Ch 4

73, 74 No alpine plants in S. p.74 (Gl.) North much richer in species than the S. – even in S. America – 75 N. Zealand very poor Flora, contrast with Australia–

97 One Arctic group common to S. varying in N. but not in Campbell Isld N.B I notice in Webbs Canary isld that often only one form of a varying plant is there found

114 A species varies more in one country than in another p.271, p115 or not varies in one

116 Variation Ch. 4 varying in one country more than in another

211 All Antarctic Lands take after T. del Fuego, except Auckland & Campbell Isd –

217 Plant extinct at St Helena between Hookers 2 visits Few species to genera generally in isld

246 True Arctic plant or representative in T. del F. p.280 do

268 *Acaena* with beautiful hooks confined to Kerguelles Land &

275 Wandering species ♣ from Australia.– exiled sp of Decandolle

276 On representatives & identical species going together 277 On relation of number of individuals to species 278 Very good cases

288 Plant constant in leaves in Falkland, very variable at R. Plata

306 A form from one country unites two in another country

315 On confined range of *Senecio* species, yet genus very large range

327 American *Epacris*, very distinct form.

387 Tussack group so eminently fitted for cattle as to be on road to extermination in country where no quadruped (Hooker) often Hooked seeds

390 At Chonos Isld the flora unite but Dr Hooker remarks no blending of forms as if from descent Ch.6.

549 On affinities of *Lyallia* of Kerguelen to Bolivian Plant

vi 18–19m/19u "Crozet | volcanic" vii 15–16m/15u "vast | continent" 2 32–36m/w great difficulty 4 13m/u "uncinati" /w/ V. Plate 15–17m, 20–22m/w var. 41–43m 5 35–39m (H.C. Watson)/36–38u± 7 4m 10 6–8m, 16–17m 11 6–7m, 12m, 22u "species | one", 33–34m 13 5–7m, 9–11m, 17–20m, 38–39m 15 10–12m, 28–29m/28u "decidedly | form" 18 13–15m 22 41–42m 23 3–10m 30 25–26m 33 2–7m 35 16–22w Mr Norman not to be counted with varieties

– nor any species introduced as notes 37 25w not count. in Norman 39 25–27m, 43–45m 40 24–26m 53 3–8m (De Candolle) 54 21–27m 55 26–30m, 28–30m, 31u "Indeed | genera", 33–35m/34u "confined | Andes", 41u "blue-flowered" 56 1–2w How alpine a genus! 3–8m, 9–11m, 14–15m 57 6–11m, 41–44m 58 11–17m, 61 7–8m, 10–12m, 33–35m 62 9–17m, 9–12m, 14–16m/16u "3-valved" 66 37–40m 67 6–9m, 11–13m, 20–22m, 33m/w var 41–42m 73 36–43m/40u "on | occur" /w explain 74 1–5m, 6–11m, 12–15m/13w whence paucity 21–25m, 28–31m/w ♦ S. America even isolation compared 39–44m 75 1–3m, 10–12m, 14–15m, 16–18m, 21–23m, 26–27m/26u "exuberant | necessarily", 29–30m 78 4–9m 80 27–29m 82 4–8m 83 1–4m 85 16–17m/16u "most | L.", 20u "L. | Tasmania" 90 20–23m 92 37–38m 97 14–15m, 17–18m, 19–21m, 24–28m 101 34–36m 103 25w Mr Norman end here 104 21–23m 106 1–3m 107 15–16m, 35u "500 miles", 40–42m, 44–46m 109 32–37m/33u ♣ 111 24–27m 112 11–14m, 21–22m/21u "natural | cannot" 113 wt Mr Norman nothing to be counted in this part 16–17m, 25m, 34–35m 114 6–9m, 25–30w This *Lycopodium* may have travelled along Andes 115 3–5m/4u "like | does", 27–28m, 41–44m/43–44u± 116 7–8m, 14–15m, 17–18m, 31–32m, 35–36m, 46m 117 7–8m, 9–13m, 16–21m, 23–25m, 26–27m 118 7–9m 119 15–16m 124 38m 126 37–39m 127 22–23m 129 wt Mr Norman, nothing to be counted in this Part 132 18–21m 134 8–9m, 15m 141 11–12m 145 wt Mr Norman not count this part 146 10–13m 162 3–5m 167 16–18m 169 31–32m 209 8–10m 210 1–4m, 1m 211 4–7m, 9m, 15–16m, 20–22m (Humboldt), 22a "west" /u "west | stream" /w East 24–25m/25u "Gmelin's 'Flora Siberica'" 27u "approximated | geographical" /w 1000 miles 29u "flanks | Himalayah" /30u "Tristan | Cape" /29–31m/w not flanks, but opposite side of continent 33u "Sandwich" /w in Labiatae & Lobeliaceae 39–42w/wb actually same species? very good yes Have a list 40–41m/u±/w *Cynococcus* ○ a grass 212 21u "North | Antarctic" /w Panama? 23u "granitic" /?, 36–37m, 39–40m 213 28–29m 215 21–25m/?/w do not understand 216 23–25m, 25–27m/27u "twenty | plants", 29–32m/29m/29–30u±, 36–38m/37u "16,062 feet" 217 2?/u ♣, 5–9m, 22–24m, 26–27m, 30–32m, 34–35m, 35–40m, 37–40m 219 16–23m/18?/u "Colobanthus" "fossil" 221 33x♣/u 223 28–33m 224 26–28m 225 10–12m, 26–27x/26u "This | plant", 39m 227 9w var 33–36m 228 18–20m, 40–41m 229 33–39m 230 8–9m, 14–17m, 21–23m, 24–25m, 26–28m, 29–31m 231 31–32m 232 26–28m, 28–29m, 39–42m 233 1–4m, 31–32m, 35w not

HOOKER, FLORA ANTARCTICA

count as var. 240 21-25m 241 15-16m/16u "American Andicola", 30-35m, 37?/u▲ 242 1-4m, 6-10m (De Candolle), 22-23m, 34-35m 245 32-40w This is first European genus with no evidence of other species on Cordillera of Chili or Peru 246 4-5m, 21-22m, 26m, 27-28m, 35-36m 247 6-9m, 9u±, 11m, 15u "excluded North", 33m/w var, 37-41m 248 10-12m, 43m 250 27w var 29-30m 251 1-9m/14w var 2 18-19m 252 20-22m 253 3-4m, 8-12w I think these are Oxalis in the Cordillera of Peru 27w var 259 12-13m, 30m 260 1-2m, 8-10m/7-12w I suppose not found in intermediate districts 25-26m, 32-33m/32u "maritime", 35-37m, 38m 261 3-5m, 9-10m 262 13-14m, 21-25m, 34m 263 26-27m, 39-41m 264 3-4m, 13-14m 267 38-39m 268 2-5m, 18w var. 19-20m/20u "South Georgia", 38-41w/wb A plant with hooked seeds confined to Kerguelen Land. V Plates beautifully hooked. 270 6-7m/w var 31-33m, 42-43m 271 1-2m, 4-5m, 16m, 20m, 23-25m, 26-27m 272 1m, 7-8m, 13-22w another case of plant skipping the intermediate parts of S. America. 28w var. I 40m 274 5m/a "another" 3d 8u "even rudiments", 32u↔, 38m/u "same species" 275 25-28m, 35-37m/36u▲/w large range 36-37u▲, 39-40m, 41m/m, wb This not holding in Birds, is argument against much accidental transportation 276 3-8m, 9-12m, 30w var 40-41md 277 9w var 37-39m/w it may be if all individuals of all the species be counted. 278 2-3m, 5-7m, 8-12m, 19-20m 279 5-6m 280 22w var. 3. 27-29m/29u "of America", 34m, 39-40m 282 20-21m/21u "in flowers" 284 21-22m, 30-31m/30u±, 37-38m 285 3m 287 21-23m, 25-26m, 31m 288 4-6m, 7-8m 289 wt Nothing marked in this Part 302ii 8-9m 303ii 24m 305 16-19m 306 1-3m, 16w 2 vars 18-19m, 20-21m, 25-27m, 28-29m 307 23w var. 1 308 33-34m 309 14w var 1 312 26w var I 313 2w var 1 12w var 1 315 17-21m/19u "both flowers", 22-25m, 31-33m, 36-38m, 38-39m 317 8-9m, 9m, 12w var 322 32w var 323 8w var 32m, 35m 324 10-11m, 19-20m/! 326 31w var 1 327 22m, 37-39m 328 2-4m 329 19w 1 species 36w do not count this 331 1-5m, 26-28m, 40-44m 334 12-14m/w water-plants 21-24m/23u "perhaps" 335 23-26m 336 1-3m, 30-32m 337 16-17m, 27-30m, 35w var 338 27-29m 339 1-2m, 9w var 12-13m, 29w var 2 340 wt Though we cannot explain same species common to Australia & Fuegoe yet the generic connection is in harmony -: hence the identity of some species with Europe is in itself probable 1-2m, 14w var. 2 24w 4. 341 17-18m 343 14-16m 344 36-39m 345 15-19m 346 13-16m, 17-

21m 347 14-16m, 19-20m 352 38w var 1 354 19-21m, 39-40m 361 8w var 363 28-30m 368 6-9m, 25-29m, 32-36m 370 1-4m, 35w var. 1 372 35w var 373 17w var 1 378 7-11m 379 11w var 5 381 34w var 3 382 23w var 3 384 19w var I 386 17-20m 387 1-7m 389 15w var 4 25-27m, 33m/w Mr Norman end here 390 16-20m 391 34-36m 392 31-33m 393 10-12m 394 23-25m 395 17-18m 457 17-29m 543 7m, 9m

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af, beh, cc, ch, gd, geo, gr, oo, no, sp, t, ti, tm, v

vol. 1 NB See index for case of coloured Ticks.-

24; 28; 30; 101

109 - Tropical & temp vegetation

159; 248 Glaciers; 257 Cedar & Deodar; 293; 314 - Cocks crow; 380; 400

p221 - Poa annua & Shepherd's purse 314; 380; 400; 221

24 4-9m 28 6-8m 30 31-33m 38 5-21m 101 28-31m 109 14-16m, 24-27m, 30-33m 159 28-30m 221 6-10m, 23-25m 248 29-33m 257 5-7m, 24-37m 293 30-34m 314 8-10m 342 26md/a/w♦€ 380 18-23m 398 10-24w about 500ft♦ 262ft see 440 vol 2. 24-34m/31u "of English"/34c "Dioscorea"/33-34u "Saponaria | Dioscorea", wb 2 not English 400 10-14m

vol. 2 SF □β

p18 Mixture of Tropical & temperate plants p39 & N. American genera & Japan.

25 Himalayan Reptile allied to N. America p.305 do

67 gathered 47 plants without rising - 30 average in England - alludes to struggle.

92 few Mammals in moist cold atmosphere.

96 Bengal Toad rise to Tungu - a good height Q

255 Rose on plain of Bengal - Salix in Terai, shows how little form related to climate Q

280 Khasia flora richest in India, owing to very various sites

281. ♦ Primrose & cowslip not one species on Khasia mountains (Hence very ancient according to my view & hence probably aboriginal) some change at early period of growth

302. A judge will tell whence Elephant came (Ch. 4)

336 Stylidium an Australian genus with 1 species here.

NB1 Mixture of Tropical & tem plants – p.18
25; 26

On mixture of European, N. American &
Japanese forms 39

57

67 – on no. of plants in limited species

92; 96; 150; 255; 281; 302; 305; 314 flowers
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Mixture of Tropical & temperate plants – 319
333; 336; 415

p.281 On Khasia range H. speaks of
Primrose & Cowslip!

◆ p251 & Poa

NB2 p38 rippled sand

18 24–30m 25 31–34m, 34–39m 26 31–34m 39
1–4m, 6–25m 57 24–27m 67 24–27m, 31–36m
92 4–11m, 16–21m 96 19–23m 150 12–16m/12u
"double"/14u "twins" 255 20–26m 281 6–8m,
32–33m 287 9c/w€ 302 6–18m 305 21–27m
312 6–7m 314 26–36m 317 30–31m 319 28–
33m 333 15–21m 336 11–13m, 25–27m 415 9–
25m

HOOKER, Joseph Dalton *Introductory essay
to the flora of New Zealand* London; Lovell
Reeve; 1853 [CUL]

HOOKER, Joseph Dalton *Memoirs of the
geological survey of Great Britain* vol. 2, part 2;
[CUL, I]

gd, geo, ig, no, phy, v, y

SB1 □β

399 Tasmania 200 miles long has four times
as many flowers as New Zealand 900 miles
long (& higher mountains)

410 Venation generally very important in
Ferns; but differs in older & younger forms of
some species – kind of transition – Ch. 8

SB2 *

Prelim good – upright ferns but distinctly
large separated

Ferns drifted being greatly objected to by
whom.– Why not allude to Bunbury & Lyell
on N. America

I valuated○ the Owen

Most interesting indeed quite amusing

Whole Plates

I wonder you do not suggest aquatic plants
appear to meet so well all the same case
with leaves of fern & cones–

<over> 391–392; 399; 410; 429; 437

title page *w* Hooker Carboniferous Plants
n.d 391 18–21m 392 5–9m, 17–19m 399 15–
17m 410 24–29m, 30–33m 411 2–3m 429 29–
33m 437 29–39m

HOOKER, Joseph Dalton *On the flora of
Australia* (introductory essay to flora of
Tasmania), London; Lovell Reeve; 1859
[CUL]

cc, ch, che, co, cs, gd, geo, hl, ig, is, no, oo
se, sl, sp, sx, t, v, wd

SB1 □β <24 sheets>

I intended in this but to copy out all Falkland
& T. del Fuego plants on parallel lines

<lists of plant species and their sexes>

<on p.24 of lists> This list has been marked by
Hooker for close species.– NB See what big
genera are left out.– They ought not to have
been left out for mem. highness.– But
Hooker does not know Carex○ or Urocinia○
so these ought to be left out.– Leave out
genera with single species.

SB2 □β ⇨

Hooker Flora of Tasmania

V. no two countries present all vars. of same
sp. on common p.xiv

– But – marked vars. on confines of range

– simplest groups present most variable
species

vi. more unstable than stable forms – social
plants constant

vii no relation between isolation of group &
closeness or definition of its species.

– Extinction allows us to define groups.

ix conditions of cultivation are not really
unnatural

xiii one var constant. the other var. of same
sp. variable.

xv. Flora of isld not nearest related to
nearest mainland

xvi. great contrast between Hebrides & Fidji

xvii Effect of dampness in extending range
of Tropical products

– Has used glacial hypothesis for New
Zealand Mountains

xviii Fuegian species not entering Mexican
table-land

xix to Geological succession – no
progression

xxiv Many plants are higher (so-called)
plants reduced.

On Highness & Lowness

xxvii Richness of Antarctic in forms – xxviii
not so very peculiar a Flora as thought to
be.

xxix Peculiarities common to same orders in
diverse parts of world.–

xxxii on similar proportions in great groups
(due to battle of life)

xxxiii xxxiv Relation to Africa – xxxv Invaders
in S.E. Australia

xxxvi No of species to genera in Australia

wide rangers in Tropics – Hooker thinks not material to know Look to A De Cand – Again I suspect very few confined to hottest parts of Tropics. which might be expected from range in Australia & C. of Good Hope.– There must be discussion in Alp. D.C. on range of Tropical plants compared to temperate.– if the range were given N. & S it would be best.– But America from Atlantic Ocean complicated problem.– xlix 15–18m 1 3–7m, 7u/9u ♣, 10u "Malayan Peninsula", 13–16m, 20–23m, 26–28m, ↑7–2m, ↑3–1m/↑2–1u "great | genera" li 8–11m/w most favourable in conditions & larger 12–13m/x, 17u "1700", 20–21w Eyre's O desert between ↑12w wonderful lii "Acacia".w 82/133 sp. "Eucalyptus".w 55 liii 18–19m, 22–23m, 25m/w in S.E. a much more mixed & imported Flora liv 1–4m, 17–20w (a) One intruding dominant form might well destroy several closely allied representative species. ↑21–20m/w (a) ↑21–20u "It | area"/m/x/w yes because dominant forms wd only invade the land.– ↑16–12m/w was not S.W. corner an archipelago with representative species like Galapagos or Madeira & P. Santo with respect to land-shells??? He hints at this further on. wb Indian Tropical plants formed in big area & fitted for Tropics & not for temperate parts have invaded & almost exterminated Australian Flora of Tropics.– Further on states that Indian Flora (as distinct from Malay) is formed in low part of Malay lsd wb (a) Pampas & N. temp. Europe & Siberia are all lately tenanted lands by dominant species & are not number of species few?? Perhaps different case altogether Iv 9?, 16–19m, ↑5–1m lvi ↑20–19m lxxiv 3–4m, 15–17m, 19u "fully one-fifth", 20u "one-tenth", ↑21–18m, ↑14–11m lxxxv 2–5m, 14x, 18–19m, 23–25m, ↑15–11m, ↑9–5m lxxxvi ↑3–1m lxxxvii 6–9m, 11–13m, 15–17m, 18–19m/w This looks again as if S.W. corner was original focus of Australian forms ↑21–20m, ↑18–1m/w very striking looks to me conclusive that never continuous land.– x wb x we can with some probability suppose that plants wd have marched along continuous land– but we know hardly anything about march across seas.– lxxxviii 9–12m, 15m, 19–24m, 25m/u "eastern", ↑9x/w it looks as if more transport during Glacial Period – Icebergs ↑12–10m/w dominant invaders lxxxix 5m/u "theory | migration"/w You do not know effect of Salt-water on the seeds.– 10–11m/w ? I do not understand 15–18m, ↑3–1m xc 1–2m, ↑2–1m xci ↑9–6m xcii 2–5m/w some excessively ancient connection xciii 7x/u

"220 | genera"/w ♦ Hooker believes only few 8a "are"/wt almost exclusively 4–6m, 7–11m/w But I suppose many found in Tropics??? – see p.xcviii for same question xcv wt/1–15w I wish I knew which of these genera are not found in lowland Tropics & include species representative of those f in northern Europe or N. Asia for on Glacial view these have been modified since Glacial period. (next page 38 identical species are given) It has always been my greatest fear that there has been so much modification since Glacial, that it wd. upset view.– Some few genera may formerly have been mundane & Tropical & not now so.– ↓w For Glacial strike out all those marked Trop. Strike out those marked with * Are many of these genera monotypic like the identical species – ?? Water plants ought ♣ perhaps to be struck out – no. not so if not found in Tropics. X This mark means species identical with Europe (♣) but the water plants not struck out. because not marked by Hooker xcvi <similar markings, no w> xcvi–xcvii, SA <note for Hooker, 8 April 1860 on numbers of supposedly post-Glacial genera not found in Tropics but common to Europe and Australia> xcvi 3u "38"/w These plants immigrated during Glacial period.– "Montra"x/w Water "Alioma"x/w Water "Glyceria"x/w Water ↑6–1m/w Hooker says about 18/38 are monotypic ↑2–1m/u "great | plants" xcvi 1–14m, 2u "them | alpine", "Taraxacum".m/w composi great range tab.w These genera I presume not found in Tropics? wb ♦ The species in S. Africa seem not to be identical – is this fact or want of knowledge of species are your facts taken from Drege? xcix 20–21m c 1–4m/w Arctic Plants 11a "30" Fuegian 14–16m, 20–22m, 22a "is" doubtful 23–27m ci 12–15m, ↑9–6m, <mark by FD> cii 2–4m/u "types | migrated"/wæ, 11–12?, ↑14–12m, ↑2–1m ciii ↓m civ 1–2m/u "and | Islands", <mark by FD>, ↑9–1m/w good about Struggle cv 1–4m, ⚡ ↑5u "unoccupied | England"/w were these spots bare? cvi 2–3m/??, 1–21w ⚡ very good showing how many of the same species are naturalised in Australia & U. States with very different climates; opposed to your conclusion cvii "38"m, "51"m cviii "78, 79, 81, 85, 89, 92, 93"m, ↓w Several Indian plants & US shows us such grt necessity of constant introduction of seed. cix "115"m, "139"m, wb No remarks on cultivated plants!!! cxii 14wææ

<bound with previous item> HOOKER, Joseph Dalton *Introductory essay to the flora of New*

HOOKER, AUSTRALIA

xli Exclusive Tropical orders are all Indian. See MS note liv
 xlii Great range of many tropical sp. because are much Extinction during Glacial. good see MS note Ask Hooker.
 I Entire want of reciprocity between India & Australia
 li Wonderful difference between S.E. & S.W. Australia
 liii to lv In S.E. a much more mixed & imported Flora: The invaders have destroyed many indigenes
 lvi Tasmanian list classed geographically
 lxxxiv Discussion on. On European Plants. much modification in Tasmania lxxxv The Alpines of the mundane genera are more variable than the Alpine & Australian genera.— Perhaps the latter existed before Glacial epoch.—
 lxxxvii Wonderful facts on absence of Aus. Plants in N. Zealand— showing non-continuous land. Dominant invaders in N. Zealand. lxxxix Lord Howe's Island.—
 lxxxix Antarctic Plants xcii & xcvi S. African forms: (<u>⇒) relation with respect to Glacial period
 xcv & xcvi Important lists bearing on Glacial.— Many monotypic ♣ in Australia
 xcvi Grand list bearing on Glacial distribution V. good remark p. cii
 c. not reciprocity in Europe with Australia (<over>) Hooker Flora Tasmania
 pci Relation of fossil & recent plants
 ciii Discussion on Glacial Flora
 civ Good remarks on Struggle for Existence
 cv. On Naturalised plants good— M.S. Remarks on.—
 cx Many Native Esculent plants
 SB3 ☐☒ ⇒
 C. Darwin References to whole in Abstract of 4to Pamphlets
 v 11m/u "and|both", 14–15m/w proof? chiefly from variation in arctic countries ↑5–4m vi 10–11m, ↑19–17m/w crossing vii 4–5m, 7–8m, 11–16m, ↑15–11m viii 3??/u "a|unalterable", 18?/u "weakened|exhausted", ↑19–18m/w ? without selection doubtful ↑18–17x/u "the|inhabits" wb x I doubt whether holds with animals.— With Elephant it does perhaps.— ix 5u "neglected"/w with or without propagation by seed?!! 14m/u "original|apple"/w good 15u "extent|Roses"/m/w where are facts on roses? ↑20–19m, ↑17–12m/w good ↑3–1m/w good x 21–22m/?? xii ↑5?/u "different|provinces", ↑3u "more|permanent", ↑3a "permanent" & more easily disseminated xiii 3–5m/w♦ do not understand ↑21–29m/w Battle

of life pretty equal.— ↑6–4m/w Does it differ beyond having bulb.— xiv 1–3m, ↑18–17m, ↑12–11m xv wt Is there not Epacris in Sandwich: how allied to Fuegian genera of Epacris? 1u "very", 2u "often", 3a "Africa" yet African, & islands, barren 5u "some|forms", 8a "found" exceptionally 8u "Tristan d'Acunha"/w Is it not nearest to America? 1–8m, ↑11–9m/w/wb As coral islands themselves are included, they will generally have subsided, at intervals & been stocked by sea-borne plants & coral-soil very peculiar.— ∴ In Indian Ocean comparison not valuable.
 xvi 1–15w An isld so lofty & ancient as Tahiti, whether rising or sinking must have been long peopled. 1–15w Hardly facts enough known — some islands rather near continent included.— (Marianne & Caroline Isd ought to be included.— & Gambier Isld) 5–7w I doubt whole case ↑8–1m xvii 3–7m/w Effects of dampness on range — 9–20m, ↑5–4m xviii "29"/m/w I doubt because the temperate forms have crossed the Equator in old & new world, & tropical orders still exist in both ↑5–1m xix "Lycopodiaceae".m xx 1u "genera"/w & Devonian not different 13u "cone|Araucaria", 15u "Cretaceous", 16u "Juglans"/w Juglans old & intermediate 18u "Characeae"/x/w Lyell says in Middle Purbeck xxi 7m/u "900", ↑18–14m xxii 1–2m, 4–9m xxiii ↑16–14m/w good ↑12–9m xxiv 1–3m, 5–15m/w Highness & Lowness. ↑19–17m/w I have somewhere discussed this ↑10–1m/w good ♣ Highness & Lowness xxvii ↑11–9m xxviii 9–20m/17–18u±, ↑22–18m, ↑15–11m, ↑16–3m xxix 1–3m/w peculiarities common to Orders xxxi 3–6m, 9–12m/w Shows relations of organisms most important in battle of life. 18–19m/w A Farmer in Australia would I presume follow same rotation of crops at equal ♣ intervals in N. & S. xxxiii 12u "South Africa"/11–17m/w curious 19–20m, ↑15–14m/m, ↑9x xxxiv 1–10x/w Those with cross abounded○ next most in S. Africa This looks as if affinity to S. Africa had come round by N. ↑15u "the genera"/w chiefly mundane orders. xxxv w Invaders, with more species modified. w This makes difference look considerable w & all over World Alph De Candolle xxxvi 6m/u "six", <in table 1b>c "Cruciferae"/w Coniferae w♦ How many species xxxvii 2m/x xli ↑9–7m xlii 8–10m/w must take old & new worlds as distinct categories. ↓w/wb What a number African & some American NB great extinction within Tropics during Glacial explains vast range of many tropical plants in at least old World Ask Hooker.— Whether there are not many

HOOKER, NEW ZEALAND

Zealand (reprint of)

cc, ch, ex, f, gd, geo, in, is, no, or, sy, t, v

NF pxxxiii Note Definition of "Antarctic" I have I think been misled, & often in doubt by not knowing this definition earlier

SB □β ⇨

Plants common in New Zealand & South America but not European

(not CD, annotated by him with locations of species listed; 6 sheets)

Abstract no 20 (6 sheets: abstract of Botany of the antarctic voyage "Flora Novae-Zelandiae", not this Introduction)

ii "Chapter 1" w J Lubbock you had better skip this first Chapter x 16m/u "reproduce | processes", 17m/Q 17-23m, ↑22-17m, ↑12-8m, ↑5-1m xi 1-3m, 5-6m, 8-9m, ↑14-12m, ↑11-9m/Q ↑8-5m, ↑1m/Q xii 17-19m/?, ↑4-1m/Q xiii 5-7m, ↑11-10m/↑11u↔ xiv wt shows that vars. ♣ on these different in different countries 3-6m, 12-14m xv 1-5m, 7-9m, ↑10-9m xvi 13-18m, ↑3-1m/↑2u "transport | sex" ↑4m xvii 2a "typical" /wt of that species 2Q/u "we | common", ↑16-14m, ↑12-10m xviii 7m/u "of | seas" /w V. Harvey Whether absent in Tropics ↑22-20m/w Decandolle 250,000 I think! 9u "did | Zealand" xix ↑17-16m, ↑8-7x/m/w how many common to North? ↑6m/u "greater | peculiar" /w see further on. ↑4-1m/x/↑4u "100 genera" /↑3u "confined to", ↑2u "one species", ↑2a "species" /wb different?? if different points to some ancient connection.- xx 2a "so" /wt comparatively 2a "Africa" /wt about 1600 miles! 2u "placed | Africa", 1-4m, 4u "Antarctic", 4-5m/u "New | Australia" /x/m/w Does this remark extend of Fuegia? 4-5m/x/m/w exactly like White M & Europe. circumpolar cold 8-10m, 11-14m/x, 15-16u "many | Tasmania", 18-19x/m, 22-23u "individuals | scattered" /w Yet Decandolle says often social! ↑12u↔/a "related" they wd not be 2 natural orders, if there were many connecting links.- ↑10-8m/x, ↑1u↔ xxi 13u "the | birds" /w are these land Birds. I think not. ↑8-7m/x xxiii 14-28m/14-15x/m/20!/u/m "Chili", ↑16-13m xxiv 2-3m, 9-13m, 14-15m, 18-23m/w division of Alpine Floras 18x/m, 19x/m, 18a "Those" regions or flora 18-19u "none | Arctic" /w || But surely there are northern European forms.- 21a "Alps" X/m would you add Auckland & Cambell Isd & Kerguelen land? No 22u "mountains" /w see Meyer 23u "Pacific Islands" /w Sandwich? ↑11-6m/w ♣ do not quite understand ↑9u/m/w which ↑8a "difference" /wb ie show more species to be in common ↑8?/u "three", ↑7u "they" /w in difference ↑7-6u↔ ↑4u "Fagus" /

wb X/m why These are Java, N. America, Europe. Give up wb Mem. Beech leaves before Glacial in T del Fuego xxv 1u/a "the | islands" /w which?/m, 9-16m/10-11Q 16u "the | islands" /w which? T del Fuego? 20u↔/w - Can this be from change of seed? ♣ (Mention under my Ch.6) 22u "Sonchus" /w vide (& algae) ↑11-10x/m, ↑11-7m/w/wb very curious. So mammals in the 2 Americas - & Australia. Decandolle. Australia. & even C. of Good Hope - Might it not be that NO temperate plants of S. shores of Australia wished to get still further south & far from wishing to get north. Yes. The tropical plants wd crowd the equator & some few might cross. Hence Borneo plants wd have come from equatorial regions. wb The mere numerical preponderance of N. forms, from form of land wd account for it wb It wd make great or some difference whether northern or southern forms first occupied the gaps in the Tropics; when once occupied, S. forms wd have little chance of holding their own then. wb If it require time for some degree of acclimatisation than I think it wd certainly make difference wb But being driven out wd not make any difference in spreading. wb If cold first came on on N. side? I think it wd explain. wb No: it wd be that the southern plants wd be not driven out by by fresh arrivals from further south, or only feebly so. Yes ♣, ↑9u "are | transit", ↑8u "have | altitude" /w attributes apparently to ♣ altitude xxvi 15-18m/w if an individual dies suddenly, is his formation sudden? xxvii ↑12-10m, ↑10u "Myrtaceae" /w any species in common p.xxx 1 in common ↑10u "Epacrideae" /w p.xxx some in common ↑10u "Protaceae" /w do - not one only 2 altogether? → X/m, ↑9-4m, ↑10-1→♣, wb This is all fully answered at p.xxx p.xxx. Compositae & Orchideae Australian genera. Surely there is considerably more affinity to Australia with Tasmania than to any other quarter of World, both in same species & genera Yes p.xxx: this was very impressive in looking over the Flora. vide Strezlecki whether Eucalyptus formerly in Tasmania NO xxviii 4u↔/w ie very distinct. 5-7m/!, 8-10m, ↑19-17m/w So at C. of Good Hope very many bushes. xxix title.w Endemic ↑20u "Phaenogamic", ↑20-16w more than ♣ 2/3 of which peculiar or 507/730 ↑12u "genera", ↑11u "Australia" /↑11c "otherwise" /w great inaccuracy○ & making order. ↑8u "twelve species" /w & 5 genera ↑4u "Dammara", ↑2u↔ xxx wt Are many of the 60 European species Annuals 1u "New | Caledonia", 3u

"but Thuja", 6u "Atlantic"/w Canary Isd 10u "one|species"/w X^o of these Calceolaria seems the only special one to S. America why not Fuchsia mentioned 10-11u "Mimuli|Ourisia", 13-14m/u↔, 16u "and|Australian", 19-20u↔, 22-27m/24u↔/26-27u↔, ↑15u↔, ↑11m/w♦ 76 genera are S. American – of which 17 not in Australia (pxxxii) or in Old World. ↑11→/↑15-11w Q pxxxii♦ as well as in number of genera♦ Therefore I infer N. Zealand in species, as well as such genera as Fuchsia & Calceolaria, more allied to S. America than is Australia X^o, ↑11→/wb have you lists? 11a "American" of which only 12 not in Australia, & 29 (some of them unaltered forms from old temp: antarctic land. Yes) not Europe; & 39 not in Antarctic wb X^o of those 89 common (→ 17/76 of the genera to which these 89 species belong, are confined to New Zealand (ie not Australia) & America. ∴ are not Arctic see Q. p.xxxii This shows, again, much affinity between N. Zealand & America – It clearly is not transport direct from S. America to New Zealand which has caused affinity. V.(Q) pxxxii) to N. Ze. & S. Amer. there are 29 not in Europe; (→ How many of these not f. N. of Equator? see opposite page for 7 of the 29 species; are there more?) which are these? are they N. Asian, 1 is N. Asian, or are they all southern forms. or almost mundane except Europe ↑12-7m/w p.xii. Flora Antarctica there is said to be Arctic forms in Auckland & Campbell Islds ↑10a "above" of the 50 indicate no particular affinity ↑9a "4" These seem all world to me but wd require cold ↑9a "species" come direct to each from North ↑9w Are these all Australian? (u^o) pxxxii, 17 may have come by Sea. ↑8w – Therefore the affinity is not closest by now coldest regions.– Yet affinity by mountain plants. ↑7-6u "decided|species", ↑6-5u "genera|also", ↑3-2u "240|countries" xxxi 1-2m/w The making of species & conditions renders this doubtful.– ♣ Galapagos ● though 8w & Casuarina 9-11m/w very wonderful; but yet we know not means of transport viz duration of vitality. anyhow not continuous land.– 12a "Clanthus"/w a Legum, & most rare Family in N. Zealand. 12-13u↔/w Has Norfolk Isd many Leguminosae in common with Australia 14u↔ 20u "admirably|transport"/w ? generally killed by sea-water; yet some Float & Mimosa sensitiva survived 50 days. 23u "land|between"/22-24m/w ie in negative point of view, which wd be very strong if we knew means of transport.– 22-24w X^o R.

Brown has said some survived. Gulf-Seas 27u "Edwardsia" 28u "the|Carmichaelia" 29u "feebly|plants", ↑14X^o, ↑13u "89", ↑13u/a "some"/wb 26 confined to Southern temperate Zone ↑13u "Myosurus aristatus" ↑12w 7 ↑8c "former"/w N. Zealand ↑8u "representative", ↑8-6m/↑7-6u "is|shown", ↑6u "Fuchsia|Calceolaria", ↑5-4X^o, ↑1u "76" xxxii 1a "17"/wt yet only 12 species not f. in Australia (I shd think from N.Z going further south) 1-2m/w (Q) V. p.xxx(Q) 1a "found" either 1a "Australia" || 1c "elsewhere", 1X^o, 2c "latter"/w 17 3a "form" some groups 4X^o, 7-9X^o/u±, 9a "European" ie 29 14-15u "Many|numbers", 17-24wccc, 19-20u "16|were", 21-22X, 23a "five" which are the 5? Sonchos Pr● Sanaxicum Cotula 23-24m/w "The|so", 24a "ones" in N. Zealand?? ↑14-9m, ↑8-4m, ↑4u▲/wb Have these become since extinct in Australia or have they arrived by other route: Australia has many European plants not f. in New Zealand. xxxiii 1u "European|Australian", 1-5m/w absent in N. Zealand 7-8X^o/X^o, 7-14m, 10u "Those|Europe"/w – come from North 13XX^o/w either from Common source of Old Antarctic land. 15-16→, 17-19m/17a "those" species 20a "these" antarctic 20a "genera" but not genera f exclusively in South 20a "50" genera 22u "Drosera"/w such genera may be representative, from ● in North. ↑8-5m/w Definition ↑4-3m/x^o, ↑4→/wb & we have seen New Zealand contains some 17 not in Australia xxxiv-xxxv (marks against nearly all lines, indicating location of species listed) wt X^o Would you mark genera f only S. of S. Tropics with S. – only N. of Tropics with N. Excepting mountains within Tropics ♦ would you mark the Genera not f. North of Equator♦ S. Tropics? wd it not have made it much more interesting of the identical species had been put in. ↑17-12w very strong case (p80) only one other species known wb This very strong Antarctic genus (p128 F.N.) with species on all the S. lands including Tasmania wb p.154. N.Z. very remarkable alpine plants of N.Z. Tasmania, & Fuegia, nearly allied to extensive Australian genus of Styliidium. xxxv wb X^o 7 North having representative species 18 Mundane & doubtful 25/50 Southern genera (There are 5 cases of representative species between S. America & ♣ Australia & not occurring in New Zealand.) xxxvi 1-13w S 14-19m/X^o, 20-31m/24u/a "New Caledonian" great subsidence of 28-31m/X^o, ↑5-1m/m, ↑2u "Epacrideae" xxxvii tab.m/w see average

HOOKER, NEW ZEALAND

number of species $\uparrow 16m/u$ "that|genera"/w
 This variability is rather different from actual
 vars. for if very polymorphous. vars. are not
 designated. $\uparrow 12-11m/\uparrow 11u$ "necessarily
 vague", $\uparrow 8m/u$ "that|tendency", $\uparrow 6-4m$, $\uparrow 3u$
 "and|variable" xxxviii 1-2m/w How in N.
 America? 3-5m, 8m/w more variable 12m,
 14-15?/u "geographical|characterize", 16-17m,
 $\uparrow 4u$ "Banksia|form" xxxix $\uparrow 12-9m$, $\uparrow 4-2m$

HOOKER, Joseph Dalton and BALL, John
*Journal of a tour in Morocco and the Great
 Atlas* London; Macmillan & Co.; 1878
 [Botany School]
 gd

NB Geographical Distribution; 417 to 446
 whole discussion

1 1-10m 417 24-36m 420 1-6m 421 11-17m,
 25-29m 436 1-7m 440 28-35m 441 4-8m/6u
 "half" 445 1-6m, 23-28m 446 14-23m

HOOKER, Joseph Dalton, and THOMSON,
 Thomas *Flora Indica* 2 vols.; London; W.
 Pamplin; 1855 [CUL, vol. 1 only, I]
 af, cc, ch, ds, ex, fo, gd, hl, ig, in, is, no, oo,
 phy, sp, sy, t, ti, tm, v

NB1 ♦ If very few temperate European
 plants occur in S. Africa probably Africa
 hottest part of world during Glacial period:
 but Heath ♣ extended over whole -
 The connection of Flora of Old & New World
 before Glacial period, when temperate forms
 inhabited now ♣ arctic regions - probably by
 Beerling St -

Hookers remark, somewhere, that flowers
 whose organs are only a little meta-
 morphosed from leaves are most variable is
 only part of general law, that lowest ♣
 organisms most variable.-

Glacial epoch; p.87; p.101; p.103, 4; 104
 Khasia & India & Java; 105 Japan & China;
 108; 113; 253; 126; 235

NB2 ♦ Mayatts cinquefoil strawberry
 advertised

p.11?; p.13; p 19 to 43; p82; 87; 91 to end
 of Introduction

p.2; p.22; p.28; 56; p89; 91; 165; 171, 2;
 186; 207; 217, 8; 222; 226; 233, 34; 240;
 243 to 248 Ask Hooker; 251 ♦; 258

← (to NB1) Glacial

SB □β (last three references on separate small
 sheet)

over (Flora Indica)

p.13. Remarks that local Botanists new
 species makers (Ch. 4)

p.24 Says generally plants vary more in one
 climate than another (Ch. 4)

- Cannon. (he means 'canon') Similar climate
 in distant areas not inhabited by same or
 similar plants

p26 Plants of N. Zealand more variable than
 those of India

27 Dry hot lower hills of central India poor in
 species

28 Individual variation (Ch. 4)

29. Organs least modified vary most XX

30 Cedar of Lebanon & Deodar

30 Division of vars. of more permanent
 which accompany change of locality ?? (Ch.
 4)

32. Change of value in timber - Oak
 worthless at Cape

32 Great change in medicinal properties of
 Plants in different climates

37 Many extraordinary instances of
 deficiencies, as no Oaks & Pines - Caution
about Islands. Woodpecker & Vulture in
 Australia

41. India & Java formerly continuous! Argues
 against chance introduction as too
 harmonious;- ♣ look at dispersal of
 Boulders.-

41. Good remarks on strife of Plants

82. Mean temps of Equatorial Zones (?) for
 Glacial - at 30° of Lat. 1 for each Degree 1°
 for 300 ft ∴ 3000 = 10° of Lat

87. Lower Himalaya & plant of Ceylon at
 8000ft, often identified (Glacial)

91 India very general sort of Flora (& very
 central site C.D)

92 Local numerous assemblages of species
 only connect on temperate & subalpine
 districts

99 4000-6000ft truly temperate veg.
 supersedes Tropical

113 Connection of Africa & India, especially
 mountain plants p.129 do p152

114 Cases of identical & representative
 species in remote & exceptional areas

- Abnormal very wide rangers but
 disconnected?? ⇒ p.165 do ♣

237 In Khasia orchids 1/12 of vegetation

(line across page)

p2. On Highness & Lowness - Low variable
 Q

28 Ranunculus species of widely diffused,
 therefore variable Q

165 The most perfect species in group ought
 to be used for classification

171 Organ of vegetation, as wood of no
 value for classification

207 - Orders of limited extent point in many
 directions, just like Cucurbitaceae of Wight,
 though he took distinctness as element.-

217 Berberis aplexus of species (Ch. 4)

218 *Berberis* some species evergreen, some deciduous & some variable - (so in Privet? & Oaks). Q

219 Marked vars of *Berberis vulgaris* (Ch. 4) 233 & 34 on remarkable structural differences in member of same Family. p.234

237 Point of classification

240 All water plants wide rangers & variable The Glacial references are marked at end of Book

p248 "structure of grave interest in a Physiological point of view, but of no weight in systematics"

249 Connecting link between two Nat. Fam.

259 *Corydalis* one of few genera with many species in Himalaya, in which majority are remarkably distinct.-

Introductory essay, 11 28?/u "descriptions", 29u "definitions" 13 5-10m/w Shows how vars. & species run into each other 22-25m 19 20-23m 20 3-6m, 23-27m 21 2-11m 22 3-5m, 20-22m/!, 24u "but\in" 23 1-4m 24 16-18m/16u↔, 20-27m/22-23m 25 4-5m, 8-10m/8w What 11-16w? Yet parentage of scarcely any oldest plants known 16-24m/20w (a) 32-36m, wb (a) All very good against mere climate or change in conditions.- 26 4-8m, 9-14m, 35-36m 27 2u "dry\lower"/2-8m/w How absolutely opposed to Gardner & Bromfield 9-10u "Such\is", 12-17m/14w (a) wb (a) Everywhere existing conditions of existence thought to be cause 29 3-6m/5-7Q 9-10m, 9-33m, 15-16m, 32-33m/32u "leaves\bracts"/33u "perianth" 30 7-11m/11u "2", 12-20m/16-18u "habit\exposures", 28-34m 31 1-4m/w Why put under 2d Head? 32 6-9m, 16-21m 33 21-24m 35 17-23m 37 22-30m 39 16-19m, 23-24m 41 2-5m, 8-10!, 9-11m, 14-19m/15-23w are not oceanic currents Harmonious Look at drift deposits.- 42 1-2m/u "is\continuous"/?!, 3-8m, 19-21m 82 5-9m/w See next Page 83 1-2m 87 9-22m 91 8-20m/10-16w India & Africa oldest parts of world 92 27-30m/w Have you list? Several species of same genus? 32-36m 93 2-10m, 11-16m 96 33-36m 98 29-32m 99 10-11m, 25-28m 101 1-5x/2u "*Gentiana*"/3-4m 103 22-28m/22x/1u "*Malay peninsula*", 32-36m/33x 104 1-4m/w can they have travelled up? 18-23m/w When these connected the few Australians arrived in Ceylon 105 6-9m, 11-14m, 19-23m, 25-29m/26w (a) wb (a) I suppose these species are found in temperate China: this is important.- 106 1-2m/wt I presume absent in Tropics 108 1-3m/1x, 11-22m/17x 109 1-4m 112 10-14md 113 15-22m, 27-30m/27-28u

"mountain\Africa" 114 8-11m/9u "Few\identity", 10-16m, 20-24m/18-30w Wandering species seem to connect whole world.- together 32-34m, 35-36m/36u "identity\species", wb Identical Species & representative going together. 115 22u "representation", 28u "*Chilian species*"/29u "representatives"/26-30m/w are these genera Chilian 116 1c/a "Western" East/ 120 5-8m, 17-21m/15-23w during cold period wd be driven here as last refuge 126 (u♣) 11u, 12u, 13u♣, 13u, 17u, 19-20m 129 27-34m 133 2-7m 152 24-28m 165 19-20m/20w (a) ↓w It is only species common to distant points of continents, & when accidental sea-carriage out of case. wb/24-36w It wd be worth seeing in all such cases, whether there were small aberrant genera, indicating extinction. There were cases before in Book. (Myrsine at Cape & Abyssinia a case ??) 170 22-27m 173 28-33m 235 13-17m, 20-23m 237 3-6m 253 1-4m/x

vol. 1, 2 wt 2. 22-33m, 39-46m/41-45Q 22 44-47m, 49-51m 28 43-47m 29 25-28m 33 19m 40 8m 46 (u♣) 17u, 18u, 19u, 22u, 23u, 27u, 28u, 29u, 32u, 33u, 34u, 35u, 36u, 37u, 38u 56 28-32m 89 20-23m/22u♣ 91 8-11m/w here, I think, some temperate forms occur 157 zb 165 35-37m 171 41-46m, 53-56m 172 45-53m 186 9-11m 207 38-43m/w like ancient Fossils - There are living Fossils 217 46-52m, 53-55m 218 30-38m/34-36Q 219 3-6m 222 3-8m 226 35-39m 233 32-37m 234 24-26m, 27-30m, 34-37m, 38-39u "explained\apparent"/w What mean? 237 3-6m/3w What? 37-41m 41-50m 240 1-2m, 5u "thalamiflorous polypetalous", 6-7m, 21-27m, 33-35m/33-34u "all\ranges", 35u "from\stamens" 241 46m 243 ↓m/w If these characters did not vary & so in *Barberus* they wd be good species. 247 1-2m 248 1-6m/2-4"...", 26-31m 249 10-12m/11u "being\structure" 251 41-45md/w♣ Is having a style a peculiarity 258 wt owing to *corydalis* 1-3m, 45m 259 1-3m, 33-34m

HOOKER, William Dawson *Notes on Norway* 2nd edn; Glasgow; George Richardson; 1838 [CUL, I by J.D. Hooker]

HOOKER, William Jackson *The British flora* 4th edn; 2 vols.; London; Longman, Orme, Brown, Green & Longmans [Down, FD, 1st vol. only]

HOOKER, William Jackson *The British flora* 4th edn; London; Longman, Brown, Green &

HOOKER, W.J., BRITISH FLORA

Longmans; 1838 [CUL, S C. Darwin April 1841]

f, fg, gd, mhp, no, phy, v

NB1 178 variety

NB2 *Galium aparina* O hooks on seed & leaves *Agrimonia*? I should doubt acting as hooks In end of August flowers of *Lathyrus Nissolia* do not open ♣ have petals ♣ 1/2 size of those in spring, & of a very pale dirty purple, but yet get seed, are produced abundantly.

NB3 p.35 ♦

(untranscribed w: W meaning Water-plants)

1 21w 2 7w, 23w, wb ♦ some water 3 2w ♦ Marsh 7w ♦ water 40w ♦ water 5 34w, 41w 6 1w 8 14w, 27w, 40-41w 9 8w, 18w, 28w, 37-38w 10 9w 11 31w, 38w, 46w 12 4w, 13-14w, 46w ♦ Marsh 13 20w ♦ Marsh 25w ♦ Marsh 15 4m, 16-19m 16 32-37m, 38-43m, 45m 17 5-9m, 36-39m, 43-44m 18 5-8m, 10-16m, 19m 19 29-32m 21 1w, 6w 24 7-9w, 28-29w, 47w 25 6w, 25w, 37w 26 8-9w, 17-18w, 25w, 37-38w 27 13-14w, 21w, 32w, 47w 28 13-14w ♦, 30-31w, 38-39w 29 4w, 28w, 34w, 40w 31 6w, 12-13w, 18-19w 33 15w, 38-39w 34 43-45w 35 1-8m/4-5w ●, 44-46m 36 10-14m, 22-25w 38 28-30w 40 24-26w 41 11w 50 13-14w, 41-42w 53 26-27w 54 30-33w 57 38w ♦ 58 2w ♦ 60 11-13w, 24-25w 66 42-45w 68 8w, 17w, 34w, 43w 69 6w, 16w, 23w, 27w, 33w 70 6w, 19-20w, 31-32w 71 1w, 18w, 31w 73 7w 74 10-11w 75 4w ♦, 9w ♦, 14w ♦ 89 5w 90 15-16w, 25-26w, 33-34w 93 8-10m, 13-14w, 29w 95 24w, 32w, 40-41w 98 27-28m/w Below Barston 100 22-23w, 46-48w 101 13-18w Eastbourne 107 44w 108 4-5w 110 8-10w 111 43-45w 112 5-6w, 45w 113 4w 114 29w, 36w 115 8-9w, 26w, 34w, 43w 116 9-10w, 20-21w 118 12-13w, 30-31w, 39-40w 120 112-1w Down, Aug 45 129 28-29w 130 20-21w 131 17-18w 132 22-23w, 34-35w 133 6-7w 137 35w 138 4-6w 143 6w, 38-39w 144 4-5w, 12w, 23w 145 8-9w, 31w, 43-44w 146 4w, 14w 147 10w, 34w 148 19-20w, 29w 150 32-33w 151 6-7w, 15-16w 152 16w, 22w 153 3w, 9w, 20w, 34w 154 11-12w, 25-26w, 33-34w, 41-42w 155 9z 160 29-31m 161 3w, 27-28w, 34-35w 162 12w, 15-17w, 35-37w 164 41-42w 165 28w 166 32-33w, 43-45w 167 11-12w 172 37-39w, 45-46w 173 41-42w 174 20-21w, 30-33w 178 28-30m 179 2u 181 10-11w, 20w 190 13-15w, 36-38w 192 11w, 18-19w 206 7-9w 208 33-34w 215 3w, 11w, 19w 216 31-34w 217 17w 218 27-28w, 33-34w, 42-43w 219 2-3w, 31w 220 39-40w 226 44w 227 7w, 18-19w, 26w, 39w, 45-46w 228 12-13w, 32-33w 229 19w 232 42-43w 235 17w 237 41-42w 238

29w Down 36w Down 239 2w Down 13w Down 28-29w, 35-36w 240 20-22w 247 40-42m 249 17-18w, 22-23w, 37-38w 251 24w 253 27w, 35w, 41w 254 1-2w 262 17-19w 270 9-10w 273 zb 274 24-27w Down Aug. 29th 281 15w, 47w Down 282 33w, 34-36w ♦ 284 25w very common 289 5w Down 292 2-4w, 20-21w 296 42-43w 297 42-43w 298 14-15w, 41-42w 299 3-4w, 36-37w, 42-43w 300 5-6w, 39-40w 301 30-31w 302 17-18w 303 10w 304 9-10w 305 18-19w, 26-27w, 40-41w 306 38-39w 307 1w 313 7-9w Down common 15w Maer ♦ Down 27w Beechy Head 314 35-37w Down June 22/43 46-48w 315 3w ♦ Maer 15w ♦ Maer 29w Eastbourne 35w N. Wales 43w Down 316 2-7m, 8-18m, 22-24m, 27-32w Down June 25/43 27-29w Down June 15/43 38w Down 317 3-4m, 37w Down 318 17-18w, 27w ♦ Maer 43-45w Down May 21/54 319 21-22w, 30w Down 320 8-10w, 18-19w, 26-28w 321 18w, 24w, 29w, 39w 322 6w, 12-13w part W 28-29w Marsh 33-34w Marsh 323 33w, 42w 324 6w, 11-12w 325 wb 9 water 3 marsh 328 40w, 47w 329 7m, 9w, 19w, 30w, 47w 330 6w, 14w, 19w ♦, 30w 331 3w, 3w ♦ Bogs 12w, 14w ♦ Bogs 31w, 33w ♦ Bogs 332 5w W/Bogs 28w W/Bogs 36w W/Bogs 44w W/Bogs 333 15w ♦ Marsh 17w, 27w Marsh 29w, 44w ♦ Marsh 45w 334 4w, 5w ♦ Marsh 34w Marsh 45w Marsh 336 6w Marsh 40w Bogs 337 3w rocks 14w Marsh 27w Water 42w Bogs 338 10w Bogs 17w Marsh 35w Bogs 42w Marsh 339 22w Marsh 48w Marsh 340 7w Marsh 48w Bogs 341 10w Bogs 342 33-34w 343 21w, 33w, 41w 344 41u "watery"/w Marsh 345 4w 346 32w Water 347 7w, 20w, 29w Eastbourne 30w 348 4w ♦ Down 350 35-37w part Marsh 351 31w Marsh 352 9w Marsh 27w, wb 1 Water 3 Marsh 354 39w Marsh 355 14w, 35w, 45w 356 36w 357 21w, 43w 358 14w, 27w, 41w 359 35w 363 29w, 41w 364 3w 365 5w 370 34-35w 375 43w Bogs 376 30w 377 4w, 10u "wet rocks", 11w, 32w, 34w 378 30w Water 379 26w, 31w, wb ♦ 434 2m/w 398 19w 403

HOOKER, William Jackson, and ARNOTT, George Arnott Walker *The British Flora* 7th edn; London; Longman, Brown, Green & Longmans; 1855 [CUL] sy. v

NB Q 486 Variability of *Zannichelliae* 166 "39".m, "5".m 167 "7".w 8 "18".m, "23".m 168 "39".m 486 17-22m/Q 560 9-12m/6-10w In 4th Edit. this is a *Bromus* 17-18u ←

HOOKER, William Jackson et al. *Supplement to the English botany of the late Sir J.E.*

Smith and Mr Sowerby vols. 1, 2, 4, 5; London; J.D.C. & C.E. Sowerby; 1831-65 [Botany School]

HOPE, Frederick William *The coleopterist's manual* London; Henry G. Bohn; 1837 [Down, I] ∅

HOPKINS, Evan *On the connexion of geology with terrestrial magnetism* London; Richard & John Edward Taylor; 1844 [Down, I]

HORNER, Leonard *Alluvial land of Egypt* London; Taylor & Francis; 1858 [Down, I] ∅

HOUGHTON, William *Gleanings from the natural history of the ancients* London; Cassell, Petter, Galpin & Co.; n.d. [Down, I] ∅

House of Commons *Report of the Select Committee on wild birds' protection* London; House of Commons; 1873 [Down, I by C.D. Groom Napier] no

NB Dr Groom tells me that there is much in this volume about the increase & decrease of Birds of last year in England
48a 24-30m, 32-43m 121a 50-53m

HOVELACQUE, Abel *Notre ancêtre* Paris; E. Leroux; 1878 [Down] ∅

HOWORTH, Henry Hoyle *History of the Mongols* part 1; London; Longmans, Green & Co.; 1876 [Down, I] ∅

HROMADA, Adolf *Die vorsokratische Naturphilosophie und die moderne Naturwissenschaft* Prague; Druck der Stadthalttereidruckerei; 1879 [Down]

HUBER, François *Nouvelles observations sur les abeilles* 2 vols; Paris-Genève; J.J. Paschoud; 1814 [CUL, pre-B] beh, che, em, f, fg, oo, no, phy, sx, ta, v

vol. 1 SB 171 Queen killing sisters 10 minutes after Born -
184,198 can sting each other without being killed, but risk is run.
190- How Bees treat strange Queen
220 Queen killing larvae of other Queen
231,235 mistaken Instincts
♦ Not abstracted
169 2-3w Read 171 ↑6-1m/↑6u "peine | minutes" 184 10-22m 190 ↑11-9m/↑10u "la reconnoissent"/↑12-9w their own Queen ↓w

W. Fox says workers know strangers 198 1-5m 200 5w Read 208 1-2w Read 220 9-18m/w V.224 ↑7-1m 224 3-7m, 11-13m 225 4-9m 231 ↑8-2m 235 ↑5-2m 359 ↑3-2w Read ♦ Read 360 1-3w Read

vol. 2 NB 104 - Wax secretions piling wax 140 seems to consider architect a different race

SB □R (2 sheets)

p426 to 430 Very good

43♦ show same peculiarity appearing in many ♣ Evidently different for old & battered Bees.)

442. Bourdon workers lay only Males & Workers

444. Ants always killed by copulation

It seems quite possible that the 1st row may be formed differently, as they cannot initiate work with usual number of Bees

(over)

66, 67, 69 X Instinct 188

98; 110 Vide Pl 4; 120; 141 to 187; 211; 215 219 Instinct bending comb

286 The fallen comb

222 to 226 size of Drone cells.- gradation of size before & after. 3 or 4 rows or when Honey abounds (247) Bears on W. Indian cells

234 to &c

238 inclination of prisms to base not yet inserted - distorted.-

250

342 Ventilation 357 to 360

374 Bees begging for Humbles

Huber proper Bees have very acute smell - (2)

On First Wall p110, 146-141

∩ thus

2/3 of diameter of cell

175 repeat over & over again edge rounded of outer margin of base of first cell

235 ribbon of wax surrounds whole comb when bigger

(over: drawing of small circles and hexagons)

(words here indicate that this is a scrap torn from the abstract of a different book and re-used)

66 15-20m 67 1-2m, 7-11m 69 5-8m 98 9-12m 104 20-25m 108 11-18m 109 13-22m 110 6-9m, 6-8u "six | cellule", 12-13u "mais | élévation" 120 6-8m 140 3-8m, 10u "les | architectes" 141 19-21m/20u "petite cavité", 21-23m 142 3-5m/3-4u "bords | cire", 8-9u "mais | alongés"/w this will be the posterior face 14-15u "étant | alongé", 17m/9u "de | diamètre"/u "portion | brute" 143 wt ∩ [He speaks of this as connected with ^ independently of walls] 3-5u "Le | rectilignes",

HUBER, ABEILLES

4-13m/5-25w If the sides of separate cell one are angular before other cells formed fatal to my theory. opposed by my facts.- yet Icaria; but Icaria only becomes angular after some cells formed 20-23u "douées | épaisse", 23-25m, wb [This is very last part excavated!!! that they begin near where 3 planes meet.] 144 11-13u "ainsi | autres" /w | presume simultaneously 146 2-5m/5u↔, 11-14m 147 18-20m 148 16-17m/17u "une | droite" 149 15-23w when (1) cell only 2/3 of diameter in height ie. 2/3 of total height what will acquire 150 3-4u 151 7-8u↔, 17-21m 152 16-18m, 21-23u±/w ♦ Queen cells 153 2-4u↔/2a "derrières" /wt or posteriors 12-22m/12-13u "tardèrent | partie", 18-19m, 23-24u "à | là", wb [I believe never done, except when cell added or where Bee can stand] 154 4-7m 155 11-18m 158 19u "approfondir | cavités", 22-25m 159 13-18m 161 12-1w/wb [Here he speaks as if 1st cell completed before any trace of other 2 above on same side, & one above on opposite side. inaccurate 164 5-9m/5u "mais | elles", 8-11m/9-10u "elles | cavités", 17-19m 165 1-2u "dont | prolongés", 3u "tandis", 9-12m/9-10m/u↔, 16a/u/wt, 22-24m, 23-25u↔ 168 6-7m/w 1st cell of 2d row 7-8u/8a "mais quelques" other 15-25w He speaks as if one hex outline of 3 rhombs always first formed, ♦ but says nothing about these being zig-zag 169 2-5m/4-8w so that they begin on level of base of prisms 7-11m/1-11w Error here hexagon before excavating 16-3m/w Error 15-3m/w/wb it seems that this rhomb was completed on one face before the face in 2d row was begun: I doubt this. 170 1w [Here it is clear, that he thinks hexagonal outline completed before excavation begins 12-1m/wb it is clear that they perfect one rhomb & then other two 171 wt/1-5w I may say after outline of trihedral pyramid formed; & added to, the outline seen through wax guides according to Huber the excavation of the base & making the internal planes 1-3m, 7-8u↔ 172 2-5m/4-9w ie first of 2d row on posterior face 173 20-22m/21u "d'abord arrondi" /w always round 175 1w [Error - in fig 21 he draws hexagonal outline with no pyramids!! 18-6u±/m/w but then all outlines obtained ♣ from adjoining cells 176 12-16m, 18a "élevant" /18-23w first an arched line, then converted into 179 2u "aucune | bornent" 180 wt/12-18m/1-19w Here he shows he thinks hexagonal outline at first up & down vertically 15-16w of pyramid bases 182 20-24m/21u "alternativement" 183 14-17m/16u "l'obscurité | gâteaux" 184 6-14m/12u "creuses |

bloc", 21u "une | des" 185 8-11u↔ 186 8-15m, 16-19m 187 wt [I doubt about wax being added in successive stages.] 5-11m/7-11m 188 2-7m/4-5w Internal 211 1-5m/w How can this be considering Drone cells & other irregularities? 215 6-9m 219 10-17m, 18-20m 222 1-6m, 24-25m 223 1-3m, 9u "trois | quatre", 14-15m/14u "à quatre" 224 7-8m/8u "formes bizarres" 226 15-16m/15u "il | poute" 227 7-12m 228 4-8m/w because cd not stand to measure?? & edges rounded?? 234 13-17m, 20-25m 235 10-16m, 23-25m/w/wb the little wall of first wax surrounds the whole comb 236 5-8m 237 15-20m 238 3-5m/4-5u "quatre | cinq" 242 1-3m/w/wt no pyramids like case in Fig 2 Pl IX 247 6-8m/w Drone cells 250 7-12m 252 wt All about Proportions except words about fallen comb. 256 12-16m 286 19-25m 287 23-25m 288 16-19m 294 16-20md 295 24-25m 318 (err. printed 317) 3u "à | quart" 342 wt Has shown by laborious experiments; that Bees require constant ventilation on acct. of carbonic acid, & that they do ventilate the Hive. 1-14m 343 1-3m, 24-25→ 344 17-18u "dans | tout" 357 5-9m, 13-16m 360 20-24m/w only workers know how to ventilate 374 12-16m 426 12-16m/w Hated & killed by other bees 428 16-17u↔/12-19w shows [vast] number affected same way 430 7-16m/12-13m 433 22-25m 442 11-19w Many workers of Bourdon fertile & lay only male eggs 444 3-9m

HUBER, Pierre *Recherches sur les moeurs des fourmis indigènes* Paris; J.J. Paschoud; 1810 [CUL, pre-B]

beh, cc, em, in, mg, oo, phy, sp, sx, v

20 3-7m/? 60 14-17m/14u "fourmis rouges", 18m, wb F. rufa in tree at Moor Park 61 10-12m/11u "représentent | l'enfance", 14-15m 75 4-10m 77 9u "au sexe", 12-14u "donnent | mâles" 79 9-11m/10-15w differs in larvae of different seasons 22-24m 80 21-24m 84 16-20m 85 24-26m, wb Differ in species & variable in individuals 88 11-14m 110 4-7m, 8-10z 111 10-14m 114 6-8m, 9-11w Virgin Queens 12-15m 115 5u "cet | leur" 116 21-24m 118 15u "le plus" /16-19m/w Free Queens feed themselves 144 wt Migration 3m/u "puis | femelles" 145 24→ 146 23-24m/w Make roads 150 15u "quatre mois", 17-19w 4 months afterwards 22-24m 151 1u↔, 9-10m 159 4u "fourmis" /5-6u "ont | d'armes" /4-6m/w what genus? 7-9w V. Latreille Treatise 165 9-13m 173 17-24m 179 16-19m 181 7-8m, 15-17m 183 13-14m 186 5-9m 188 9-20m/9u "les | manoeuvres", 20-23m 189 7-12m 192 5-

8m 193 24→ 194 4-10m 195 24→ 196 3-6m, 8-10m 201 wt X Coverings for Aphides on stems. 8-10m/x 204 19-22m 205 19-21m, 22-24m/→ 206 5-7m 207 1-4m 210 13-15m 212 12u "larve\ nymphé" 213 1-5m/2-3w like M 215 2-5m 216 3-6m/4u "indifféremment\ ces" 219 12-13m 228 1-4m/3a "soin"/wt of the males & females 229 7-12m/12u "gardent\ nid" 230 2-8m 231 14-16m 232 14-17m 233 9-11m, 12-14m 234 1-3m, 8-10m, 15-16m 235 8-9m, 19m, 21m 239 10a "retour" without Booty 10-12m, 17-21m 240 11-12m 241 1-5m, 7-20m 242 9u "noir-cendrées"/w F. fusca 14a "mineuses" F. cunicularia 243 20-21m 244 1-4m, 6-10m 245 7-10m 251 6-11m, 10-12m, 15-16m 252 7-11m/8u "rarity", 18-24m 253 1-4m, 11-14m, 17-19m 254 13-16m, 17-19m 255 4-6m, 12-13m 257 12-14m, 15-18m, 23-24m 259 3m, 16-22m 270 8-11m/wt/1-15w They must mistake the amazon workers, for males or females, for these are fed by their own workers. 14-15m, 16-18m 271 16-17m/16u "une fois", 24m 276 3-6m, 18-20m/w different? 21-22u "quel\ cendrées", 23u "comme elles" 277 3m, 4u "quelquefois", 5m/1u "la\ auxiliaires"/w different 7m/w♦ What says 8w F 13x/1u "certaines\ fourmis", 15u "on\ troupes", 18-20m, wb X it is remarkable any ants preying on & keeping slaves of same species 278 22u "cendrées" 279 2u "et\ captivité", 113u "assiégées\ assiégeantes" 282 7-13m 283 6-9m, 18u "cent\ pas" 284 2-4m, 7m, 9-10m, 12-14m, 19-22m/19-24u±, 23-24m, wb not due not knowing road 285 3-5m/4u "fauves", 20u "mineuses"/20-24m, wb F. cunicularia 286 3-5m, 11u "sanguines\ roussâtres", 13-16m, 19-22m 297 3-6m/4-10w & variation in individuals as F. Smith shows 300 1-7m 310 10-14m last plate w▲

HUBER, Johannes *Die Lehre Darwin's* München; F. Leutner; 1871 [Down]

NB O/

HUBRECHT, Ambrosius Arnold Willem *Studien zur Phylogenie des Nervensystems* Amsterdam; Johannes Müller; 1882 [Down, I]

HUC, Evariste Régis *Recollections of a journey through Tartary, Thibet and China* London; Longman, Brown, Green & Longmans; 1852 [Down, S]

DIE HÜHNER und Pfauenzucht in ihren ganzen Umfange Ulm; F. Ebnerschen; 1827 [CUL, pre-B]

dg, fg, gd, he, hy, ig, oo, phy, sp, sx, sy, t, tm, v

NB p1 to 21 Rest Nothing

SB 11 Crested Fowl either wattles or beard, parent no beard easily killed by Hawks: cannot see them for tuft ♀ can hardly see to eat) Q

12 Breed without Middle long tail feathers NQ♂

17 Black-boned degenerate in Germany Q♂

20 Hens with spurs NQ

4 wb How many eggs has wild F.? 6 17-18u "vierzehn"/w 14 tail feathers 9 wb (14 kinds with subdivisions) 11 wb The tufted fowls prevent fowls from seeing food & will grow them, & be easily killed by Hawks. who ever would have thought that a tuft on head wd determine whether fowl shd be more easily killed by Hawks.- 9-12w has either flat-tufted or feather beards 18-20m/Q♂, 23-25w Pure breed no wattles 12 wt Some think little wattles because nourishment go to crest - 1-4m, 5u "mexikanische"/5-6w all Mexican Hens said to be of this race 14-17w sometimes feather footed & always rough skin 17w varieties of Tufted Hens 18u "brabantische", 20u "goldfarbige", 22u "Gewöhnlich", 28w Large Birds 32-36w/wb in this & longtail feathers wanting & other tail feathers smaller wb I shd think these were Gold & Silver speckled Hamburgs 13 11m, 18u "Kolo"/13-23w Long in legs with small Body & red flesh with ornamental Beak. Like Philippine Hen. 14 26u "Steissbeins", wb Tailless hens, shortening of coccyx is the cause 16 7-10m/8w (a) 21-23m/22w (b) wb (a) In crisp Fowl Hen has no tail? wb (b) Woolly Hen, black legs & comb common in China, Japan, &c 17 wt Black-boned Fowl degenerate in Germany Q♂, 1-2m, 5-9m/w Mongrels intermediate 11w bantams 17-20w naked feet very small 20w do. 21w feathered feet 24-28w Feet very short Belly almost touches ground.- wb Feet wonderfully feathered 18 21-22u "einen\ Schwanz"/19-22w Hens from isthmus of Panama 19 5-10w Philippine Hen with excessively short legs, wings scrape ground 11u "Hamburgische", 13-21w Belly & legs like Velvet very sharp Beak, tuft of feathers over ears Legs & feet blue with yellow soles. 13u/wt, 24m, 25u "paduanische", 26-29w/wb is as big again as foregoing double comb & tuft of feathers Rough Voice 20 wt Bahia Hen race of Padua hen 2u "Persischen\ Peguanischen"/2-6m/w Yet their feathers very late 9u "türkische", 10-11w Beautiful feathers 20u "Sansevarre"/w white

HÜHNER

comb; under other comb. 22-23w very big eggs 27-28w Hens spurs like cocks *wb* [I suspect all this copied from some Systematics Book] 21 *wb* See Linnaeus Syst Nat (my copy) vol II p.737 for good references Bright & Pallas & Willughby 3-4w 5-toed breed spur divided 65 *zb*

HUMBOLDT, Alexander von *Cosmos* 2 vols., trans. E. Sabine; London; Longman, Brown, Green & Longmans; 1846 [Down] vol. 1 \wp

HUMBOLDT, Alexander von *Essai géognostique sur le gisement des roches dans les deux hémisphères* 2nd edn; Paris & Strasbourg; F.G. Levrault; 1826 [CUL, pre-B, S] geo, mi

176 10-13m/11c "O"/12m/w E 17-21m, 32-33m 326 24-26"...", 28-32m 327 9-12m, 14-16m, 18-19w A 25-26m/25w A 31-32m/w A 328 1-11"...", 4-5m/z/5u "grès schisteux", 6-11m/6u "nids roguous"/7u "juxtaposition"/11u "rubanée", 23m/u "zones parallèles"/22-24"...", 30-33m/w No centre to mine *wb* A. do. Obsidian nodules no centre 329 1-3m 334 6-16m

HUMBOLDT, Alexander von *Fragmens de géologie et de climatologie asiatiques* 2 vols.; Paris; Gide, A. Phian Delaforest, Delaunay; 1831 [CUL, on B, S in both vols., vol. 2 Chas Darwin Monte Video Novem: 1832] geo, mi, sp, t

vol. 1 NF1 Metaphysics

NB2 Interesting parts begin P.84; The Andes P143

NB1 27; 53; 97

NB2 Species theory O/ March 57

7 *wb* Metaphysics 27 14-16m 53 1-8m 74 1-20m, *wb* 95 14-20m 97 6-17m/7-8w seems high 133 10c "horizontales"/w secondaires 137 12c "amphibole"/w Diorite 144 15u "Teneriffe"/w Tolima \circ

\wp

vol. 2 NB 320; 331; March 57 O/

320 12-14m/13w 1200-1500 327 *w* 13m/u "260-270", 15-16w 328 15-18md, 19-20m 329 8-12m 331 7-13m/10-11u "d'un la"/12a "Barrière"/w 1560 13a "Mysore"/w 2400 361 *w* 385 10-15m 386 1-20m 387 15w 62d 560 15-19w \diamond /w \diamond 621 18-19m

HUMBOLDT, Alexander von *Personal narrative of travels to the equinoctial regions of*

the New Continent during the years 1799-1804, by Alexander von Humboldt and Aimé Bonpland trans. M.H. Williams, 7 vols.; London; Longman, Hurst, Rees, Orme & Brown; 1819-29 [CUL, pre-B and on B; vols. 1 and 2 (1822, in one binding), vol. 3, 3rd edn (1822), vol. 4, 1st edn (1819), vol. 5, 1st edn (1821), vol. 6, 1st edn (1826), vol. 7, 1st (1829); I in vol. 1 by Henslow: J.S. Henslow to his friend C. Darwin on his departure from England upon a voyage round the World 21 Sept 1831] [CUL]

af, beh, br, cc, co, cs, ex, fg, gd, geo, gr, ig, is, mg, mhp, no, oo, se, sp, sx, sy, t, v, ve, wd

vols. 1 and 2 NB 177, 186

SB

Vol I p61

121 top

123 bottom

Abstract at end of last Vol

125 m

195 m

262 b. The diffusion of volcanic Dust explains diffusion of Lichens.

270 m.- an oak allied to that of Thibet. How transported was acorn - Volcanos show elevation, this subsidence - hence Continent extended nearer.- Pidgeons bring grain to Norfolk - Maize to Arctic America Nutmeg - Grain like fishes falls in India. (a)

274 - When studying Geograph of Canary Botany look to this part.

(over)

(a) Bruce describes East of Nile daily, whole troops regiments of enormous dark glittering \clubsuit pillars of sand, raised by whirlwinds

274. Camels abundant in Fortaventura & vegetation different than from \clubsuit other Islands - N.B Numerous wild asses formerly in Fortaventura. Vide Early part of Chapt.

(line across page)

2d Vol

p269 - Goats; 276 t.-

vol. 1, 60 28-30m 61 16-21m 98 10z 171 16-29m/19m/"... 172 2m/"... 199 15-16m/w Geology 203 23-24m 205 21-20z 212 10-13m/w quote on craters of elevation 219 9-11w A 222 11-15m/w A 240 8-12m 262 19-27m

vol. 2, 9 4-20w 35° to 25 or perhaps 30 to 20 called by seamen Horse-Latitude because subject to calms in which horses die for want of water, food & are thrown over \approx 19 5-9w 177 *wb* 6 in year 186 7-9m 187 24-26m 207 4-19m 208 9-17m 209 15-19 210 1-6m 213 5-14m 214 19-22w Agrees with

equatorial rise 20-27m 217 4"... , 12-27m, 28-31.circled 218 4..." 219 21-28m 224 17-21m 225 3-21m, 7w 20 February 19w 20 (1797)? 20-21w 21, wb Guadalupe to Quito 1650 miles in Borneo O Rialza to ● 53° of Lat = 3180 m 226 wt (a) Guadalupe & Cumana 400 miles St Vincent to Caraccas 370 - 3-11m/w About 400 miles 16-20m/? 227 12-19m, table.w/wb 229 3-16m 269 19-23m

vol. 3 NB1 July 6 1881 to p417; April 3 1882 finished

NB2 360; 383; 491, 2, 8, 9

SB

14B Allude to this, when saying, the causes of the progress of intellect from Monkeys to Man is inexplicable.

p42. Aug 1872

48. M.

63. note

71 Mr Milne

P.205 Sleep of Leaves

106. t

227. M & note. like Indian Castes

229 b. expression thinking

234

360; 383 Q; 491-9 Silla of Caraccas vegetation

48 9-14m, 15-17m 106 6-12m 205 20-28m 227 18-24m 229 19-30m 316 wt ● 332 25-30z 333 1m, 25-29z 360 wt Thus man has trained plant to its own destruction.- Nature makes seeds somewhat palatable to ensure dissemination 5-9m 383 wt Birds sing better in one district than in another 5-18m 491 1-13m 492 1-4m/3-4w see (a) 493 12-20m/12m/w (a) 17-18m, 21-23m, 23-26m/w ? do not understand See original wb (a) Have not probably plants migrating from equatorial mountains to both temperate zones & not vice versa - 494 6u "befaria"/w spec. different V x 497 11-12m 495 8-13m, 14-18m, 22-26m 496 2m, 5-6m, 10m, 12-21m, wb a rising mountain, (like isld in midst of sea) affords a station free for seeds to germinate, from other mountains.- We may consider all seeds equally wafted, but their growth in most cases is prevented. 497 1-21m/5w x wb The distrib. of alpine plants, (considering elevation) can only be compared to imagining case of new continent. A desert isld has never been found.- 498 1-4m 500 wt The Befaria is other species 2m, 11m, 15m 520 12-15m, 21m, 22-23m

vol. 4 NB 84, 6; 106; 111; 173; 231; 333; 336; 351; 380; ♦ 384 Geolog. Cop.; 422;

437; 441; 447; 459; 484; 489; 506

p.466-522 ornamentation by Savages

527 Tears Monkey; 528 - recognizing pictures of insects

5 11-25m 6 3-8m 11 8-16m 20 14-19m 21 1-8m 27 10-14m/w 630 miles 29 17-20m 30 1-18m/4-6w with Chimbrazo 32 29-32m 36 13u 1796", 17u 1796"/w 4.1797 28u/w 1811" ? 1812 30u/w 1811" ? 1812 45 20-29m 46 1-15m 84 18-20m 106 1-3m 111 18-21m 112 1-2m 116 11-15m, 12-14m 173 15-21m 231 13-24m 232 8-11m/8w V 246 246 2-9m 333 19-24m 336 18-19m/u, wb in Paraguay cannot run wild 351 29m 380 14-17m 384 13-18m/14-15w Like Patagonia 422 15-20m, 18-19m 437 22-30m 441 24-28m 447 18-20m 459 28-30m 466 14-17m, 17-24m 489 11-13m, 16-20m/17-18u "three tortoises"/20u "thirty millions" 490 11-13m, 19-21m 506 1-5m 514 7u "furnishes colour" 515 5-9m 518 17-22m 522 11-16m 527 7-11m, 16-17m, 22-28m 528 23-29m 556 11-28m/15-19u±

vol. 5 NB 79; 80; 81; 98; 101; 107; 110; 161; 180; 193; 221; 352; 410; 440; 503; 540; 565; 585; 590; 620; 672

17 20-23m 18 15-19m 24 15-17m/w Yes 25 1-3m, 11-13m 26 19-22m 79 3-4m/w like Guanaco 80 18-20m 98 13-20m 101 11-14m, 19-22m, 24-26m 107 1-4m 110 24-28m/! 161 17-21m, 27-30m 180 6-21m 181 26-28m 183 14-17m 193 6-10m 221 24-30m/w & M & p.225 222 1-2m 225 14-19m 352 3-7m 410 2-8m 440 3-14m 454 1-6m, 1-25m 456 2-12m/2-5w Chili 457 1-2m 459 1-11m 503 8-16m 540 11-15m/w V p543 541 16-19m 543 5-12m/8u "squirrels", 8u "parrots"/9u "macaws"/7-8w so dispersed 565 10-16m, 17-20m 585 5-25m/9-22w good to give idea of number 590 ↓w To show how animals prey on each other - what a "positive" check. 8-20w Think of death only in Terrestrial Vertebrates ↓w/wt Smaller Carnivora - Hawks - What hourly carnage in the magnificent calm picture of Tropical forests. Let him from some pinnacle view one of these Tropical how peaceful & full of life 23-25m/wb Probably two or three hundred thousand Jaguars in S. America What Slaughter! Daily - & as many Pumas 620 10u, 12-14m/w 33yr 672 3-9m

vol. 6 NB1 Nothing respect to Species Theory

Granitic areas of Parime p526; p604

NB2 390 Geolog - before any general view & Patagonia

71 17-32m 73 1-6m, 10-26m 74 4-7m 99 26-30m 100 1-16m 101 19-23m 102 14-30m part 2, contents page p. 391.m, p. 624.m 409 wtcc,

HUMBOLDT & BONPLAND

20-29m/"..." 411 15-19m 417 1-10m 421 13-14? 422 16u "Vincamarca", 17-21m/"..." 423 16-29m 425 2-8m 441 18-30m 461 1-11m 464 1-3m, 19-30m 465 15-18m 466 1-7m 471 17-19m/"..." 503 12-13w 300m 600 16-22m 504 2a "25,000"/wt some error 519 1-10m 526 15-17m, 22w 1020 23-30m/26w 420 527 1-8m, 1-18m/8-17m 529 7-27m 531 1-16m 532 1-30m 533 1-29m 535 1-18m 543 1-21m 579 2-29m 581 1-5m 582 8-25m, 22-25m 583 1-12m 586 1-5m 591 1-30m 592 1-30m/1-16m/11u/?, 19-30m/w I think most decidedly so Either way, but in each spot one direction far more prevalent 593 1-3m, 6-9w not necessarily so, but since appears frequently to happen 17-18w Change as gradual or sudden 19-20m, 28-31m, zb 594 1-30m, 9-10m 595 zt, 1-28m, 16-18m 596 1-29m, 17-25m, wbee 597 1-3m, 8-9wcc, 23-28m, wb n.28 604 24-31m, 24-25m, wb p504 25000 square leagues 609 21-25m 631 11-20m (von Buch) 645 13-20m, 20-25"..." 646 6-10m

vol. 7 NB 51 - Coral

86 - to 90, 291, 309, 320

75; 439

SB □β

Humboldt Vol. I

275 - Suggests the former union of Canaries with Mainland

Vol. 3. p48 Male animals giving milk

106 The male wh. reasons best

227 good remarks on races of Man, especially in mountains, who do not intermarry with others keeping uniform.

383 Monkeys differ in disposition greatly - from certain isld can be tamed easy

360 Birds ♣ destroy corns owing to goodness of seed.-

492 Violet on Peak of Teneriffe common to Pyrenees

493 Silla of Caraccas has alpine plants of same genus as lowlands

497 On relation of Befaria of Caraccas, are specifically different from those of Bogota

Vol 4 p.173 Gyrocarpus, one S. America - 1 India - 2 Australia (Has been put into many orders) some have made order for it & one other genus

p336 wild cattle on Llanos, in relation to Paraguay

422 Alligators males kill each other in love-season (Ch.6)

489 Turtle ♣ lay 100-116 eggs.-

Vol 5 101 The Pulex penetrans distinguishes a new arriver from Creole

193 On great destruction of Cattle, so that Farmer beggared by Bats, & those increase

favoured by Drought - lilyO?

352 Birds do migrate in Tropics

410 Near social plants, generally a few stragglers, at least with trees

503 The Colchicum always solitary amongst grasses: allied plants social.

591 Black Jaguar said never to mingle with others (vars keeping distinct

Vol. 6. & 7 Nothing

51 16-26m/25c "fathoms"/u "20|30"/w ??? feet 52 1-15m/8?/8-9u↔/9?/11c/ wε/Q 25-30m 53 28-31m 54 1-25m, 26-27m 55 26-28m 75 14-17m 87 9-30m 89 3-23m 134 3-34m 291 4-21m 309 4-29m, 27-28m 319 9-21m 320 1-25m, 21-26m 369 13-14m 434 21-25m 439 4-11m 480 1-14m

HUMBOLDT, Alexander von *Political essay on the kingdom of New Spain* trans. John Black, 2 vols.; New York; I. Riley; 1811 [CUL, pre-B, on B, S Chas Darwin Buenos Ayres]

fo, geo, mi, se

vol. 1 NF Height of town of Lima above Callao. 582ft p25

Fall of R. Magdalena in feet - p23

♣ p.63. Elevated Shells

63 1-13m

vol. 2 NB Tome Saltpeter Concepcion

259 4-9m, 12-19m 261 6-16m 345 4-6m, 33-36m 346 12-20m 347 5-13m

HUMPHREY, George Murray *Observations on the limbs of vertebrate animals* Cambridge & London; Macmillan; 1860 [Down, I]

NB O/

HUNT, Robert *Researches on light in its chemical relations* 2nd edn; Longman, Brown, Green & Longmans; 1854 [CUL] cc, gd, hy

NB p.215 to p.239 (p.238 Abstract); p.376; p.378

217 1-3m (Daubeny), 5-8m/8u "its illuminating" 226 1-12w Salt those plants as Silene which have maritime species 13-20m/21-23m/24m/14-24w one might alternate the glasses 229 25-28m/w when 234 36-37m 235 1-3m, 14-16m, 19-23m 236 12-16m, 32-37m, wb This wd do instead of picking off flowers 237 wt Look over annuals & consider which are easiest raised. Werner looking glass? 7-11m, 10-11m/w (a) 14-20m, 15-18m, wb Make Hybrids under red glass. 238 9-10m, 22-36m, 23-36m 239 15-16m, 24-26m, 29-32m 376 5-10m, 17-22m 378 4-19m 379 27-32m

HUNTER, John *Essays and observations on natural history, anatomy, physiology, psychology and geology* and

OWEN, Richard *The introductory lectures on the Hunterian collection of fossil remains* 2 vols.; London; John Van Voorst; 1861 [CUL] beh, cs, ct, em, he, phy, sx, tm, v, wd

vol. 1 NB Add to Hubers case -p.50 Wasps recognizing each other like by ants

Expression 144 Relation of lapping & sucking with form of lips, so as to expose teeth

185 Oxen compared to Cows & Bulls of same breeds with respect to neuter males

(line across page)

Sexual character

♦ p185 → 236 Castration of Bull, short curled Hair on face

♦ 194 Zebra painted for Ass - very good

245 On split Lizards tail will form 2 tails Pangenesis

267 Expression

Hunter remarks p.194 male more eager than female p194 ||"she requires being courted" to give her desires."

p236 Description of Eunuch

xiii 3-14m, 17m, 34-40m xv 8m, 9-13m, 24-30m 45 1-3m 50 27-33m 144 2-14m 185 24-29m/w Oxen of Black Cattle larger than male & female 42u "and|not" 194 18-20m, 22-27m, 28-30m 236 1-12m, 14-23m, 26u "his|curved" 245 20-24m 267 31-32m

φ

vol. 2 NB p.2 Negro small extremities & Head

p.135 Musk Deer has ruminant stomach in embryological condition

322 Geese crossed with wild

461 φHumble-bees 6 or 8 different sizes in Workers

2 20-35m 3 1-7m, 14-19m 135 35-38m

HUNTER, John *Memoranda on vegetation* London; Taylor & Francis; 1860 [CUL, I] phy

NB 1 proof that ♣ shoot in same line with trunk does receive more sap than laterals; (also w by FD)

1 17-19m

HUNTER, John *The natural history of the human teeth* London; J. Johnson; 1778 [Down, Robert Darwin]

HUOT, Jean Jacques Nicolas *Atlas complet du précis de la géographie universelle de Malte-Brun* Paris; Aimé André; 1837 [Down, ED]

HUSSEY, Mrs Thomas John *Illustrations of British mycology* London; Reeve, Benham & Reeve; 1849 [Botany School, S]

HUTCHINSON, W.N. *Dog breaking* 2nd edn; London; John Murray; 1850 [CUL, S] beh, pat, sp, v

NB 24 line on page & rather narrower lines Sir B. Brodie

SB1 □β

39 Pointer which not taught wd move round to opposite side of thicket Q

46 Retriever killing one Bird to bring other Q

111 Dog running straight to bring anything dropped & not on trail

144 Puppy pointing by self Q

279 Different breeds of Dogs more liable to distemper Q

Hutchinson on Dog

SB2 33; 39; 46; 111; 143; 279

9 25-26m 33 23-25m, 26-28m 39 25-28m 46 8u "two partridges"/12-17m/"...", 19-23m/21c€/21-22"...", 1-26w Colquhoun Moor & Lock - exactly parallel case 48 7-12[...], 17-23[...], wb 231 words 111 10-25m 143 19-24m, 27-31m 144 5-6m, 10-12m, 14-16m 279 27-31m, 40m

HUTH, Alfred Henry *The marriage of near kin* London; J. & A. Churchill; 1875 [CUL] beh, cc, phy, ta, v

SB ♀ Ch. VI; 285 with respect to pigs attributes the result to fat. *; 297 M. Legrain; 302 Reference to Journal

86 1-9m, 7-10m/8u "relative ages" 138 3-6m (Darwin) 142 23-31w animals have no such horror 143 25-32m 146 25-26w oh 152 20-23m 157 28-31m 272 20-22w began with 300 sheep 24-28m 274 17-23m/22u "sign|degeneration" 278 21-32m 280 18-22m 281 13-17m 282 4-22m 283 5-8m 284 22-34w differences in different animals like difference of withstanding changed conditions 285 25-31m 286 7-15m 291 5-10m 295 1-15m 299 1-6m/w 3 generations of Brothers & sisters 7-20m, 19-22m 300 3-4m/3u "fifth generation", 27m/x, 31u "paired" 301 1-2m, 14-16m 302 3u "sixth", 7-14m 305 14-18m 307 18-21m 312 23-28m

HUTTON, Thomas *The chronology of creation; or, geology and scripture reconciled* Calcutta; W. Thacker & Co.; 1850 [CUL] gd, h, sh

NB 202♦

SB1 □β

202 case of Shell, which can bear heats of

HUTTON

plain & ascends above 10,000ft of Himalaya
SB2 202; 408; 407; 410; 413
202 25-27m/Q 407 6-11m 408 1-4m/w
antiquity of man 410 1-5m 413 10-13m

HUXLEY, Thomas Henry *American addresses*
London; Macmillan; 1877 [Down] ∅

HUXLEY, Thomas Henry *The crayfish*
London; C. Kegan Paul & Co.; 1880 [Down,
I]
gd

NB Good facts in last chapter on
Geographical Distribution - Japan & S
Hemisphere &c &c
8 1-2m 10 14-15m 17 18m 19 21-24m 20 9-
10m, 23-24m 22 7-9m 31 17-18m 32 26-27m
33 13-14m 35 7-12m 36 10-12m 39 4-6m 43
8-9m, 10-12m 71 17u "fibrous tissue" 99 3-
8m, 11a/cæ, 12cæ/"..."

HUXLEY, Thomas Henry *Critiques and
addresses* London; Macmillan & Co.; 1873
[CUL, I]
t

NB1 (by FD)

NB2 287 Material & formal morality Used

HUXLEY, Thomas Henry *Critiques and
addresses* London; Macmillan & Co.; 1873
[Down, ED, I to ED]

HUXLEY, Thomas Henry *Evidence as to
man's place in nature* London; Williams &
Norgate; 1863 [CUL, I]
af, beh, em, h, pat, phy, sp, sx, t, tm, v, y

NB ♦ p.65 Diameter of H. Ovum
74-73 ribs; p.110 Owen's quotation
SB1 23 specific characters which man-likes
have in common

24 affinities

27? 26 when possible (Dutch)

X 38 Expression

Boston Journal Nat. Hist. vol IV & 1867 (he
means 1847) Dr Savage (p.211 Huxley 46
do.)

X 48 Expression picking up 50

49 Polygamous

65 to 119

Look at all scores before writing about man

137 Correlation of frontal sinuses & strong
muscles

144 good reference (p.46)

153

♦ Reduction of Wise-tooth

SB2 Man 34 43 ♦

Species th 40 variability in skulls of ♣
Orang

Read Lubbock - Wallace - Lyell - Prichard
- Pickering - Loring O

21 32-36m 23 21-35m/25u "their|than" 24 8u
"possess callosities", 10-12m, 14u "into|
excrescences", 27-30m 26 1m 27 9-12m/w
masculine chants 13-14m 33 15-20m 34 1-
3m/1-2u, 4-7m 35 16-21m, 27-32m 38 12-
13m/w The expressive face of young Orang
32-37m 39 17-19m, 21-24m, 27m 40 17-22m/
22-28m/14-28w Important as bearing on
causes of difference in Man 41 32-34m 43
19-21m/w warts? 33-36m 44 8-9m, 15-17m
45 3-6m, 30-31m 46 1-4m, 35-36m, wb On
Chimpanzee p.21 48 18-21m/19-20u↔, 20-
26m, 26-30m/27w Expressions 49 20m/u
"the|sex"/w Polygamous 21-23m/w sexual
selection 50 5u "a|yell", 8-12m 52 7-9m, 13-
14m 59 16-23m 65 19-29m, 34-36m 67 19-
22m 70 9-12m/1-11w Key-note of Book 26-
28m/w Africa 74 31-35m 77 4-7m 81 4-7m 84
1-7m, 10-15m 90 25-28m 91 4u "to|deep", 6u
"as|man", 18-20m, 19u "a|foot", 29-32m 92
13-16m, fig.w fig.20 93 1-2m, 3-7m, 14-17m
94 6-9m, 12-16m 95 11-15m 102 1-6m 103
14-17m 104 zb 20-25m, 27-32m, zb 106 11-
16m 109 18-23m 110 16-19m, 28-37m, 28-30u
"conceive|growth", 31u "or|degree" 111 1-4m
119 2-7m 137 6-29m 144 35-36m 153 13-36m,
wb Skulls in some races fixed in others
variable - Rutimeyer wrong about Orang
brachycephalic

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Macmillan & Co.; 1879 [Down]

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the classification of animals* London; John
Churchill & Sons; 1869 [CUL, I]
em, h, phy, rd, sp, sy, t, tm

NB Sp Theory

p.53 Natural system?

65 - Digit in Fishes

73 Mammary Glands

77 to 85 on Classes

87 Class of Mammalia

93 Placenta - 99

class of 99 Man ♦ Primates

6 wb ♣ 53 32u "rudimentary"/w nascent 65
4-8m 73 21-23m 77 25u "Articulata", 26u
"Arthropoda" 78 13-14m/13u "Annulosa" 81
8u "Echinodermata|scolecida", 18-21m/19u
"Annuloida" 85 29-30w ♣, 29m, 30-31m/w ♣ 87
15-18m 88 13-15m 89 1-4m 93 1-10m 99 4-
10m, 17-19m/18u↔

HUXLEY, Thomas Henry *Our knowledge of the causes of the phenomena of organic nature* 6 vols; London; Robert Hardwicke; 1862 [CUL]
oo, tm

vol. 1 title page 5-12m 16 19-20z, 29-32z 20 19m, 21-26m/22u "limits"

vol. 2 NF (not CD)
38 25m 48 1m

vol. 4 NB Phil 1813

vol. 5 NB1 Fan-tail have tail & feather fixed in relating points; 111 too strong; 113; 122 very good on Relations of all Beings in struggle of life
NB2 122

111 27-31m 113 8-9m/9u "absolutely|one" 115 2m 122 2-32m

vol. 6, 143 1x/u "Sanskrit" 151 8m/w (not CD), 28m

HUXLEY, Thomas Henry *Lay sermons, addresses and reviews* London; Macmillan & Co.; 1870 [Down, S]

NB O/
(other marks by FD)

HUXLEY, Thomas Henry *Lectures on the elements of comparative anatomy* London; John Churchill & Sons; 1864 [CUL]
af, fg, phy, tm

NB ♦ 15; 19; 62; 69; 72; Character of Fishes Birds; 288 (by FD); 140, 143 visceral arches; Have read the last Ch. p.298

SB ∞

15 Sponges true sexual Process

19 Infusoria do

62,64 Fishes & Amphibia hardly distinguishable - (good case telling how unlike say a Frog & Salmon.-)

69 Birds are aberrant Reptiles.

70 Hiatus between Birds & Mammals.

72 Mammae extreme modification of sebaceous glands-

298 Result on homology of skull compared with Vertebrae

15 29-33m/29w Sponges 19 4-7m, 10-12m 62 26-37m 63 1-36m 64 8-16m 69 9-12m 70 35-37m 72 11-15m 75 29-30m/29u "Arthropoda" 76 18u↔ 81 9u↔ "Coelenterata" 80 8-13m/w↔ Molluscoids 31u "Molluscoida" 140 11-21m 289 1-3m/1c/w↔/3c/w↔ 298 2-7m

HUXLEY, Thomas Henry *A manual of the anatomy of invertebrated animals* London; J. & A. Churchill; 1877 [Down, I, S, FD]

HUXLEY, Thomas Henry *A manual of the anatomy of the vertebrated animals* London; J. & A. Churchill; 1871 [CUL, I, S]
fo, ig, tm

NB p174; 248; 375; 387; 461; 469; 482; 484; 486; 491; excelent abstract of the Anatomy of Apes

SB ↗

174 gradation in characters of Vertebrata of Amphibians in amphicoelus nature

375 Intermediate types, Hippotamidae

387 Toxodon show how impossible to construct animal from parts of skeleton

461 on outer & upper incisors some falling out in certain Lemurs - Others permanently have only 2.

76 2-4m 79 zb 115 30-36z 174 22-28m 248 36-38m 375 32-38m 387 16-25m 409 32-36m 461 35-37m 469 1-3m/3a "Cynomorpha"/wt all ● 482 7-14m 484 37-39m 486 30-37m 487 18-21m, 27-37m 491 30-31m 492 12-16m

HUXLEY, Thomas Henry *The oceanic hydrozoa* London; The Ray Society; 1858 [Down]

NB O/

HUXLEY, Thomas Henry *On our knowledge of the causes of the phenomena of organic nature* London; Robert Hardwicke; 1863 [Down, FD]

HUXLEY, Thomas Henry *Physiography* London; Macmillan & Co.; 1877 [Down]
geo

NB 10 variation of compass
10 17-20m

HUXLEY, Thomas Henry *Science and culture, and other essays* London; Macmillan & Co.; 1881 [Down]

HUXLEY, Thomas Henry and MARTIN, H.N. *A course of practical instruction on elementary biology* London; Macmillan & Co.; 1875 [Botany School, FD]

HYATT, Alpheus *The genesis of the Tertiary species of Planorbis at Scenheim* Boston; Boston Society of Natural History; 1880 [Down, I]

INGERSOLL, Ernest *The history and present condition of the fishery industries: the oyster industry* Washington; Government Printing Office; 1881 [Down]

L'INSTITUT: *Sciences mathématiques, physiques et naturelles* 2 vols., 1ère section; 1837 and 1840 [CUL] ϕ

cc, cs, fg, fo, gd, geo, gr, ig, mi, no, sp, y

vol. 1 SF ↗ Paper Boards in volumes; L'Institut & Year on Back

SB □β

255 (he means 253) Mammals of W. Indies – a Sorex in Cuba & Rodents

285 Blocks of Granite in S. Shetland – proof of S. Continent

149 ↗ wt Humboldt wt Andesite Mexican albitic Trachyte 156a 17–25m ↗, 17–20m 173 wt ↗ Edwards on Corallines 192b 3–13m ↗ 205b 26–38m (Lartet), 39–54m 206a 6–17m 243a 2–70m 243b 4–62m (Buffon, Lartet) 247b 47–59m ↗ 248a 66–71m ↗ 253 ↗ wb Cuvier says genus Capromys confined to Cuba West Indies Gervais. 253b 20–40m ↗/34–39m 273 wt ↗ (names of various metallic salts found in mines) 279 wt Blocks transported on Shetland 283b 35–43m/"... ↗ 297b 51–54m 315 wt 319 320 ↗ Brogniart fossil vegetation 319b 16–22m 320a 63–69m/? 320b 44–51m 321a 8–20m 330b 46–53m ↗/48–55m (Ehrenberg) 331a 50–62m/51–61m ↗ 346a ↗ 39–46m, 53u "beaucoup larrondis", 61u "radeaux | glace", 62u "des | d'eau"/w of facts? 68–71m, wb ↗ surely a local circumstance 346b 11–15m 367b ↗ 27–52m 369 wt Analogy of Molluscs with Vertebrata 371b 9m/u "centripète"/? 374a 22–62m 405a ↗ 10–25m 417b 47–70m ↗ 418a 1–38m ↗

vol. 2 SB 221 Cross of Cerf & Axis

274 Bees in Nova Zembla Baer

345 Isopod Crustacea 800 young

408 Prevost has crossed two Ranae, but not toad

49 wt 53 53b 21–31m 57 wt 58 84 wt 87 87a 32–35m 101 wt p106 106b ↑28–26m, ↑21–23m 133 wt p137 137a 10–14m/14u ↗ "13", 30–32m 143b 40–42m 149 wt p154 & 151 151a 19–22m (Kirschleger) 154a 3–6m 157 wt 159 159a ↑14–5m 165 wt 169 169b 11–20m (Wesmael) 173 wt 175 175a ↓m 181 wt Read 189 wt 193 misprint V. 189b 3–4m, 8–9m, 14–16m, 22–24m, 24–26w just like Pl ↗ 29–33m, 35–39m 193b 39–41m 205 wt 207, 211 207a 49–54m, 62–67m 211b 62–67m 213 wt ♦ 218 Geology 218a 33–41m 221 wt p221 221a 43–44m 221b 1–3m/3u "zoologie générale" (I. Geoffroy) 229 wt 232 232a 28–29m, 32–35m,

49–50m, 54–57m 233b 16–21m 237 wt 242 Geology 240 242a 4–11m/5u "le | servant" 255 wt 256 256a 13–14m/u "par | germes" 269 wt 271, 272 271 wb Nylgerres?? step to S. Hemisphere wb ♦ I suppose Nylgerries vegetation is analogous to Cordillera according to Humboldt – European genera, species all different geographically (considering revolution in climate) Mountains of Caraccas, further than with European, like the ↗ 271a 59–66m 271b 5–11m, 30–50w West Indies mountains in relation to Caraccas – Tierra del Fuego: is more connected 53–57m 272 wb No doubt M Martins paper ↗ on the vegetation of Alpine in Europe ↗ 272a 37–39m 272b 7–12m 274a 34–36m/w Means of crossing plants wb Look in Index for former paper by M Baer on some plants not flowering 274b 9–15m, 50–70m 275a 10–16m 293 wt 293 293b 5–12m, 19–42m 301 wt p303, p306 303b 14–16m (Martins)/14–19w This author wrote in Bibliotheque Genève 20–23w 2d paper abstracted in L'Institut 306b 15–18m, 27–30m, 47–51m, 54–47m, 58–60m 313 wt 316 316a 63–68m 321 wt 321 321a 33–37m 322a 42–45m/43u "non | Phoque", 62–65m 329 wt 336 336a 23–27m 345 wt p345 345a 23–25m 381 wt 381 381b 42–43m 389 wt 392, 394 392a 58–60m 394a 58–60m 405 wt p408 408a 14–17m

ϕ

437 wt 444 444b 35–58m, 61–62m, 65–69m

INTERNATIONAL HORTICULTURAL EXHIBITION and botanical congress London; Truscott, Son & Simmons; 1866 [Down]

114 35–39m 115 28–32m 117 30–31m

IRMISCH, Thilo *Beiträge zur Biologie und Morphologie der Orchideen* Leipzig; Amrosius Abel; 1853 [CUL]

fg, oo, phy, tm

SA (not CD; pp. 78–9; tr of part of fn; then:)

(Compare A Brogniart's treatise ↗ on these plants ety –) that however Brown's opinion (in which Brogniart agrees with him) according to which the fruitful stamens of Cyriped belong to a different whirl, than does the Stamirodium,

(over)

is the one, in accordance with nature – the history of development also most clearly shows.

NB 25 ♦ Birds nest not parasite; 78 View of Anther in Cyripedium; 55 Epipogum

vii 39m, 40m viii 14m, 26m, 27m, 39m 22 23w R 25 36w not parasite 55 6–9m 78 44–46m

JAEGER, Gustav *Die Darwin'sche Theorie und ihre Stellung zur Moral und Religion* Stuttgart; Hoffmann; 1869 [Linnean Society of London, I]

JAEGER, Gustav *Die Darwin'sche Theorie und ihre Stellung zu Moral und Religion* Stuttgart; Julius Hoffmann; n.d. [CUL]
ad, beh, cs, no, oo, sx, v

SB (following from p. 63) X old Black rat with Aegyptian parent, the colour was not originally black – Now the Hanoverian Rat occasionally produce a blue-black var & it is said this var is rapidly increasing – so that he believes will sooner or later supplant the common brown var.– This he attributes to much greater difficulty in Cats seeing the black var. in the dark in Houses.–

NF p86 Crossed marked Pig (this book only 64pp)

14 5–20m 16 20–22m ♦ 18 18–27m 19 3–29m
20 3–29m 21 14–26m 39 8–15m (M. Wagner)
55 4–27m 56 1–25m 58 9–23m/12–21w
Measured legs & neck of Flamingos & P.
very variable the long-legged being the more
numerous. 23–25m 59 1–13m/w The male
chosen or favoured by the female 13–26m/w
J; who has had not much experience with
animals, ♣ states that he has observed a
male silver pheasant which ♣ had been
victorious, had been chosen by the female,
had its ornamental plumage spoiled & ♣
immediately his rival got the upper hand &
led the flock. 60 22–27m 63 24–27m/w From
comparison of X → (rest on SB)

JAEGER, Gustav *In Sachen Darwin's insbesondere contra Wigand* Stuttgart; E. Schweizerbart; 1874 [CUL]

ad, beh, br, cc, ch, cs, dv, em, hl, in, mhp,
oo, r, sl, sp, ss, sx, tm, ud, v, wd

NB 106 Climbers; 243–244 Expression

SB1 ☐ ☒ ∞

p.4 to 16 on ammonites & c changing in
successive strata & on variability

p.29. variations which were perpetuated
without selection

p.33–39 causes why fruit & flowers not
made very large by nature, as under
cultivation

40. Selection cannot act on embryo, in
relation to environment

48. explains how use increases a part.

52. thinks insects feeding on a new kind of
plant, wd gain a new odour & wd then not
cross with other individuals

69 Eggs of silkmoth vary in resisting cold

70. Several pigeons killed by Hawks all
white or yellow vars.

86 Higher form can adapt Characters &
range further??

90. In all divergence there is always
advance or retrogradation of organisation

114 nictitating membrane a necessary
constituent of Eyelids

SB2 (an apparently unrelated fragment)

SB3 ∞

on account of view of constant (old) forms &
variable forms considers dom. plants & ●.–

The grain ○ a fixed form, but many allies –

The ● fixed very isolated – Plants wd be
best – Is any cultivated & variable plant
monotypic?

☞

p69

p102 good nectar

All marked

p243 Expression

p106 Climbers

(over) Many marks; p38

SB4 ∞

p.115 on use of skeleton of Vertebrates its
ground-plan.–

p.130–134 Sexual S. use of barb of fishes
as exciting organs.

176 to 183 Each new modification
necessarily throws back the embryological
stages, unless whole evolution is longer –
(not so with insects)

4 23–28m 5 1–3m, 1–23w It is a mistake to
assume all species variable – Yet domestic
20–24m, 28–30m, 34–36m 8 23–26m/25–26u
"nämlich variirende" 9 31m, 33–36m/w/wb It
may be no selection also ○ wb If all species
varied equally all wd be in confusion 10 5–
16m/7–21w very false calculations. number of
species wd not arise Case like Russia ○ 11
29–36m/w 2 periods 1) of plasticity & 2)
invariant 12 wt It is strange all animals ○ shd
have lost their flexibility at same time 5u
"Biegsamkeit"/w flexibility 14m, 18–21m/18–
36w if long exposed to same conditions form
hardens & loses plasticity – how came it so
many domestic forms vary. 29–30u "sondern I
Art"/m, wb variation makes the form new &
vigorous. This is like effects of crossing (a)
13 12–15m/w (a) 14 wt This is proof that the
variable forms have given rise to many
species. 1–4m 15 8–14m, 20m, 26–30m/w (a)
wb (a) Yet Terebratulae very old & yet very
variable: so Foraminifera 17 4m 29 7–9w
without selection 15–18m/w with selection 30
3–12m/? 33 22u "Stiefmütterchen"/11–22w Not

JAEGER, CONTRA WIGAND

good soil for many generations— often start from too large fruits— Pang 34 25m 38 15–21m, 27–30m/24–36w no naturalist could improve variability in characters not possessed by the forms 39 4–7m/1–5w/wt To make gigantic gooseberry like gourd tissue would have to be allowed & roots for supply 40 6–11m/w cannot act on embryo before Birth relation to external conditions 48 4m, 32–35m 49 1–8m/3–5w blood increases in 33–36m 52 12–20m/13–24w odour of mint probably easily changed, & thus wd not pair with old stock. 53 29m 69 20–26m/w Eggs varied in their resistance to cold. 70 13–17m/w struggle between nestlings & Caterpillar 21w (a) *wb* (a) found several pigeons killed by Hawks & all were white or yellow vars!! 86 27–36m/14–36w Higher forms can range further can adapt themselves more? 87 8–12m/w extermination only when(?) 88 5m/1–8w ♦ On progressive development 90 6–9m 92 1m 99 18m 102 ↓w & protected from rain & evaporation & stored for use – & saving of Honey from other preys 22–27m 103 1–5m, 19–22m/w to decrease number of visiting insects very good 104 22–31m/8–29w Thinks visitation by insects searching for pollen might cause secretion of Honey— 106 24–28m/1–29w Plants growing in shade have thin stems – a character of climbing plants – no movement of Axes by wind 107 10–14m/7–28w Fruits stronger leaves support the plant 114 9m, 18–19u "nothwendige | Augenlider", 17–21m/w The nictitating membrane a necessary constituent of Eyelids 115 24–31m/w thinks I am wrong 117 26–26m/29w (a) *wb* Roaring to disturb prey & then to track them?? & so with Rattlesnake 130 17–24m 131 14–23m 133 1m, 4–8m/7–9u, 8–30w Thinks males are sacrificed to protect female for good of species??? 32–36m 134 8–29w Brilliant male butterflies decorated to save females, whilst laying??? 163 23m 176 wt With each new change – process of evolution necessary thrown backwards – not so with insects 3–11m, 22–25m 183 1–7m 190 24m 218 10–12m 240 13–18m/w Instinct of Dogs to scratch backwards variable 242 1–11m/2–3w Expression 244 wt good criticism – an habitual movement implies nervous force – I ought to say nervous force independently of any use 3–4m, 35m 245 18–19z, 23m 246 2–27w accuses me of confusing Reflex & part○-voluntary movements 250 17–26m 251 10–19m

JAEGER, Gustav *Lehrbuch der allgemeinen Zoologie* 2 vols.; Leipzig; 1871–78 [Down] ♂

JAEGER, Gustav *Seuchenfestigkeit und Constitutionskraft* Leipzig; Ernst Günther; 1878 [Down, I] ♂

JAEGER, Gustav *Seuchenfestigkeit und Constitutionskraft* Leipzig; Ernst Günther; 1878 [CUL] ♂

JAEGER, Gustav *Zoologische Briefe* Wien; Wilhelm Braumüller; 1876 [Down] ♂

JAMES, Constantin *Du Darwinisme ou l'homme-singe* Paris; E. Plon & Cie.; 1877 [Down]

NB O/
♂

JAMESON, Robert *Manual of mineralogy* Edinburgh; Archibald Constable & Co.; 1821 [CUL, pre-B, S] che, geo, mi, se

NF1 ♂ Charles Darwin Esq. MD, FRS, ASS?? Member of the Royal Medical Society of Edinburgh Honorary Member of the Royal Plinian Society

NF2 Tusus ♣ Contrarius Ceriltrum Giganteum

(*u* = mainly colours of rocks etc) 4 10w is this emitted from the Trap Rocks near Edinburgh 6 18w Is found in the oldest primitive rocks 10 22–27w Owes its deliquescence to the Lime & Magnesia Blue & Red colours are owing to the Iron 11 17w Rock salt has never been found in Scotland 17 7w Sub Sulphate of Alumina 23 7–8w Easily distinguished from Marble by yielding to the Nail *wb* Easily mistaken for Satin Spar but can be distinguished by its softness 28 10–11w melts like Ice Before the blowpipe 36u "rare/w very 29 wt All Alum is not prepared from this Mineral 29w Always associated with Volcanic Rocks 31u, 35u, *wb* * Fluor – called so from being used as a flux 30, 19–20[...], 19–26w False Topaz (& according to their respective colour are called false gems.) 31 10w Chlorophane 32 1w Phosphate of Alumina *wb* Phosphate of Lime was formerly thought to belong solely to the Animal Kingdom: & after that, it was thought to be an animal formation 34 *wb* * First discovered in Arragon 35 6–18z (*drawings of crystals*), *wb* Fragments of Arragonite will scratch Calcareous Spar. 36 3u, 29u, 30–31z 37 2w Iceland Spar 38 20–21w Never contains organic remains 39 wt A block of Statuary Marble values 200- 4–11w while marble equal to the Sarian is found in small pieces

in Sutherland 40 34m, *wb* The Break-Water at Plymouth is composed of this rock; & therefore is much attacked by the Pholas. 41 *wt* Sometimes this limestone contains fragments of shells such as the Nautilus &c, & gives rise to a very beautiful appearance.— it is called Fire-Marble 20w Is supposed by some to be of volcanic origin 21*, *wb* * It is disputed whether this mineral is caused by fusion; or by fragments of a broken strata ejected by the Crater 42 18m/z, 19–21w Formation of distinct concretions 29w occurs only in Secondary rocks *wb* * Is only found in very small quantities in Scotland; but is found in great quantity in England 44 1–4w The Flint only occurs in 3 upper deposits 9w The newest of the Secondary Rocks 11u, 19w Extends from Flamborough Head down to Sidmouth 20*, 20–21w so-called because it is found emitting through rocks So called from Agaric 45 3–4u/w in Salisbury Craigs 11–12w does not yield to the Nail.— 31w is continually forming 46 7–9w generally diverging 32* 47 24w * Nearly all Rome is built of a compact Variety of this Mineral 28–30z, 31–33w Formation of the Concretions 48 31*, *wb* * Easily know by its pearly lustre 49 24–26w * So called from Lucullus a Roman Consul who proved these sorts of Marble 33u "*fetid*"/*wb* Owing to Sulphurs Hydrogen *wb* * If the variegated specimen be immersed in weak Muriatic Acid The limestone is dissolved, but the animal matter remains.— 50 22w Owes its colours to bituminous matter 26w Often globular 51 19–27z 52 *wb* : It is Carb. of Lime with Alumina & Silica met with in the Coal Series 54 17w also accompanied with Copper Pyrites is called Copper Slate 20–23w Owes its dark colour & bad smell to animal matter 55 *wt* Extends for a very great distance in Europe & varies extremely in thickness 5w Magnesian limestone 13–14w Called so from Dolumin a celebrated French Geologist 22–25w Is harder & heavier than limestone 30w sometimes it is slightly flexible 31–32u 56 7u, 16*, 18w Only occurs in Secondary Rocks *wb* * The Cathedral Walls of the City of York are built with this mineral 57 11u 58 16u 59 16u 62 27–28u 63 14–15w The Damascus Steel is supposed from this mineral 29u 70 1–3m, 28w from Dr. Withering 71 30w 2 also in Shropshire 72 20–21w Something similar to Porcelain Earth easily distinguished by its great Sp. Grav. is called Cawks 74 11w Is of most common occurrence 77 *wb* Calcareous. Fluor. Heavy. Spar. often occur together 78 14–18w Alestone looks like some varieties of

Quartz. but of course much softer called so because the first kind that was described was of a blue colour *wb* (The term Sparry is nearly synonymous to Foliated) 82 4*, 34–35u, *wb* * Occurs most abundantly in the upper parts of the vein 88 3w has lately been met with in Brazil 4* 89 *wt* * Have not I a specimen of this in my Cabinet? *wb* (Nearly all these Lead Spars are daily forming: thus Spades &c have been found coated with Carb: of Lead) 98 17w Carb: of Copper 106 4w to shine 14w Arcenate of Copper 20u, *wb* * By a late Analysis appears to be Phosphate of Alumina 107 7w * Phosphate of Uranium 108 5–9c 114 4–7z 115 17w x Phospate of Iron Vivianite *x/z*b 118 1u, 2u, *wb* Occurs in isolated irregular pieces in different strata.— 119 5w Talc is derived from a Japan word meaning Tallow 12u, 13u, 18w (*Greek*), 25u, 26u 120 9–14w Nearly always contains Magnetic Iron Ore 121 4–9w often accompanies & is intermixed with Shock-crystal 24a/w dark copperish 122 14w in Calton Hill Arthur Seat Pentland Hills when heated changes into a red which is used as a pigment 26u/w pearly 35u, 36u 123 *wt* Crayons are prepared from produced Talc mixed with the various colouring matters 17w The Chines ornament their walls with ground Talc *wb* (Rouge is made by extracting the colouring matter from Saffron by Carb. of Potash praecipitated by Acetic Ac. * sediment is well mixed up with powdered Talc) 124 2–3w made into Culinary Vessels 12–13w Used for coating Furnaces in Norway 126 5w & in by ● Shropshire 127 10u, 14–15w Case 2nd of the Museum begins here 32u 128 18–21w occurs sometimes associated with Volcanic Rocks 35w * from its scaly structure *wb* very beautiful 129 5w rather unfrequent 26u/w X Foliated Structure 130 7w lustre inclining to Metallic 131 3u, 28*, *wb* * looks like Bronze 132 15u, 30u/30–31w Copper colour 133 12u, 16w occurs as a constituent of Greenstone 134 16u 135 11u/w colouring matter 32–33m 136 20–24w Called so from a Dutch officer who first discovered it in the Cape of Good Hope ↑6x/*wb* x generally botryoid & internally diverging 138 17u, 28w rests upon Calcareous Spar in drusy Cavities 139 31u 141 5u, 6u/6–10w named White Garnet generally assuming the form of Garnets 12u 142 2u/*, 4–6w * The lava generally contains a good deal of Soda. whereas the leucite contains only Potash 22u 143 34–36w The crystals are generally twin placed cross-wise 147 12–15z, 12u, 16u 148 *wb* (Supposed Zeolites to be formed by

JAMESON, MINERALOGY

infiltration) 153 4w Warelite. Appendix II P333. 9u/w Signifies a Rock 154 13w from the mountain Adula 156 6w appears to have suffered heat 22w One of the most abundant minerals in the Crust of the Earth 157 9u, 26-27w contains Soda not like the other Felspars, Potash *wb* Potash was first detected in the Mineral Kingdom in the Lepidolite 158 1-2m/16w this perhaps ought to be a distinct species 159 3-5w Salisbury Craigs * the White variety 160 1u, 2-5w Braid Hills Pentland Hill There must be some 100000 tons of Soda in this rock 23w is met with in the centre of solid granite & deep in mines 161 28-29w For the process of making Porcelain see Jameson's System. 165 3w from shining 8-9w The green colour in the secondary rocks of Edinburgh is caused by augite 21u, 34-35m/w colours owing 167 11-12w from Coccus a grain 170 25u/w blended in other rocks Refers to its toughness 28-29w contains much less Magnesia than Augite 172 6u, 7w from occurring in Basalt 8u, 20w Arthurs Seat 27u, 29u 174 2-3w from a mountain in ● land 26u/z 175 21-22w is composed of very minute crystals of White Hornblende 176 4w mountain leather 12w Hornblende 30u 177 30w from Pistachio - green 32u "green" 178 33u 180 22u 181 4w Lapis Lazuli. App. II P.317.- 10w from Andalusia in Spain 182 6-7w might perhaps used as a substitute for Emery from Saussure. 18-21w Case 3rd of the Museum begins here.- 183 wt * Spinel occurs by far most beautifully near Equator 9w * Spinel Ruby 12a, 24u/w Colouring matter 32a/w The most beautiful specimens *wb* (many gems are composed of Alumina) *wb* * The most beautiful specimens was in possession of Josephine O 184 27u, 32w is highly crystallized Alumina 185 9u, 27u, 33-34w must be distinguished from the Spinel is an uncrystallized Sapphire 186 3w Chiefly composed of Alumina 10-12w may be supposed to connect Emery & Sapphire 188 wt I think it not impossible that some time Diamond will be found to be a vegetable secretion 2u, 3u, 6u 189 15*/*wb* * Said by some to have been the universal solvent 190 ↑11*/*wb* * when polishing on the wheel it flies into pieces which the true Emerald does not 191 29-30m/30u 192 10*/*wb* * Beryl is well described by Pliny 193 3-9w is an old Saxon word expressing the disagreeable sound caused by the friction of two pieces of Quartz 194 14*, 17-18z, *wb* * It is Silica coloured with Iron Manganese 195 11w in its upper part 15-19z, 33-34w very rare in

Secondary & Tertiary rocks *wb* * in Specimens from Dauphigny have one very large acuminate plane the 5 others being almost evanescent 196 wt sometimes encrusted & interspersed with Chlorite 8u, 10w are distinguished from Topaz by inferior Sp. Grav. & Hardness 12*, 18w never occurs crystallized 26w Silica coloured by Manganese *wb* * When put in dry places, exposed to the light loses in a few years loses its colour 197 wt X The massive variety is easily distinguished from all other minerals by its superior hardness 4-5w A flexible variety occurs in Arthurs Seat 21w from its light green colour.- 198 ↑11*/*wb* * Common Quartz impregnated with Iron 200 2w wood petrified with Hornstone *wb* (The Tick tree in Calcutta has been known to form a strong Mineral. like Woodstone) 201 8u/w owing to Bituminous matter 12w is often traversed by veins of white Quartz 17*, 18w That variety which is free from veins is used for touchstone *wb* * by comparing the streak of the pure gold, with that of the specimen assaying 202 wt is of rare occurrence in Scotland owing to the scarceness of Chalk 10-13w The base of pudding of stone in quartz; the concretions flint 13w from Calcedon in Asia Minor 16x, 18u/18-21w where blue is called Sapphirine by the Jewellers *wb* x The dendritic variety is called Mocha Stone from a place in India or from a German word signifying moss, this appearance is owing to Iron & Manganese 203 1x/wt x is mentioned by Pliny as a different mineral 4u/w owing to Nickel 27w from its colour 204 14u/14-16w The green colour is owing to Green earth 25w origin of name disputed 29u*/*wb* * mentioned by Dr Clarke as occurring near Cairo in great plenty 206 2x/wt x Clay long exposed to heat 14-15w is Quartz combined with Alumina ↑4x/zb/*wb* x some varieties are called Eye-Stones 207 *wb* (All these Rhomboidal quartz when heated & thrown into water, splits in direction of its cleavage) 208 31w is daily forming 210 6w (minute portions have been found in Scotland 30-31w has lately been found in Mexico & Faroe Islands 212 23-26w distinguished from Jasper by superior lustre 213 10w in New-Holland 18w from Menil, a hill near Paris 214 23-24w from Obsidian a Roman 215 5-8m/w Colouring matter & Carbonaceous matter 16w often imbedded portions of Pearl-stone 25w from its resinous appearance 25x/*wb* x black colour owing to Carbonaceous matter 216 3w in Arran 218 7w the crystals resemble the head of an axe

219 26u, 33*/wb * Is Chrysolite in a less perfect form. 220 wt Meteoric Iron often contains a mineral like Chrysolite or Olivine - 12w near Edinburgh - Arthur Seat 13w Borate of Megnesia 29m, 36w always 221 15u/w Bubulite wb (Boracic Acid is found in Salisbury Craigs) 222 11w occasionally contains a little Boracic Acid 18w from a village in Saxony. 224 27w signifying a Gooseberry 225 19w from μέλας niger 226 2*/wt * From the different colours it undergoes under the blowpipe 227 wt Many of the Carbuncles of the ancients are garnets: the origin of the name signifying its shining in the dark is erroneous, this word sometimes refers to the Quartz & Sapphire 228 6-7w from its beautiful red colour 18u, 25w is called the Bohemian Garnet. 232 25*/wb * not unlike Hyacinth distinguishes from yielding to the knife 234 9w from oxide of Titanium 236 22w Oxide of Copper 238 30w Oxide of Tin 240 wb Distinguished from Tin Ore by its stump being of reddish brown colour; Tin ore having a yellow grey colour 243 1*/wt Streaks yellowish 33w (Streaks a distinguishing character) wb Occurs in Magnesian rocks. such as Talc & Serpentine.- 244 5-6u, 10u/9-10w The magnetic property only occurs in rocks near the surface.- 31w when pure, affords 70 per cent of Iron 245 10w in Salisbury Craigs 14-15u, 28u, 32u 246 wt (The Magnetic Iron Ore occurs in greater plenty in the North. The Specular in the South) 17-19w occurs in plates in the crevices of Volcanic Rocks. as. Vesuvius 19*/wb * distinguished from Mica by the rigidity of the Plates 250 18w Hydrate of Iron 18*/wb * Makes better Steell than the two former varieties 254 7*/wb * Is well adapted for making cast Iron 8w is daily forming in boggy places 263 28w Occurs in newer formations than the last.- 266 wt formed of crystals; in this mineral. by cubes 2u, 13w because when struck gives out sparkes 19w Arsenuent of Nickel 273 2x/wt x decays more rapidly than the other varieties 274 18u 275 wt does not afford sparks with steel 10u 280 2w x continues to be formed by aqueous means 289 24u 294 36w associated with Native Arsenic 295 29w along with compact Gypsum 296 wt Every time volcano emits sulphur mostly in form of Vapour.- 298 wt (all the insects inclosed in amber are extinct.) & different from those now alive 299 22w Pitchford & Coal-Brook, Dale 300 wt The walls of Babylon were cemented by melted Mineral potash 6u, 19w Mineral Caoutchouck 301 18w the remains of

ancient trees.- 302 10w but must be mixed with some connecting matter 303 31w common Coal 304 5w the most common variety wb Is of older formation than the Browne.- (was formed before Mammalia Aves Amphibia but there existed fishes & shells) 305 8-9u, 29x/wb x little Bituminous matter 307 wb The Browne coals when burnt emit a very bad smell The Glance Coals never contain vegetables were formed before vegetables existed 317 14-19w Iron Pyrites is often disseminated in it is then mistaken for gold 23w * Lapis Lazulis has been met with in Vesuvius wb Origin disputed. whether formed. or merely broken fragments.- 333 6-7z 337 22u/w not homogeneous 338 34-37z, wb a basis including crystals 339 5-8z, 9-11w a basis containing cavities or other foreign substances of an amygdaloidal form 29-30w vid: the secondary rocks of Arthur Seat 32-35z, wb * the grains joined without basis or cement. 340 10-12z, 13-15w A Slaty B Granular 17-21z, 19-20u, 25w of rarer occurrence 26u/w Base granular 31u/w Base slaty 341 2-5z, 11w of frequent occurrence in the Carlton Hill zb 342 35*/zb 344 wb (Hydrogen & Nitrogen are emitted in greater quantities in some Volcanic countries) 346 16-25z/25w Hornblende 26w Felspar Syenite wb (Felspar is distinguished from Quartz by its inferior hardness, yielding to knife) 361 15w These four rocks generally occur in the order here placed minute scales of Mica 365 25w according to the formation or is this state of crystallization 369 28w so called from its resemblance to the colouring of Serpents- 370 wt a mixture of Marble with Serpentine is called Verde Antique.- wb Magnesia occurs in the greatest quantity in the newer Primitive Rocks as Serpentine 371 29-30w perhaps ought to be considered a variety of pormilica Greenstone 377 5w is clayslate with imbedded fragments 6-10z 382 wb 1 Old Red Sandstone 2 Mountain Limestone 3 Bed Conglomerate 4 Magnesia Limestone 5 New Red Sandstone 6 Shell Limestone 7 3rd Sandstone formation 8 Oolite 9 (Sand Clay Marl.) Chalk Marl 10 Chalk formation 383 10w 1 384 wb It is disputed that this rock is of the primitive series 385 33u 386 4u, 17*/wb * Sometimes contains Iron Pyrites, which from its decomposing entirely unfits for building 387 wt x The Trap in this formation is composed of Augite & Felspar 10u/x 392 29w 7 394 1w 9 15w 3 396 13w 7 398 5w 9 35w 10 399 13w 11 405 3w an earthy greenstone 410 wb

JAMESON, MINERALOGY

(These rocks generally occur in the old Red Sandstone also in Mountain Sandstone sometimes in still newer rocks) 411 17w Tertiary Rocks 412 24w also contains Pudding stone & Browne Coal 413 9w * The London Clay is of this formation 10[...], wb * Iron Pyrites, Sulphate of Lime & Iron occurs in this mineral. also sometimes Amber & Browne clay also various seeds of tropical plants. also Crocodiles & c & c & Cocoa Nuts fishes.. 415 11w of considerable importance in the arts for making millstones 26u 418 24*/wb * The only Human Fossil Skeleton known was found in this rock 420 3-12w Beds of this mineral occur in the Meadows & Coates Crescent in Edinburgh 28-29w differs from Potters Clay in containing Sand 421 19z, 25m/w now disputed 423 10*/wb * Occurs only the more Northern countries never being found in the Tropics 424 15w their variability being diminished 29m/w 6 425 28w swims on Water 426 18-20z, 21-23w the order of their position 28*/wb * has often been mistaken for red Pumice Stone 34x/wb x formed by the attrition of different minerals 428 4-5w appears to have been sublimed 440 wb The lead mines in Flintshire Shropshire are situated chiefly in Mountain Limestone 444 16-17w are mentioned by many of the older writers viz Herodotus observed them in Aegypt also Ovid remarks them. 445 2-3w Quadrumana none have yet been found- 446 2x, wb Bears are of rare occurrence in alluvial strata 447 25-26w Another species has been found Europe simultaneous with the Elephant Tapir Rhinoceros 452 1-5w this is the animal that the Indians belief that the Gods destroyed to prevent the destruction of the Human race. wb 6 distinguished from the Mammoth by tubercular teeth- 455 wt The Owl & Buzzard 22-23w one have these generally found in the tertiary formations of Paris 456 7w in the Isle of Sheppey 458 wb The teeth of Sharks are found in great plenty in the Limestones of Malta 460 11x/wb x Nearly all insects which are found in this mineral are now extinct, except as some say the common Ant 20-21w Mr Witham has in his collection a specimen of Amber containing a small skeleton probably a reptile.- 25-26w In one collection in France there is 3560 specimens and nearly 5000 have been described.- 461 wt All the fossil shells are now extinct.- 466 wb Fossil organic remains are those included in any formation sometimes they are scarcely altered but generally a portion of the animal matter is extracted often the

whole substance is removed & merely a cast remains sometimes it percolated with some Fossil matter & then it is named petrified.. 504 7-11m, zb 505 whole page.z 506 whole page.z

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NB p.87, 90, 110, 115, 116; 191, 192 freckles; 216 grey eye formerly more common
32 13c 33 15a 87 28-33m 90 15-20m 91 16-18m 110 20-24m 115 20-24m 116 10-14m 190 32-36m 191 1-4m, 24-27m 192 28-32m 216 10-19m

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NB O/

JENYNS, Leonard *Memoir of the Rev. John Stevens Henslow* London; John Van Voorst; 1862 [Down, I]

53 23m/][[... 54 4...]/w B 5-17[...], 18m/[... 55 7w B 7-9[...]

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JENYNS, Leonard *Observations in natural history* London; John Van Voorst; 1846 [CUL, I]

beh, em, ex, gd, h, mn, no, oo, tm, v, wd, y

SB1 ♦

Introduction good writing

Squirrel eating little galls

Variation ♦

Like your remarks on givens - on statistics

p.162 Martins (1)

210♦ Cy♠ & some Carabus

p313 Mem breaking leg

p315 Planaria (land species)

Barometer Brit. Assoc. ⚡

(over) 38; 51 to 60; 76; 100; 108 & c; 114;

131; 137; 147; 150; 162; 168; 188; 210; 221;

216; 266; 278; 290 Arachnidae do not

undergo any such metamorphosis; 318; 321;

324

SB2 38 Birds using NQ material at hand & adapting nest to situation
 54 One cat rejoicing in Bat, another indifferent to it Ch.6.
 Polecat devouring Eels p.55 some parallel facts. Rooks p.150 feeding on Fish p147 on Eggs
 78 Rabbits with incisors grown very long – Monstrosities Ch 5
 100 Pheasant betraying place of roost Q by screaming (mistake of instinct) ♦ Hen Clucking on Egg
 107 On destruction of Rooks & Sparrows & yet no diminution Ch.5
 114 Destruction does not fall on very young Birds Ch.5
 137 Abnormal NQ nest of long-tailed tit.
 162 Caged Birds carrying bits of thread & stick in Beak Q♣
 168 Increase of turtle Doves since 1823.
 212 Abnormal Gold Fishes
 278 Flies hatched in gentlemen's intestines.
 318 On sudden great increase in Water Shells. Ch.5
 321 Ransome case of cistern with molluscs
 324 On difference in habits in closely allied Psidium.

38 31–32m/32u "Bolton's Harmonia" 51 18–23m 54 9–11m, 26–27m 55 19–21m 56 29m 60 1–3m/2u "rare" 64 18–19m 76 18–20m 100 9–11m 107 17–21m 108 1–12m, 16–19m 109 3–8m, 13–23m, 24–25m, 26–31m (Wagner) 110 29–32m 114 26–30m 115 5–18m, 23–27m, 28–30→ 116 8–13m 117 2–3m, 6–7m 131 3–5m/w V. p.134 134 7–9m, 19–20m 137 15–18m/w unusual? 147 14–17m, 23–27m 150 10–12m 162 2–9m/Q 163 7–19m 168 6–12m 187 19–26m 210 24–26m 211 11–12m, 15–19m, 32m 212 1–8m 213 1–9m, 17–22m, 30–32m 216 16–19m 217 24–25m 221 3–7m 266 12–15m 267 15–16m 278 15–16m 279 25–27m 290 21–23m 318 8–12m 319 9–11m, 21–22m 321 13–17m 324 4–7m

(p. 329 ff., markings presumed not by CD)

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 beh, cc, fg, gd, geo, is, mg, mm, oo, sp, ta, tm, wd

SB □β, ♣

Jones' Bermuda

ix Sea-Birds tame on discovery of lsd
 x Hogs run wild & swarmed p.1. 3 mice
 p12 At discovery 1609 no rats & mice
 12 to 16 to On migrations of Bats – occasional (like Birds)
 27 to 84 Migrations of Birds (p174 Blank season)
 30 European Lark killed in Bermuda! p45 Land-Rail do
 43 variation in tail-feathers in Snipes
 67 case of wanderers of same species as resident
 70 case of enormous migrations 72 do
 76 probable rate of flight in Plover during migrations 30–35 miles per hour
 98 Scincus no Batrachians
 115 Honey-bee perhaps *Apis caffa*
 121 Only 3 nocturnal Lepidoptera
 133 Antigua Orange-trees all destroyed by coccus p.117 Ants very destructive to Rabbit Poultry
 172 Imported poultry all die
 190 *Sapindus saponaria* not growing in foreign Gardens, raised from sea-drifted seeds. – Gulf Stream occasionally wanders from course & brings timbers to Bermuda
 191 At Azores trees torn up by roots & 2 dead were washed ashore (See Bate)

SB2 ♦♣

ix; x in 1609; 11,2 Bats; 12; 27 to 38; Read to 66♦ to end; p190

♣♣ No peculiar Birds; good

♣♣ Audubon's flight across Bays cutting off distance explains case.–

vii 4–6m ix 23–26m x 4–7m 11 ♣ 5u "exception | domestic" / 5–7m 12 11–14m, 19–22m, 26u±, 27–31m 13 9–13m, 17–18m, 26–31m 15 4–6m, 12–15m, 18–21m, 28–30m 16 20–22m 27 4–8m, 24–27m 28 25–30m 29 3–9m, 8–11m 30 10–15m 33 17–20m, 23–26m 34 10–28m 35 14–18m 36 22–26m 41 22–25m, 27–29m 42 9–13m 43 4–5m, 12–15m/w S. Brobsini○ 44 1–4m, 7–10m, 19–26m 45 7–14m, 19–22m 46 29–31m 62 27–30m 65 5–7m 66 28–31m 67 2–7m, 10–14m, 17–20m/18w imitation 22u "flock" / ?, 25–29m/26x♣ 68 14–16m, 19–20m, 24–26m 69 4–7m, 24–28m 70 3–6m 72 5–8m, 15–19m 73 4–9m 74 27–31m 75 22–25m, 29–31m 76 15–16m, 30–31m/31u "moderate | thirty" 77 8–9m 80 17–21m 81 22–

JONES

23m/w go to Jamaica 82 30-31m 84 12-17m
98 6-8m, 25-26m 115 1-4m 117 7-10m 121
20-21m 133 20-26m 172 16-28m 174 2-8m
190 4-6m, 9u "pine timber", 11u "mahogany",
29-31m 191 4-8m

JOURNAL OF A HORTICULTURAL TOUR
through some parts of Flanders, Holland and the
north of France in the autumn of 1817
Edinburgh; Bell & Bradfute; 1823; London;
Longman, Hurst, Rees, Orme & Brown
[CUL]

ch, fg, he, hy, spo, ta, v

NB 25,48,84; 67,8; 107; 134-; 178; 185;
193,5; 205; 293,5; 308; 328; 331; 363; 419;
423; 459; 470,72; 495,6; 538 Don on Elms
SB □β

107 Purple Beech Hereditary
185 out of 1000 seedlings 1/2 dozen good
Hyacinths & Tulips is reckoned good
196 on the rearing of Tulips, certain whole
classes have come a certain Breeder, I may
say even in most sportive plants, more
hereditariness than generally supposed
293 Brussels Sprout has been true for 400
years 295 a sub-var rendered true
459 Paradise & Doucin original dwarf vars of
Apples
495 The varin Lilac Hybrid between common
& Persian

25 7-13m 48 12-16m 67 3-7m/wt Weeping
Cherry mentioned before 68 13-16m 84 13-
15m 107 9-6m 134 15-10m 178 5-3m 185
15-13m 193 16m/1u "J.B. Sickler" 195 2-4m/
u±, 12m/1u "A explained" 196 1-3m, 8-13m,
15-17u±, 18-21m, 11-5m 205 10-15m 293
12-11m 295 15-13m, 4-1m/14u "only
most" 308 11-10m 309 5-10m, 15-12m/13-
12u "proving bad" 328 6-4m/16u "P.
Corsica" 331 10m/wb will here probably treat
of change of seed 363 1-2m 419 12-2m/
12u "Salix revolutis" 423 1-3m, 6-8m 459
6-3m, 12-1m 470 12-1m 472 4-5m, 14-15m,
17-6m/1u "seventy", 12-1m 473 6m/1u "130",
17m/1u "forty" 495 12-1m 496 10-12m 538 10-
17m

JOUVENCEL, Paul de Genèse selon la science.
La Vie Paris; Garnier Frères; 1859 [CUL]
he, hl, hy

NB 99 highness & lowness; p283 - see
Isidore Polydactylism Two cases of mules
given with polydactyl Hoof - can this be
reversion?

Isidore Geoffroy 1/691 gives several cases
● in pure Horse - so facts nothing
99 20-23m 283 20-27m

JUAN Y SANTACILLA, Jorge and ULLOA,
Antonio de *A voyage to South America* trans.
John Adams, 4th edn; London; John
Stockdale &c.; 1806 [CUL, vol. 1 only, on B,
I by FitzRoy]
beh, gd, oo

NB 9-20

◇ Journal 17.1826

⟨untranscribed w apparently not CD⟩

iii 11u "is remain" vi wbee 21 7m 24 6-7m
25 2m 26 17m, 27m 27 23m, 35m 28
25-33w 29 4m, 12-13m, 15-16m, 31m 30 6-
6m 31 9m 32 4-5m 33 20m 35 6-
7m, 17-18m 36 6m, 13-14m, 17-18m 39 9m,
27m 40 23-26m 44 5-17w 52 17-21m,
31-32m 53 14-16m 54 14-18m 55 6-8m, 9-
11m, 17-18m 56 1-2m 57 16-33w 58 35-36m
59 1-23m 60 31-36m 61 1-5m, 14-29m/w
snakes in Jamaica 62 1-21m 63 1-6m, 9-18m
64 23-25w Jigger Chigoe 65 24m, wb
exaggeration of pain caused by insect sting
in Carthagena 66 14-24w 67 24-37m 68 10-
24m 69 19m 71 5-9m, wb Thinks mistake
They have only one crop in year 72 11m,
26w Pineapple 74 4m, 7-30m, wb Some
description as to planting and mode of
gathering is necessary 77 13-18m 92 26-
27m/w, 28u "The irregular", 30-32w 97 17w
123 27m, 28-30m 132 19w ● 255 wtee 277 29-
39m 278 2-34m, 26-27m

JUDD, John Wesley *Volcanoes* London; C.
Kegan Paul; 1881 [Down, I]
se, ve

NB Volcanoes along coasts, greatest
pressure Fissures due to general elevation

JUKES, Joseph Beete *General report of the*
geological survey of Newfoundland London,
1843 [CUL.1900] [I]
geo

NB p.130 cleavage

143 Boulders

145 rest on clay &c

130 6-2m 143 10-14m 145 5-9m

JUKES, Joseph Beete *The student's manual of*
geology Edinburgh; Adam & Charles Black;
1857 [CUL]

fo, gd, geo, hl, ir, sp, t, ti, tm

NB p160 to 165

SB □✕

p160 to 165 on interruptions to Deposition

177 on length of time of Deposit

254 good remark on Denudation

275 Denudation - some very ancient

antiquity world

317 *Littorina* bright colours in Tropics dark in north

321 – generic areas inexplicable

387 on breaks in resurgence of fossils & formations

388 foundations not strictly contemporaneous before & c

389 law of succession same at all times 390

391 imperfection of record

393 Higher groups as well as species more limited in time

395 – one fossil in extreme Arctic Regions

399 do x → (to 388)

♦ 489 to 503; 565

489 breaks in 3 stages of Purbeck

503 Breaks in succession → (to 399)

565 on antiquity of world

160 23–27m 161 18–21m 162 35–40m (Emmon)

163 8–13m, 23–25m 164 19–23m, 26–29m,

27–39m, 30–39m, 10–39w This is strongly

supported p167, 168 by small area of most

beds 165 11–14m, 27–32m 177 30–35m 254

13–24m 275 16–24m 317 26–38m 321 21–25m

387 1–4m, 15–20m 388 36–45m 389 26–30m

390 31–35m 391 23–26m, 37–40m (Owen) 393

10–19m 395 31–38m 399 4–12m 489 29–34m

503 1–10m 565 8–18m, 21–30m

JUKES, Joseph Beete *The student's manual of geology* Edinburgh; Adam & Charles Black; 1862 [Down, I]

NB 414; 402

Begin & read at p425

414 22–29m, 29–31m 415 40–44m (Owen) 416

14–29m 444 fig.w Crust Plant Pol

JUKES, Joseph Beete, DE LA BECHE, Henry, SMITH, Warrington W. and HUNT, Robert *Record of the School of Mines* vol. 1, part 2; London; Longman, Brown, Green & Longmans; 1853 [Down, I by Jukes] ♂

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NB p2, p20 laws of variation

p42 ♂ – On slips & other situations; Alpine plants long hold their places of lower land

p52 ♂ – species which are swamp plants on the plains, not so higher up p139 feeding of Alpine plants Q

vii 4–8m, 19–22m viii 7–15m ix 18–24m 2 11–18m, 19–27m 20 17–22m 42 21–31m/5–30w On slips & c alpine plants hold their place – occupancy 52 11–12m, 23–29m/13–32w are swamp plants on plains & not so on mountains.– 139 5–10m

KERNER, Anton Joseph *Flowers and their unbidden guests* trans. W. Ogle, with a prefatory letter by Charles Darwin; London; C. Kegan Paul & Co.; 1878 [CUL, S] ad, che, phy

NB Use of every Part – 6

p.136 Oxalate of Lime discharged from edges of leaves

p141 ♣ adaptation never a direct one

SB □β

* / How can this be reconciled with the facts as they stand in the case of polygonum amphibiani?

6 11–21m 7 20–26m 129 21x, wb pollen flower

136 1–5m 141 19–25m

♂

KEY, Axel, and RETZIUS, Gustaf *Studien in der Anatomie des Nervensystems und des Bindegewes* 2 vols.; Stockholm; Central-Tryckeriet; 1875–1876 [Down, I by Retzius]

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tm, y

KIDD

NB p10

SB □β 18 Prize canaries have black wings & tails only till 1st month

10 20-23m 12 14-18m 13 31m 14 7-9m 18 8-15m/11-12Q/16-18Q 19-22m, 23-25Q 25-27m/25u "A|birds"

DAS KIND: *Tagebuch eines Vaters* 2nd edn; Leipzig; H. Hartung & Sohn; 1876 [CUL, I] beh, y

NB 7 knowing; 121 blushing; 147 one year old; 68,9 6 months

7 2-3m 89 10m 121 26-27m/27u "Sie|roth"

KIRBY, William *Monographia apum angliae* 2 vols.; Ipswich; J. Raw; 1802 [CUL, pre-B] beh, oo, sp, sx, v

vol. 1 NB Q p.47 has been stung by Ichneumon; p200 males & females of Bees; p.4; p.204; p.40 palpi ♣ differing in one genus

40 13-16m 47 3-5m 200 21-30m/24u "females"/25u "neuters" 204 22-27m

vol. 2, 387 15m/w read 388 7-8m plates z

KIRBY, William and SPENCE, William *An introduction to entomology* 3rd edn, vol. 1 (1818); 2nd edn, vol. 2 (1818); 1st edn, vols 3 & 4 (1826); London; Longman, Hurst, Rees, Orme & Brown [CUL, pre-B]

ad, beh, br, cc, che, fg, he, hl, ig, in, mg, mhp, no, oo, phy, rd, sl, sp, sx, t, ta, tm, ud, v, y

vol. 1 NB1 Reaumur's work ought to be read

Are there any instances serving the parent itself which come into play, after period of propagation, connected with death, making a place to die in - such as cats going into holes, because these cannot be acquired by habits & then transmitted, they must be consequences of some previous habit - wasps killing their young in autumn at first appear so, but then perhaps some of the old murderous wasps survive.- As neuters are sometimes converted into Queens & then breed my argument ♣ against instinct arising from habit, is not perfect.- are neuters of ants ever converted? The instincts of neuters, probably same with those of females of same species anciently

NB2 136; 148; 153; 166; 171; 176; 179; 192, 194, 199, 201, 203♦, 4, 9; 230; 270; 272; 293 to 98 insect impregn; 322; 332; 336; 357; 361; 371 to 4; 76 to 82; 386; 390; 399; 402; 435; 442; 448; 459; 472; 474; 476; 78; 492; 98; 500; 505

NB3 496 on manner in which Bees form their cells

p293 Capital references about all Plants which catch insects

SB1 □β

165 There are in Hives Bees called corsairs idlers Q

179 Seed of Clover Crops almost destroyed by Apions.

192 Cucumbers not injured by insects in England but much in America

203, 230 on artificial substances - p386 - 390; Cases of foreign fruits in England & America injured by insects, so changes in Habit

203 - Nectarine destroyed by insects in America & not Peach - selection wd act on a trifle Ch. 6.

357 Q good relation ichneumon with long ovipositor laying eggs in larvae in fir-cone

371 Q Female ant first takes charge of nest (but I presume is never soldier &c)

274 Q Mother wasps, several in nest take charge of young

380 Q Humble Bees

382 Case of reason in Bees Q

391 Q When insect has fed on one sort of plant will die rather than change Q

435 Q Ant-Lion & Fly making same sort of trap for catching prey.

459, 461 Q Q Remarkable instincts 474

478 NQ Caterpillars social in early stages remarkable fact

492. Musc & wax making Bees - former do secrete little Honey - (ant which secretes sweet juice in Westwood

to 504 Q Bees. Nothing particular for me in Instincts

SB2 □β Vol I

p382 ♦♣ Bees supporting comb till pillars built

♦ W. White about snail pulling them at L' (<ie at right-angles>) to extract themselves

♦♣ p391 about changes of food Q♣

♦ p435 Ant-Lion & Fly same sort of trap Cuckoo & Molothus

459-461 Tineae cutting leaves to Pattern

♦♣ Sentence about comb each part depending on what has gone before

380 Workers destroying eggs of Queen Humbles, Spider

136 25-26m, wb We can thus see how Oestrus acquired instinct of depositing eggs to be licked up. 148 9-11m, 10-13m/w What use is to Coleopters? 153 20-22m 165 3-5m 166 29-31m 171 26-28m, 29-31m/30u↔ 176 26-28m 179 6-17m/7u♠/9u. "purple"/13u♠/14u

"Dutch|clover" 192 27-28m 194 4-6m/m 196 19-21m 199 2-11m/3u "some|Germany"/10-11u "fortunately|us"/6w Why 201 12-13m/13u "1787", 21-22u "to|street" 202 14-16m/14-15u "are|empire" 203 wt change of instincts 4-5u "which|fruit"/3-8w curious considering not aboriginal fruits 11-14m/14u "fruit|unripe", 17-22m, 30-32m/w yet only varieties 204 22-28m/23u "date|the" 209 14-15m 230 1-6m, 7-10m 255 10-18m 270 12-18m, 22-27m 272 3-7m 293 14-18m (Barton), 22-30m, 31-33m 294 18-20m, 25-32m/27u "rich|soil" 295 1-7m, 28-30m 296 15-27m 297 4-23m 298 9-10m, 30-33m 299 9-12m, 26m, 28-31m/29u "Mordellae" 321 22u "perennial knawel", 23u "in|country" 332 1-3m, 27m, 29-30m 333 3-13m, 32m (Humboldt & Bonpland) 336 1-3m 337 6-10m 357 12-20m 361 4-6m, 14-16m 371 27-29m 372 9-10m 374 14-16m 376 19-22m, 20-21m 378 14m 379 7x, 8u "drones|workers", 16x 380 1-4m, 8-11m, 9-15m/9-10u "may|bounds", 15-17w useless instinct *wb* ♦ This instinct coming into play, only 382 6-9m, 12-13m, 19-23m, 22-24m 386 16-17m, 18w V. p.390 390 2u "the|purpose", 1-3!, 1-6m (Réaumur), 5-6m, 23m, 25m 391 6-9m/"..."/7cæ, 18-19m 399 18-19m/w useless 402 11-16m 435 2-4m/2-11w very singular not inherited from same parent stock 442 15-19m 448 25-32m 452 10-17m/16-17u↔, 27-31m 453 10-15m, 21-23m 454 30-31m 455 15-19m, 21u "flowers", 22-25m/24u "flowers" 456 9-11m, 10-16m/10u "A. Pini" 459 20-27m/21-22w V 464 461 1-4m 472 8-13m 474 6-9m 476 3-5m, 7-24m 478 13-14m/12-17w This is remarkable contrast with parents instincts 485 4-6m 486 1-2m 487 6-8m 491 5-6m, 10-11m 492 10-11X/11-16m, *wb* ♦ X The Humbles who make pillars of wax shows adaptation of instinct to circumstances 493 2-4m/w gradation *Q*↔, *wb* It is analogous to difference accompanying age or sex - attached to something unknown - being produced contemporaneously is novelty 494 15-16X/4-28w Humbles all secrete a viscid fluid to unite various substances 495 19m, 22-25m/24u↔ 496 *wt*/1-8w Ants work by hollowing clay & wood out, same principle V. ante 3-9m, 10-17m, 20-22m 497 2-8m, 29-31m 498 16-22m, 23-24m, 24-27m/24u "but|successive", 25m, 28-30m 499 11-16m, 20-24m 29w Habit 30-32m 500 18-23m, 27-32m 501 25-32m 502 2-4m 503 12-14m 504 21-23m/22u "thin|purpose", 31u "irregular|placed" 505 1-2u "connected|wax", 3u "pale|bodies", 7u "oral|might", 15-16u "flattened|dimensions", 20-21m/20u "the|cells"/21u "female", 26-31m, 28u "goblet-like", 29-31m, 30u

"chiefly", 32m 506 3-4m, 5-6m 507 10u "hexagonal" 508 7u "but|convex", 26-29m 510 1-3m 512 25-26m, 29m

vol. 2 NB1 I think Kirby considers Bees converting ♣ Neuters into female & Ants taking prisoners, as the most wonderful instincts

NB2 p.119 Bees boring holes, p.523 references on ditto

Linn Trans Vol VI p222 Huber says he has seen large Humble bees try to enter "fêves" & failing bite hole in corolla, whilst smaller Humbles entered the corolla - He has seen them bite the tubes of "l'ancolie" The seed ♣ pods of the fêves were not injured.-

NB3 p395 Beetle Pneum

SB1 Kirby. Vol 2-

12; 22; 30 to 5; 51, 58; 68 to 100; 108 to 119; 125 to 216; 220 to 241; 267; 288; 302; 421; 459; 468 to end of Vol

SB2 □β

12 Q Emigrating insects not usually social - makes case odder

31 Bees, Wasps & Ants, one female lays foundation. How in Termites p35 they seem never to work Q (Full account of Societies of Ants & Bees & c

35 Termites contend for the females

74 Q Each ant seemed to know its own fellow of nest - p.80 Slave ants Bees Q

231 Beetle living in Hot-bed & standing Boiling water.

234 Beetles shamming death Q

420 Showers of insects falling

471 Q Definition of instinct - 473 Q good remark on

476 NQ Substitution of one material for another

481 Q Instincts of same species different at two Seasons

492 Q instinct 496 good remarks on not reason - 507 good

511 wonderful Q

514 Reason Q

♦ A fertile worker is throwing Back.-

♦ My metaphor of hereditary piano-forte, ought to have been 1st hereditary spinet, simple & grand piano-forte player. What wd good player do if in concert note stuck. If hereditary playing failed in tune, new tune wd be formed if new tune did imply several notes altered contemporary.

♦ Read all. with idea that originally many queens & no workers - then few queens with workers & lastly one queen.- & that instincts in neuters retain traces of old instinct when made Queens

KIRBY & SPENCE

<over> There is antagonism between an habitual action & reason – a person knitting meets some accident & reason comes into play – it is no argument that not reason because a person did not intend a perfect repair

SB2 □✂

Female spiders destroy Male

Vol 2. Kirby

12 Emigrating insects not social congregating like some Birds – & some birds congregate without emigrating –

35 workers of Termites ● Queen.–

◆ 74 Each ant knows its own nest & males Do not go out till Workers Slaves are ready

◆ 77 Slave makers are not allowed to go abroad till others have neuter pupae

◆ 86 The Slave feed the Slave making Neuters – Do the Negros in their own nest feed Males or Queen ??

<over> 2

p55 workers usually found to come back

◆ 119 Hive Bees begging Honey from Humble. Means of new Instinct 207 Corsairs

◆ 148, 155 – Neuters keeping Queens prisoners – (may say endless strong instincts & then allude generally –♣ Ch. 8 & no passage known few other Bees Known.–

161 Confused & mistaken instincts in Hive Bees

◆ 194 Ventilating Hive

◆ 234 shamming Death

◆ X 470 young Bees making comb perfectly

◆ 471 good definition of Instinct

◆ (p.92. Migrations)

◆ 473 Spiders Nets pitt-falls insects beat higher animals

◆ 476 case of sensible adaptation of instinct of insects (Door of intelligence) 487/495/

◆ (481 Marked variation at 2 times of year

◆ 496 argues not reason

◆ 513, 511 Perhaps old instinct retained

(Von Baer about organisation of Bee

◆ 516 Really reason

◆ 519 Ants in hot place not moving Pupae X

◆ 525 Communication of Knowledge in Ants

◆ 529 Swarm successive years

<over; ◆> 3

208–210 Astounding manoeuvre once in life

227 Variation in making Cocoons or home

277 Making exit for moth & thread to guide it

287 jaws given for this purpose to be used once

4 p31 Sedentary Spider turned Hunter

2/495 cells longer on one side of comb opposed to Waterhouse.–

2/187 Knight on artificial Propolis –

12 16–19m/18u "swallows" 13 1–2m 22 24–31m, 25–29m 30 30–32m 31 10–13m, 17m/17–18u "ants|lays" 32 17–18m/17u▲ 33 17–18m, 21–22m, 28–29m/28–29u↔ 34 2m/u "four|female", 6–9m, 29–32m (Huber) 35 2–3u "al get", 3–5m, 6–9m|"...", 10–14m, 20–23m, 29m 51 wt Probably nascent female never practices the work of a soldier ant – not has it same structure? any structure which profits its work in early days wd be selected. Ask F. Smith V. F. Smiths work on Ants 1m, 3–8w The jaws of soldiers must have been made by selection 4–6m, 26–28m/Q/27u "toujours"/28–29u↔ 53 1–3m/2u "females|birds" 55 wt xx I can understand a neuter having any instinct which the female could have had, but no others cd have been acquired by habit 3u↔/1–4m/2–5w origin of most instincts in neuters xx 7m, 13–14u "prudent|instinct"/13–18w Neuters do not breed! How instinct acquired. 19–21m, 19–22m/20u "workers", 24–25u "who|out", 29–30m/u "some|common"/w/wb So one female may wish to determine others! 58 2–6m (Huber and Gould) 68 16–17m/u "besides|bag"/12–29w Many insects have reacting glands of anus for bad smells &c & we here see, used either as sting, or poured into wound. 27–30m 69 5–7m 70 7–13m 74 19–23m 75 5–6w Slaves 10–12m 76 21–24w Latreille confirms 27–31m (F. Smith) 77 7–10m, 14m, 15m/u↔, 24–25m, 30–31m/u "link|Myrmica" 78 15–16m/15u "composed|neuters" 79 21–22m 80 28–29x/28–32w only fighting neuters 34–38m/w◆ they have no neuters then? or many soldiers?? 35–38m (Latreille), wb like Cuckoos with their eggs in other birds Nests 81 1u▲, 7m/u "others|purpose", 29u▲ 83 6m 85 1–2w x Smith sold Myrmica 3xx, 13–14u "Active|field"/13–17w so these are neuters 17–18u "So|they", 21u "will|suffer"/xx/X/w impossible to explain 29x 86 22–26m 87 7–8x, 16u "the|helpless"/w gradation 18m, 29m, 30–32m 88 5m, 9–12m, 15–16u "It|character"/12–16w for the Negroes dread the Robbers 27–28m 89 25m/26u "alternately", 30m/u "that|cows" 90 3–5m, 10m 91 3m, 5–9m, 10x/u "with|pays", 20–21m, 21x 92 9–11m, 12–14m 93 18m◆ 100 18–21m 108 15m, 16–20m, 27m 109 23m, 31m 110 1–2m, 9u "male", 9u "than|female", 18–19m, 26–27m, 29–30m 114 16u "the|females"/14–16w Ask F. Smith 20m/u "in|resemble", 23m, 29–31m 115 24–30m 116 9–11m/9u "honey|pollen"/10u "males|females"/11u "pure honey", 12m, 20m 117 2m "between|workers", 5–7m, 8–10m, 11–12m 118 10–11m, 13–15m, 24–25m 119 1–5m, 6–7m, 8–27m/11–27w How new instincts cd arise 30m,

32m 125 4u "Two females", 10-11u↔, 11-14m, 12u "are|occurrence", 35u "shorter"/w Queen 126 1-2m/u↔, 3u "straighter maxillae", 4u "not|theirs", 12-13m/Q/u↔ 127 1m 128 1m, 2-3m, 4m, 5-8m 129 31-32m 131 10-12m/10-11u↔, 14m "differently|mandibles", 17-18Q 20m, 21u "curve|sting", 22u "wax-pockets" 132 25m 136 13-21m 137 24-28m 139 12m, 14u "those|four", 17m 140 14-23m, 21-24w acquired to injurious self 24-26m/w♦ false instinct injurious 142 12-13Q 15m 145 6a "the" worker 22-23u "for|fortiori" 147 12m 148 9-15u±, 20u "of|her", wb it is difficult to believe the workers could have acquired these instincts when they were gender before their neutrality was gained. 151 15m, 16-24w Maternal aversion !! how accustomed we are to maternal affection= 26-30m/30w p.148 152 7-11m/9w p.148 153 13-14m 155 6-10m/7-27w X 148 in state of females, they could never have learnt so to respect & value a female; this implies there being few females & hence the neuters having their femality cd not acquire it. 11m/12-17m/13-19w XX this might arise from mere social affection originally 20u "pregnant state", 26-27m/27u "enable", 29-31m/30u "twenty|day", 32m 156 3-5m/3u "sometimes", 8u "at|to" 157 24-25m 158 1-4m 161 wt What are males fed on 1m/u "laying|worker", 2u "male cells", 5-6m, 6-7u "male|ones", 7-9m, 8-11"..."/10-11u "male|jelly"/11m, 12m, 13-14m 162 26-31m 166 3-4m/w X p.148 168 3-5m, 8-10m 169 12m/u "Here|defective", 15m 171 12m 172 16m, 23u "male|royal" 173 4-5m, 13-16m/14-15u "result|drone" 177 3m/u "both|young" 179 22m 180 5-7m, 17-19m 182 8-11m (Aristotle) 183 24-28m 184 30-31m 187 10-12m, 32u "Philos.|1807" 191 20-30m/28-29u/21-27w shows not individual Knowledge 192 4-5m/w like Humbles X 194 6-7m 195 5u "workers", 10-11m, 14u "in files", 18u "twenty", 24u "retinas" 198 6-8m 207 17-19m 208 8-10m 215 26-31m 216 7-9m 220 5-8m, 21-23m 223 18-24m 231 3-5m, 16-17m, 20u "hot dung"/20-21m/w not by nature 24-25!/ 25u "native station" 233 6u "orange|thorax", 8-9m, 12-14m 234 15-17m/16u "by|death", 19u "which|dead" 235 8-9m, 18m, 19u "simulation|death", 22m, 23-24"... " 241 5-9m 267 10-32m 288 26-29m 302 4-9m/4u "pupa" 303 6-10m 358 25-28m 384 1-10m 385 14-18m 387 15-19m 391 1-8m, 3u♣, 20-21u↔, 24u "base|elytra", 27u "would|their" 395 1-4m, 18-20m 396 19-25m 399 3-6m 401 5-10m, 16-22m 407 3-13m 411 8-10m/9u "though|light" 412 27-28m 413 1u "is winged", 20-21m 415 18-22m 420 8-18m 421 wt A, How

gradually acquired? 7-12m/7w A 424 20-28m 459 16-20m 468 11-16m (Lamarck), 20-21m/?, 28m/u "ii.325"/? 470 8-11m, 13-22m 471 13u "faculties", 14-16u "independent|view", 16a "without"/w necessarily or even generally 17-19m, 20-21u "which|ignorance" 472 9-14m, 30-33m (Germar) 473 12-19m, 14m/23m/u "All"/14-16w Migrations Hatching eggs Bears Houses○ 25-32m/28u "regular cities" "nets|artfully", 32u "sheep|labour" "pit-fall" 474 8u, 27u "never attempts", 27? 475 21u "variation|accommodation", 22u "among|numerous", 29-32m/29u "cow|horse", 31-32u 476 1m, 5-9m/5u "bark"/6u "pieces|paper", 29-31m/x/31u "span|web", wb X These seem to show that they do know end in view or rather what they work for 477 7-8m 479 2-6m, 12-24m, 29-30u "requiring|only" 480 25-31m/31u "Bonnet" 481 1-16m/w See to this it wd appear as if the latter brood had acquired this instinct 32u "Oeuvres, ix.370" 483 1-4m, 27-30m/28u "lids|ordinary" 484 5-11m, 13-17m 485 30-32m 486 19u "glass" 487 3-6m, 10-12m/11w good 26-30m 488 9-12m/10u "propolis|mixture" 492 15-16m, wb compare them to bricklayer born with consummate art - & provided with actual instruments 493 18-20m/19u "would|less", 20-27m 495 11-32m/20u "the former"/21u "the|latter"/14-15w Knitting wb The difficulty is just as great if we look at instinct as innate power 496 26u "Variations|instincts", 28-30m, wb It comes to this because reason goes so far & no further, it is not reason. An Australian cd not do Principia.- 29u "always"/wb How do we know this 497 3-4m, 22-23m, 23-27w Knight on use of grafting○ Mixture 28-31m 498 5-10m, 27-30m 499 19u "manifold", 20-21m 500 1u "not mean", 2-4m, 18-20m/20u "another", 26-27m, 29m, 31m 501 6-8m, 27-30m 502 4-7m 503 2-4m, 8-10m 504 5-10m/8u "A third", 11-14m 505 2-5m 506 22-29m 507 1-3m, 5-7m, 8m, 16-18m, 18-20m 508 6-8m, 16m, 17-18m, 30-31m 510 5-7m, 6-25m, 23-28m 511 4-11m, 25-30m/25-26w old instinct retained 512 30-31u "fed|maturity", wb is this given ordinarily to all queen larvae 513 7-12m, 23-26m/w (a) wb (a) One may suppose that originally many queens were ordinarily thus reared & a few workers & the instinct is thus retained 514 22-25m 515 21-28m 516 8-13m, 17-20m, 25-29m 517 23-30m 519 10-13m, 15-20m, 21-22Q 24-28m/24-32w like Robin which built on Steam Engine 520 1-3m, 19-26m 521 4-7m 522 5-9m, 12-15m 523 16-19m 524 5u "all", 11u♣/w not indigenous 525 4-7m, 19-30m 527 14-17m 529 3-27m 530 5-11m

KIRBY & SPENCE

vol. 3 NB 89; 95 & 96; 101; 162; 202; 210; 221; 227; 257; 261; 276; 287; 305; 330; 338; 466; 474; 593; 594; 605; 632; 645; 654

SB □β

Marshall 284

89 Number of eggs various insects

96 adaptation of eggs like seeds of ♣ plants
208-210 Q Astounding manoeuvre
performed once in life.

227 Q very important variation in Habit -
Perhaps Instinct rather

261 var. in ♣ colouring of crysalises

277 NQ larvae preparing exit for imago &
even providing guide to find trap-door.-

287 Q jaws given for this sole purpose
(under selection Ch. 6) to be used only
once!

474. Good sentence about no new organs
being produced without transition Q

594, 605 Rudimentary organs for symmetry

632 In Hymenoptera the progress of
neururation of wings can be traced

645 Scales, as on Butterfly appear in some
Diptera

665 Number of legs vary in luli &c.-

89 1-7m/w Proof that numbers here depend
on means of prosecution 8-24m/10u♣/11-
20w We only know by experience that every
species can increase if not checked 12u
"30,000", 14-15u "40,000|more", 16u
"200,000", 22u "211,449,600" 95 22-25m 96
1-3m, 14-22m/14-17w adaptation as in seeds
101 8-14m 162 5-11m 202 9-14m/10-11w
adaptation 208 10-31m 210 1-29m/10-14w
wonderful 211 19-25m/20u "now"/21u
"silken"/22u "horizontal", 29-31m 212 1-2m,
3-7m, 12-21m, 13-31m 213 2-9m, 17-28m 221
19-25m 227 1-5m 256 15u "pupae", 21-25m
257 8-10m, 17-22m 261 9-12m 276 28-32m/
28u "previously|pupa" 277 1-10m, 28-30m
278 1-4m 287 1-10m/4-6u↔ 299 27-28m 300
1-4m/3-5w€, 6-9m 301 26-29m/28u♣/29u
"female|rubra" 302 1u "red", 4u "elytre", 23u
"testaceous|black"/w Lepidopt 24-26m/26u♣/w
male 28u♣, wb Aperture Iris emperor 23u♣/
wb = Polommatus aegon 303 1u♣, 2u
"orange|upper", 3u♦ 305 21-25m, 28-31m 306
7-8m/7u "tibia|bearded" 309 14-19m 313 4-
7m, 11-17m, 21-26m, 27m 314 28-30m/Q 315
16-17m/17u "female|male" 323 1-5m 327 3-
7m 329 17-26m/19u "pectoral"/21u "weevil"
330 19-21m, 23-25m, 26-27m 331 30-31m 332
1-18m 333 16u "incrassated|male", 23u "the|
erroneously"/w incrassated not always sexual
336 6-9m 337 18-27m/Q 338 1-4m/Q 340 2u
"Pneumonia" 342 26-30m 344 5u "of|
Coleoptera", 11-12m 345 15-18m 346 26-29m

466 20-22m 474 wt If all Mammalia which
have ever existed were preserved, probably
as many traces of abortive organs wd be
found as in insects in nearly all of which
they are present. 2-10m, 19-25m/Q/21u "but|
organs" 593 1m/u "represented|the", 18-19m
594 22-29m, 25-26m 595 1-3m 605 17-18m,
18-23m/21u "appearance|elytre" 632 14-26m
645 29-31m 654 13-18m 655 (erroneously 665),
5-11m

vol. 4 SB1 Vol IV

p.31; p.357; 358; 373; 397; 405, 6, 8, 411 to
15 wretched trash; 478; 484; 486 to 508

SB2 □β

31 Crippled Spider from Sedentary became
Hunter See. J. Banks. Ch. 8 Q

373 on use of larva in classification

478 On number of individuals in different
orders, without relation to number of species

488 Calasoma poor in species & individuals,
very wide ranging genus.

500 Battles of Lethrus (a vegetable feeder)

156 stings & ovipositors described.-

31 4-7m, 8-10m 156 8-9m/? 258 wt Calcaria
259 10m, 12m 261 3m, 16m, 19m, 27m 263
27m 264 11m, 27m 267 5m, 27m 268 17m,
19m, 20m 270 12m 271 18-21m 272 19m, 28m
273 12m, 18m 274 21m, 28m, 31m 277 20m
278 3m, 27m 279 1m, 8m, 16m 280 1m, 3m,
7m, 13m, 21m, 24m 281 27m 282 1m, 4m, 7m,
15m 288 21m 293 6m 294 17w Margin 20-
21m, 23m, 25m 295 3m, 17m, 25m 297 30m/μ
"Spurious suture" 302 18-22m, 27-29m 303 5-
6m, 9-11m, 17-20m 320 27m 321 14m, 17m
322 18m 325 7m 327 19-20m 334 10m, 15m
357 7-11m 358 7-13m, 15-17m, 30-33m
(Linnaeus) 359 5-6u, 19-20m, 26-29m 373 22-
27m 397 4-13m/6-7u "especially|distinct", 14-
19m/15-16u↔/18-19u↔ 405 1-2m, 16-21m,
16-19m, 20-25m, 30m 406 26-30m 408 1-17m,
19-20m, 29-30m 409 4-7m 411 18-21m 413
16-19m 415 21-27m 421 zb 478 9-15m/8-12w
Think over this 484 18-21m 486 11-16m/13-
14u↔ 487 8-10m, 20-22m, 29-32m (Latreille)
488 20-21m, 23-28m, 27-28m, wb This is
opposed to my notion of formation of
genera. Think over this Extension in this
case must depend on adaptation to some
peculiar food & not to any general superiority
over congeners.- 489 1-11m, 17-18m, 23-
32m, wb My notions require that number of
individuals & species & genera shd in some
degree accord which is doubtful.- NB
Comparison can be instituted only when
there is struggle. Diptera & Coleoptera
cannot be compared 490 1-6m, 22-25m 492
3-7m 494 1-2m, 9-11m (MacLeay), 12-16m

496 22-27m 497 1-5m, 21-22m, 25-28m 498
4-7m 500 3-6m/4-5u↔ 508 19-25m 512 25-
27m

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Leipzig & Torgau; 1835 [CUL]

beh, br, f, fg, he, mn, sp, sx, sy, tm, v, wd, y

NB A very poor book with wretched
classification.—

♦ 1 to 56; 79; 88,90 Geese — large in
Pomerania small in Poland; 104 Duck lays
30-36 eggs; 111-114

April 1857 Nothing except above Ducks
good to quote in Ch. 4

6 Polish swine broad stripe down back
related to young wild swine being striped

3 11-12w swine with undivided hoofs 26u
"6|Junge"/w wild swine 4 wb Breeds differ in
size short feet bowed back power of
fattening 5 12-17w great difference in size of
wild swine 19w Races 24u "10|Junge", 26u
"seine|Glieder"/26-27w fine hair on joints 32u
"kurz|Körper", 33u "Ohren", 32-35w short
round bodies, long ears, woolly bristles 6 1-
3w broad stripe along the back 31u "ist|9",
32u↔, 35u "vielen|sein"/w must be provided
with many teats 8 19-20m↔, 21-25w Do wild
breed twice a year? 53 1-2m/w The leg on
which roost generally stronger than other! 54
25m, 32w pointed head 34u "kleinen
Federbusche", 37u/wbt 55 1w crested 7-10w
cannot find way when crest wet with rain
10u "brabantische"/w Gold spangled 13u
"silberfarbige Hahn", 16u "zart|Eier"/w
punctured eggs 17u "Der|Hahn", 18u "rothe|
Schmabels"/w 2 red warts on side of beak 26w
Tail-less 33-36w Frill-like Fowls collar almost
like Jacobin!? 56 1-8m/w can hardly fly 5-7w
Bantams 11u/wt, 10u "Hamburgische"/10-23w
Cock & Hen have legs clothed like velvet —
cock sharp beak: yellow circle & band of
yellow feathers round eyes with tuft of black
ornamenting ears 22-24m, 24-25w Frizzled
Fowl 26u "Kamm|schwarz", 33u "einen|
Farbe", 35-36?/u "hat|Kehllippchen" 57 wt
Hen spurs like Cocks 6m/w Dorking 79 wb
this tuft cd have been mistaken for
monstrosity 88 26-31m/w Geese in
Pomerania very large. small in Poland 90
15-20m 104 24-26m/24u "sie|legt" 105 14-
17m 111 28-29m/29u "aber|bringt", 30u/wt,
33u "fast|bringt", 35u/wt 112 wt | shd think
this man knows very little or nothing of
subject) 2u "Schnabel|dick", 3u "Schneppe",
3w Trumpeter 5u "oft|zeit", 11u "ihr|fehlt",
22-25m/w Pouters some vars males &
females different males being spotted. |

wonder whether true? wb vast number of
coloured vars. of Pouters 113 2w Carrier 3-
4m/|u "Da|entfernen" 114 1-2!/1u "einen|
Schwann", 29-32m/w Carmelite

KLEIN, Edward Emmanuel *The anatomy of
the lymphatic system* part 1; London; Elder &
Co.; 1873 [Down, I]
part 2; London; 1875 [Down, I]

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SANDERSON, John Scott, FOSTER,
Michael and LAUDER-BRUNTON, Thomas**
Handbook for the physiological laboratory 2
vols.; London; J. & A. Churchill; 1873
[Down, I, FD]

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1877 [Down] ∅

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der Gleditschischen Handlung; 1761-66
[CUL, pre-B]

beh, cc, cs, dic, f, fg, gd, he, hy, ig, in, mhp,
mn, no, oo, pat, phy, sp, spo, sx, sy, t, ta, v,
wd, y

NB1 ♦ Read Muller in Berlin Trans

NB2 ↷ Oct/55/Everything — this Volume fully
abstracted & abstracts distributed.—

NB3 ♦

What good experiments might be made by
mixing pollen together of several kinds.—
p.12 Male & Female organs in Hybrid
unequally affected.

According to Gaertner (p.273.) when several
varieties of the same species are crossed
with another species, offspring closely alike;
but when several close, but true species, are
crossed with another species offspring very
unlike. This must be tested in this work,
specially in 3 races of Nicotiana.— In the
Nova Acta he experimented on plenty of
vars of *Mirabilis* ♣ *Jaleppa*. but I fear that
vars differed only in colour. But Dic
Classique remarks that *Mirabilis* *Jalep* differs
only in colour of flowers

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Part 1, 9 22u "4863"/w pollen ♣ in flower 25u "dreyssig"/27-28u "fünzig|sechzig"/25-30w 30 seeds from 50 or 60 pollen grains 10 21-26m/w less than 10 pollen grains did not fructify 11 1-5m/w in cold weather more pollen is required 9-14w in very late & cold season no quantity of pollen suffices 12 wt when all but ♣ one stigma cut off, yet all capsules with seeds 1-4m 15 5cæ, 11u "noch|geschlossener", 13u "Gräser", 1-22w Know nothing dichogamous plants.- 29u♣/31u♣/26-31m/w/wb Grasses & these are all flowers, which are impregnated, without aid, by contact, & even in the yet unopened flowers!! 17 wt pollen of some Mono & dioic plants fully & others spored on all sides.- 13-15m, 25-31m, wb plants with stigma right under anthers. 18 19-23m/w In rue stamens move over stigma 19 7-14w stamens move to stigma quicker or slower according to weather. 20-23w stamens move when anther removed. 21 26u♣, 26-30w Malvaceae impregnate only by insects 28u "allein"/28-31m/wb I was astonished good sentence to translate 22 1u/wt, 1-9m, 5-9m 29 28-31m, wb ♣ juice, sought by Bees secreted from stigma of Iris 36 4-13w Scrophularia & Antirrhinum lay their anthers on the stigma but are also aided by insects 43 6w V p.10 next Chapt- fertile= when this season experiment succeeded. 8-10m/8-15w inverse experiment produced infertile seeds but rather larger 10-22m, 17-30w/wb those wh. appear in an unpregnated capsule 20-24m/w in many plants 44 wb seems to think, pollen of foreign & own can together act & produce a tinge of Bastardism this seems possible as 20 grains of pollen are in some cases requisite for any fructification, but not proven.- 47 18-24m, wb What Crown Imperial not much frequented by ♣ Humble - secretes honey from opening to withering of flower

Part 2, 10 23a "Nachricht" p.43 26-29m 11 wt produced another year 24 ♣ capsules p.23 4w 8 petals 9-13m/w absolutely undistinguished from reverse experiment 12 4-7m/w infertile on male side but fertile on female 13 27-29m, 29-30u "einige|weniger" 14 10-11m/9-12w in some parts more than in others rather like to Rust. 16-17m/w some plants more good seeds than others 18-22m, 24-28m/w plants from same capsule differed in fertility 15 1-3m/w differed from all parents 17 20-21m, 23-26m/25u "Fruchtbarkeit", 27u "unterschieden" 18 1-6m/w most of them are more infertile than the hybrid parent 7-9m/w

as if tendency to miscarry was given 11-13m/u↔, 16-21m, 15-19w some seeds, however, produced plants. 13x/wb X All these results are confirmed by (p.20 other, different experiments → & by an analogous experiment p87) (& by same p.91→) of next Part; but one of them quite sterile 19 12-14m/w varied 19-23m 20 11-12m/w did not take at all after perenne 22 1-4m/w fertility much increased 14-21m/w concludes probably that hybrids with some pollen change into maternal form. 23-25w p.55 of 3d Part one plant came much nearer to Rust. 26cæ, 29a "einen"/wb genugen 23 20u "Missgeburten"/19-23w = Miscarry? or monster? 22-23w another instance p54 of 3d Part in another cross 24 wt In Hybrids from Rust & Panic, male or reverse the hybrids have no good pollen but female principle yet acts on both A. 12u "gänzlich", 11-13m/w ganzlich means very & tolerably wb A. How unintelligible is this, as this hybrid fructified itself p.21 prop. pulv. consperso 25 wt♦ X odd this not taking at all after perenne 4u↔/x, 5-12m, 8-22m, 9w two pollens 21u↔ 26 10u↔, 12-16m/w 3 pollens mingled together & not hybrids 29 5-8m/1-8w exactly intermed 9-11m, 26-32m/w hybrid more flowers plants higher & taller 1-23w X this shows that hybrids are well suited in soil &c &c 30 11-13m/7-13w absolutely sterile 31 wt/1-2w or seven-hill tobacco 3m/w var of Mag. ♣ vulg. 17-24m/5-24w Difference from last hybrid ♣ correspond to differs. of 2 varieties 32 wt A gave smaller capsules & fewer seeds, than when this hybrid was impreg. with pure N. Rust. or Pan 5m/15-18w var of N. Maj vulg. 21-24m/22w A 3-5m/→ 33 16-19w & this is a second cross 9-10m/9-15w These two hybrids differed greatly. 36 14c/17c "male" female/9-25w exactly intermediate between male & female 38 6-24m/23u↔/2-24w Pollen quite worthless Capsule began to swell, with other pollen.- 25-31w/wb I suspect, pollen fails in hybrids, easier than female principle 39 5-25w These & other hybrids tend to throw up strong stems in autumn 41 19u "Mit|Worte"/19-22w finally very like male parent 42 4m/1-6w (quote this) as different as Cat & Lion 43 22-24w V. same experm p119 next Part: 25c "carthus."/x/w barbatus wb Sweet-William 44 wt Yes Does Gaertner mention this? 3-6w seed affected 5-7m, 8-30→, 27-29m/w A 30-31m, wb I shd think female principle more defective than male.- ?? V. p. 117. 45 wt I see in Loudon this is Hibiscum vesicarius = African Irionum = Bladder Kelmia ↪ these are all right → 3w↪

Cavanilles & Decandolle make this 2 species, but they are evidently very close both from Africa. 4w Kippist thought it very doubtful whether real species 5w reverse 5w Mongrels 5-10m/10u "Hibiscus", 10u "blosse Varietäten"/8-10w Probably 2d Edition of Linnaeus 14-15u "beyden | Seiten", 19-21m/17-21w Like each other in reverse exp differed from each other 24-27w Repeated with same results p.128 next Fort 28w Cheiranthus p51 ↑1u "Leucojen", wb stock-gilliflower ↑1u "Lack"/wb Wallflower (Dictionary) 46 7-9m/5-11w difference in period of flowering in the reverse experiment 16u "einfach", 16u "gefüllt"/12-16w The mongrels were single, the pure-bred were double? 17xx, 23u "anders | ganz"/17-25w X cannot make out in Loudon what species they are wb XX p.128 second Fort raised intermediate & quite fertile hybrids; hence considers only varieties 47 8-9m/5-11w quite sterile p.124 3d Fort quite fertile 50 1-16w refers to individual plants 7-29m 54 1-13w reiterates greater infertility of male side 55 10-27m 58 23-24m/24u↔/21-30w Generally speaks of ♣ mongrel having possibly lost some fertility, sometimes. 60 wt/1-14w cannot account for varying degree of infertility in foregoing hybrids; even in one case increased infertility though plant became more like mother. 12-14m, 15-16w fruitful on female, but sterile on male side 61 1-31m/1-18w♦ only some exception to characters of hybrids being intermediate & chiefly in X 12-20m/20u "als | Bastarden" 63 2-4m/4u "Vater | der" 64 wt Experiments which did not bring offspring, interesting as showing gradation in effect 19-20m/w reverse failed 65 7-8m/w reverse failed 13-14m/u "Die | Grösse", 16-18m/w seed appeared good 23-24u "Die | natürlichen" 66 12-13m, 12u "Beym umgekehrten", 26-27m, wb capsule fell of when half ripe 67 6-7m/u "einige | sitzen"/6-10w Do some remained on ♣ 13-22w gave offspring p58 Fort 2 next year → 25-30m/w seeds did not appear quite perfect 68 wb see p.45 to see what species 69 wt/↓w Impregnation ☞ Hibiscus impregnated by pencil & by insects, during many days was done almost as well by the insects, though they lost some days during rain 11-12m/11u "310", 13-15m/13u "10886"/14u "11237"/15u "351", 24-28m 71 wt/1-25w Pollen of mistletoe expelled into flower before open, & several flies are attracted by the sweet juice on both male & female flower & &c impregnate it 20X, 22u "Stacheln", 23u "unter | zusammenhängt", 28-30m, 29u "Gat-

tungen Fliegen", wb X pollen covered with points & sticks together 72 8-11m/w not by wind 17-25m/w remarks that depending on insects & Birds

Fort. 2 Part 3, 8 6u "Häufig"/5-9w Canaries & Linnet hybrids of fertile. 11u "absteigenden | erstreckt"/x, wb X This near crossed again by Canary bird twice over.- 9 5w S. Europe 11-14m/13u "Sulz | Neckar"/w experiment tryed at Sulz Neckar 17-20w Britain & Italy/L 10 wt p.1-46 in 3d Fortsetz all about Verbascum. 2w England 5w England 10-26w Mem. Mr Herberts letter to me 20-24m/22-23u "grossen | Blume", 25u "ringste | Befruchtung", wb Found on many flowers on the 3 plants on two successive summers, that the female of phoenicena, cd not be impregnated by its own pollen, showed no sign of fructification, but yielded seed to 4 other species growing in same country!! 11 wt There were 3 plants of this phoeniceum. 9-10w same on another plant 13-14m/w cannot explain. wb The female or phoeniceums were garden seedlings & p.41 3d Fort not grow here wild 16 19-30w exactly intermediate 17 1-25w every point exactly intermediate 18 5z 21 7-9m/7-18w colours rather different in different plants & petals of same, not similarly coloured. 23 16-21w intermediate 24 12-13z 27 25-28m/w flowers varied a little in colour 30 12-19w intermediate 35 20-27w intermediate 39 11-19w anthers held little 24-31w power of growth vigorous, for they flowered sooner than natural 30-31m/wb quite infertile even with pollen of parents 40 1-6w but a half fructified for germen swelled 11u↔/12-15m/11-18w colours of the autumnal flowers became darker & more like female 41 1-18w intermediate (even in such points as smell which the parent & the other has not at all.- 44 wt only one plant raised 3-6m/w quite sterile 8-28w I observe most of the plants in this Fortsetzung either raised on Hotbeds or planted in boxes in open air, & transplanted into pots 45 1m, 13-15m/13-19w fertility in same degree as in former V appendix 46 12w pot 50 1-4w♦ nearly intermediate 14-18m/12-17w later flowers became darker 22-23w♦ not quite intermediate wb N.B in former experiments, where no mark characters are intermediate 52 1-11w not intermediate, but does not say after which parent. 53 21u♠/20-22w differs in leaves, stem flowers shape of wb p.19 N. perenne seems distinct in shape of leaves & small sharp capsule of fruit, & shape of flowers 54 7-8u♠, 17-29m/19-20w plenty of differences

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26-28w Habits different Leaves move in evening to stem. *wb* Certainly these vars. most distinct & only the last said to have been found wild in Tobago 55 1-25w crossed 5 as he believes, varieties of tobacco & found offspring intermediate & quite fertile 24-27m/26-30w were intermediate in every respect between parents. 56 1-15w♦ Hyb fruct. more successful Offspring quite unfertile (I think) more fertile than (*Nicot. mai.*) or vice versa I ♣ believe but cannot make out which V. p.60 (this Fort:) 11-12m/w varieties of same as shown p55 14-15m/w♦ a very little fertile 18u "*Hauptsache*", 23-25m/20-26w differed only as much as the 2 vars differed 28u "*geringen Grad*", *wb* X thinks some little of own pollen may have got mixed!? ♣ ? (No according to Gaertner) 57 19-24m/x 58 16-21m/w These failed the year before 16-21w Reverse experiment of last offspring as like to them as egg to egg 60 *wt* (a) This is very important (though only belief) well grounded/: has shown that *N. perenne*, *N. major* var fl. alb.○ N ● are all varieties by perfect fertility (& not mentioned as species by Loudon), or yet *N. perenne* seem rather more fertile with *N. glutinosa*, than other vars. & is 1) Major fl. alb.○ 2) Major vulg 3) Transylvan. 8-11u "*sol Varietäten*" /m/w (a) 13-28m/w XX shows that little of own pollen prevents quantity of foreign pollen having any effect. 61 1-11m, 11-27m 62 16-23m/10-23w very little being used, hybrid was produced 73 1-29w In all respects A more approaches male, except in particular p.77 further on 12-17w A on p78 on sterility male quite sterile, female side more fertile than ♣ 74 2m 77 1-14w this refers to the parent A except in some respects differed from all parents, as in dwarf growth & shape of leaves 78 *wt* All this refers to parent hybrids marked by an A *wt*/1-16m/w Essential difference, ♣ (though male side quite sterile), female more fertile (when impregnated with pure pollen) producing 100 seeds, instead of as in parent hybrid only 20-30 seeds 2-13m/10u↔ 79 1-25w These hybrids (in the 3 generation) all (many) closely resembled each other & the Pan. & were nearly with few exceptions quite as fertile as it. 80 14m/*wt*/1-14w The infertile few, partly sterile probably both on male & female sides. 81 2-31w Proved their fertility by all kinds of crosses & so found they very nearly equate in fertility to Pan: 82 3m 84 27w/*wb* two of the three quite unfertile 86 1-29w some fertile, some unfertile, though some of the latter came nearest to Rust., in

which respect apparently some variability 89 14-23w The hairiness & smallness of leaves not common in this degree of descent X in hybrids 29-31m/w Results of these confirmed 90 10-13m/w plants differed ♣ 2 from other & in fertility 4 of other sex raised 10-12m/10-11u "*einige weniger*", 27-28m, *wb* pretty good pollen & left to self produced very good seeds. 97 12-14m/12-24w differs a good deal one from another especially in colour & substance of leaves *wb* seedlings described at p59 next Fort. 98 28-31x/*wb* fresh proof of variation in second descent, when crossed with either parent.- 99 7-8w *barbatus*? see p.112 23-27m 100 1-18w in all respects analogous to last experiment. 26-31w all pretty fertile except one plant *wb* The fact of one species by crossing with another assuming such infinitely various new characters is an argument in favour of possible variation 101 2-4m/w some variation in different plants. 10-11w reverse of Exprmt p.96. 13c "*carthus.*" *barbatus* 14-28w does not bear so many seeds as pure *Chinensis*, but more than some experiments hence the hybrid male has more confined fertility as a female, than as male. *wb* N.B I think this requires more testing 102 7-11m/9w variation 103 14-19m/14-19u± 104 9u/w one of the plants 16-18m/10-21u± 105 5-11w on the whole fertility increased with some exceptions 106 1-6w p.166 3d Fort another experiment described 5m/w *barbat* 12-15m/w partially fertile, like hybrid-parent in character 8-19w In my Abstract (p18) of experiments: I see there is *D. Carthus* & *barbatus*.- 20m/w Italian = *barbatus* 107 19-21m/19-20w very like *Hortensis* 23-26w in *Hortensis* pure, pollen often not matured 28-31w less fertile than hybrid mother 108 17m/w Be sure to see to Reverse p.66 next Fort. 19-20m/w of very difficult impregnation 17-20w experiments with different varieties of both ♣, 24-29u±, *wb* B Does this case occur elsewhere of difficult impregnation, & yet hybrids so raised, being fertile rather? Has reverse been tryed? 109 3-6w p65 next Fort prop. *pulv consperso* 15-18u±/w Hybrids 23m, *wb*♦ B These four differ, as they are separately described. but they appear to have come from different varieties of *Hortensis* 110 1-17w in some points after one parent in some after another, in some intermediate Mostly after male. 30-31w/*wb* Male parent or *Hortensis*, double. 111 3-11w flowers double so that monstrosity can be transmitted to other species. 30-31m/w/*wb* important, because takes most after ♣ the

male an artificial variety; Not because the female is also a variety. 112 11m/w a variety of 12m/3-12w a wild plant on poor rocky ground. 115 20-23m/w pollen partly good 116 *wb* appears upon the whole to have taken most after the wild male. certainly not intermediate as so generally happens. 117 22-28w female side, was fertile with pollen of other species wd not self fructify *wb* This seems to show the want of intermediary due to cultivation. 118 *wt* Vide former Fortsetz p.43 119 2-5m/w some little variation in the hybrids 120 *wt* 4fold or 20 1u "meisten"/2-4w most not all 121 14-19w empty. smell bad pollen in some of growing wild - 17c/u "plumar"/*wb* p.69 ought to be *D. superbus* ↑ → 122 7u "vervielfältigen Kupfernelke"/w & M 11u▲/11-14w & in others Botanic garden 19-20u↔, 25-29w & in other wild plant 28u▲, 28w & in *wb* compares this to blight of Oats & suspect it due to weather. so be cautious 124 18-19w see 3d. Fortsetz p114 28-29m/*wb* offspring did not flower owing to cold summer 125 10m/*wt* See Gaertner p273 on Distinctness 11m/w England Smith says(?) Loudon says aboriginally S. America 12m/10w N. America 11-14m/18u↔/11-21w all like each other & quite fertile & so varieties contrary to Linnaeus *wb* I see Gaertner gives the reciprocal experiments only i.(a) 126 7-1m/w quite agreed with each other 8-9w Read vars. 23-26m 128 7w Stocks

Fortsetzung 3, 1 *wt* Experiments carried on ♣ from p.1 of last Fortsetzung 12x, *wb* Crossed many *Verbasca* of that country, & found them fertile, to his surprise, as he thought that plants of same country did not readily yield hybrids. 2 5w No 6w S. Europe 7w Brit 14-15u "Scherben", 21u▲/4-9w Never seen ♣ *Thapsus* & *Phlom.* growing in same spot though in same country 23w & *Thaps.* 4 19-24w intermediate 5 16-17w quite infertile 20-21w Reverse p.12 2d Fort: 20w Britain 21w S. Europe 23-24w exactly like 6 14w England 15w Britain x *wb* x p35 when crossed with flav. var. colour of hybrid-flower rather darker.- 7 9m 9 11-20w intermediate 26w sterile 10 2-4w some Mountain flowers 17m/w Britain 17-26w exactly similar to last. reverse of last- 11 3-4m/w Britain 15 13-24w sterile: those in pots, produced larger empty capsules (a) perhaps from pollen of neighbouring plants.- p.20 same fact 24-26m/w Reverse of last *wb* (a) N.B. In almost every experiment plants saved in hot-bed, & transplanted into open ground & pots; so Wiegmann wrong. 16 1-11w like last, or

reverse, except in leaves, being shorter & with little wing-like projections, as in female 14w Britain 15w S. Europe 24-26m/24-25u↔/26u "strohgelbe", 27-28m/w except in some colour. 17 3-4m/w Britain 19 14-25w intermediate 20 *wt*/1-4w This shows a negative potential power, & ignores my argument from cucubulus. Thus several cases where one species has not an organ, (as in this case one species hair & the other has not hairs with knobs) the hybrid has it in less degree.- 4-8w p.24 an analogous fact in stalks of leaves 24-25m/w/*wb* those in pots near other plants half fructified, but no seeds - (same fact p26 onwards) 21 3-4m/w Reverse of last quite like. 23 17-19m/u "beyl davon" 24 14w see opposite page 15-25w intermediate 16-19m/w V. ante a X 19u/*wt* 25 9-12m/w a X do 25-27m/w a X do 29-31m/w sterile 26 8-9m/w Reverse of last 21u "wesentlicher"/22u "nur schienen"/w no great differe 27-28u "sondern\muss" 28 15-22w intermediate 29 18-22m/19w sterile 31 14-26m/w intermediate 32 18-21m/15-21w intermediate 33 22-25m♦, *wb*♦ It is evident, from the great similarity between these hybrids & the foregoing ones, that *Phlonrides* & *Tha* 34 3-4m/w infertile 7-8m/w reverse of last 20-22m/14-26w quite like last, except in colouring of some of the flowers N.B. One parent is a var 27u "vier", 28-30m/w intermediate in colour - p307 Positively contradicted by Gaertner *wb* quite fertile 35 *wt* Even Babington allows that there are two such. vars. 1u/*wtr*, 5-7w wild Natural variety (a) 8wτ, 10u "beträchtlichen Anzahl", 12u "nicht Art", 15-16m/w case of var. *wb* (a) It is biennial - grows wild close together, yet during 4 years found they came true; in some districts, only white vars.- Why do they not cross naturally? very strange. Like Hollyock case. 36 12-14m/1-14w corollas of many of these hybrids fell off the unopened flowers. 17u "fünf\Gattungen", 16-18w only native species 37 20-22w self formed hybrid 39 *wt* insects visit all *Mulleins*, but no hybrids, because own pollen strongest effect 1x/2u "zur\beytragen"/w especially assist 27-30m, *wb* says he has shown by certain experiments that species will take only own pollen, if two blends put on together.- 41 *wt* V. *phoenicum*, which grows in Lower Saxony & Silesia near Kalw, is sterile on the male side with itself (as said at p.20, 2d Fortz) 4-8m/x, 9-10u "von\selbst"/w♦ & yet it seems it had pollen. 11-15m/10-21w 2 always fertile in one plant 15-22m/15-18u±/19-20u±/ 21-22u±, 23-25u± 42 1-4w self-formed Hybrids.

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6x/7u/wt 44 wt all hybrids of Verbasc. sterile (yet easily male C.D.) 2-6m, 13-17w sort of half fructification 21x, wb wd appear as if quicker growth, longer flowering & c was property of ♣ all hybrids.— especially of those that properly flower the second year or die 45 wt hard to explain strong vegetation before flowering: the permanence of flowers explicable by their sterility 2-4x, 4-7m/x 46 18-22w 1. 2. 3. V. p.53 24u "sieben"/w z 25u "noch höhern"/25-27w yet higher fertility wb z These do not seem to sport. 47 2-6w 1. 2. 3. 4 8u "zehen"/w z 13-15m/w some few bad pollen-grains in autumn 23w no offspring 48 1-9m/w did not differ from hybrids between Pan & Rust 23-29w sterile. 2 of the plants differed from a third wb NB in bringing back a hybrid to either parent, does not appear favourable to sporting 49 14w 1 16w♦ 2 17w Spring from self sown seed wb This & following appear extra fertile; is there any difference between first cross of Pan & Rust, & reverse? 50 2-7w some with more seeds and some with less 51 9-15w 1-1/2; 2-1/4; 3-1/8; 4-1/16; 5 16-17m, 25-26u "durch | Merkmal" 52 13-19m/x/wb probably some plants may be changed in more or fewer generations — x probably this facility is in proportion to the fertility of the hybrids. 53 10-16m/xx/19-20u "aus | Kräften", wb xx important; the gran-children, of themselves, without crossing come nearer to Pan (as if crossed again with Pan. as in XX) 54 4-8m/w now more resembled each other 14-16m/w not very fertile 56 5-7m/u "denen | Unterschied", 15-20m/w these hybrids came into flower sooner than either parent 28-30m, wb Hybrid pinks often arise naturally in gardens & cross much 57 20-21m/w (a) 23-25m, 28-30u "da | erstreckt"/w Pinks!! wb (a) This unnatural case of pollen not being mature in time often happens with native pinks when planted in gardens 58 16x/12-16w p.99 2d Fort same as Dia. carthus. 59 wt (a) These hybrids self sown. become ♣ partly more sterilized or partly more fertile in seeding themselves, but offspring sterile & tend of themselves to return to ♣ side of Barbatus 5-8m/w (a) 25u "Fortis. | unter", 28-30m, wb become very like mother-plant & assumed fertility by self action 60 7-11w supported by reverse 61 2-4w less fertility 62 17-19m/x, wb — hardly differed from Hort. & was double, so that these varieties produced full effect on a compound hybrid.— 63 19-23m/w differed & double on double calyx 64 8-14w intermediate 17-22w vary in colour 66 1u "Ansehen | Samen", 14m, 21-28m/23u

"vielen"/24u "einige"/25u "einen | etliche"/21-27w very few capsels with very few good seeds 67 7u "einfach"/9u "gefüllte"/8-11w varied much 2 double 18-19m/22-24m/19-26w resembled one in reverse experiment & greatly resembled the reverse cases wb♦ Does the homogenousness of reverse experiments hold in varieties, as well as species? 68 18-21w varied in colour all single 26-30m/x/wb xx took much after Hortensis: thinks in 3 or 4 generation wd be undistinguishable— 69 13-15m/xx 70 2-3u↔/1-16w D. chinensis two varieties can be impregnated with D. superbus (a native) as ♣ surely & fully as with own pollen. 72 1-17m/↔w wonderful how intermediate in every point, even the colour (wh varies) these hybrids are; yet we kn. one a wild species, other cultivated varieties. wb (a) Pollen of these Hybrids partly good partly bad, yet impregnation of parents sure as in pure D. Chinen 73 2w (a) 3-5u↔, 10-11u↔/9-21w inherited doubleness strongly more or less inherited Yet wild male & inclined to be hose in hose — colour darkens in Autumn 25u "in | sich", wb Could never self impregnate them; but produced when begotten by other species & by seeds 74 wt/1-12w duration of flowers & power of vegetation shows their hybrid origin, as in other instances. 25-27m/wb Doubleness hereditary from female as well as male side 75 29u "durchgehends", wb On male side quite sterile, on female with other pollen produced some seeds. 76 15w p108 16-23w intermediate 77 13-18w self infertile but fertile with pollen of superbus 78 7-12w intermediate 16-23w self-infertile but fertile with Hortensis 79 1-4w Both these & reverse of difficult impregnation. Reverse of last 5-15w intermediate & like last 19w variety 20w wild growing wb barbatus is Sweet William 81 12-18w intermediate 82 1-7w quite sterile 9w variety 10w wild plant 83 5-26w I cannot tell whether intermediate in colour seems to take after chinensis — sterile 84 16-24m/4-28w Varied greatly in colour — doubleness strongly hereditary 85 wt Though species & simple varieties, take intermediate colour, when crossed, yet those which have been much cultivated, sport greatly 1-23w has carefully self-impregnated some much altered Varieties & finds offspring sport much 5-29w So that this analogy has not escaped him— 13-17m, 15-16u "nicht | Sorten", 19-26m/x/wb & thinks long-continued changes of conditions tends to destroy the balance ♣ preserved in ordinary generation, in form colour & c &

everything as in hybrids of the first ascending or descending degree 86 17m, 18m/w double 19m/w wild species 27u "zehn", 28w 10 hybrids 87 1-31w X|| strictly intermediate, even in colour, but also the flowers double, so showing strength of double hereditariness!! 88 25-26m/25u "kein | einfachen"/26-27u "vervielfältigten | gefüllten"/ 23-26w Not one simple 89 1-4w quite sterile on female side. 92 wt/1-10w intermediate - in some few points apparently less like male or chinensis Q 15-16m/Q 17-20m/w considerable fertility on both male & female side 21-22u "wenn | Saamenstaube", 24-25u "zwanzig | ziemlich", 31u "nach | von" 93 1-10w about 1/3 of natural seed & next to [63] the most fertile hybrid he has raised 13m/w Loudon makes distinct 13-16w thinks a var: of *D. deltoides* a wild species 24-26m/24-30w form of petals a little different in *D. glaucus* from *D. deltoides* 94 wt (a) sowed seeds of wild *D. glaucus* & sometime a red flowered plant came up like *D. deltoides* * Both British & considered by Loudon as distinct 5Q 8m/w (a) 96 1-3w intermediate 6-7w quite sterile 16-26w supported strong vegetation = theory of all hybrids whether quite sterile or partly fertile 97 wt/1-5w B. This experiment produced much good seed; which surprised him, as this hybrid impregnated with *D. Hortensis* gave none. NB is perhaps explained by great fertility of *D. plum* sib with *D. chinensis* (p.43) So that a third species is more fertile with the hybrid, than one of the parents 6-8m/w B 9-12w ought to be repeated to be trusted. 98 12-16w intermediate 99 5-8w offspring differed considerably in every respect from same capsules 100 12-17m/w sterile except in one, some good seeds. 101 12-13w Another example 13a "der"/w 1st 14u "S.32" 102 2-18w The two hybrid plants differed in colour & in some other respects *wb* confirms remark, that hybrids in second generation with other hybrids not so constant, as in the first cross 103 6-8w fertility of some increased 15-16m/15-26w wild species yet does not seem to induce its form in this cross with any particular force. 104 25-28m/w fertile with self by self 105 11m, 19-26m, 26u "zwergartige"/w dwarf *wb* 3 plants differed in colour ♣ two approached nearer to *D. barbatus* & one to *D. chinensis*.- 106 1-19w similar hybrids from 2 reverse experiments sported & two leaned to *D. barbatus* 24-31w seems no rule in the variation of such hybrids 107 1-3m/w tendency to be dwarf 109 wt seems to ♣ say, that, as in a hybrid,

the male or female side is most fertile, so will its offspring take after that side. 7-12m 112 ↑2-1m/wb 2 differed ♣ 3 hybrid generation 113 24-31m/12-29w repetition of old experiments 114 17u♣/18u♣/1-24w intermediate & quite sterile♦ fertile: & hence varieties Loudon makes out diff. shrubs & plants China & E. Indies 25-26m, *wb* Hooker looked to these Hibisci for me; those now thus named are very distinct & really very distinct in appearance & male even into 2 genera: case cannot be trusted 116 wt A) Hooker found for me, that *Mat. incan* & *annua* are thought vars. by R. Brown & Bentham says *M. glabia* is also only a var. So case fails 4-6m/1-6w thinks infertility shows these distinct species 18-20m/w Make a list with reference to X Hunt out these vars 18w = *Mathiola* in Loudon A. 23u "Winter | zu", 24-29w/wb Gaertner has not tried this, Note given in K. to reciprocal cases of *M. annua* & *glabia* p.7061○ 27w so that 3 reported species are distinct *wb* x Resembled each other in inverse *incana* is Purple stock. *annua* ten-week stock. 117 19-20m/w as fertile as two parents 26-29m, *wb* Must be considered as varieties, though flowering at different times duration of flower & other differences. 118 wt Impossible to make anything out in Steudel Mem. species not in Loudon 1-2w *Sida* Not experimented on by Gaertner 10-15m/7-10w fertile hence varieties intermediate 19-21w cannot be traced in Sageret 22-26w♦ Compare with Sageret. 119 wt Hooker allows these two *Aquilegias* probably distinct 5-6w intermediate & fertile 8w varieties 17m/15w *Columbine* 22w double 24u "einfach"/w single *wb* I see Gaertner p365 experimented much on *Aquilegia* & nearly all (i.g.) (but no *Ks.*) with many species: ♦ Now Hooker thinks all one species; has he published? 120 14-15u "stark verveifältigen"/w V very double 122 1-15w Greatly varied ♣ in colour & doubleness. 18-27w as in inverse & varied as in do 123 wt Attributes the great variation to the cultivated state of the garden *Columbine*: supports statements at p.85. 10-11m/x/u "und | Fruchtbarkeit"/w not small ♣ fertility x 9-14m♣, *wb*/17-31w Some might think these hybrids p49 might be self-propagated for perpetuity; he does not believe, as seeds somewhat less, or doubleness only right number in parents. also from the tendency in many cases to return to either parent form 124 22w *Hyosciamus* 23w p46 125 8m 127 19-27m/10-31w I have not well made out following

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pages. *wb* In Syngenious plants, the pistils head down & touch pollen ♣ C. Sprengel | shd think did not know this 130 22-24m 131 9m 134 1-6m/1-15w wonders at the movement, as he thinks impregnation ♣ happens by insects alone 136 27-31m/w On Pollen 152 1-18w pollen in water, when swelled, does not burst in many genera

KONINCK, Laurent Guillaume and LE HON, Henri *Recherches sur les Crinoïdes du terrain Carbonifère* Bruxelles; Académie Royale de Belgique; 1854 [Down, I by Koninck

NB 55

55 4w●

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SB ∞

147 The older pari- & impari-digitata have collar bones much more alike than they have now – gradual divergence

147 thinks changes very stow (*ie slow*)

153 thinks reduction of 4-toed to 2 or 1 toed wd be grt saving, for reduced blood-vessels &c

183 much about adaptive & unadaptive changes.

⇒ What I do not understand

137 25m 145 13m 147 *wt* The older forms of the paridigitata & imparidigitata have collar bones much more alike than at present day – gradual divergence.– 2-16m, 35-41m 148 8-9m 149 23-26m/25u "*Choeropotamus*" 151 27m 153 11-21m, 37-40m 154 6m 161 35m

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ad, beh, che, fg, gd, mhp, mn, no, oo

NB *w* ∅

SA (pp. 28-29) □β

Jan. 19 1861 Abstract of whole Book

He asserts that Cruciferae are unfrequented before flower opens (Kurr)

(*over*) ⇒

Jan. 13th/61/Nectar an excretion – as seen in Legum. & Laurel – see also Kurr for other cases.– In Bracteen & flowers later produce only when sun shines – sugar is highly oxidised, & is not oxygen exhaled when sun shines.– Nectar is sought eagerly by various insects – C.C. Sprengel, finds case that it is excretion in various parts & organs within flowers & its very general presence in highly organised plants (see Kurr) was of special use to plant by attracting insects.– He erred in supposing that these visits were for self-fertilisation; though in many cases necessary for self-fertilisation (a) & for various of the Dioicous plants. The real object as shown by many general considerations is to ensure occasional cross.– But true as it in those flowers, as Papaver &

(*over*) & Verbascum (Kurr) no nectar, yet these genera naturally cross – I suspect pollen-searchers do the job – But there are some as grasses, conifers, on pollen of which insects do not seem to feed – here wind both unites dioicous & crosses the hermaphrodites – Often have feathered pistil without pollen in adundance – dangling anthers – open petal flower &c &c.– & no nectar (except *Poa aquatica* probably) Think of number of Insects which feed chief on Nectar!

(a) A hermaphr plant not self fertilising itself & thus requiring insect agency is in fact for same object of crossing

SB2 □β

Nectary p.129 p133 V tricolor Delphinium
(over) Abstract of Kurr on Nectary Jan 14 1861 1

p.17 Cyperaceae & Gramineae Junceae no nectar Arum none (false) – p34 Rumex, Atriplex none Rheum has 36 Plantago none 25 Calyx of certain Iris secrete Nectar

29. Lip of Butterfly orchis secretes before flower opens || throws light on secretions in Listera &c

28* Bracteen of certain orchids secretes honey

29 Cyripedium no nectar!

– 79 Polygala vulgaris none; yet I have seen Hive-Bees smelling shows how rarely secretion happens So Viola same facts

39 Small flower with nectar Veronicas (44 Myosotis) 54 Galium 2 spe. & Asperula/64 Epilobium hirsutum & Montanum) 79 Stellaria & Sagina procumbens/83 Draba verna/

40 Verbascum none (yet cross naturally) – Solanum tuberosum & parent none

42 Syringa vulgaris none? whether in own country?

80 The fruitful flowers of Viola have no corolla or nectary – (probably self-fertilisers)

85 In Cruciferae generally fertilisation in compound flowers.– & Honey after fertilisation = some error =

86 Papaveraceae (they have the guiding mark of C.C. Sprengel) no nectar

95. Amentaceae (except Salix known to be visited by Bees.) no nectar. Or Coniferae Good as showing use of nectar in several cases as Graminae Cyperaceae. & Coniferae when we see structure & pollen strong that wind is agent No nectar

(over) 99. List of plants without nectar

102 Nectar rarely secreted before pollen shed but last afterwards

115 cases of nectar secreted outside of flower (does not know of many cases)

124 cases of Orchids which get no seed when spurs cut off.– but opposite cases given in note

126. Viola tricolor bore seed when spur cut off probably bees do not see & are guided by flower – so with Corydalis later

129 general conclusion from 441 experiments barely lessened seed.–

131. some orchids bore fruit when corolla cut off

133 V. tricolor bore fruit 135 General

conclusion that cutting off corolla did not prevent flower producing fruit!

138 to 142 General conclusion of whole Book on use of Nectaries – All spoilt by not knowing of use of Crosses.

12 wb KruDtz 17 3m/w Arum must have Honey 11w none ↑15–10w none Poa aquatica must have – one Moth frequents 19 4w none 22 15m/u "beiden untern" 25 ↑14–12m 28 5–10m/w No Honey look at night– ↑7–4m/↑6u "Bracteen" 29 2–5m/w lip of Butterfly orchis before flower opens 18m 32 7–15m/x/w Proteaceae with nect on one side 34 "Rumex".x, "Chenopodeae".x 36 "Plantago".x, "Primula".x 38 1–10w Bees wd not go where the nectar accumulates.– ie in Nectar pollen ↑9–8m 39 5–15w Veronicas, though so small secrete Honey 40 "Verbascum".m/w X Yet cross so readily! Naturally moveable○ by pollen-searchers "Solanum".m/w none 42 "Syringa".m/w none 44 "Myosotis".m/w small flower 45 ↑8u↔ 49 "Apocynum".m 50 ↑18–14m/↑17–16u "welche | Saftmal"/w receptacle 51 "Pyrola".m 52 1–2m/wt shows secretion of pollen relates to opening of flower 3–8m 54 "Galium".m/u, ↑3–1m 57 1–4m/4u "untere | Hälfte", 16u "der | umgibt", 19u "ihn | umfasst" 64 "Epilobium".m 65 "Potentilla".m 66 "25".m 67 5–6m/6u "Saftabsonderung | dem" 71 "Melianthus".m/w latent 74 ↑4–1m 75 1–2m/1u "ist einseitig" 79 "Cerastium" "Spergula".m/u, "11".m, "12".m, "13".m, ↑11–9m, ↑10u "keine Honig"/w Bees frequent 80 ↑10–1m/↑2u "einigemal | wurzelständigen" 83 "9".m 85 "Cheiranthus".m/!u± 86 "Papaver".m/w Yet cross naturally 88 "Anemone".m/u 95 "1"–"4".m, "7".m, ↑4–1m 96 3–5m 97 "27".m, "44".m 99 wt Poppies have mark at base of petals to guide Bees 6–7w Eliz has plants/u▲, ↓w Anemone remarkable exception cover up Anemone 100 3–5m 101 ↑14–8m/w good for looking to Pistil 102 9u "höchst selten", 22u "gleich häufig", ↓w Nectar very rarely secreted before pollen shed but sometimes lasts after fertilisation. Present in dioicous plants 103 ↑18u/wt, ↑16u/wt, ↑14–10m/w Nectaries become regular in double flowers 104 12–16m/15u "Orchis | maculata"/17u "sehr | absondern"/w Nectar receptacles present where no honey!?! These, I suspect, are cases of secretion at odd times. 21–24m/w doubts whether they serve as guides to insects. 115 ↑6u "heisser", ↑12–6m/↓w Secretion of sugar by other parts of Plants 119 7–10m, 14–17m, 20–22m 120 1–12m, ↑12?/u "Viehweiden", ↑10u/wt 121 2–6m (Sprengel)/w

KURR

(a) *wt* (a) First who saw use of nectar to tempt insects 124 5-7m/w O. conopsea bore no fruit 8u "15", 9u "nur|an"/8-9m, ↑16-1m/w contrary result 126 *wt* Nectarys cut off 11-12m/u "alle|reife"/w It is clear Bees do not perceive when nectary cut off.- 127 8-9m 128 "27"m, "30"m 129 14a "Versuchen" with nectary cut off ↓w before the whole cutting off nectary hardly lessened Seed. 130 *wt* Orchids Cutting off flower ↑11u "keine|trug", ↑7u "Blumen|Kelch" 131 *wt* corolla cut off 4u "sind gereift", 8-9u "aber|Frucht", 18u "eine Frucht", 21u "Hälfte" 133 5-6m, 11m "Blumen|Früchte", "Viola".m/m/w (a) *wb* (a) Could he have artificially fertilised these flowers? 134 "69"m/!u "sie|Saamen" 135 "76"m, "77"m/!u "Fruchtbildung", "II"m 138 7-10m/*wt* says as he cut off corolla &c & yet plant bore seeds yet cannot argue that these parts useless so he says with Nectarys ↑4-1m, *wb* argues against Sprengel, because in most honey-secreters no help is wanted (does not think about crossing) he has proved in many cases no help wanted. Because many are fertilised in bud, as Campanula!! 139 2-6m/w no help wanted 7-9m, 10-12m/w Nectar fails in many dioicous plants. 16-17w B 19u "so|habe", ↑17-1m/↑10-8y±, *wb* B Believes insects necessary for some dioicous plants, but cannot believe so important an office left to chance! 140 1-4m 141 5-9m 142 ↑8-2m, *wb* Secretion of nectar, he concludes, relieves flowers, like menstruation, before seeds are got.-

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NB 242

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gd, sy, tm

vol. 1 NF Have

⟨untranscribed w are page-number references; ∞⟩

vol. 2, 17 2w, 13w, 17w, 24w, 25w 18 1w, 2w, 3w, 6w, 8w Order Polypes Tubiferes 405 415 22 8w, 14w 71 zt 90 8-12m, 9-23c/15w (a) *wb* (a) Flustra is stony & entirely membranous 91 17w, 18w, 19w, 20w, 21w, 22w, 23w, 24w, 25w 105 11w, 12w, 17w, 22w 123 15-17m 449 6w, 7w 457 2w, 19w 458 7w, 15w 504 9-10m 527 2w, 9w 528 1w 530 14-18m

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Hymenoptera 38; Neuroptera 179; Orthopteras 229; Coleoptera 266; Dom. 272; Frim. 275; Tetrar. 283; Heterom. 366; Pentam. 437; fil. 439; clav. 532; Lamell. 564 42 25w 43 3w, 12w, 18w, 24w, 28w, 32w 123 10w, 14w, 18w, 22w, 25w 185 19w 227 31-32m 234 8w 240 *wb* caught a specimen 370 miles from coast of Africa where it must have come from 248 15-18m 272 10w, 11w, 12w, 13w, 16w 284 14w, 21w, 25w 285 2w, 4w, 6w 358 23-26m 367 20w, 27w, 30w 368 2w 397 5w 399 1w 439 1w, 4w, 7w 440 14w, 18w, 20w, 24w, 27w, 29w 492 27w, 28w 493 3w, 13w, 14w, 15w, 16w, 20w, 22w, 25w, 30w, 31w 494 3w, 4w, 6w, 8w, 9w, 13w, 14w, 19w, 20w, 21w, 25w, 28w, 31w, 32w, 33w 532 ↑1w 533 2w, 6w, 9w 566 8w, 9w, 11w, 14w, 18w, 19w, 23w, 30w, 31w, 32w 567 2w, 5w, 9w, 10w, 11w, 13w, 19w, 22w, 23w, 24w, 26w

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ad, af, is, mhp, t, ud

vol. 1 NB1 It is doubtful whether Lamarck has done more good by awakening subject, or harm by writing so much with so few facts.-

This volume no facts, wild metaphysical speculations - very poor

vol. 7 - Land-Snails on Islds

Nothing else in whole work March 1857

NB2 March 1857 Nothing

111; 112; 114 to 116; 126; 132; 134; 151; 152; 153 to 165; 197; 249

287 On analogies

111 27-28m/28u↔ 112 10-11m, 12-14m 113 28-33m, *wb* Owen gives Rept (Rept Brit Assos) as strongest case of wide range of perfection 114 30-35m 115 19-23m 116 29-31!/30u "perfectionnement" 126 34-36m 132 2-18m, 23-25m 134 12-14m, 18-20m, 28-33m, *wb* Milne Edwards 135 22-25m!!! 151 20-24m 152 1-12m/w evidently has no notion 9-14m 155 18-23m, 19-20w♦ 156 1-16m, 4-7w only proofs 157 1m/u "loi|observation"!!!/wt Because use improves an organ, wishing for it, or its use, produces it!!! oh - 158 5-6m, 24-25m, 26-27m, 30-31m 159 3m, 4u "habitudes|prises", 5-12m/w this is nonsense applied to Plants, What makes them acquire a habit 13-18m/15-16w Base of theory 20-23m/21w oh 163 14-16m 165 7-19m/11u "peu|plus", 31-36m/→ 166 33-35m 197 32-36m 249 1-5m 287 1-3m, 4-11m/9w 288 17-18m 288 7-12m, 16m

vol. 5, 646 33-36m, *wb* V. Thompson Zoolog. Researches No 3 p69 651 22-28m 652 18-21m/18u/wæ

LAMARCK, Jean Baptiste de *Philosophie zoologique* 1st edn.; Paris; Duminil-Lesueur; 1809 [vol. 1 only; CUL, pre-B, cover is that of 1830 edn.]

ad, beh, cc, ch, che, cr, cs, dg, ds, dv, ex, fg, fo, gd, geo, h, he, hl, hy, is, mhp, mi, no, oo, phy, sh, sl, sp, sy, t, ti, tm, ts, v

NB p261 On effects of intermarriage in preventing multiplication of species

SB ☐☒

44 It is odd that in animals organs for conservation of life important, in plants organs of reproduction - But a flower is more than organ.

58 good remark how arbitrary the distinction race & species is.

62 alludes to conditions. [In Preface ask

whether from earliest * age there can have been revolution of climate corresponding to the many changes in organisms on earths face.]

Very poor & useless Book

21 19-25m 22 14-18m, 19-21m 25 23-27m 26 8-12m/9w Why? 10-21m, 21-22m/u "ou|existé", *wb* Fallacy common to Swainson & Macleay 31 *wt* X Here seems to think existing series perfect 12-14m, 21-26m/x 32 18-21m 33 26-28m, 27-28m, *wb* V. p31 38 *wb* In this Chapter argues that all divisions or gaps are artificial or that the series is either now perfect or has been so - Fallacy - 39 9-12m/11u "parenté" 44 10-13m/w why so strong a division? 50 24-28m/? 51 1-12m 52 *wb* On the importance of relations 55 11-25m 56 14-25m 57 22-25m, *wb* Lower animals where many species 58 1-9m, 18-28m 59 16-17m/16u "forment|rameuse", 18-24m 62 21-28m/?, *wb* Is there any marked difference between races produced in same or different countries, with respect to propagation? 63 1-5m♦/? 64 22-26m/23-24m, *wb* * a want of Proof 68 *wt*/1-12w The case of acquired hereditary instincts, shows that instincts can be acquired. 3-4m, 10a "tout"/→/8u "sublime Auteur", 21u "nature" 70 21-27m, 24-28m, *wb* & not isolated pair 71 1-4m/??, 13-15m/14-15m/w Well-said 18-21m, 20-28m, *wb* Like Lyell in Geology 75 1-7m, 10-14m, 13-27m, *wb* not well stated 76 1-25m, 10-23m/14w Poor 13u "à détruire"/→/wb S. Africa 78 1-26w The similarity of type on old Continents & in oldest seas - does it point to first Creation?? *wb* Lamarck argues, species of shells, not killed by man, no apparent cause of death; but causes of change are present ∴ therefore fossil same species with modern.- 79 13-15m, 24-29m/w ∴ rate of change not uniform in world, except on great scale *wb* Geologists judge of time by change of species, these changes effect of physical changes (dynamical changes). these we can only judge of by present day - Therefore measure of past ages is reduced to observation of changes at present day - 80 *wb* Therefore every fossil species direct father of existing analogies & no extinction except through man!- [Hence cause of innumerable errors in Lamarck] 81 *wb* On species - argues against permanence, when conditions changing - series branching now or once perfect - no genera - conditions change species & these changes by time become fixed - assumes some more species made by (p.64) by hybridity & fixed

LAMARCK, PHIL. ZOOLOG.

by time – wants produce habitudes, the source of actions, faculties & instincts – argues against Egypt case & asks what is 2000 to 3000 years? –/definition of species 75 /doubts any extinct animals! (hence theory must be false XX *wb* There is nothing about types as Geograph. Grouping 83 9–15m/10–11u "n'offrant parfait" /?, *wb* nearly all compound animals being fixed, analogy with vegetables, – caused probably by ✦ imperfect transmission of will preventing voluntary & coinstantaneous movements. 84 1–4m/? 86 1–4m 89 16–22m/? 93 1–5m 101 *wb* Speculations 105 11–14m, 21–25m 106 17–27m 107 15–27m/17u "quelle" 108 13–22m 109 9–16m 110 24–28m 127 15–23m 129 *wb* – Classification – p.105. few animals at the limits of classes – animals in series & not ramified p.109 (quite different from my view) – organs vary in developement & not in same ratio, as the developement of the class to which it belongs 134 27m 135 1–3m 136 1–6m 140 1–27w There appears to me to be some confusion in these ideas of degradation. What makes perfection, except that towards the end wanted. Look at House of Crustacea *wb* Scale (of many kinds) of complication = on exists. 144 1–3m 145 6–14m, 13–27w Here is the difference between Lamarck & Me 146 5–8m/? 147 1–2m 148 3–8m, *wb* The economy of world would have gone on without Bats or Ostriches. – It can only be following out some great principle It is clear Birds made preeminent for air. yet if no birds: Mammalia would best take place 149 *wb* (continuation of p. 148) There limit to this Adaptation. Fish could hardly have lived out of water. Though Crabs – Spiders under water. – 150 *wt*/1–5m/?/w This is rather false; Simply to differ from highest animal, does not prove degradation. Who can doubt superiority of some organs & therefore senses in lower animals 15–28m/w How curiously different from Swainson 16u "palmipèdes"/w Why? 18u "sortant marcher" 151 6–10m/w as bad as Swainson 155 13–15m/w no links with high classes 156 15–16m, 16–28m, *wb* ✦ according to his class of argument. This not degradation because mere effect of in 157 5–10m, *wb* NB Snakes perform the parts of fish, & fish of snakes. – 158 7u "odorant"/→/w On this scheme of organization lower down it would not be expected to find organs ✦ smell more perfect. But in others as articulates it is much more perfect 217 *wb* This chapter must be looked over again: L. distinguishes between degraded or abortive organs, such as

extremities of Cetacea, & less developed forms –: discussion on this point fills much of this Chapt. *wb* The want of progression in the vegetable world serious fact Lamarck has rather overlooked – Though no doubt vegetable world should rather be considered as one family (not so large as insects) in the scheme of organic beings. 221 23–27m 223 14–21m/w Therefore not same theory to plants & animals 229 24–28m/28u "formées pays" /? 235 16–18m/17–22w are there any facts? I doubt 241 3–8m, 13–16w Australia honey-sucking marsupial. 242 1–6m/w Mem. Tucotucu *wb* Coleoptera wings beneath soldered cases 244 8–13m/9? 246 5–13m 261 22–28m 262 1–7m 266 7–14m, 10–28m, *wb* Does not pursue this into Geographical Distribution 267 7–16m, 18–27m 268 *wb* Explains how animals & plants change. Lamarck's theory differs for plants & animals – It is absurd this way, he assumes the want of habit causes animals annihilation of organ and vice versa – ||Explains how crossing presents innumerable varieties of man – & supposes if no distance between men, there would not be many races of man – does not extend this view 376 1–3m/1–13w This shows connection of life with laws of Attraction– 16–28w If food in stomach is vitalized one need not wonder at the power of the womb 378 10–18m/12–13w crystal 379 19–25m/21–22m 380 1–7m/3? 381 *wt* Have not crystals certain properties common to the whole & not to part? 1–3m, 1–10m, 4–14m 382 20–21u "toujours accidentale"/w crystal 25–28m, *wb* Endosmos & Exosmos purely Physical action 384 1–28w The interruption of ordinary laws of classical attraction most striking character of life 13–26m/wb Other final cause 388 13–26m/ 24–25m 392 6–9m 393 16–27m

LAMARCK, Jean Baptiste de *Philosophie zoologique* new edn, revised and introduced by Charles Martin, 2 vols.; Paris; F. Savy; 1873 [Down, I by Martin] ✧

LAMBERT, Charles *L'Immortalité selon le Christ* Paris; Michel Lévy Frères; 1865 [Down, I]

✧

231 14–18m 233 11m, 14m 256 24–26m 275 12–16m 279 22m

✧

LAMBERT, Charles *Le système du monde moral* Paris; Michel Lévy Frères; 1862 [Down]

LAMBERTYE, Léonce *Le Fraisier* Paris; Auguste Goin; 1864 [CUL]
hy, sp, tm, v

NB \emptyset All used 1865

p.14 M. Gay \emptyset ; p.24 no runner; 37 5-leaved curious; 50,51 to p.63; 76
History 125; 127; 137; 221 \bullet ; 230; 244 5 leaved; Belle Bordelaise not a Hybrid
14 6-11m/w Hautbois 24 25-27m 37 17-20m 50 17-20m, 25-31m 52 19-23m 53 24-25m/w Scarlet 57 11-22m (Hooker) 59 1-2m/1u "c'est l subalpine", 27-31m 61 4-7m, 16-21m 62 25-30m, 31-32m 76 19-24m 77 35m, wb not hybrid 125 14w 1683 127 28w 1746 29u "cités"/29-31m 137 11u "Fressant"/4-14w 1766 all specs known 5 vars with some subvars of *F. vesca* 173 23-29m 221 24m, 28-33m 230 13-19m, 21u "Belle Bordelaise", 28-33m 244 31-34m 245 1-3m, 4-7m 379 23m

LAMONT, James *Seasons with the sea-horses* London; Hurst & Blackett; 1861 [Down, I]
beh, gd

NB 89 Drift wood on Spitzbergen from W. Indies & some N. country
141 Walrus fighting manner of
89 7-18m 141 1-3m 143 9m, 25m

LAMOUREUX, Jean Vincent Félix *Exposition méthodique des genres de l'ordre des Polypiers* Paris; Veuve Agasse; 1821 [CUL, pre-B, S]

facing viii table.w $\emptyset\emptyset$ 5b 32-33m 11a 20-22m 107a 20m 107b 19m 108 21m, table 31.w Pavonia table 57.w Modespora table 64.w Cillepora, 12-16 F, 17 18 22 Cill table 65.wt Cilla - table 65.wb Tert \bullet

LANCIANO, Raffaele *L'Universo, l'artro e l'individuo* Napoli; Tipografia Italiana; 1872 [Down, I] \emptyset

LANESSAN, Jean Louis *La Lutte pour l'existence et l'association pour la lutte* Paris; Octave Doin; 1881 [Down]

LANESSAN, Jean Louis *Du protoplasma végétal* Paris; A. Parent; 1876 [Down] \emptyset

LANKESTER, Edwin Ray *Degeneration. A chapter in Darwinism* London; Macmillan; 1880 [CUL]
ci, dg, sx

NB male cirripedes the shorter cirripedes the primitive cirripedes
reason for Mites being degenerated Spiders Anclasma lbla

LANKESTER, Edwin Ray *On comparative longevity in man and the lower animals* London; Macmillan; 1870 [CUL, I]
beh, ct, fg, h, he, in, oo, pat, sl, sx, ta, y

NB1 Bears on Natural Selection

p.75 Rate of Reproduction

I think I had better only say after discussing how long the series of changing cells goes on (perhaps for even senile diseases) that longevity is a more difficult subject & refer to this book.-

NB2 Who has \clubsuit discussed this obscure subject more fully than 2 other recent authors

Pangenesis 31, 36

Longevity & Individuation \clubsuit

45 longevity $\checkmark\emptyset$

do 71 $\checkmark\emptyset$

76 $\checkmark\emptyset$

Pang - 77, 108 \diamond \diamond Death-rate of married men

$\checkmark\emptyset$ 79 $\checkmark\emptyset$

Summary on Longevity $\rightarrow\emptyset$ 87 Summary; 119

\diamond 91 Struggle for existence between societies

\diamond savages perish in old age from starvation - 117

\diamond 120 Destruction by Intemperance; Table p.114

\diamond 122 - The struggle for existence includes rearing children

\diamond average mortality has increased - 126

\diamond 128 on Fraser's article

31 16-24m, 28-29m (Darwin) 32 12-20w no, they multiply 33 zt OOOOOOOO wt the last will consume all gemmules in repair wt How many stages of metamorphosis 1-6w I suppose after a time, same cell reproduced 8-14m/w Gemmules? used up in repair 36 1-11m/w If any gemmule had but limited power of increase all wd be clearer 45 1-4m/w Parrots Tortoise? 71 21-28m 75 28-30m, 28m/w ? Herbivores 31m 76 17-23m/18u \emptyset "generative expenditure"/9-21w greatly opposed to his belief 77 13u "castrated animals"/12-15m/w They ought to be for they retain gemmules \clubsuit , 23-29m 79 8-12m 87 13-25m/17-22u \pm 91 6-11m 108 27-28m 117 5-8m 119 6-8m 120 28-29m 122 17-19m/15-20w that not starved to Death, to marry & rear children 126 7-9m 127 9-13m 128 20-24m, 26-28m/26u "social virtues" 129 19-21m, 30m, 31-33m/?, wb No some differ in constitution same disease not twice
catalogue \emptyset

LARDNER, Dionysius (ed.) *The cabinet cyclopaedia; outlines of history* London; Longman, Rees, Orme, Brown & Green; 1830 [Down, I Charles Darwin 1839]

LATHAM, Robert Gordon *Man and his migrations* London; John Van Voorst; 1851 [CUL]

af, beh, cc, ds, ex, gd, h, ig, mg, no, oo, sy, tm, v

NB 49 Man & Monkey compared by summary, only numerical on Resemblances SB1 □ \mathcal{R}

p.47, 49 (If we cd we shd class Man by Descent, I think) p.74

p.62; 70

97 - ♦ Perhaps a decrease or unfavourable conditions might destroy the intermediate vars, or the increase of a new & better variety or species. when formed overtakes the intermediate vars.

123; 135; 156

SB2 □ β

♦ Latham Man & His Migrations – refer to & read these passages.

48. Quotes Owen with approval, teeth offering more valuable character because not surrounded by muscles.–

69 & 70 good remarks on contrast of sudden removal and the natural slow movements of spreading species or man.–

97. Excellent remark (quote in Ch. 6?) on how during incroachment, one var. will 123 do obliterate intermediate forms: I do not see force of Displacement. – If one form gains an advantage over the other independent of climate, it will overwhelm the graduated intermediate forms

74 Excellent remarks on classification by descent & resemblance

135 Clever remark on different climates which man inhabitants of Cape of G. Hope & of S. America must have passed through.– over

(over) p.156 contrasts the primary diffusion of man, with that of subsequent diffusion, when man is opposed by man – N.B the wide & rapid spreading of introduced plant is something like this – its progress are not yet developed

47 24–27m 49 3–11m 70 1–4m 74 6–17m, 26–27m 75 11–12m, 15–16m/16a "same" descent 24u "Ethnology", 28m 76 2–7m 97 21–23m 123 26–28m 135 19–27m 145 wb ♦ 205 156 wt But in quite open country man wd increase more rapidly 5–13m 181 8m/u "Comorin"/w Matapari? 191 6–9m

LATREILLE, Pierre André *Histoire naturelle des fourmis* Paris; Théophile Barrois père; 1802 [CUL, pre-B]

beh

NB Abstract of Oct/58/

71 Winged ants ♣ carried low in nest when it is disturbed

73 Workers try to keep in winged individuals in nest.

title page wt Latreille died 6 July 1833 71 1–2m 73 3–6m 140 18w B 143 1w B 150 4w B 151 1w B 156 5w B 159 1w B 166 7w B 168 8w B 195 2w B 246 7w B 251 6w B 255 1w B 257 1w B 259 1w B 345 17w 8 (number of eyes) 347 4m 349 9–10m, 12u "Huit", 26m

LAUGEL, Auguste *Les Problèmes de la nature* Paris; Germer Baillièrre; 1864 [Down, I]

LAUGEL, Auguste *Science et philosophie* Paris; Mallet-Bachelier; 1863 [Down, I]

272 7–11m

LAVATER, Jean-Gaspard *L'Art de connaître les hommes par la physionomie* new edn by M. Moreau de la Sarthe, 10 vols.; Paris; Depélafole; 1820 [CUL, pre-B]

beh, pat, phy, ss

vol. 1, Avis 19u "en 1807" 209 27u "ce | 1806"

vol. 3, 139 1w Read to p.162

vol. 4 NB All read

♦ p.15 Camper Book; 17 Sexual Selection; 48; 52; 54; 120 sexual selection; 123 do

♦ 194; p.205 to end

Abstracted

p.194, 217 Plate of Muscles

15 19–20m 17 15–17m 48 19–21m 52 7–10m/7w Buffon 54 4–14m (Maupertuis) 120 22–29m 121 13–15m 123 10m, 11–13w all soft parts 205 4–8m/5–7u "c'est | musculaire", 17u "celui | respiration", 18–20!!/20u "d'une | épisodique", 21u "parole à", 29–30→ 206 7–9m, 10–12m 209 22–25m/w/30m/wb can it have been of service like language voluntary use to express ideas thus coming into aid of natural beginning → 210 1–4m, 14–15m, 27–30m 211 1–4m/2u "suivant Haller" 221 18–22m 222 2–4m 223 23–25m/w same as corrugator 27–29m/w different from Duchenne 224 14–18m/1–18w/wt in opposition to the muscles which depress eyebrows in grief & concentrated thought 228 24–26"...", 26a "concentrées"/wb He then adds that these muscles from their attachment & position are fitted ♣ 229 1–2m, 1–2u "principale | physiognomique", 3u

"sentiments sombres", 3-12"... ♦ 230 12-14m
231 25-29m 237 2-3m, 12-15m 244 12-16m
263 3-10m, 18-20m 264 23-24m 274 20-23m
282 14u "noir|sang", 15u "le|artériel" 293 9-
11m/15-22m/8-23w is most delicate abounds
with nerve & tissues hence perhaps no other
part could bleed so easily, & specially liable
to be affected by cutaneous eruptions 300
16-18m, 26-29m, 29m 301 3-9m, 17-26m 302
18-27m 303 1u "beauté|ébène", 13-17m, 19-
28m/19u "par|front", 30m 304 2-7m 305 10-
14m, 19-21m

vol. 6, 27 zt

vol. 8, 274 18-22z

vol. 9 NB whole volume skimmed; 116 &
they hear excellently Pampas; 266 Hope;
273; 278; 289; 293; 295; 299; 300
116 8-13m 266 4-5m, 24-25m 267 27-29m 268
12-13m 273 13-15m 277 fig. 11.w fear 278 5-
6m 279 7u "les|même"/w drawing back 10u
"prunelle|paraître", 25-26u "le|autre"/".../w
frowning & astonishment together 280 8u
"voulant respirer"/1-8m/w If I want to show
what rubbish has been written a translation
of this will do.- 13..." 289 fig. 19/20.w sorrow
fig. 21/22/23.w excessive pain fig. 24.w joy
293 fig. 25.w laughter fig. 26.w angry fig. 28.w
passion 4a "fermés" ie brought down at each
end 3-8u±, 8-11m 294 4u "les|enflées" 295 3u
"les|enflammés", 6-7u "narines|élargies", 8-
10m, 11u "grinces", 13-15u "veines|hérissés"
299 19-21u±, 300 16-18m, 23-25m, 28-30m

LAWRENCE, John *The horse in all his
varieties and uses* London; Longman, Rees,
Orme, Brown & Green; 1829 [CUL, on B]
ch, he, pat, rd, v

NB p.5; p.9; p.30; p.230,234; 265; 283

SB □β

30 Hereditary diseases of Horses

230 Changes in Fox Hounds Q↗

p.14 Tushes variable in Mare - Variable
Rudiment

5 25-26m 9 28-29m/Q 14 28-32m 30 17-22m,
24-29m 230 9-16m/7-8Q 231 20-24m, 27-33m
234 1-7m 235 23-25z 265 4-10m, 24-25Q 26-
32m 266 8-10m 267 1-3m 283 19-28m 285
25m

LAWRENCE, William *Lectures on physiology,
zoology, and the natural history of man*
London; Benbow; 1822 [CUL, pre-B]
beh, cc, ch, gd, phy, rd, sl, ss, sx, sy, tm,
wd, y h, sx, tm, v

NB ∞ p484 ♦ 243 Blushing

172 ♦ position Heart - & other organs,

clearly by form of thorax & attitude

Appendix vermiformis 191 ♦

Expression - Tears vented by various
animals - 205

Sexual selection ♦ 272 274 276 Beard

♦ 393 Arabians beautified - Persian Chardin
397 Selection not applied to man (↗ by
other men it shd be added)

Ure → 484 Ure's Q ↗ sense organs.

♦ 437 Pallas on changes of coats of
domestic & wild animals in winter &
summer.-

452 ♦ Eyes of Negros at Birth

317, 319 ♦ exaggerate form of Head

337 ♦ flatten nose

354 Ears

♦ 356 Tattoo females

♦ 357 Lips

♦ 366 Hottentot women

♦ 368 Baboons ♦ steatopyga

vb 3-9m via 21-24m, 40-55m vib 17m, 57m
viia 17-23m viib 1-7m, 22-30m, 24m, 59-61m
viia 10-13m, 20-25m viiib 1-7m ixa 12-16m
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34m xb 3-22m, 38-60m 172 1-6m/6w± 173
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274 9-11m, 18-21m 278 5-10m 317 25-31m
319 19-33m 337 30-32m 354 8-26m 355 1u
"the|South"/1-4m 356 30-32m/32u "of|the"
357 1u "female sex", 19-21m, 24-25u↔ 366
23-26m 368 31-34m 393 3-14m/7-11m/10-11w
found 20-28m, 31m/u "even|sprung", wb
Chardin ↑5".../wb Chardin says 394 1u "on|
countries", 8-14m/10..." /w poor 397 15-17m
404 21-27m 405 wb In all parts of the world
confined to one stock wb Pallas 437 24-32m,
31u "Siberian roe"/wb Capreoli Sibirici
subcaudata 30-33u± 438 32-33m/w &
Gligium ordine 1778 451 30-34m, ↑6-1m 452
1-2m, 5-12m

LAWSON, Peter and son *Lists of seeds and
plants* Edinburgh; Peter Lawson & Son; 1851
[CUL, I by W.J. Hooker]

v

NB Oct 1857 O/

p.65 Hollyocks; p.67; 87; 179; Nuts, Currants
& Gooseberries described 206 Synonyms of
fruit; p.20 Grasses

12a 10-11w↗ 16 vars 13b 19-20w↗ vars 21
65 35-37m 67 11w How many 87 1w How
many vars. 2w 3-5 feet 4u "constant" 179
23-29m, 35-42m

LAWSON, Peter and son *Treatise on the cultivated grasses and other herbage and forage plants* (bound with previous item)

20 8-14m, 21-29m, 21m 23 3-7m 27 22-23m

LE BRUN, Charles *The conference of Monsieur Le Brun, chief painter to the French King, chancellor and director of the Academy of painting and sculpture* London; John Smith; 1701 [Down, pre-B]

LE COUTEUR, John *On the varieties of wheat* Jersey-London; H. Payn & H. Wright; n.d. [CUL, I to C Darwin Octob 1841]

ad, cc, cs, dg, fg, he, mhp, no, oo, phy, sl, spo, v

NB Introduction & p.1 to 79; p17

SB vi variability of common wheat. adaptation to different soils

p.6 150 vars

12 chance origin of some vars X

15,16 careful selection of separate ears of corn in Columella's time & Virgil

52 disbelieves necessity of change of some seeds but then he studiously varies the manure

55 1/10 of seed perishes even with greatest care Q

59 on one variety soon predominating over (good) another in wheat & hence called degenerating (He has shown how every little trifle is hereditary) without destruction Q

65 an incorrigible tendency to sport in some vars. Q

66 Talavera does not cross because flowers earlier Q

70 Wheat seems affected by climate whence derived (Evidently believes in crossing)

23 Habit of growth differs

proportion of gluten

64 flower at different periods

79 quality of straw

vi 6-8m/4-12w Henslow corroborates the degree of variation in wheat vii 22-24m 2 2-5m, 28m 3 11-13m 5 10-12m, 11-13m/12u "perfect oats", 19-20m 6 4-6m, 24-25m 8 15-18m 11 15-17m 12 1-4m, 5-6m, 26-27m 13 8m, 17-20m 14 15-20m/19x 15 10-12m 16 3-5"...", 5-6m, 9-10m 17 4-5m/4u "similar appearance", 9-15m/10u "to\sorts" 22 17-18m 24 1-2m, 5-7m, 17-18m 26 22m/u "is\ tall" 35 3m/u, 15-16m 38 8m, 13m, 16-17m 41 16-19m/17u "fourteen"/19u "forty-two" 47 1-3m 52 8m/u "is\idea", 23-24m 53 4u "grown\ land", 5u "becomes\with" 54 5-6m/5u "brick\ all" 55 14m/u "one-tenth", 27-28m/27u "seven

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LE COUTEUR, John *On the varieties, properties, and classification of wheat* 2nd edn; London; W.J. Johnson; 1872 [Down, I]

LECOQ, Henri *Études sur la géographie botanique de l'Europe et en particulier sur la végétation du plateau central de la France* 9 vols.; Paris; J.-B. Baillière; 1854 [CUL]

af, cc, ch, cs, dic, ex, f, fg, gd, hl, hy, ig, in, is, mhp, no, oo, pat, phy, sp, sx, t, tm, ts, ud, v

vol. 1 NB Index at end of Vol 9-

SA (pp. xv-1; 10 sheets) □β except that referring to vol. 2

↳

Lecoq. Vol. I (Put in at end of Vol 9)

8. Number of species & number of individuals not correlated in Coniferae

Red mark cross pollination & Dimorphism

56. Alpine plants often do not mature seed.

80 Saline plants in Puy de Dome !

139 Ref. to Catalogue of Plants of central France with rarity marked.

⇒ A good deal about Tyme-like flowers 2 forms

144 Terminal flowers often different from others

159 Natural Hybrids

162 Hybrid Primulas fertile ✓

165 Isid. Geoffroy on close representative species.

170. good remarks on resemblance of American & European plants & on Arctic plants varying much, explained.

182. Increase of Branchiae from use & of Lungs from disuse in Proteus submerged.

194 Alpine plants bud at fixed time when transplanted

197. Vars. of Solidago flowering at different times

207. Von Buch on small genera in Islands ♣ Believe in mutation of species & so Lecoq

209 Land Mollusca of distinct species seen

in copulation

250. Lecoq believes in Transmutation

☞ Feb. 7 1877 I have copied all I want for quotation ○

☞ Vol 2.

◆ 162 plants standing very different climates – Lapland & Greece

199 Atlas & New Grenada plants in comm.

205 Alpine Plants good

283 Forms which have wandered from Tropics

289 do. – Isolated Tropical forms

331 species ranging from high to low on Mountains

404 Alpine plants

406 do

410 alpine plants; their varieties

412 do

414 do – Middle heights have most peculiar forms

419 Alpine vars & intermediate vars.

◆ 430 duration sign of Highness he remarks 162 Plants ranging from Lapland to S. Granada; 32 in number. –

☞ Vol 3

71. thinks annuals highest forms!

72 Only one annual dioicous ✓☞

75 few monoecious.

76 on proportion of Trees with separated sexes ✓☞

79 on separation of sexes all good & curious ✓☞

80 Extraordinary cases of separation of sexes under different latitudes, like Ivy case. Imperfection of Nature

94 Imperfect flowers of Violet

102 On diversity in same species in flowering

161 different periods of flowering of same species on X☞(◆☞) plain & mountain – a day for 90 ft

182 flowers which open at night

211. Replacement of one group by another

214 Changes◆ in plants in pastures

222 Parasitic plants generally on very different plants – gradation in degree

257 Northern Trees unarmed. by thorns

287 villosity character of plants in warm countries X☞(◆☞) & not of mountains –

291. dryness most effect

X☞(◆☞) 405, 7 Piebald flower for crossing, like Gallsio

410. do striped flowers

☞ see Back

☞ Vol. 4.

4 White flowers steadily increase from S. to N.

11 In Arctic few bright

14 So on mountains

27 On smell of flowers Dichogamy

57 On social plants – to 68 on do

73 do

80 definition of sum of life

86 association distinct from social

207 Association parallel in different regions

233 representative species or vars. –

237 parallel species in different soils

239 do

272 On absence of certain forms in Islands

304 on struggle between allied Plants

407 Some sp. of Clematis polygamous D.

425 Some with aborted female fl. 431

470 Shady var. of Ranunculus no petals

482 Ranunculus sceleratus, or Dichogam.

488 Caltha polygamous D

497 Helleborn, probably by insects. D

514 Aconitum a Dichogam

(not CD; ☞) Vol. V. (u☞, CD) D. means Dichogamy

p.6 & 15 crosses wd be difficult

p.22 & 26 Fumaria self impregnated

p.157 Cistus clouds of pollen in early morning.

p.180 ✓☞ (CD) Viola imperfect flowers alone seed

p.196 Drosera flowers open only in sunshine

p.200 Parnassia D.

p 227 D. p.241 D.

p 242 Silene five stamens often aborted

p 246 D 250◆ 249 D

p 252 a Diochous Silene

p 257 Lychnis

p.273 Arenaria with viscid glands.

p.288 Holostium flowers very sensitive to light

– 295 Stellaria D

– 305 & 309 Cerastium stamens move to pistil

– 317 Linum catharticum stamens move to pistil ✓☞ (CD)

– 331 – 332, 336, 338. (CD) Malvatiae D

(over)

367 Acer eminently polygamous

371 Vine pollen of carried by air American Dioicous.

377, 379, 380. Geranium D. fertilized after petals fall

397 Erodium D ?

384, 387, 391. Geranium D.

397 Erodium D ?

401 Impatiens dimorphic

411 Ruta fert. by second set of stamens.

416 Erconymus. the upper flower often has 5 parts like Ruta the other flowers having 4

✓☞ (CD)

418 Paliurus one of the Rhamnic D.

LECOQ, GÉOG. BOT.

- 420 Rhamnus Catharticus male & female trees have different kinds of leaves – is dioicous & hermaphrodite ✓ (CD)
 422 R. infectorius dioicous. R. alpinus ditto
 ☞ (CD) Vol 5. continued
 ☞ (not CD)
 424 R. frangula. flowers for the most part hermaphrodite
 426 R. alituruus. dioicous
 468 Ononis. dimorphic
 481 Medicago – its fruit twisted either to the left or right, whilst in most species the twisting is from left to right. ✓ (CD)
 513 Trifolium subterraneum buries its fruit.
 ☞ (CD)
 Lecoq. Vol. 6 1
 15. Spiraea fertilised when flower opens
 40 F. Elatior Dioicous
 88 Potentium – monoicous & yet dioicous in function
 118 Epilopium some dichogam some not so. 121, 125, 126, 128
 133 Cricaea do?
 156 – Lythrum – species.
 160, 166 Byonia, Portulacea Tropical forms
 200 Sedum, some species dichogamous
 209 Sedum with 2 kinds of flowers differing in number of petals & stamens
 214 Sempervivum curious case of Dichogamy. showing slow regular movement of stamen not to impregnate – as in Berberis.–
 224 Ribes ♀ sexes separated
 262 Sanicula polyg – female dichogam. Umbelli=
 266 Eryngium dichogam =ferae
 273 do. 275 do, 277, 283., 289, 310, 318, 323
 367 (not all Umbelliferae marked)
 310 Foeniculum central ♀ umbels sterile.
 335, 344.
 335 Imperfection of structure
 371. Hedera dichogam
 (second sheet)
Vol 6
 376 Cornus – in fact monoecious
 386 Adoxa 2 kinds of flowers
 402 Lonicera periclymenum fertilised in bud.
 420 Rutia (Rutiacea) nocturnal
 425 Galium tricorne polygamous
 429 Galium anglicum do – day flower
 473 Knautia (Dipsacea) strongly polygamous.–
 477 Scabiosa ♀ succisa do –
 ☞ Vol 7.
 357 Pyrola minor apparently dimorphic
 369 Holly dioicous, sexes unequally separated

- 391 Menyanthes dimorphic
 400 Gentians Dichogam, 401, 403, 406, 407
 449 Echium vulgare dimorphic
 452 Pulmonaria angustifolia do
 504 Gratiola (Personata) dichogam ✓ (Scroph.
 526 Erinus (do) fertilised in bud
 538 Veronica spicata dichogam
 573 Lathrae fertilised in bud –
 ☞ Vol. 8
 6 Lavandula fecundation in bud
 9 Mentha syrhaustus dimorphic peculiar |
 26 Origanum vulgare dioicous by abortion |
 29 Thymus from Vaudan dimorphic |
 32 Satureia dioicous | occurs
 37 Calamintha dimorphic. do. | when flowers
 44 Hyssopus do | almost
 48 Nepeta do ☞ – same as Glychoma | regular
 74 Stachys dichogam –
 146 Hottonia dimorphic
 150 Cyclamen Dichogam. ✓
 157 Globularia female Dichogam
 241 Polygonum flower different in Water & out.
 254 Stellera, fertilisation of
 324 Celtis a true dichogam & polygamous
 326 Ulmus – do – do
 535 Crocus fecundation in bud
 557 Asparagus dioicous
 ✓
 ☞ Vol. 9
 393, 431 Lecoq believes in Modification by conditions of life
 395 changes in kinds of trees in Denmark
 411 on single species of group with immense ranges
 414 when species numerous, range restricted
 423 In Compositae the feather separate from seed!!
 128 Juan Fernandez proportion of endemic plants
 435 relation of Madeira to America
 438 More disjoined species in N. than in Tropics & we can see cause in Glacial
 445 Cyperus & Pteris by Hot Springs of Ischia old Tropical plants left there, says
 455. All this Alpine plants common to Finland & New Grenada make stage of Alps(?)
 482 passage for my Orchid Book on Diversity of Orchids.
 (I began reading this volume at only p.386 –
 8 23–29m 56 16–22m 80 2–6m 139 24–31m
 144 21–23m 159 12–23m 162 8–14m 165 1–

16m 170 7-17m, 26-31m 171 8-10m, 11-16m, 25-27m 182 25-29m (Schreibers) 183 31m 194 17-32m 197 5-8m/5u "alpestris" 204 18-26m, 32u↔/w/wb Do my tables show more or less vary. in Monocoty!?? 205 1-5m, 7-11m, 13-14m, 32→ 206 7-12m, 13-14m (Goethe), 30-32m/31-32u↔ 207 15-23m 209 25-30m 229 23-32m 250 wt/1-3w From certain other passages, it is here difficult to know how far he extends his belief in the modification of organic beings 4-12m 287 20-28m

vol. 2 ♂

162 32-34m 199 28-32m 205 20-21m, 23-24m, 25-27m 29-31m/→ 206 2-8m, 26-29m 207 3-9m, 10-12m, 18-23m/19u, 32→ 208 8-10m 283 2-6m/4w which 4-5u "80"/6-10w ask Hooker are these large genera? 7-20m/ 10-11u↔, 22-27m 289 5-9m, 10-15m, 22-30m 331 21-25m, 25-27w ie plant How little climate has to do with Heather 30m 332 "plupart | espèces"/16u "cette catégorie"/12-17m/w ie plant growing at various heights between 6000 ft 24-25m♦ 402 8-10m 404 10-12m 405 30m 406 5-10m 410 21-30m 411 6u "par | Heer", 16w var. 16-17w all Mountain vars. 412 wt cor-responding varieties & corresponding species 12w, 14w, 16w, 17w, 18w, 19w, 21w, 22w, 23w, 24w, 26w, 27w species 414 7-14m/9-12w would there be more struggle then? 17-21m 415 1-2m/3w Mntains 419 4-6m, 8-9m, 11-14m 430 8-16m

vol. 3, 71 22-27m 73 26-29m/29u "dioïque" 75 1a/u "monoïques"/wt or annuals 11-13m, 18u "1:35"/w 1:12 in polycarpus 76 10-11m, 25-29m/wçç, 28-29m, wb ie more than a 1/3 of polycarp plants with separate sexes are trees 77 1-2m/2u "monoëcie"/3u "dioëcie", 25-30m 78 9-12m, 27-29m 79 7-8u "particulière | dioïquement", 11-13m, 14-20m, 14-15w imperfection 23-27m 80 1-5m 94 26-32m/28u "intéressant mémoire" 95 5-7m/6m/u "colorées | Hortensia"/w = Hydrangea same as 96 27-30m 102 17-23m/w imported ? by nuts? 161 20-24m/w bears on crossing 31-32→ 162 16-18m, 20m, 21u "vernales" 182 15-19m, 26-32m/32u▲ 183 2-7m/3-4u "oenithères | épilobes" 185 20-30m 211 19a "gordura" →1 6u▲, 16-19m/18u "graminée"/w replacement of one group by another 21-29m, 25-26m 214 17-25m 215 25m 216 6-10m 222 22-24m 223 22-32m 257 4-7m 287 4-7m 288 10-13m 291 22-26m 405 12u "une | couleurs", 20-32m/20-25u±/w piebald 406 wt (results of the crossing of 3 varieties of colours), 3-4u↔, 29-32m/w perhaps from a cross 407 1-3m, 16-19m/17-18u "qu'une | panachures", 21-25m 410 4-11m 411 14-18m

vol. 4, 4 26-31m 5 1-4m 11 7-10w Mem Bates on insects 13 23-30m 14 26-28m/31-32m/25-32w Partly cold in both cases 26 24m, 24-27w white flowers sweetest 27 14-16m 57 8-9m 58 1u "orchis", 3u "seconds", 14-16m, 22-24m, 23-25m, 32m/u "augmenter" 59 1-2m, 32m 60 11-12m, 17-19m 61 1-4m, 32m 62 29-32m 67 10-12m (Humboldt), 22m, 25-29m, 31m 68 12-16m 73 1-7m/1-15w I have seen Heath at ● isolated shows that they can live separate - bad term "social".- false term 80 25-28m 86 21-25m, 27-30m 207 12-24m, 26m 209 11-14m, 15-21m, 21-25m 233 30-32m 234 1-5m, 18-32m 237 7-10m, 14-17m 239 12-30m 272 1-9m, 11-18m 273 6-7w♦/6u "Coprosma", 13-18m 293 22-27m 304 11-16m, 19-32m 407 11-16m 425 28u "Quelques fleurs"/28-31m/w It is not second distinct plant 431 22-26m 466 11-14m, 21-27m 470 21-26m 482 10-19m 488 12-18m 497 25-30m 514 18-23m

vol. 5 NB Vaucher's Book p.142

SB 6-15 makes crossing difficult; 22; 26; 157; 180; 196; 200; 227; 241; 243-246; 249; 252; 257; 273; 288 flowering sensitive to light; 295; 305; 309; 317; 325 Linum; 331; 332; 336; 338; 367; 372; 377; 379; 380; 384; 387; 391; 397; 401; 404; 411; 416; 418; 420 to 426; 430; 469; 481; 513; Abstracted 6 10-16m 15 10-13m 22 12-15m 26 6-11m 157 4-10m 180 4-13m/7a/u "fleurs"/w cleistogam 196 15-20m 200 3-4u "ses | glanduleux"/w any movement? 6-9m 227 14-19m 241 9-17m 242 23-26m/24u "il | étamines" 243 17-21m 246 18-27m 249 24-29m 252 6-8m 257 29-32m/w but will they fertilise 273 30-31m 274 4-8m 288 2-6m 295 2-7m 305 10-12m 309 7-12m 317 1-4m 325 7-14m, 10-12m 331 22-24m 332 26-28m 333 29-30m 336 1-4m 338 21-25m 367 26-30m 368 2-28m 372 6-14m 377 17-21m 379 13-14m 380 23-27m, 27-28m 384 7-14m 387 1-3m 391 26-29m 397 7-12m 401 6-10m 404 19-22m 411 1-6m, 14-20m 416 16-19m 418 26-29m 420 25-29m/w Mem R. Lanceolatus 422 6-8m 423 5-6m 424 12-13m/12u "hermaphrodites" 426 8-11m 430 1-4m 469 1-4m, 29-30m 481 3-8m/5-6u "plupart des" 513 2-15m

vol. 6, 15 25-30m 40 19-22m 88 15-27m 118 7-11m 121 17-20m 125 2-4m 126 15-18m 128 7-9m 133 24-27m 156 2-30m/20-22w p.158 158 20-25m/20u "déploient | fin" (between p. 158 and p. 159, tiny fragment of a letter)

160 1-7m/5u "il | stérile", 26-28m/w Balsanus another case 162 28-32m 166 2-7m 200 18-27w 210 206 p204 not so some other

LECOQ, GÉOG. BOT.

species 23-29m 204 10-14m/12w 206 206 26-30m 209 10-14m, 32→ 210 18-23m 214 21-28m 224 13-19m 262 20-23m 266 26-30m 273 18-22m 275 25-28m 277 1-3m, 35m 283 10-13m/13u "cela|Ombellifères" 289 16-19m 310 12-17m, 12u "petits|souvent", 15u "que|stigmates" 313 21-26m 318 20-26m 323 15-17m/17u "avance|stigmates" 333 21-24m 335 15-24m/22-23u "Il|semences"/24u "ne|placer", 27-29m 344 23-28m 367 1-5m 371 3-6m 376 1-7m 386 7-14m/w 2 kinds of flowers 15-18m 402 1-6m 420 23-26m/23u "Elle|celles" 421 23-25m 425 5-10m 429 9-12m/11u "s'ouvrent|soirée" 473 3-9m, 4-6u↔, 6-9w fertility because so strongly protandrous. 477 28-31m

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vol. 8 SA (pp. 144-5: fragment of an abstract) are tied together by a few weak elastic threads

6 11-13m 9 24-28m 26 17-22m 29 10-13m/12u "La|mâle", 14-16w good cases of gradation 16-18m/17u "toujours|avorté", 20-28m, 29-32m 32 16-22m 33 21-29m 37 1-7m 38 15-26m 40 23-29m 44 20-23m 48 3-5m 74 3-9m 129 13z 141 wb & in Europaeo-arctic contrast ○ ● some not differ ● from Keeling & P 142 1-3m 143 6u "moyenne|australe", 9u "40", 10u "50" 146 7-13m 150 18-21m 157 4-8m 241 1-9m 254 17-21m 324 1-3m, 14-21m 326 15-17m 535 26-29m 557 10-14m

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395 10-14m, 17-24m 397 25-27m 411 5-10m 414 11-17m 423 14-18m 428 27-30m 431 6-14m 435 1-28m 438 19-26m (de Candolle) 445 13u "Tenore", 14-15m, 21-26m 455 30-32m 482 7-9m, 26-31m

LECOQ, Henri De la fécondation naturelle et artificielle des végétaux et de l'hybridation Paris; Audot; 1845 [CUL]

fg, mhp, mn, sp, spo, tm

NB ♦ p5 p6 Books Appendix ordered title page 17-18u↔ xv 1-3m/1u "ébranler" 4 6-25w contrivances & movements of anthers & pistil 5 16-21m/w pollen shed first before flower but contact afterwards 28-34w In Veronica impregnation when corolla falls with pollen at its base 6 3-4w so in Iris 16-19w

Use of Hairs on corolla 9 1-4m/w flower under water & secretes air 16 11-12u "quand|étamines", 14u "position|organes", 17-20m, 20-23m/21u "une infinité", 25-26u "à|indirecte" 18 13-18m 21 1-3m/1u "habitude"/2a "acquise", 21-23m/22-23u "surtout|nouvelles" 22 11-25w At Maer Gardens new case of Polyanthus seedlings all sports of Primrose 30-33m/32u "primevères"/33u "primevère"/w Ch. 4 wb shows the primrose can cross 34 14-20m/w pull petals off double flowers 39 14-23m/17w oh 33-34m (Vaucher) 43 17-22m 44 1-3m/1u "directe|indirecte" 52 30-32m/30u "monoiquement" 53 24-25m, 26u "doit|indirecte" 61 13-15m 70 1-4m/2-3Q 27-28m/27u "à|défloraison" 71 1-2m, 6-7m 72 16-17u "stigmaté|étamines", 17-19m 73 7-8m 75 2-5m, 15-18m 77 17-21m, 27-29m 80 7-11m, 25-29m 81 15-17m 85 3-9m, 19-21m 87 4-7m 92 10-13m 95 3-5w are these Trees 9-11m, 26-27m 97 2-4m/w↔ How false 29-30m/30u "légèrement|époque" 99 1-2m, 25-28m 101 14-16m, 18-20m 102 9-12m, 33u "entouré|poils" 103 1-5m, 5-9m 105 6-7m 115 8-12m, 13-18m 119 9-12m, 19-21m, wb♦ Good to contrast flowers & fruit. 124 15-19m 128 1-7m, 7-14m 129 6-7m 131 5m 142 16-19m 176 5-10m 179 8-12m 195 6-9m, 10-13m, 23-28m 196 2-7m 197 7-9m 203 10-12m♦/11u "les poirées"/12u "leurs feuilles", 15w 2 species 208 5-8m 218 30-31u "On|autres" 219 1-4m/2-3u "quoique|indirecte" 234 20-24m/21-22? 238 30-33m 239 19-25m/22u "M. de Bure", 30-32m, wb Look in Pritzel 240 11-13m 243 1-3m 253 20-22m 268 29-32m 269 26-28m 270 23-29m 272 19-23m/20u "plus|variétés", 25-27m/25u "Seringe|Philippas" 273 9-12m

LECOQ, Henri De la fécondation naturelle et artificielle des végétaux et de l'hybridation 2nd edn; Paris; Librairie agricole de la Maison rustique; 1862 [CUL]

cs, dic, f, fg, he, hy, mhp, mn, ta, tm, v

NB 76♦ Orchis sterile like Scotts case X 79♦

81 Nectar aids fecundation

92, 94; 126

220 Natural Hybrids

233♦ Flower of circumference more often double in Compositae X

303♦ Mirabilis crosses of X =panachures=

308♦; 311; 315♦; 325; 335; 338

Get a Stapelia

368♦ - Parentage of Gladiolus gandavensis

393♦ Seeding & growth antagonists

404; 411

SB □✕ ↔

p 81 (not CD) Nectar aids fertilization
 p.404
 p.93, 95 on Trollius, open flower, crossing
 spont.
 126 Reseda dichogam
 220 spont. Hybrids of Sedum
 311 Hybrids from 2 sp. of Mirabilis sporting
 so much as to be very different
 315 on Hybridisation causing type to break
 ⇒ or vary
 325. reversion in Hybrids p.237
 Hybrids becoming more fertile with age &
 very fertile
 335 Cannabis & Morus clouds of pollen
 338 Fertilisation of Ficus
 411 in some Graminae stamens short &
 remain enclosed in florets.-
 ⇒ Lecoqs. Fertilation

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 what

LEES, William *Elements of acoustics, light and
 heat* London & Glasgow; William Collins &
 Sons; 1877 [Down]

LE HON, Henri *L'Homme fossile en Europe*
 Bruxelles; C. Muquardt; 1867 [Down]

NB O/
 vii 14m ix 9m

LEIDY, Joseph *The ancient fauna of Nebraska*
 Washington-New York; G.P. Putnam & Co.;
 1853 [CUL]
 fo, gd, geo, ig, sp, ti

NB 8 List of Tertiary Mammals; 17; 24; 29;
 57 Nebraska Mammals very close; 67 good
 name; 78; 79; 95

SB □β; ↔

8 List of all fossil mammals

17 paridigitata & Imparidigitata
 24 Intermediate forms 29 do
 57 relations of European & N. American
 fossil mammals 67 do. 78 do.
 79 & 80 Rhinoceros apparently older in N
 America than in Europe
 95 Machairodus in N. America.-

8 1-6m, 41m 17 27-29m 24 27-28m 57 19-
 23m 67 2u "Imparidigitata"/w Paridigitata
 22m/w European genus 78 24-27m/25a
 "Titanotherium" close to Palaeotherium 79 2-
 6m, 12u "two species", 16a "Rhinoceros" What
 age? 17-18m/15-20w I think none so old in
 Europe as Eocene or older Miocene 80 30-
 33m 95 18m (Owen)

LEIDY, Joseph *Contributions to the extinct
 vertebrate fauna of the Western Territories* vol.
 1 *Fossil vertebrates* Washington; Govern ment
 Printing Office; 1873 [Down]

vol. 1, 154 2-5m 155 18-19m 160 37-41m

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 Shrewsbury; printed for the author; 1872
 [Down, I]

LE MAOUT, Emmanuel and DECAISNE,
 Joseph *Traité général de botanique* Paris;
 Firmin Didot frères; 1868 [Botany School,
 FD]

LEMOINE, Albert *De la physionomie et de la
 parole* Paris; Germer Baillièrre; 1865 [CUL, S]
 beh, h, he, pat, phy, t, ti, tm, y

NB 19; 28; 30; 32; 41 to 135; 181
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 Hamburgh○

19 4-10m 28 4-5m/"..." 30 8-10m 32 21-25m
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 all asserted 21-23m (C. Bernard)/w sur les
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 emotions hard to define 19u "mépris" 91 17-
 19m 92 wt Child may be attentive to any
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 howling. 1-2m, 3u "front|sourcil"/w grief? 5u
 "pensées", †w/wb If one thinks ever so
 attentively on pleasant subject, no

LEMOINE

contraction of brow, but if an puzzle or difficulty occurs, though not actually unpleasant, brow contracts, every ♣ difficulty during early infancy accompanied by this movement. ♣ Perhaps aided by vision in primordial times.— But why not corners of mouth?? With infant first beginning is the frown.— 93 5m, 19–20m/!/?/20u "sphincter|iris" 94 21u/21–25w/wb Does iris contract under emotion – well shown to do so in Brain affection? Bowman, How in paroxysm of mania? 95 15–18m 99 19–22m 101 1–7"..."/m/ w Sir C.B whose merit has been fully appreciated by late French writer 103 13–14m, 15w Instinct 16–19m/17w doubtful 104 wt/1–8w argues from difference of observers & writers that there can be no innate knowledge – but we can tell family likeness 16–20m 105 12–16m/w taught by exper 107 2–10m, 16–21m/19–20u "baisse|tête"/w not to be seen or hide faces 109 7–10m, 20–25m, wb Children cry for aid, voluntary 110 5–8m 118 2–4m/wt/1–3u "que|poussé"/w animals do 125 7–10m 126 2–5m, 9–11m/ 10u "souriant|effraye" 130 13–18m 135 4–6m, 8–10m 181 9–12m/1–10w Bowman.— Person born blind blushes?? for shame 16–25w do they look downwards? or cast their eyes down.— wb whether blush as much or at all? not redden for anger.— 185 1–3m/w Tylor shows they do invent 190 7–10m/7u "parole" 191 4–10m, wb a stone first instrument of man & monkey 197 1–6m/3–4w laws of mind

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LEPELLETIER de la Sarthe, Alme *Traité complet de physiognomie* Paris; Victor Masson & Fils; 1864 [Down]

NB O/
Rubbish !
ø

LESSON, René-Primevère *Manuel de mammalogie* Paris; Roret; 1827 [Down, pre-B]

29 19–22w F. ascribes to Cuvier 39 5–8w L. Hunt 42 6–7m, 8–9w ? Smith 38w ⚡ onett 43 9–15w Pig ⚡ 45 9m, 15u⚡ "lubricité" 46 5–6m 47 13w No

LESSON, René-Primevère *Manuel d'ornithologie* 2 vols.; Paris; Roret; 1828 [Down, pre-B]

LETOURNEAU, Charles *Physiologie des passions* Paris; Germer Baillière; 1868 [Down]

NB1 95♦; O/
NB2 O/

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LEWES, George Henry *The physical basis of mind* London; Trübner & Co.; 1877 [CUL, I] ad, beh, cc, ds, oo, t, ud

NB 43; "External conditions of existence" – 45; 71, 2 On use & Disuse → 104, 7; 110 definitions of Struggle & Adaptation; 120 Organisms descended from several primordial forms; 124; 126; 377 Expression (other notes, by FD)

43 2–5m/3u "external|existence", 30–35m 45 20–24m, 27–30m, 32–35m, 36m 71 22–30m, 35–36m 72 29–36m 73 18–21m 104 18–35m 105 32–38m 106 1–14m 107 1–2m, 24–27m (Darwin and Spencer) 108 7–13m 109 20–23m, 31–34m 110 12–16m/w they do in some way, or are the result of some cause 111 3–8m 120 29–38m 124 33–38m (Pasteur) 125 30–39m 126 20–28m 127 20–26m 377 33–36m 480 zb

LEWES, George Henry *The physiology of common life* 2 vols.; Edinburgh & London; William Blackwood; 1860 [Down, vol. 2 only]

287 5–6m, 6–7m

LEYBOLD, Federico *Excursion a las Pampas Argentinas* Santiago; Imprenta Nacional; 1873 [Down, I]

LIEBIG, Justus von *Organic chemistry in its applications to agriculture and physiology* ed. Lyon Playfair; London; Taylor & Walton; 1840 [CUL, S Charles Darwin 1841] h, phy

NB 46; 49; 85; 109; 110; 139; 152; 157; 287; 352; 369 (w, not CD)

SB □β

369 The blood of a man with fair complexion has different odour from dark man

49 1–3m 85 26–30m 109 15–18m 110 4–8m, 11–15m 139 26–30m 140 1–7m, 4–8m, 15–24m, 29m 141 9–11m 152 9–14m, 27–31m 157 5–12m 183 10w 3 287 7–10m 352 17–27m 369 26–30m

LINDEMUTH, Hugo *Vegetative Bastard-erzeugung durch Impfung* Berlin; Wiegandt, Hempel & Parey; 1878 [Down, S]

LINDLEY, John *A natural system of botany* 2nd edn; London; Longman, Rees, Orme, Brown, Green & Longman; 1836 [CUL, I Charles Darwin 1840]
af, no, phy, sp, sy

NF Does not Lindley use Diagrams to represent affinities, like the maps of Strickland?

Have any of the great Divisions, the Alliances, only one or two species?

Orders with few species rarer in Vertebrates & insects

NB 163 ♦ 308 Grafts of Olive & Ash Q

163 9-11m/10u "flowers|none" 238 1-4m 242 8-10m 308 4u "Von Martius", 7-13m/8u▲/9u▲/10u▲/11-12m

LINDLEY, John *An outline of the first principles of Botany* London; Longmans; 1830 [CUL, S]
fg, phy, sl

77 ↑8u "pistillum", wb The pistillum being a modified leaf 78 "421"m/u "Hazel-nut" 79 wt Fruit & stone of Plum, Peaches, Cherry not essentially different - kernel in the seed "424"m/w (a) "425"m/u "pericarpium"/a "ovarium" i.e. formed of lamina of leaf "427"u "Peach"/w ∴ also plum cherry wb probably seeds rarely selected for themselves No Peas.- 84 "452"u "Strawberry", "453"m

LINDLEY, John *School botany and vegetable physiology* new edn; London; Bradbury & Evans; 1856 [Down]

(markings presumed to be by FD)

LINK, Heinrich Friedrich *Die Urwelt und das Alterthum, erläutert durch die Naturkunde* Part 1; Berlin; Ferdinand Dümmler; 1821 [CUL, pre-B]
cc, gd, is

NB p.96 cases of plants apparently brought by Sea

p.do Osbeck saw on Ascencion only 4 plants 102 speculates on change of climate connecting N & S. alpine plants

181 African cattle

(All skimmed)

Inhalt 5w Read 12m 96 9-23m, 31m/u "Sah|Arten" 102 9-21m 181 15-19m, 21m

LINNAEUS, Carl *Philosophia botanica* 2nd edn; Vienna; Johan Thomas de Tratter; 1783 [CUL, pre-B]
cc, fg, mn, sp, tm, v

NB p.80 Double flowers natural orders of some which are never double

Maris fundus p87 seeds

Not much satisfactory too brief =

p79 Flowers apetalous from cold

245 Variation in colour of seed

79 ↑1→ 95 33-39m 98 30-31m 245 33-40m

LINNAEUS, Carl *Systema naturae* Lund; 1735 [Botany School, pre-B]

LINNAEUS, Carl *Systema naturae* 13th edn, ed. J.F. Gmelin, 10 vols.; Lund; 1789-96 [Down, vol. 1 missing?]

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LIPPERT, Julius *Die Religionen der Europäischen Culturvölker* Berlin; Theodor Hoffmann; 1881 [Down, I] ♂

LISLE, Edward *Observations in husbandry* 2nd edn, 2 vols.; London; 1757 [Down, pre-B]

(markings presumed to be not by CD)

LOCARD, Arnould *Études sur les variations malacologiques ... du bassin du Rhône* 2 vols.; Lyon; Henri Georg; 1881 [Down, I] ♂

LOCKE, John *An essay concerning human understanding* 2 vols.; London; 1726 [CUL.1900]

vol. 1 contents "ch. xxi.37/38".X♦ 27 "26"x 172 9w♦ Zeno 272 ↑3u "Times"/wb tormos○ 282 "4"X 283 "5"X♦, "6"X 286 ↑17x 288 ↑5x 290 1-3x 294 10x 306 ↑6-3x 329 "12"X♦ 330 8-10X♦ 331 ↑4-3X♦ 333 ↑16-15X♦ 334 21-24m♦ 339 11-13x, ↑5-4x 341 7-8x 344 ↑6-5x 345 ↑16-13x 346 13-14x 347 ↑10-8x 348 22x 349 15x 350 20x 351 20x 352 ↑9-6x 354 ↑7-5x

vol. 2, 145 ↑4-3x 257 17w♦ Word

LOISELEUR-DESLONGCHAMPS, Jean Louis Auguste *Considérations sur les céréales, et principalement sur les froments* Pairs; Bouchard-Huzard; 1842 [CUL]

cc, dg, fg, he, hy, mhp, oo, sl, sp, t, ta, tm, v, wd

LOISELEUR

NB Part I

♣ p.12; 32 to 49; 70 - 78; 83 to 107, 8
 ♣ II: 165; 181; 183; 199; 200 to 205;
 208,210; 217-219; 224; 234

SB1 ♦

35 Wheat less attended to & modified than garden vegetables - contrast with Dahlia - certainly not a conspicuous variation.

37 Wheat must have been nearly what it was when first cultivated. Q

45 M. Dalbret has cultivated 30 years 150-160 vars, & all keep true, except in seed itself-

49. Wild Oat of Australia, Journal Agricult Soc. Vol 2. Part 2.

70 322 vars.

78 Botanists disagree what to call species

80, 83 thinks wheat impregnated with closed flowers

81. has never seen Hybrids, between his 100-200 vars. sown near each other.

84. Aegyptian vars. differ from French

89 Vilmorin on carrot. *✎

94. Argues if wheat changed by culture, so ought all weeds ♣ quite ignores selection

97 grains from Aegypt as good var & no ●

107. Had it not been for innumerable vars. he wd have thought that what was at first as now

108 contrast variability of wheat & seigle○

SB2 □

Part II.

179, 183 gain of weight in grains when cultivated in France - certain effect of climate. Q

200 Tessier on no good from change of seed.

202 disproved by his own experiment & observation explain Tessier by great care of cultivation Change of seed usual practice in France

bad seeds producing equally good plants with good p.216 - rather opposed to principles of selection ✓

224 Effect of climate on habit of wheat Q p.29 Mongolian Wheat

12 23-28m 43 6-10m, 15-18m, 30m 14 6-9m, 11-14m, 24-26m 29 14-20m 32 9-14m, 20-24m 35 24-26m 36 25-31m 37 19-20m, 26-28m 39 7-13m 44 4-13m 45 4u "trente ans", 7u "cent|soixante", 17-19m 46 19-22m/19u "depuis|ans" 47 1-2m 49 18-20m 69 21-22m 70 4-7m 71 3-4m/w & 1 or 2 others 77 22-27m 78 5-7m, 8-12m 80 1-8m, 18-19w Quo 19-22m/20u "à leur", 24-29m/w pollen partly shed. wb R. Brown says the hairs in stigma cannot admit pollen tubes 81 1-3m, 14-19m,

20u "semées|autres" 82 10-11m/10u "nombre|tardifs", 21m 83 9-12m 84 wt/1-5w In a mass of interlaced roots different nourishment or position be acquired Manure. 7-10m/9u "trop simple"/6-11w they have not to struggle with other species: sowed in different soil 13-14w Climate & c ↑10-6m 85 5-10m, 15-17m 93 17-19m 94 10-18m, 29-30m, wb Knows nothing about selection 95 2-6m 96 1-3m/wt again does not consider culture 97 10-22m 98 9-21m/10-18w the actual grains quite similar to wheat 100 14-18m, 20-22m 102 14-17m 107 20-30m 108 1-15m

Part 2, 165 4-10m, 12-15m 181 4-8m 183 1-3m 199 23-27m 200 18-21m, 30m 201 23-26m 202 5-11m, 14-17m 203 24-29m, wb I have no doubt that degeneration is a wrong idea.- 205 6-11m 208 3-6m, 8-10m, 13-27m, 28-30m/29-30u "produit|grains" 209 1-3m, 22-27m 210 4-7m/w opposed to selection 211 28-31m 216 wt/1-7w Would be opposed to Principles of Selection, if vars with all bad seeds were chosen. wt The size of grain differs much according to what part of ear it comes from.- ← (from) 217 wt It wd seem that the grains vary extremely without affecting the race: but a new race might be selected - a good race though it may have some poor seeds, yet the quality of the race is inherent in such seed.- 2-3m/→ 218 28-31m 219 12-14m/w Peas & Beans! 224 8-13m/Q 234 8-10m/9u "huit|deux", 23-30m

LOMBARDINI, Luigi *Ricerche sui Cammelli* Pisa; T. Nistri; 1879 [Down, I] ♂

LOUDON, John Claudius (ed.) *An encyclopaedia of plants* London; Longman, Orme, Brown, Green & Longmans; 1841 [CUL]

f, mhp, sp

NB

♦ White Yellow White Bengal quick Bank; Quercus olivaeformis (mossy cup) heavy loam V Vol 13 of Gardeners Mag for some trees

more of Dentzia scabra & corymba; Bignonia radicans; Tropaeolum 302,1184; Tendrils 516

6 "19".x 12 ↑1m/u "In|evergreen" 16 "258".x 18 "51".w 1146 "318"m/w viscosissima sessilis asculeus 20 "319"m/w purpurea "321"m/w plantago 36 "83".x 42 "105".w 1150 44 "115".w p. 1150 54 "953".x 68 "206".w 1 sp. Decand 70 "1233/1235/1236".w sp. a. D.C. ↑40-35m, ↑32-27m 71 "1233/1235/1236".m 94 "1620".x 102 "305".x 106 ↑4-1m/

w The yellow berry Holly came true from seed 120 "1916".x 126 "350".w 1156 "2031".m, "2041".m 127 ↑23-15m, ↑22u "the crossing", ↑6m 132 "369".w 1156 134 "2146/2149".m 136 "382".w p.1158 "2206".w end of Nic. 138 "383".x, "2224/2240".m 140 "2260/2266".m, "387".x 142 "388".x 144 "402".w 1162 146 "413".x 152 "439".x 154 "440".x 156 "450".x 156 "2517".m/w Tomato 158 "2530".x, "2534".m 162 "463".w 1164 /166 "464".x, "2713/2719".m 167 "2713/2715".m 170 "474".x/w 1164 "2789".w Mr Henfrey 174 "501".x 176 "504".x 178 "507".x 180 "515".x 184 "3018".m/w fulva 193 ↑4-1m 194 "574".x 208 "615".w 1170 232 "3916/3918/3922/3929/3937".m 254 "4286".x/m 270 "4597".m, ↑7-1m 282 "815".x/m, "4862".x/m 290 "843".x 298 "868".x 302 "875/876".x 306 "5180".m 318 "901".w p.1184 "5449/5450/5461/5463".m 320 "904".w p.1186 324 "916".x 326 "5586"- "5590".x 328 "923/924".x 358 "1014".w 1190 362 "1019".w 1194 362 "1027".x 380 "1051"- "1052".x 394 "1082".x 396 "1086".x 410 "Order 3".u 411 "1148".x 420 "1128".m 422 "1129".w damson & cherry "7056".m 424 "1132".w 1204 426 "7093/7099/7101".m, (text:) 1-3m/w increase 428 "1139".w 1208 442 "7464/7467/7473/7477".m, ↑4u "centifolia, damascena. 443 ↑3m/u "300 varieties" 444 "7480/7486/7493".m 446 "7497/7495".m 448 "7500/7502/7509/7510/7512".m, "7512".w Droptaea 450 "7515/7518/7521".m 454 "7630/7633".m 472 "1203".x 474 "1206".x 479 10-12m/w probably in first generation!!! 480 "1219".x 482 "1227".x 508 "8395/8399".m 509 "8395/8399".m 514 "1294".x, "8538".m, "1297".w p.1226 515 "8538".m 516 "1299".x 518 "1308".x 520 "1322.w 1228 522 "1328".x 526 "8765".x/m, "8771".m, "8772".md, "8793".m 527 "8771".m, "8793".m 530 "1355".w 1078- 554 "9245"- "9247".m/w (a) capitata Blistered A. Decandolle thinks all the same. 564 "1459".x 572 "9523".m, "9540".m 574 "9546/9565/9568/9575".m 576 "9633".m 582 "9711/9731/9732/9733/9731/9764".m, "9733".w sterile 583 "9731".m 584 "9766/9768".m 586 "9835/9846".m 588 4-8m, 6u "herbaceum", 9u "cultivated", 10u "nankeen-coloured" 590 "9897"- "9921".m/w Genus Abutilon see p.1236 592 "1496".w 1238 600 "9970"- "9973".x 602 "1511".x 604 "1513"- "1519".x, "1521".x, "10030".m/w open fl "10031".m/w open flower 606 "1522".x, "1524".x, ↓w & Cytisus & Rotinia ● 11 genera true with prop. flowers 614 "10247"- "10248".m 615 "10231/10235".m 621 ↑6-4m/w Yet the open flowered is specific character 624 "10435/

10449".m 626 "10460"- "10462".m 630 "10554"- "10558".m/w D Desmodium 631 ↑2-1m/x 632 "10560"- "10563".m/w D "10566"- "10580".m/w D "10600".m/w D "10577".m/w, (text:) 5u "during|night" 633 "10569".m/u "stem climbing" 640 "10787".m 642 "10802".m, "10811".m, "10836".m 656 "10998".m 688 "1683".x 690 "1686".x, "1696".x 692 "11625".x, "11626".x 712 "1741"(not CD) 766 "1934".x 774 "1944".x 786 "13287"- "13289".x 796 "13415/13417/13419/13420".m 798 "13433"- "13434".m/x, (text:) 8-11m/9u "vary|soil"/9u "scarcely|tree" 800 "13462".m 802 wt P. macrocarpa quick grower "2011".w 1270 "13504".m/w quickest grower of all 804 "2013".w 1274 806 wt Juniperus 848 808 "13560/13563/13565/13566".m/w ● 809 ↑12-10m 810 "13573/13577/13578/13579/13590".m 814 "2039".x 834 "2066".x 836 "2080".x 838 "2083".x 844 "2114".w 1278 854 "2123"- "2125".m, "14104".m 855 "14101"- "14104".m/u ± 864 "2143".w 1278 "14279/14280/14285/14286/14289".m 865 "14280/14285".m 1166 "2543".x, "17012/17013".x 1226 "17592".m 1228 "17633".w 1302 1272 "18056"- "18057".m/w Sir John very handsome 1288 "3118".m 1300 "3652"- "3654".m 1301 "357".m/u "Joseph Plant|Staffordshire" 1307 "Anagallis".m

LOVÉN, Sven Ludvig *Études sur les échinoides* Stockholm; P.A. Norsted & Söner; 1875 [Down, I]

LOW, David *On the domesticated animals of the British islands* London; Longman, Brown, Green & Longmans; 1845 [CUL]
ad, beh, br, cc, ch, cs, f, gd, he, no, sl, sp, sx, ta, tm, v, wd, y

NB Questions for Mr Low; Introduction; p.36 SB □β

LXIII. Supposes the longer any quality in breed comes truer - Believes in ill effect of interbreeding

LXIX States roundly that vars. of sheep & Dogs will keep distinct p671

p.5 & 8 Species of Ixer

12. Syrian Goat same character for 2000 years (no authority) - Horns absent sometimes in one or both sexes (do (ie no authority)) p.14 in India

24 Horns in Female wild sheep often wanting or small

91 Black-faced sheep will not amalgamate by crossing with other Breeds

159 Rye-land sheep will not do.-

188 Remarks how soon a breed in any

LOW

county changes with no record of it S
 239 On various Park cattle of England with coloured vars p.241 p.301
 242♦
 242 Crouching instincts of young lost immediately – no doubt lost in Chickens, not in Turkeys through tameness of Parents
 258 Crosses with Indian Cattle said to be fertile inter se
 297 Zetland cattle receive male earlier than any other Breed Q
 309 Kerry Cattle white ridge along spine
 316 Modern Aberdeenshire Breed hardly true as yet
 351 Sheeted colour common to several breeds & strongly inheritable
 370 Long-horn with difficulty amalgamated Colling & Bakewell r name Ellman for sheep
 387 Short-horn communicate character very easily & yet is an imposed modern Breed
 402 Male Boar tends to destroy young to prevent too great increase – so some Rams attack pregnant females!!!
 409 Wild not gregarious? (Bechstein) tame are. & even when feral in S. America
 411 Tame pigs 3 incisors in each jaw & number not constant
 415 Vauban calculation of increase of Pigs (Ch 3)
 428 Sus Papuensis – young striped along back
 646 Canis anthus of Arabia very like Dogs sculptured on Pyramids Q
 650 Half-bred Dingos wd attack Poultry – Low kept them
 717 Some of Dholes of India like Greyhounds – Pointers Mute Q
 721 Pedigrees of Greyhound attended to like Races
 a Poor Book – not to be trusted.

v 14–18m vi 15–18m, 27–29m vii 21–27m viii 15–16m lii 33–36m liii 5–12m, 14–16m liv 4–9m, 27–29m, 31–35m lv 26–33m lvi 34–35m, wb This I think, must be a specific character & not direct effect of temperature lvii 7–22m, 27–28m, 32–33m lviii 19–24m, 28–34m lx 16–21m lxi 8–9m, 13–15m lxii 25–27m, 34–36m lxiii 1–7m, 8u "characters|supposed", 9–16m, 20–23m, 32–36m lxiv 11–14m lxv 20–24m, 30–34m lxvi 17–22m lxviii 26–28m lxix 12–16m, 13–14m, 16–18m, 16–17m, 28–30m, 31–34m, 35–36m lxx 1–10m lxxi 33–35m lxxii 19m/1u "13|18" lxxiii 20–21m/21u "one|are" lxxiv 19–21m/20u "were|young" xcvi 1–7m, 16–19m, 20–23m c 24–26m ci 2m ciii 7–10m, 7–9m cvii 18–21m cxi 25–28m cxii 16–20m cxiv 17–20m, 34–36m cxv 1m 1 5–6m 2 31–36m 3

2–4m, 6–8m, 12–17m 8 19–23m 11 17–28m, 35–36m 12 3–7m, 19–20m 14 10–11u "sometimes|ears" 15 4–6m, 31–33m 24 15u "horns|small" 25 8–10m, 12u "in|often", 24–27m 27 1–5m, 5–6m, 13–16m 32 27–28m, 29–30m 33 30–32m/27–34w There must be 100s of species caught, not probable for trouble wb We know how apt savage natures are strike on same plans & therefore domestication wd probably take place to great extent – taming wild animals & birds common t Dt 34 4–7m, 31–33m 35 28–31m, 33–34m, 35–36m 36 7–8m, 17–18m/18u "character", 26–27m, 28u "hair", 32–34m 37 16–18m, 26–28m, 35–36m 38 18–22m 39 3–5m, 10–13m, 18–19m 40 28–31m, 35–36m 58 28–30m 59 27–28m 60 4–5m 62 22–23m 63 22–24m 65 5–7m, 25–29m, 31–36m 66 8–11m 68 1–2m, 10–11m, 13m 69 wb comparable to the trifling characters distinguishing geographical representation 73 19–22m, 26–27m, 28–29m 75 22–25m 81 10–11m 82 3–5m, 24–26m 83 6–7m, 14–17m 84 30–33m 85 27–29m, 32–35m 86 1–4m, 14–18m 87 1–3m, 22–23m 91 17–18m 93 31–32m 94 1–3m, 16–17m/u "Their|quarter", 31m, 34m 113 17–18m, 27–28m 114 31–32m 115 34–36m 116 6–7m 117 27–35m 118 17–20m, 23–26m, 31–32m 120 5–7m/5u "outline of" 121 12–13m, 35–36m 123 6–8m, 33–36m 124 30–33m 125 9–11m 126 5m/u "4000", 10–11m 133 29–33m 134 12–14m, 24–26m 136 1–6m, 10–12m, 22–23m, 27–28m, 34–35m 137 12–13m 138 31–32u "The|Sheep", 32–35m/32–33u "know|are" 141 26–31m 143 20–23m, 25–28m 145 15–20m 147 32–36m 148 13–16m 150 4–6m 151 27–30m 155 13–16m, 32–33m 158 15–19m 159 2–5m 163 13–21m, 28–31m 164 13–14m 170 7–9m, 11–14m 173 8–12m 174 4–9m, 18u "50|lb."/18–24w Does not P King say 65?!!! at first in Australia 175 1–5m/w must be due to external agents 177 2–6m, 19–21m 179 11–12m 181 13–16m, 29–30m 184 12–14m, 24–26m 185 wt Crossing evidently produces rapid effects & has done much more than selection.– 4–6m/x 188 18–21m 192 2–4m 193 1–2m, 11–13m, 29–30m 194 25–30m 195 31–35m 196 1–6m 197 27–36m 198 2–4m 199 31–36m 209 22m 217 35–36m 231 7–8m, 28–32m/30w (a) wb (a) No such great change has been effected in reclaiming the common Ox of Europe V. further on.– 233 33–41m 234 34–36m 236 3–5m 238 6–9m, 12–14m, 15–27w Compared to Falklands! 30–31m 239 1–2u "existed|immemorial", 3–4m, 13–17m, 31–36m 241 18–19w like Pigeons 19–22m, 23–26m 242 wt/1–7w instinct by young animal lost, & it must be lost by change in instincts in old animal. by the old ones not

depositing their young. 3-7m/4-5u↔, 8-12m
 256 6-8m, 25-30m 257 2-5m 258 14-16m 259
 3-5m 261 19-22m 264 28-30m 265 9-11m, 24-
 28m, 29-33m 266 9-11m, 20-22m, 23-25m 296
 28-30m, 30-31m 297 11-12m/12u
 "Scandinavian", 13m, 21-24m 299 25-27m, 29-
 36m 300 15-18m, 29-31m 301 7-10m, 30-31m
 304 3-4m, 32-33m 306 16-18m 307 3-6m/Q
 10-12m 308 20-25m 309 14-15m/14u "white",
 30-32m 310 22-26m, 27-30m 316 25-36m 318
 28m 319 26-27m 321 27-30m 322 3-7m 324
 22-24m 334 7-9m 339 22-24m 344 3-6m 345
 24m 346 25-27m 349 27-29m, 31-33m 350 29-
 31m 351 3-7m, 14-16m 353 28-31m 357 19-
 20m 358 19-22m 359 15-17m, 22-24m, 29-
 31m 362 17-21m 363 2-4m, 7-11m/10u "late |
 century", 17-20m/17x/18u "1769", 31-32m,
 32-34m 364 10-15m, 16-19m/18u "not" 365
 10-11m, 13-15m 366 8-10m, 11-12u "very
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 666 6-10m, 22-27m/21-31w one cross,
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LOWNE, Benjamin Thompson *The anatomy and physiology of the blow-fly* London; John Van Voorst; 1870 [CUL, I]
 beh

NB p.18 Flight of insects a form of crawling
 14 10-15m, 17u "thirty times", 23-27m 15 1-
 7m 18 27-30m 34 5-6m

LOWNE, Benjamin Thompson *Descriptive catalogue of the teratological series in the Museum of the Royal College of Surgeons of England* London; R. Hardwicke; 1872 [CUL, I]

ct, ds, em, h, rd, v, t

NB Rudiments & Law of Variation; xii Rudiments; xiv Doubling of embryo in single Blastoderm; xvii "soi pour soi"; xviii; Nothing for Descent of Man

xii 16-20m, 36-37m xiii 24-26m xiv 24-27m (Milne-Edwards) xv 20-22m xvii 3-6m 18 17-22m

LOWNE, Benjamin Thompson *The philosophy of evolution* London; John Van Voorst; 1873 [CUL, I]

beh, cs, ds, h, he, ig, in, rd, t, tm

LOWNE

NB1 All concerning Descent of Man

☉ 119 No Bird or Reptile comes between Amphibian & Mammals – good

☉ 141 Flies know plaintive cry of captured fly

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42 10–12m/11w Yes 43 2–6m, 25–28m 44 10–
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No in rudiment of pistil 62 5–8m, 8–14m 63
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collect the earliest stage 72 21–27m/21–23w
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incredible to me so fine a balance. If so
American ought not to be more naked than
European – Brain not so much developed
104 17–28m 105 7–15m, 19–22m 115 21–28m
118 22–27m 119 22–28m (Parker) 120 12–18m
123 8–13m/9u "homoplastic" 141 23–27m 144
23–28m (Bain)

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NB O/

☉

LUBBOCK, John *The origin of civilisation and the primitive condition of man* London; Longmans, Green & Co.; 1870 [CUL] beh, h, t, y

NB p355 Savages & Men cry or weep only slight occasionally copiously – Q Puzzled savage frowning
p277 signs of affirmation.

42 7–10m, 31–32m 48 19–22m 50 17–20m/w & so forth 52 23–29m 55 13–16m 60 16–19m, 20u "almost", 25–27m/25–26u "communal marriage" 64 8–11m, 14–18m/1–18w It is very

odd that children shd not know their mother. or rather conversely. 66 28–31m 67 wt (a) other explanation of closer connection of child to mother 11a "M'Lennan" & Morgan O (a) 11–17m/w says so, but am not convinced 69 11–16m, 24–26m 70 7–9m, 12–14m, 23–28m 72 11–14m, 19–21m 76 20u "Malay" 77 1–2m 79 28u "Fijians", 30–31m 86 1–5m 87 8–11m 88 19–27m/6–26w This all looks like communal marriage 93 27–31m 94 1–2m/wt/1–4w What is the evidence 5–7m 99 17–20m/w or rather of many ● places 100 8–9m, 10–11m, 28–32m 101 29–32m 104 3m, 13–18w because tribe of utmost importance 105 2–5m 108 24–28m 119 9–22m 128 10–24m 171 25–30m 221 30–34m 259 2u "friends"/4u "words | justice"/2–4w but reality 260 28–31m 261 26–29m 263 2–6m, 26–28m 265 30–32m 273 34m 274 wb I think I need only refer to L on wickedness of savages & Primitives wb Moral sense citing the term – the latest acquisition is that which impels a Man to certain actions each or wholly or in part not counting to his own ♣ advantage, or plans, & which reports O have under the term (rest O) 277 3–8m 278 14–27m 321 7–8u "Among Saxons", 11–15m/Q 21c/wæ 355 4–7m/6u "knit | brows", 19–38m/29–31m

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NB ♦ Modern Classification 20 (Error) Termes – F. Müller; 66; 73; 81

SB ⚡

p66 – Similarity & dissimilarity of Larvae, relating to mature state – Medusae the most wonderful case.

p73 on difficulty of believing that a suctorial mouth cd be developed into a mandibulate one, & vice versa; both descended from intermediate form.

p82 summary on metamorphoses "adap-tional & nonadaptational"

66 3–25m 73 12–25m 81 3–5m 86 11–20m

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NB (not CD)

337 14–22m, 28–30m 354 18–20m (Crawfurd) 451 18–24m 473 9–12m/w Rengger 25m 474 1–3m, 29–32m 475 16–21m 476 14–18m, 20–

29m 477 23-30m/w Castes of India 478 1-5m
479 13-19m 480 20-26m (Wallace)

LUBBOCK, John *Prehistoric times* 2nd edn;
London; Williams & Norgate; 1869 [CUL, I,
S]

beh, gd, h, tm, y

NB 417 Advance in Savages

562, 563 → 437 Power of counting by
Savages No abstract terms

- ◆ 471 females noses flattened
 - ◆ 508 size of underlip standard of beauty (?)
 - ◆ 507 Amers. shape of Head very deformed
- 539; 543; 545 independent inventions
showing ● property of Savages
552 Kissing not general
553, 554 - odd mores & fashion
558 - Mental development of Child, near like
563 - 564- Religion
569 - Witchcraft
- 571 - Cloud of evil hangs over savages
animals using weapons - 572
574 - State of Race when they first spread
over Earth

399 1-3m 402 14-16m 405 5-7m, 11-13m 417
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26m 563 7-9m, 16-20m 565 1-11m 569 17-
20m 571 *wt* one must consider their evidence
or their dread fully to appreciate the
important benefit of knowledge & science. 4-
6m/5w (a) 572 10-14m 574 *wt* when they
spread over the earth 2-6m/2u "ignorant |
pottery", 5u "They | arrows", 7u "boats" / 8u
"possible character", 1-19w●, 15-25w●, 18-
20"...", 30-32"..."/m/w He adds 21..."/w &
Fire But he admits that from why ● 575 13-
20m/17u, 26-34m

LUBBOCK, John *Scientific lectures* London;
Macmillan & Co.; 1879 [Down, I]

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Fuchs-Affe und das Faulthier* Frankfurt am
Main; Mahlau & Waldschmidt; 1882 [Down]
ø

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Mechanik der Quadrupeden* Frankfurt am
Main; Mahlau & Waldschmidt; 1881 [Down]

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physiologique de l'hérédité naturelle* 2 vols.;
Paris; J.B. Baillière; 1847 [CUL]

beh, br, cc, che, cs, ct, ds, em, f, fg, gd, he,
hy, ig, in, mn, no, or, pat, phy, sl, sp, spo,
sx, sy, t, ta, ti, tm, ud, v, wd, y

vol. 1 NB ♣ ♦ ☉

Prof. Piorry Not ancient, probably Medical
work; I think French. on Hereditary diseases.
Enquire prior.-

title page ↑8m (Piorry), *wbce* xxiii 10-16m
114 14-20m 127 3-11m 129 17m/1u "neuvième |
naissance", 32m 130 3u "enfants d'Edward"
149 4-7m (Gall) 175 18-32w period of
variation different according to different
authors. Cause & time of appearance
may be very different 176 17-20m/17-32w
variation of hybrids inter se wd make one
believe in this distinction of parent acting on
germ.- 177 8-13m 179 18-24m 180 12-16m
181 13-20m/w inheritance cannot be cause
of variation has nothing to do with it.- 183 3-
12m/4?/10-11? 184 27-29m/29u "un | spontané"
185 4-9m, 19-22m/19-32w/wb Difference of
twins looks against every theory. specially of
germs. Action of parent different on germs
Twins in Plants Extra uterin & inter uter Why
one take more after grandfather than other
Entire mystery, can say only a law 187 20-
22m, 25-26m/26u "sponanéité" 195 2-5m/! 196
3-5m, ↑3m/wb What. Not cited before I have
looked all 198 5-11m, 16-19m 199 3-4m 203
15-16m 211 20-24m 212 13-20m/w colours
not mixing 215 14-17w 216 couple 205 true
11 false 217 6-8m/w species not good to
give one particular. 18-20m 221 22-25m/25u
"moindres", 27-28m 222 19-21m, 32m 223 10-
13m/11u "soixante ans"/13u "trente ans" 244
17-19w constitutional inherited peculiarities
20-22m 245 *wt* These are necessarily
inherited at same time 1-4m, 5-7m/5u
"précosité", 8u "développement tardif", 10u
"puberté" 291 23-27m 305 13-15m 313 2-6m
314 4-8m/5-17w my selection view not
applicable to all melanism. By variation & by
crossing in Birds & squirrels 325 18m 326 3-
4m, 13-23w 1 2 3 4/8 4 2/6 of children 16-
22w How very hereditary these six fingers
26-28m/27u "du | immémoriale" 327 1-3m/2x
333 18-27m 337 1-11m 380 ↑1m/wb Hybrid
Rhododendrons 388 1-7m 392 8-10m 393 18-
26m, 27-28m 395 27m 396 14-17m 399 20-
21m/w same age 22→, ↑6→ 400 2-6m, 18-
19u "trente | fille", 19-20u "dix-neuf | ans", 22-
23m/w Earlier 26u "treize", 27u "onzième
année" 401 3u "onze ans" 428 1-14m 429 7-
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congéniales" 463 7-18m 577 4-13m/9-10u
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(Maupertuis) 625 19m 626 21-22m

vol. 2 NB ∞ On sexes p 159 - 163

SB1

393; 399; 400; 428 deaf Cats; 430; 463;
577; 584 Music; 598; 600; 602; 605 good

<over> Tom 1

p. 114; 127; 129; 149; 175, 180-5 used;
187; 195; 196; 203; 211, 12; 221; 244; 291;
305; 313, 14; 326 - many fingers; 333; 337;
380; 388

I must order Piorry

♦ Probably offspring never absolutely like
parent, in mind or body. at least in Man.-
Whatever causes this difference is
exaggerated in varieties. if we look at
similarity as the powerfulness of
generation

Allude to the many opinions

♦ p.175 I shd allude to uncertainty of period,
as complicating our ignorance of causes of
variation.

Think of difference in Twins. p.185 Good

<over>

♦ In inheritance the only point which
concerns us New structures being inherited
or not.

One might fancy that in Ass crossed with
Horse there is a greater potency of race, &
that this potency is transmitted more by male
in this case than in others. Niata cow
transmits with more force than Bull - Pouter
Cock & Hen equally.

SB2 $\square\beta$

Tom I H Means Inheritance

114 Twins with circulation in common very
different dispositions

129 Lambert, horny excreases given to
children H

149 Difference in young pure wolves of
same litter \clubsuit in disposition

175-185 on period at which variation caused
(I believe Q)

195 ancient law of the beautiful marrying -
in Crete

196 on likenesses in children coming on at
corresponding age to parent (H)

211 Colours not mixing in species $\langle u \rangle$ &
varieties X Q

222 Hereditary Hernia not at same age H

244 corresponding periods of inheritance
H; β connected with periods of life
dentition, puberty.

305 Adams thought deformations by arrest
were not hereditary H

326 Polydactylism very hereditary - my
view everything very hereditary, but not

rendered latent H

333, 337 On Double monsters, whether
really double X

388 Taste for Barley changed by
domestication in Pig. Sir F. ● wild Pigs wd
not eat swill

H Curious case of Hereditariness in eye in
Lens moving & causing blindness (Ch. 8)

399 same age blindness supervening H

577 in Cretins comes on in infants - calls it
exceptional H

428 Blind ♦ Deaf Cats & White - Adams in
Cyclop of Practical Medicin Vol 2. p.418

463 Blending instincts by crossing vars &
species

584 Musician hereditary H

598 In Hybrid Wolves & Dogs, likeness to
wolf in all the males and conversely H S

600 Hereditary sleeping on back & crossing
legs H

605 Good summing sentence about
Hereditariness.- H

SB3 $\square\mathcal{R}$

439; 445; 455, 7; 471, 2, 5, 8; 483, 4; 501;

567; 571; 574, 7; 580; 592, 5; 605; 611; 627

678 same age \rightarrow summary on this head;

691 do; 700 do; 702 do; 713 do; 715 do;

748 do; 759 do; 849 age; 850 age; 852-

age

858; 891; 892 very important on crossing

obliterating individual character; 896; 904 2

129; 135, 7 - 140 - 145; 156

157 on latent characters, in respect to
reversion

158 - 165 - good.

172-5

180 comparison of Hybrid & Mongrels
"Race-Hybrids" - "Species-Hybrids"

185; 190 - Books important; 192

198, 212 to 218 Crosses of Zebra & Ass.

229; 240; 253; 296; 299; 301; 307; 310; 315;

334; 347; 382, 4

I must express things diffuse & with \clubsuit a
most wearisome pretence to formulas.

<over>

2 children have some peculiarity which no \clubsuit
ancestor had -

♦ So Porcupine & Echidna Orchis & Asclepias
Explanation same, in some degree similar
constitution acted on same causes, but in
latter case selection comes into play very
importantly - Both, however, derived from
modified pair - Turned up snouts in
Crocodile, Goldfish & Bull-dogs.

But now in bars on Pigeons & Asses legs &
Horse back no selection. It comes to this
can we believe external agencies cd

produce the bars; I do not –
 That there is real & not mere external
 potency of race; Gaertner I think shows by
 rapidity of conversion into another form.–
 (over) Tom 2
See Back of Page
 p.4; p8; 33
 40 The most inexplicable case wd be an
 additional finger reappearing a tendency to
 form it somehow checked.– p48 Yes there
 are cases.– 45 So masking theory must be
 given up.
 54, 58 effect of ant-copulation
 75, 78 on action of Sexes, contradictory.
 82, 85, 86, (88 opposed to my theory of
 colour & constitution.)
 93, 94
 103–5 about which sex has greater influence
 109
 111, 12 Preponderance of race in different
 sexes & p120
 116 Book Huzard
 124
 SB4 □β (2 sheets)
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 8. Male giving certain parts p.75 Summary
 on do. 78 do. 82 (u)
 33 on similarity in children distinct from
 inheritance H
 40 Atavism, as in six-children: H
 Predisposition – may say latent; not
 marked., "Ruckschlag" (ie Rückschlag)
 58 Cases like Ld Moretons Q
 X 85 Colour & character going together 88
 93, 94 shows colour & constitution do not go
 together
 103 X Whether male or female parent
 preponderate in general in a cross, to p.105.
 Much diversity (u) of opinion
 109 X He thinks they have equal power –
 p.111. in some [instances] male most, in
 some females – p112 Q examples of
 preponderance of race 114 so with
 individuals 120 Potency of Race in one sex
 p 124 Sexuality in itself nothing (good
 summary)
 129 Differences in Monoicous & Dioicous
 flowers Ch. 6 Sexual selection (Probably
 much correlation of growth
 135 Sexuality goes for nothing in crosses
 137 Sexes transmit commonly to own sexes
 – 140 in many cases reversed H S
 158 Differences in sexes throughout animal
 Kingdom (look at under Ch. 6)
 165 Excellent case of same Peculiarities
 attached to either males or females S (is it
 due to sex tendency to transmit to own sex?
 H

171 Father of Polydactilism &c showing how
 does not go by sexes. H
 X 180 Q Comparison of Hybrids &
 Mongrels – Upset to Geoffroy Rules to 190 –
 192 Summary on. D Lucas firm believer in
 Species
 185 case of non-reciprocity in Mammals Q
 194 Subdivides resemblance with groups like
 Gaertner (Compare)
 198 Cases of parts taking after one parent
 (♦ Give case of tail taking after Male in
 Triple cross
 217, 218 accounts for all new Characters by
 Combination, forgets sports in birds – This is
 in fact same sort of theory, as that which
 accounts for all races by crossing
 229 Melange takes place only where parts
 are like.
 240 Hare & Rabbit good case of difficult
 union in close species. Buffalo & Cow Cow
 (?)
 253 His law of election & mixture &
 combination
 296 On animals, as Bull & Stallion, having
 much more choice than wd think. Ch 6 (S
 301 Q On Old Race preponderating in cross
 307 Hybrid of Fowl & Pheasant, fertile Q
 308 On "Reduction" Q of races; 310 Effects
 of Q climate on reduction p315 The rate of
 reduction as shown by Gaertner shows that
 there is real potency in 1/2 breeds
 355 on various combinations of colours
 347 Knox & Weber think both sexes present
 in embryo (Knox & Weber) Ch. 8 Opposed
 by gt authors p382
 445 Classification of variation with congenital
 – spontaneous & immediate; never alludes
 to effect of causes on ovules & spermatozoa
 483 Dumb Dogs learning to Bark in England
 484 ♦ Hereditary Handwriting Comptes
 Rendus H
 501 ♦ Effects of accidents hereditary H
 5♦
 (over)
 Tom 2
 567 Hereditariness at corresponding periods
 H
 571 Good Remarks on little distinction
 between inheritance of predisposition &
 disease itself H
 576 List of Hereditary diseases H
 580 Diseases appear, when inherited, under
 insufficient causes (Ch. 6 when showing how
 inheritance aids primary causes of variation)
 592 Disease to be inherited need not appear
 early, any more than character in imago H
 595 Inherited Disease not very rarely
 appears in infant H

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605 Inheritance from parent after an abnormal state has appeared. H X

611 Doubts any great distinction of inheritance of acute & Chronic diseases

627 Veterinaries especially believe in hereditary diseases (short quicker breeders) H

Hereditary cases at same age (or nearly) or rather young 678 good same disease at different age p. 691 700 702 (713 715) 748 759 H

♦ Hereditary cases at very different ages

848 Summary on Hereditariness at same age to 852 H

858 Local diseases inherited H

891 Noble Families endure barely 300 years

892 Owing to marriages, character of one single individual is soon lost H [Lateral characters on both sides different case for Crossing] C.D

904 Summary on ill effects of Breeding in & in. (

4 23-26m 7 15-16m ♦ 8 3-6m 33 7-10m/3-14w Bears on Reversion as Sir H. Holland.- What brings them, but something in common similarity acted on. 40 14-16m (Burdach), 15u "prédisposition" 45 1u "Ruckschlag", wt Reversion better than atavism throwing back 2-5m 48 33m 54 25u ↔, 27-30m 58 1-10m (Van Helmont & Haller) 59 15-17m 75 4-10w great diversities in relation to action of Sexes 78 26-32m 79 26-29m 82 19-32m 83 24-26m 85 15m/u "Da Gama Machado", 20-33m/21u "coloration | caractère" 86 24-27m, 25-26u "transmission | couleur", 26-27u "du tempérament" 88 6-10m, 28-32m/w/wb My point is only whether generally.- & only relation of colour & diseases of hot countries That colour & withstanding climate are connected all organisms show - No it may be effect of light 93 15a "Le"/m/u ↔ /w Mental I think 94 2-6m, 28-29u "penchants | facultés" 95 18-22m 103 9-12m 104 13-16w diverse opinions 26-27m 105 13m, 23-24m 109 5-8m 111 30-32m 112 15-26m/17-18Q/18-23w preponderance of one race over another with a 3d race 113 wt Austrian face must, I shd think go with father.- 3-6m/w preponderance of race according to sex 13u "mongole"/13-19w preponderance when either sex - like Pouters & Fan-Tails. 114 5-11m/4-25w crosses of individuals like races & like species - Same conclusions as Gaertner - with the difference that the sex variously determines the preponderance 116 25-26m, 31-32m (Huzard) 120 12-16m/w case of potency of race in sex 124 16-21m/16-

19u ±, 28-32m/31w a wb ie an individual, either male or female can preponderate, & so he thinks it is (I think) in species; but surely he must allow one species or race alone preponderates 125 2u "Cette | des", 16-18m, 16wt, 26-31u ± /28w (a) wb ♦ In fact every animal is bisexual 126 wb Sexual characters generally confounded with other characters 129 5-10w Differences in monoicous flowers 23-29w great differences in dioicous flowers 31-32m 130 28-31m 135 25-27m 136 9-11m 137 9-12m/w ♦ was the 1st Pouter a male? 11-14u ±, 22u "une | ces", 23u "métamorphose", 24u "épidermiques", 25u "polydactilie" 138 6-16m, 7u "chromatopseudopsie" 140 22-23m, 25u "dire | père" /w in many cases 145 7-10m/8w ♦ in-version 12-14m, 15u ↔ 156 20-24m, wb It is clear that characters sometimes go with sex - as sometimes polydactylism & c - Pouting & Wattle, & so if useful to one sex can be selected & returned - In fact both sexes have these characters but not displayed 157 wb The latent characters as shown in reversion to ancestors are illuminated by cases of females having them in potentiality 7-10m 158 wt Differences between males & females 4-29m ♦ 159 2-9m/m /5u "la Raie"/w Fish 9u "Chien | que"/w M 161 2m/u "la huppe", 3u "voile", 4-5m/5u "gutturaux", 8m/8-9u "épines | latérales", 15u "crête | Condor", 16u "aigrette | espèces", 17-21m/ 19-20u "barbe | Élan" 162 4-6m/4u "odorifères" 163 12-21m/13-18u ± /13-15w, u Badger Otter & Lynx 12m/w, u Monkey 164 wb all the foregoing ♦ ie of male sexual character being transmitted to males alone is wrong, as shown by sterile females - but it is latent in female 165 wt Looking at everything which can be transmitted being transmitted, in a child What a number of latent principles, from parents & grandparents - there may be a latent tendency to produce long or very short tails, & by no means necessarily an intermediate tail 11-12u ↔ /? /11-15w Mem. Polydactylism sometimes goes in males & sometimes in females, I think. → 16-20m/ 18u "masculin | mâles", 21-23u ↔, 29-31m, 30u "affecté | femmes" /22-33w hence, I shd think cannot be called an "annexed" character. or only accidentally annexed. 166 5-9m, 10-12m, 16-17u "exclusivement | auquel" 167 4u "occasion", 5u "elle | cause" 172 4-5w Table on Back 9m/u "intermittent" /? 173 1-4m 175 9-14m/ 10-11w I doubt this 176 25-27m ♦ 180 5-8m/5u "rarement | moyenne" /6-7w just reverse 10u "d'autres règles", 15u "intermédiaire", 19-21m/

w just reverse 181 5-7m/w Hence preponderant 183 27-31m 184 2-4m, 7-16m, 19-21m/w ♦ ass prevails - one here 19-21m/w odd go back? domesticated ↑12-8m/↑11u "Chien|Boue"/wb This variability of hybrids is independent of domesticity 185 16-20m, ↑6u↔/w Q ↑7-5m/w Reference &c next Page wb case of non-reciprocity 186 30-31m 190 14-17m, 19-21u "la|produite", 28-29m, 32-34m 192 3-10m/3-4u "contrastantes" 194 9w Decided type 14-16w mixture of characters, or fusion 18-20w ♦ fusion of do 198 9-13w election of character agrees with Sturm 26-27m, 32m/w Good Book 199 1-4m/1u "Étalon|Anesse" 3u "semblable|père"/2-5w Election of character by sex 7-8m 200 7-8m/7u↔ 201 8-11m 202 27m, 28m/27-32w In Mus of Practical Geology 212 33-34m 215 2-3m/2u "combinaison|chimie", 3u "nouveau principe", 25-28m 216 9-13m 217 7-17w He explains all variation & even in same species to this fancied law of chemical combination. 218 6-20w He forgets sports, which upsets his theory of variation by chemical union of qualities of two parents 229 19u "similitude|caractères"/?, 21u "Mélange"/21-23w What does Gaertner say? 253 20-24m, 23u "mélange"/wb similarity 24u "combinaison"/wb affinity wb What rubbish 295 21-25m, 28-30m/w Cows 296 3-20m/9u "Chevaux"/w Individual choices 296-97 (paper fragment attached) 297 25-28m 299 18-19m 300 27-29m 301 wt as a mere matter of chance when anything has appeared in many generations, more likely to appear - Perhaps this is all 1-5m/? 307 23-24m/Q 28m/Qu "sa|génération", 32m 308 17u "septième génération" 310 6-18w Perhaps black-faced sheep - Anyhow I must be cautious about potency of race 315 2-5m, 8-11m (Burdach), 12-14m, 18-22m, 28m 316 13-17m 317 15-19m 334 26-32m 335 15-25m 347 14-16m 382 10-16m 384 10-18m 439 13u "Muller", 18-21m, 20-21u↔ 444 19u "médiates" 445 wt/1-9w Divides variations (♦ into spontaneous ?) ♦ & direct effect of external agencies on the parents & on the individuals after they have life, or when born. He seems to use congenial (ie congenital) when generated & not when born.- 10c "premier"/w spontaneous 12u "sans|externe"/?, 15-16u↔/14-21w never seems to think of action on ovules & sperms before conception wb He gives so much in following pages to external conditions that I know not what is left for spontaneity. 455 1-15m 457 1u "révoquent|caractères", 2-3u "qu'ils|développent"/w after born 459 wt My rabbit black when young. then turning grey - there

is no reason why this shd be so.- 1-3m/ w ♦ ? whether new characters 3a "âge"/2-10w ie whether the parents are young or old. Quite different question from mine. 471 8-11m/ 3-14w He puts all this down to climate without any reason, except that they do differ in different climates 30u "Prichard|42" 472 13u "Vilmorin|ont", 31-32m 473 1-7w Puts all this down to climate & overlooks selection 475 3-6m, 14-15u "jusqu'au|gallinacés", 16-32m, ↑1u↔/wb see to this 478 1-6m 483 13-16m 484 12u "des|du"/11-19w How he does confound congenital variation with real habit 28-30m/w on writing see p.92. 493 1-4m, 10w coincidences 501 17-26m/w accident might have produced poor offspring 567 5-15m 571 wt/1-7w Differences of predisposition & disease chiefly being inheritable, blend together & not very great, & are both present though much discussed - good remarks all refer to 7-13m, 15-19m 574 7-10m/6-19w tendency to same disease clearly transmitted in species Man during many generations 576 15-18m 577 2-6m, 9u "Les|accord", 10u "predisposition" 580 29-32m/30u "avec|concours"/32u "l'excitation|insuffisantes", wb This enlarged on in following pages 592 7-12m, 15-30w To be hereditary, disease need no more appear at first, than that the imago shd not be hereditary, because not ♦ preceded by larva. 595 25-28m/w good many cases given, of non contagious cases 605 17-26m/w Grogner What is melanism 611 9-12m, 19-20u "c'est Piorry" 627 17-20m 678 17-19m, 19-21m, 20-21m/20u/21u, 24u, 25-27m/m/27u "enfance" 679 1-4m/2u "depuis|années", 5u "âgé|an", 14-29m/16-20w asthma strong cases of Hereditary 691 8-9m/u "cinquante|critique"/w not good 17-19m/19u "dès|ans" 700 8-11m/9-10u "père|croissante" 702 14-18m/ 15u "eux|ans"/w goodish 713 24w Clionea 25-28m/26u "au|âge" 714 29m/u "quinze" 715 5m/u "dans l'enfance", 7-8m 748 11-18m/12u (ages), 14u "méningite tuberculeuse"/15-16u (ages)/11w apoplexy 759 12-14m/13u "quarante ans" 802 21-22m 803 8-10m 804 23-25m 805 14-18m 806 8-11m 809 22-25m 810 3-6m 813 25-27m 815 20-21m 818 22-24m 823 11-17m 848 8-11m/10u "d'élection", 12-15m/w This important to me 849 (u↔) 6-17m/7u "chorée"/11u "phthisie"/14u "goutte"/18u "apoplexie"/6-11w almost necessarily hereditary at same age 22-25m, 28-30m 850 3-13m/3-8u±, 15-16u↔ 851 32m/wb young age 852 1-3m, 4-7m 858 3-11m/4-5w Local diseases 891 18-23m/19u "on|filles"/ 21-22u "nominale"/w ie by male side

LUCAS

wb ♦ cc 892 8-13m/7-16w This crossing may be rather different from the obliteration of a variety by changes of conditions & selection 18-22w Crossing will even obliterate a specific character 25u "somme | caractères"/22-28w In crossing the character is not latent at all. 25u "individu"/ wb ie with constant crossing wb In very latent characters both parents have. it for all ages.- Hence it comes out in cross 893 1-7m/w Yet likenesses in families where peculiarities have never been fixed like specific characters. 894 4-9m/w characters produced in act of generation 23-29m 895 21-23m 896 25-30m 904 28-30m/wb ♦ attributes ill effect of 905 9-10m 906 13-24m 907 14-15m, 16-18m 914 22-26m 923 10-13m 924 6-9m, 26-29m 933 19m

LUERSSSEN, Christian *Handbuch der systematischen Botanik* 2 vols.; Leipzig; H. Haessel; 1879-82 [Botany School, FD]

LUNZE, Gustav *Die Hundezucht im Lichte der Darwin'sche Theorie* Berlin; Louis Gerschel; 1877 [Down]

NB not read only skimmed

LYELL, Charles *Elements of geology* London; Murray; 1838 [CUL, I]
geo, mi, t, ve

NB1 for Lyell

156 158 359 439 462 524

NB2 Myself

♦; ∞

p.27 38 76 88 119 171 173X 181 207 212
217 233 237 290 295,299 - Glen Roy 329
350 411 417 419 426 437 432 447 449 450
461 473 474 517

23 wt (no. of words on page counted) 27 ↑10-1m, wt C. of Good Hope 38 8-10m 76 11-16m, wt I must be cautious about Ascension 88 ↓m 119 fig.m 125 ↑8-3m 156 9-16m/w ?all infiltrated? 158 2-6m/4u "some | rocks" 161 ↑15x, ↑14x, ↑11u "Labrador-felspar", ↑8x, ↑7u "magnetic | olivine" 162 3u "Phonolite", 10u "trachyte | basalt"/3u/aε 163 14-15u±, 21u "basaltic | trachytic", 22u "Hornblende rock", ↑5u "syenite | granite", ↑4-3u "greenstone" 164 1u "Obsidian | lava", 2u "pitchstone", 9u "Pearlstone", 12u±, 16u "Pitchstone", 21u "basaltic dikes", 22u± ↑13u "of tuff", ↑12u "Pumice | trachyte", ↑11u "augitic porphyry", ↑9u "Scoriae", ↑2u "Syenitic greenstone" 165 (many lines.u) 171 fig 93.m/w ?reference? wb
An argument against lateral injection, that

the origin of common dike is lateral tension which must be prolonged to surface & therefore no tendency 172 1-15m/w ♦ Argument for - curious - separation of matter. Mem St. Jago dike was amygdaloid??? 16-19w ♦ if so introduction note 173 fig.m/wt Is relative position faithful? of fragment & clear salband. fig.m/w is cleavage faithfully represented? ↓wε The cryst threads of greenstone at Salisbury Craigs. caused by cavities, like veins - when hollow - quartz veins in quartz rocks.- cavities in lava.- (space yet pressure) ↑3-1m/w shows not altered great dike wb The stretching formed vacuum. & more fluid parts sucked in to walls or round fragment.- 181 ↓m, ↑2→, ↑1m, wb These cases appear to me most wonderful 182 1-5m/w or if stone was very fluid so as to communicate pressure 1u "if no"/m ♦/!! ♦ 207 ↑4-2m/?, wb cause? 212 6-10m/w Hornblend pumped out? 217 ↑17-8m/w poor 233 ↑8-3m 237 ↓m 266 (no. of words on page counted) 290 1-8m 295 1-10m 299 1-3m 329 1-5m/? 350 ↑6-1m 359 wt would be preserved on such coasts as are now muddy 1-2m/? 411 1-3m 417 13-19m 419 ↑6-1m/?, wb Sydney & C. of Good Hope.- 426 fig.m 432 1-6m/4u ↔ 437 3-6m/3u "existing genera"/5u "Cephalopoda"/6u "more widely 439 14-18m/? 447 ↓m, wb At ● all vertical 449 9-15m/w Uspollata O 13?/u "clear" 450 ↑1m/?, wb Mem. Bartram.- ∞ See scrap of Paper pasted at end of Book A 458 7-14m 461 5-13m 462 1-2m/? 473 5u "opposite directions"/5-9m 474 ↑6-1m, ↑3?/u "olivine" 475 1-14m 517 wt Chalk highest bed - case analogous to Cordillera 2-12m 524 ↑9-6m, wb & Humboldt

LYELL, Charles *Elements of geology* 6th edn; John Murray; 1865 [Down, I]
ad, ex, fo, gd, geo, gr, ir, no, oo, sp, ta

SB □β, ε

155; 168; 231 Dryopithecus; 265; 269; 299; 306; 311; 377 to 384 good case of imperfection with Mammalia O; 387; 230; 410; 414; 435; 451; 509; 510; 542; 552; 569; 576; 580; 583

SA (pp. 664-5, not CD) ε

Lyell's *Elements of Geology* 1865.

p.155 Depths at which sea-shells can live

231 on Dryopithecus.

265 Myocene Flora richer in species than any existing

269 To West of Rocky Mountains extinct genera now formed to the east.

265 to p.273 on the supposed Atlantis

299 Footprints of mammals in great numbers in upper Eocene
 306 On the Eocene nummulitic rocks. forming parts of great mountain chains.
 310 On great break between chalk & Tertiary
 377 to 384 On Purbeck beds showing imperfection of record – 387 ditto
 410 On great breaks in oolite series. 414 ditto
 435 St Cassiew Beds. 1st appearance of some Paleozoic genera
 451 Hitchcock on Footprints in U. States
 509 On airbreathers in Coal period in U. States
 542 On lowers Devonian formation at C. Good Hope
 552 On oldest known fossil fish
 571 Table of Cambrian formations
 576 On some of the oldest fossils
 579 On the Laurentian formations
 580 Speaking generally Silurian deposits have a pelagic character
 583–585 Table of the first discovery of fossil vertebrates

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LYELL, Charles *The geological evidences of the antiquity of man* London; John Murray; 1863 [CUL, I]

cc, ch, ex, fo, gd, geo, gr, h, ig, in, ir, is, no, oo, or, r, sl, t, ta, ti, v

NB1 ♦

Torquay Head & shoulders
 Fuller description of Celts
 Alludes too much to Principles.–
 Imperfection of Geolog. Records very good.
 187
 p107 reduced
 p.111 fallen level

p.147 – square acres
 179 Sir Andrew Smith
 One sentence for S. Hemisphere & absence in Tropics New Zealand Celts.
 NB2 Man Chapt.; p 87. Variation of Australian skulls; 90; 91; 370; 375 378; 386; 493; 496; 495
 21; 22; 24; 143; 145; 146; 157; 191; 216; 236; 282,285; 288; 351; 365; 367; 375; 400; 427 – to end of Chapter; 433

SB □R, 4

p.145. Imperfection of Geolog. Record
 157 Glacial Mammals
 216 Contrast of Flora & Mammals of Norfolk (*ie Norfolk*) Drift (see 2d Edit)
 236 changes of climate in Greenland.
 282, 285, 288 wonderful complex changes during Glacial period
 351. Ice action on N. American continent
 365 Bending of isothermals Europe & N. America
 367 Depth of Baring St.
 400 Eocene mammals in stages older than formerly thought.–
 427 Davidson reduces Brachiopoda immensely.– gradation of forms
 429, 437, 439 well argued – gradation
 446 Argument that Bats & Seals have not produced on Islands new forms of life – Why not wingless Bats. there is no insectivorous apterous Bird ??
 over
 p449 Imperfection of Geological Record

x 37–38m xi 4m, 22–23m, 35–36m 9 17–19m 16 13–16m 21 4–9m 22 30–31m/30u "swamp" 23 29–33m 24 14–18m 25 11–24m 26 6–12m 27 5–11m 87 1–11m 90 17–20m 91 5–8m 107 28–29m/28c "reduced" 111 26–27m 143 6–12m 145 19–26m 146 21–32m 147 7–8m/7u/c "square" 157 8–15m 187 18–26m 191 8–12m/w How modern compared with old stone period 216 18–23m, 29–32m 229 24–29m 231 17–25m 236 22–29m 237 26–33m 243 12u "stones"/w striae 257 31–32m 282 2–29m, 1–13w wonderful changes, so complex 285 4–13m 288 12–15m, 20–25m 294 1–2m 351 18–22m 365 14–22m 366 5–10m 367 1–4m (Darwin and Hooker), 20–23m 370 4–24m/13–18w Progress 28a "stone" polished? 374 10–11w S. Africa 375 3–12m 378 1–4m 379 1–18m/2–4w wrong? Australians 386 5–8m/6–7w see reference 400 6–18m 412 26–27m/26u "labours" 413 4–6m/5u "is|by" 421 24m/u "Sefström" 426 8–14m 427 8–17m, 33m 428 23–31m 429 15–22m 430 27–33m 433 25–32m 436 5–15m 437 5–13m 439 2–6m, 20–30m (Leidy) 442 23–32m (Hooker) 443 13–16m 444 18–21m 445 1–7m, 23–27m

LYELL, ANTIQ. MAN, 1ST EDN

446 19-21m/21u 447 3m/1-14w | ♣ have added great ♣ means of change vast nos of individuals - in my discussion whether rapid change 27-32m 449 28-30m 450 10-15m, 21-22m/21u "macrurus" 457 5-8m 463 10-12m 464 3-4m 465 24-25m 467 17-18m 469 18-24m, 27-28m/u "become|probable" 493 24-29m (Agassiz) 495 20-22m (Quatrefages), 21w No 496 11-17m 497 wt Rengger says Monkeys are improvable 1-3m/2u "progressive|reason"/1-5w compared Dog or wolf or Jackall 9u "capable|improvement" 500 3-8m/? 503 17-21m 505 1-4m/4u "unprogressive" 5u "improvable reason"/2-3w oh 506 8-16m, 23-29m

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ig, tm

NB 486, 488 on the intermediate types, very good
486 1-9m 488 1-13m (Falconer)

LYELL, Charles *A manual of elementary geology* 3rd edn; London; John Murray; 1851 [CUL]
ch, co, fo, geo, gr, mi, se, sl, sp, tm, ve

SB CD 65; 66; 68; 95; 98; 103; 107; 139; 147; 150; 151; 152; 155; 174; 176; 188; 197; 200; 219; 231; 235; 265; 270; 273; 297; 298; 301; 306; 309; 324; 336; 340; 359; 360; Abstracted; V. Principles

<over> ♦

p217 coral-mud known to be transported
Spec growing by Ascension ○

p221 S Amer Chalk

p220 p.235 p.282

Copper in Sea-water - absent in Volcanic regions

sucked out of rocks

facts not given

area of elevation - like a fan

36 33u "may", 34-37m/34u "artificial mixture", 41-42m/w on volcanic rocks 40 25-28m/? 55 12-19m 64 wtcc, 16-19m 65 27-33m 66 13u "running"/14u "marine current"/12-29w !Think of the 32,000 ft of strata - so much deposited; sea-chalk 68 3-13m/12-14u "at|another", 14-18m 81 33a "sun" earthquakes 36-37w shell-sand sand-dunes 84 17-18m♦/w♦ only rising 85 6-8m/6u "In|cases" 95 3-

10m/4w so age 98 20-30m 103 35-40m 107 4-16m 113 23-34m 139 1-10m, 13-24m 147 31-37m (Owen, Meyer) 150 8-29m 151 19-27m♦ 152 27-29m 155 21-28m 166 42-43m/42u "Carentan" 174 20-23m, fig. 153.m 176 13-18m 177 ↑3-1m/x, wb/↓w singular how rarely little patches of half-a-mile of green left except outlyers. colour in large patches? Silurian largest? V. Map of Europe? & World 188 3-9m, zb 197 1-8m 200 11-32w see what difference even within Eocene 21-34m (Brongniart) 219 42-44m 228 34m 231 15-24m, 23-26m 235 20-24m, 45-49m 265 29-36m/w Mem Purbeck animals changes 38m 266 1-11m, 38-44m 270 14-24m 273 1-3m 297 42-45m (Hitchcock)/43w 44 46-47→ 298 44-46m (Owen), 31-40m 299 22-24m, 38-43m (Dana) 301 10-11m, 14-18m 306 16-22m 309 19-22m 324 12-16m 336 30-37m 337 5-7m (H. von Meyer) 340 38-40m 359 1-5m 360 3-12m, 15-33m (E. Forbes) 468 2-6m, fig. 509.m 469 30-35m, 32-37z 472 4-12m 480 27-35w granite not flowed; grain in granite

LYELL, Charles *A manual of elementary geology* 4th edn; John Murray; 1852 [CUL]
t

NB p139

SB <errata-sheet> Please paste this in without delay

x fig.m xiv fig. 529.m, 25-34m xvi 27-33m xviii 12-31m, 29-33m, 41-45m xix 10-15m/13u "Cephalopoda", 24-26m, 31-41m (Owen) xx 8-9m/?, 13-18m, 23-27m, 28-32m, 39-40m, 41-44m, 45-47m xxi 11-13m, 15-16m, 18-19m, 29-32m, 42-47m/46a/u "embryonic" "perfect condition"/wb This is not an equivalent proposition xxii 9-17m, 28-32m 29 4-10m 30 15-17m, 30-34m 31 4u "carnivorous" 34 35-40z 138 41-42m, 41u "post-glacial deposits" 139 3-6m/w what evidence 13-39m

LYELL, Charles *A manual of elementary geology* 5th edn; 1855 [CUL, S]

ch, ex, fo, gd, geo, ig, is, no, oo, or, r, sl, sp, t, ti, tm, v, ve

NB ♦

Chapter on Veins absent in volcanic regions as shown by no veins on any volcanic islds p.460 misprint

Amber beds L. talks more about Lower Limburg or Hampstead Beds

p.231 Hardly distinct age of Alps ?

It is shame you have never read my Abstract of S. Amer

p118 p.130 p.18 p.53. p.97 Principal For.

p.238 11 from top – Cambrian
 p.295 not clear whether 3 strata with
 gypsum?
 Wealden more historical
 p310 misprint
 p.339
 p406 very good
 504 Canary Isd. do.
 SB
 I begin at Chapt ♣ X.–
 p.114
 p140 important to end of Cha. Think of
 effect of the cold Permian current meeting
 the N. downward current.
 p154 to – p 435; p.447; p448 to 463
 Abstracted

114 7–9z, 38–49m 115 1–6m, 41–46m/w Plants
 probably long-lived 119 12–25m 120 21–28m,
 38–42m 140 20–23m, 34–37m, 38–42m/w see
 next page 47–49m 142 27–31m, 28–29m 143
 15–18m, 43m 144 27–32m/w How is this in
 Europe. 29–32w Macrauchenia in Patagonia
 40–49w In Chiloe recent shells occur in
 changed proportions. 145 38–41m, 46–47m
 146 1–5m/w Is it certain that Elephas &
 Rhinoceros survived glacial Epoch.– 154 33u
 "variety called", 35u "some naturalists", 36–
 38m/33–47w Is there not great difference
 about fossil Boves. Have Nillsons writings
 been translated into German? 157 18–25m
 164 48–50m 183 1–5m, 32–35m/34u "seven
 species"/23–49w These numbers, as in Brazil
 cases, wd make one think successive Faunas
 merged.– 192 25–29m, fig.169.m 193 1–4m
 195 43–46m 197 33–49m/ 37–42w 3 Mamm
 Faunas besides recent 207 20–23m 212 26–
 30m 213 18–23m 217 19–29m 220 24–28m 227
 39–42m 230 40–46m 231 4–6m 232 24–29m/
 19–35w Yet continents must have existed
 nearly as now during later Tertiary periods.
 236 12–17m, 41–44m♦ 237 8–16m, 19–25m,
 29–34m 238 11c/w♦€ 251 24–26m/26u
 "perhaps Wealden" 255 21–28m, 30–32m 256
 26–27m/27u "ten other", 33–35m 257 1–6m 258
 26–39m/w so geographically; consider
 this.– same functions & purposes, slight
 differences; implies separation: hardly S. &
 N. species at ♣ Shows a coordinate change
 in several forms. 267 9–14m, 17–22m 268 4–
 7m 295 4–7m, 29m, 34–35m 296 14–20m 297
 7–9m 300 7–17m 301 6u "great|time"/2–6m/w
 Selection slow – change of species reacting.
 new introductions. 22–26m 308 33–35m/ 33u
 "of change" 309 1–2m 310 7–16m 311 17–20m
 313 32–38m/w Has not 4th species been
 discovered 316 17–22m 319 31–35m 321 zb
 324 1–2m 335 25–31m 337 21–26m (A.

Brongniart) 342 17–32m 343 43–46m (Owen)
 348 38–43m 349 40–41m (Owen) 350 40–44m
 351 9–12m 357 24–30m/w duration of plants
 358 32–37m (Murchison) 359 27–32m 360 25–
 28m 363 34–45w When we come here Plants
 have changed even more than animals 369
 35–36z 373 22–28m 380 40u "sixty-eight" 389
 4u "Scarabaeus family"/1–4m/w ancient &
 great classes of insects. 9–10m/Q€/9u
 "several|Termites" 400 35–37m, 40–42m/41u
 "no|than" 401 13–21m 404 33–36m 405 3–4m,
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 5–15m 407 11–17m, 14–16m 408 3–8m/w
 Passage a difficulty. great one.– 20–22m 410
 30–35m/w This analogous to Goulds birds
 coloured in interior of continents. 411 7–10m
 416 fig. 536.m 417 7–12m, 15–19m 418 6–10m
 423 26–27m, 29–32m 424 11–14m 433 1w
 Read 435 33–35m 446 6–10m 447 3–10m, 24–
 28m, 31–32m 448 1–2m, 13–15m 449 27–31m,
 34–36m 450 39–42m 451 3–9m, 21–24m 453 1–
 4m, 17–21m, 30–31m (Murchison) 454 9–14m,
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 456 17–21m, 22–25m/22u "unconformably", 24–
 26m, 28–32m 457 17–20m, 20–21m, 24–26m,
 30–37m, 45–47m 458 8–13m, 17–21m, 24–28m
 459 3–5m, 17–19m, 42–46m 460 16a "1839" no
 Secondary Bird 38–40m/39a "1810|C8"/w 7
 48–53m 461 15–18m, 35–41m, 44–50m, 47–49m
 462 6–12m, 12m, 15–19m 463 5–9m, 13–15m,
 17–24m 553 18–25m/ 22w 3° Lat 27w 4h 31w
 5h 516 ↑16–11z€

LYELL, Charles *Principles of geology* 1st edn,
 3 vols.; London; John Murray; 1830–33
 [CUL, on B, S]
 ch, f, geo, ti, ve

vol. 1, 308 11–23m 314 32u "forty-sixth"/w
 what Volcanos ? 315 11–16m/11–14m/? 325
 11–40m 346 1–24m 374 20–38m 440 11–19m
 468 ↓w We may more easily imagine the
 fluid stone injected (as occurs in every
 mountain chain) amongst damp strata.– wb
 at time of Earthquake Lava under great
 pressure, how could water penetrate to it
 would it not be driven back with violence?–
 470 28–38m 471 22–39m 476 1–19m 477 13–
 18w♦ if there are hollows left what forces up
 the lava

vol. 2 NB p153 Ulloa ♣ on asses multiplying
 See this Book generally on this subject 201
 5–22m 248 1–7m 291 12?/u "Otahaite", 24–
 25w oval & irregular form? 294 13–18m/15w
 Galapagos 19–34m 295 7–14m

⊕

vol. 3 NB1 6.– Sand as 1 & 2; 7. Large
 shingle or Rock

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NB2 cc

58 20u "synchronous"/20-23w if the rate of change is everywhere the same 114 10-15m/?/w Flat valleys & terraces 152 8-9w Estuary

Glossary, 61 30m, 32m 62 8m, 28m, 38m 63 6m, 7m, 10m, 17m, 28m, 34m, 38m 64 1m, 5m, 9m, 18m, 19m, 21m, 24m, 36m, 41m 65 1m, 6m, 10m, 15m, 18m, 19m, 42m 66 2m, 5m, 6m, 8m, 21m, 27m, 29m, 49m 67 18m, 29m, 33m, 37m, 43m 68 5m, 10m, 12m, 18m, 38m 69 3m, 4m, 13m, 15m, 29m, 35m, 40m 70 3m, 12m, 23m, 25m, 32m, 38m, 42m 71 5m, 16m, 21m, 37m 72 3m, 22m, 33m, 42m 73 10m, 21m, 26m, 29m, 32m 74 3m, 5m, 10m, 19m 75 11m, 15m, 35m 76 5m, 14m, 18m, 20m, 23m, 25m, 34m 77 3m, 20m, 32m, 34m 78 14m, 21m, 30m 79 3m, 23m, 27m, 30m, 31m, 32m, 34m, 42m 80 3m, 8m, 13m, 18m, 20m, 25m, 30m, 32m, 34m 81 3m, 7m, 18m, 19m, 20m, 24m, 30m, 33m, 34m, 40m, 42m 82 4m, 6m, 10m, 18m, 37m, 41m 83 1m, 6m, 12m, 15m, 23m

LYELL, Charles *Principles of geology* 5th edn, 4 vols; London; John Murray; 1837 [CUL] ad, beh, br, cc, ch, che, co, cr, cs, dg, ds, dv, ex, f, fg, fo, gd, geo, gr, h, he, hy, ig, is, mg, mhp, mi, mn, oo, or, pat, phy, se, sl, sp, sx, t, ti, tm, ts, v, ve, wd

vol. 1 NB ♦ 144; 146; 147; 153; 155; 161; 168; 187; 248; 270; 278; 285; 326; 350; 381 132 9-32m/"..." 144 1-20m/15-20w Mem Guanaco dying near water 146 14u "tropical plants"/14-17w C. of Good Hope 147 wt Jaguar in Lat 42° Puma - 53°? 1-3m, 16-20w Puma 10,000 ft high near snow 150 18-20m/w Guanacos at 70° 29-31m/w 69° 151 6-10m (Pallas) 153 12-14m, 18-22w Mem desert character of C. of Good Hope 155 17-24m, wb Mem. tropical vegetation. South America approach. limits of perpetual congelation. 161 wt Tree ferns appear not to like the light, most gloomy spots 14-23m 168 25u "Indian"/? 187 15-20m/16u "longer|sun" 248 7-19m 270 14-22m 278 17-27m 279 zt 284 zt 285 wt Lockhead on Guyana - Demerara river. Edinbg Transact Vol IV 15-21m 318 25-31m (Sedgwick) 326 6-15m, 16-30m/w Gypsum stalactites Ascension wb Little evidence of Volc action in many parts of Tropical coral forming seas 350 wt How can lime be precipitated? more water.- 1-17m/2-8m 381 wb great tides sometimes on very open coasts, Patagonia 434 16-17m

vol. 2 NF1 Mississippi, New Madrid, & Caraccas 46

Albite Volcanic Rock V. Buch p175

Necker on curves Mag. & Mountain chains p.326

♦ Exert. m

Exemplify the force of pebbles knocking together

Beach. is only cause of sediment on whole of Peru,- as far as granite so far same sediment

NF2 (drawing of mountain)

p.336 trees touching ground

p.217 Dolomen Calabria

NB1 (on p.442)

X Argument 2nd. Excellent argument sheep do not get big tails in Africa or cattle longhorn or cow bumps on back, or dogs like fox in Australia, or - or - or - yet whole breed being so. it must be effect of country, yet exciting or else Nature would have altered back XXX

XXX Now if in course of ages (having shown time is requisite) offspring differed as much from Indian Cattle & as Buffalo near long horned & as these do now from common stock. then would they perish.-

These irreversible changes may explain extinction they might act on some important organs & become hereditary like diseases

Without reference to either, but simple change

The great difficulty appears, that though some animals long domesticated change not indefinite (Do we know this), but most domesticated animals are hereditary monsters. yet we should have expected some race which would have showed a slight repugnance to breed with our animals X 2d. The changes apparently being rapidly superinduced in domesticated animals. The very character of species is * character being hereditary, & as we know we can give forms not hereditary, some that are; we might expect gradation

NB3 ♦

p.215

187 Ask Captain about earth parting from solid Rock

Beechey is he authority of Concepcion? - No, Lesson? - no

Stokes, height of any land near Concepcion? Sulphur passing from solfatara like veins, analogy

Abich bulletin of Geological Society of France Leucite in specks. Galapagos VII - 1835-1836

Von Buch. Canary Isld.-

NB4 12; 20; 27; 36; 41; 42; 46; 55; 149; 151; 185; 188; 192; 218; 221; 255; 256; 305; 351; 356; 403; 416

The two kinds of Elevation going on together
Error in Constant Prevost. p.154

<w♦●>

p323

12 wt The work of degradation goes on in inland bays.— St Joseph.— 2–8m (Pallas) 13 zt 20 5–13m/10–12w Peru 27 24–28w Mouth of St of Magellan 31w St.Helena 36 wb Pebbles beaches enormous manufactory for sediment draw back.— muddy water Calcaire 41 10–18m/13w No 42 8–29m (Humboldt) 46 1–8m, 20–26w Juan Fernandez 29–32w ancient trap rocks 55 7z, 8–16m 54 zt 149 2–8m 151 zt, fig.z, 18–22m/19u "dike" 154 27–29m 156 9–16m 158 1–17m 175 15–31m/17u "local earthquakes"/18u "conceded" 185 zt 186 wt/1–7m/w Connection○ of local earthquakes fig.z 188 23u "northward"/w South 190 1–4m/2u "one hundred" 192 11–17m, 21–23m 203 wtcc, 16–33m, wb New Madrid to coast of Caraccas 2040 miles 218 13–16m 221 15–20m 255 16–26m 256 16–21m, 22–25m, 22–28m 257 3–8z/4–5? 298 3–17m 301 26–32m, 30–33m 302 29–34m 304 wt How come stones not displaced? 1–8m 305 zt, 15–23m/z/18w Pampas zb 307 21–24m/w no wb Jamaica. Isd in Pacific Ocean 311 4–18m/7–14"..." 318 8–10m 326 5–13m 336 16–25m 351 32–34m/?, wb & water 356 16–23m 360 wt It is somewhere said Hippopotamus found in rivers of Asia — ?! This must be looked to 362 24–25u "progenitors", 25–27m (Geoffroy), 32u "ancestors" 364 3–5m/4u "still more" 365 wt When writing refer to this abridgment compare & see if true 6–13m 368 12–18m (Lamarck)/w isolation not considered 370 wt why if changes in circumstances rapid not changes in species.— It looks as if each peculiarity required to be firmly impressed XX 2–9m, 9–15w loss of tail a loss of organ 16–21w Double flowers assumption of organ wb XX hence plants long cultivated cannot be recognized! — Pyramids of Egypt 374 23–34m, wb Because there were localities fitted for simplest animals as well as the most complex. therefore some remained simple, if not created. The incidental good that one race performs to others proves adaptation in Universe. 375 1–7m, 28–32m 376 1u "progressive"/wt change of adaptation 17–34m, wb very diff from my view 377 22x, wb No more inexplicable than Bump in Indian Cow or change in Plants.— 381 1–3m 384 17–23m 386 1–8m, 13–34w In mammalia we must stick to one rule — let fertility be test.— wb Hogs varieties in animals but in plants species which are fertile? 387 21–26m, wb

Mem. find of Land Shells 391 7–11m♦ 392 16m, wb Varieties are made rapidly by man. Are there any cases of animals going back in one generation to parents stock 393 32–33m (Dureau de la Malle) 395 wt X I think this fact coupled with Egyptian shows change suddenly produced 1–33w Not time to form varieties in America & Australia — X Appeal to any breeder, whether if none imported, some breed would there be endemic wb Yet those animals in certain countries have been changed, but yet fresh ones now imported do not change Oxen do not get long horns now in S. Africa. 397 24–25u "three centuries" 398 wt see Boussingault Falkland Rabbit & Horse Study Azara. Mice of Cape de Verde 2u "The cattle"/1–5m/w Falconer Dobrizhoffer 14–34m/14–15w great difficult. X wb Have they? What is date of Cat of Persia Dog of Australia Sheep of Cape of Good Hope. 399 wt Llama of S. America 400 26–31m 401 5–10m, 31–32m (Smith, Knight), wb Study Horticultural Transactions 402 1–9m, 1–6m/1–17w parallel-Monsters in Animal Kingdom 403 6–15m (Henslow, Herbert) 17–26m 404 wb Wild dog of Australia, grand fact. It would be good experiment to find whether plants which transmit their varieties easily ♣ present any difficulties in crossing.— wb There appear two kinds of variations one persistent & other varying. Man offers instance of first — how is fact of crossing with them/— 406 wt A So they maybe be not very permanently ? Esquimaux dog on Indian Cattle could they. 1u "its", 28–34m 407 wt The idea of slowness, & of long intermarriage to make variety perfect & then when perfect it will rebranch off.— 1–5m/X, 7–19m/8–9w A 29–33w Yes until it is made species wb In those where change greatest we do not know what was aboriginal 408 21–22u "indefinite ages"/w adaptation wb The effects of time must be shown in effecting propagation. Wheat, & old vegetables most constant. yet we hear of new & strange variations produced in far countries 410 32m (Roulin) 412 17–27m, 32–33m (Jameson) 416 1–4m/1a "in"/wt parts of 417 13–17z/15–18w not to Man but beast 32–33m 419 5–34m, 4–7m/wb & when perpetuated, more might be gained like the intellect of civilized man.— 420 17–31m, 19–31m/w Strong argument 24m 421 wb If wolf & Fox same very different habits 423 21–26m (Buffon), 27–32m, 30–34m, wb Where 425 wt Tiger & Lion intermediate 3–30m (Hunter, Wiegmann, Prichard), 32m (Hunter) 426 6–34m 427 11–18m, 13–15m, 27–33m 428 12–32m 431 11–23m 432 6–21m 433

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13-22m ♦ 435 8-16m, 19u "species", wb
Centaurea hybrida 439 1-7m 441 28a "great"/
26w or small 30-32m/w with 34a "offspring"/w
with no tendency to go back wb respect to
changes superinduced in short period 442
10u "improvement or deterioration"/4-12m/w if
this were true adios theory

vol. 3 NF1 p63 Vanessa migratory
p93 AD1794 unparalleled for drought.
Cape de Verde? Monkey peculiar?
How far High land from the Radark Islds
Insist very strongly on animal, resisting
powers of breakers

NF2 z

NB1, 2 z

NB3 Lyell for Ch

♦ 7; 8; 10; 19; 31; 32; 50; 70
109; 115; 121; 182; 227; 270; 272; 274; 380;
434; 424; 440,41,42; 445
128; 138; 182 ♦; 179; R Recent; 380

4 wb There is a resemblance analogy of
animals of tropics like that of animal
inhabiting Water or air - This is different
from forms of lsd near continents 5 23-33m,
wb Consult R. Brown. Appendix 6 5-14m, 19-
31m 7 4-10m/4-6w V. Lesson 8 16-22m/w
Royle 9 27-34m/24-25? ♣ 10 7-11m/w
authority? 14 32m (Brown) 19 zt, 19-27m,
29m, wb ♦ In Jenner paper Royal Transact
pidgeon cross daily England & Holland 20 wt
The first origin of migration must be before
countries had divided 30-34m 21 1-8m 23 3-
27m (De Candolle), 6-23m 29 10-14m/11u
"three | belonging"/w & c wb & subgroup.-
Madagascar & c 30 wt Ask Lyell for authority
1-4m, 33m (Temminck) 31 15-18w Barbarossa
Marsupial animals 21-24m, 25-28m 32 1w
Falklands 3-5m, 24w was taken by Cook to
N. Zealand 33 wt Crocodile near the
Navigators 1-5m 34 15-20m/17?/u "remote"/w
10 miles 35 wt Elephant Borneo & c & c! 42
3-33m, wb Not in the least applicable to big
animals 43 1-29m 46 1-4m, 18-27m 48 4-18m
(Spallanzani), wb c c 50 25-28m, 25w ♦
Ascension wb ♦ Frogs not on Volcanic lsd.
Snakes Lizards first 51 wt How far from
Mainland? 13x/13-25m 54 15-20m (Gmelin),
33m 57 11-24m 58 1-19m (Lowe)/21-28m/wb
the species of general diffusion are they like
Lizards & Frogs, with rsp to eggs.- 62 1-
23m, 7-9m/8u "sea-pens"/21-23m/7-23w Duck
weed Caryophyllia Sponge 63 21-24m, 32-
34m (Kirby & Spence) 64 22-32m (Kirby) 69
28-33m 70 24-30m/26-27w No wb Falklands
Bourbon Norfolk Isld Pitcairn? Mauritius
Galapagos 71 13-29m, wb Dillons Voyage 78
24-31m 79 1-4m 80 1-34m 81 6-33m, wb All

this agrees perfectly with my theory 85 21-
33m 93 25-29m 99 wb (Most Philosophical
Chapter) 109 5m/?/u "lizards" 112 3-12m/wt
Journal 24-29m, 32-33m, wb Reference to
quadrupeds native inhabitants 115 3w St of
Magellan 117 21a "of"/19-20w intellectual 119
16-29m, wb will the theory do, forms
acquired but not unacquired ∴ change
extermination 121 22m/?/u "mangrove" 128 1-
8m/w capital 30u "shallow | the"/w where 133
10-19m, wb authority? 134 wt Were separate
sexes introduced in those orders most
subject to variation? 135 20-33m 136 3-19m
138 wt Besides difficulty of transportat in two
directions, surely time required for such
change of climate would produce fresh
species. 139 wt Alpine forms ought to be
varied, to be sure mountains generally near
each other 1-5m, 13-23w x Yes but he
accounts for the insects on top of mountains
22-33m/x, wb Intermediate steps ♦ species,
propagation on isld.- 140 3-19m/wt/1-15w
Certainly not but the chesnuts & some of the
Tropical forms must be altered into races
18-33m 141 1-19m, wb Good 144 4-10m, 18-
22m, wb & where whole continents have
become colder then Mountains centre 146
23-26m/w which reasons? wb Sudden
appearance of animals quite done away by
my theory. State what opposite theories
have been driven to. 149 zt 152 wb Nothing
beyond this with reference to Transmutation
of Species 153 1-3z 154 22-34m ♦ 178 wt
Worms turning up soil 1-10m (MacCulloch)
179 wt/1-7w May this not be viewed merely
that the peat plants cannot grow whilst under
trees but conquer when blown down 8-15m
182 10-19m, 19-31m/22-26w action of bog on
red sand 217 zb 227 wt earthquake caused
by subsidence 4u "subsidence | earthquakes"
270 119-1m, wb Coral was on Stones Yet
probably moved 274 wt/1-28w in one case
dependent on the species, in other on no
decomposition zt, 20-26m 275 3-6m/w only in
some zoophytes 276 fig.m, zb, wb not
characteristic 279 1u "land birds" 281 zt, 1-
4m 282 zt, 3-8m, 21-26m, wb Only can be
judged after subsidence artificial channels in
Cocos soon filled up.- 283 zt, 14-20w
Meandrinae ● 25u "we admit"/w No 286 1-
22m/14w very good 288 zt, 10-21m, 16u
"Otahete"/w parallel lines 23-27m, 24u
"corals" 289 15-19m 290 zt, 14-24m/w Mud
292 18-29m/w very good 22-29m 293 wt |
suspect reefs of diff strata in diff parts 1-3m
294 1-2? 297 8-11m, 12-15m 298 wb where is
the reef 600 miles long? 299 wb Why lime
not all fastened near Equator 380 9-15m

424 *zt*, 14–28*m* (*Daubeny*)/*w* Galapagos Ascension 434 *zt*, 1–19*m/w* ought not this to have come sooner or never 440 1–13*m/w* follow it out 441 3–5*m/4u* "at|elevations", 24–34*m*, *wb* This would be the result if the periods of repose followed each other in a more○ accelerating 442 *wt* at first stage little more repose would destroy bit *z*, but how much longer to destroy *z*: *fig.m/w*, 7–13*m/w* X surely all valleys *wb* Origin of St. Cruz Valley *wb* Mouth of St. of Magellan 443 25–31*m/?*, *wb* Terraces; cliffs; on sides of valleys; Inclination of valleys 445 2–23*m/12–16w* Capital!

vol. 4 NF1 p.25 elevated hills Red Sea Good remark on Cleavage; and on cal. columns

The pureness of the Primary Limestones argument in favour of not sole metamorphic but separation

p.13 Geograph Journal Vol V Ca rises from the bottom with stones Thames & Angara is frequent.— it cannot be dribbled water merely freezing in large estuary.

p.224 Shows much inclination after elevation into dry land

NF2 Mem. Transportat of shells by sea weed

Falklands, no Boulders ∴ subsidence

↻ Baron Munchausen story of frozen horse Gold being found near surface of Granitic countries, same vapor pressing upwards Tension? does it express ✱ compression?—

NB1 ♦ Read Meyer Look to Humboldt Vol II p.213 Pata wron○ spelt — Lucanas?

Put Table of Chapters

Lucanas diocese Guamanga 25 or 30 SW of Guamang, Lat 12°50'.

150 miles from Sea Volcan so called in Chapt in Humboldt Map p40 N. sub▶ leads to coast

Index wron Mountain elevation of I.

NB2 ♦ date of earthquake Concepcion wrongly spelt

number of numbers wrong G.F.

What is proof of hills of Miocene, Scoriae

Lyell's index wrong ice Vol. I 269 icebergs 7; 9; 38; 80; 99; 107; 125; 141; 143; 161; 162; 201; 214; 224; 244; 252; 254; 258; 262; 264

Vol I p.257 24 If elevation eheu! date wrong 1752

Are the plates of shells worth their expense

Just mention M St Elias

282; 284; 292; 298; 308; 309; 311; 312; 324; 332; 350; 360; 363; 366; 372; 377; 378; 380; 381; 388; 386; 392

3 14–32*m/15–16w* G 18–25*z/w* G 7 *wt* ?Has not great force tendency to break things smoothly, mem pane of glass with bullet 8 8–15*m/11?*, 14–18*m/15u* "made|upwards" 9 1–14*m/3–5w* St Helena 10 1–5*m/3w* scoriae 16 8–17*m/10u* "chiefly"/11*u* "historical"/?, 14?/*w* no doubt generally 23–25?? 17 9*u* "Rimao"/*w* C. 16–23*m*, 26–32*m* 18 3–20*m/6u* "Pacific", 10–14*w* dip seaward 19 *zt* 20 30–34*m* (*Deshayes*) 23 9–25*m* 24 22–23*m*, *wb* What would Hopkins say to expansion without fissures?? 25 22–30*m/w* Ehrenbergh 28 21–26*m/11–26w* odd ● in tusk 38 *wt* Why not estuary? 47 2–5*m*, 3–9*m/?/!!* 63 17–20*m* 80 7–14*z/w* too much? 81 25–31*w* first origin? *wb* break? 83 *zt* 99 *zt*, 1–3*m/?* 107 *zt*, 23–32*m*, *wb* Azores? Melted lava Galapagos ✱ volcanic rocks 109 *zb* 117 *wt/8–15m/w* Black silicified wood/B. Blac red Clayed 16–18*m*, 18–19*w* X Patagonia 31–33? 124 *fig.z* 125 31–33*m*, *wb* This different from other section & like Patagonia 126 1–4*m* 141 10–29*m*, *wb* Ascension 143 *wt* a very admirable specimen of descriptive geology 161 *wt* excellent for beginners but elementary 1–19*m* 162 15–22*m/w* excellent 20–3*m* 163 1–10*m* 201 *wb* Leave out Mosaic flood? flood generally 214 10–33*w* Mem Ascension Migrants proves London moves○ from ● 224 ↓*w* How far from base of escarpment does gravel extend (of the S ought to be more marked)(then 3 to 4–) *wb* show ✱ inclination after elevation into dry land 225 *zt* 226 1–13*z*, 20–29*z* 227 *fig.w* very good 232 *fig.w* Diluvius tilted 244 *wt* Doing away anticlinal line hollow chalk continuous 2–25*w* transverse valleys = every crust part of linear valleys = 252 1–13*w* it appears owing to your dread of Elevation Craters 17–31*w* incomprehensible to me: 21–32*m*, 30*u* "whole mass", *wb* ridge of unstratified rock vera causa 253 5–9*m/?* 254 14–34*m*, *wb* Make analogy stronger pumping in, instead of out fluid rock 258 *fig.w* good 8–21*m* 259 1–10*m* 262 3–21*m* (*Mantell*)/*w* What do they say? 264 27–30*m* 282 *zt*, *wt* Is there not marine animal, case undistinguishable *fig.m* 284 *wt/1–28w* How wonderful that any character of vegetable earth remains — silicification 9–15*m*, 20–28*m* 292 3–19*m/w* All this comes rather flat after first admirable chapters *wb* do p.297 297 3–33*z* 298 1–10*m/w* Cordillera 308 9–15*m/2–16w* Coast of Brazil Just water & other formations 309 20–24*m/w* Pampas Delta *wb* Has Indian delta been examined — ● where can I read account? 310 8–31*m/w* very strong & very honest *wb* as long as Didelphys — x Monkey no progression *wb* Man strong fact on opposite side you lean

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311 *wt* I think it is an argument for precedence of certain ♣ classes at former times, the precedence of orders now.— as pachyderms in Tertiary — Deer now 11–12?/9–17*w* do not understand 15*m*, 25–32*m*, *wb* Galapagos plenty of reptiles *wb* Distribution of animals at present day evidently not owing to mere circumstances: ∴ great lizards not!— 312 8–17*m/w* T. del Fuego 324 1–11*m/w* Unfortunate 332 *wt/1–4w* if not correspond of my short parallel line 4–7*m/?* 333 *zt* 338 7–18*m*, *fig.w* Elevatory 18*u* "reader"/*w* beginners 339 *wt* Is it good paper? 1–5*m* 340 3–15*m/w* very remarkable 341 *fig.m/w* very good *wb* very common 350 *zt*, 1–12*m*, *wb* arrival of fresh peated matter 360 *wt* good abstract 1–4*m*, 5–31*m/w* Cordillera. Snow hence Metamorphic; not like basalt *zb* 361 33*m/w* wrong reference 362 5–9*m*, 10–17*m* ♦/11–12? 363 *wt* Does any one? 4–9*m/?* 366 3–12*m/5–6w* St Jago 14–24*m/w* wrong 21–33*m/!* 22*u* "600 | high" 367 *wt* fragments brought up much more altered 10–23*m* 370 *zt* 371 *wt* Wire has been known to crystallize & become brittle from frost ∴ arrangement of particles 372 1–9*m*, 11–26*m/w* ? would not percolation destroy symmetry? 373 *wt* permeation of solid coral rock by tides 5–8*m/6u* "sponges", 29–32*m* 374 1–7*m* 375 20–25*m* 377 *wt* is this theory or fact 8–13*m/10–11?* 378 29–32*m* 379 1–2*m* 380 *wt* Henslow Botany 5–11*m* 381 21–30*m/z* 385 *wt* contrast general lowness of Tertiary formations 1–12*m* 388 1–29*m*, 1–14*w* Elementary 389 13*u* "visible"/13–22*z/w* almost solely elevation because rests on very hypothesis 392 19–26*m/w* Who? 393 5–8*w* Sir J Herschel 7*u* "infinitesimal"/*w* HJS? 394 11–17*m/12–21w* Does it not always appear vice & versa 18–29*m* 395 25*m/wt* beneath coast of Chili 408.b *zt*, 1–13*m*

LYELL, Charles *Principles of geology* 6th edn, 3 vols; London; John Murray; 1840 [CUL, S] ad, beh, cc, ch, co, ds, ex, fo, gd, geo, gr, h, hy, ig, in, is, mg, mi, no, oo, or, se, sl, sp, spo, t, ti, tm, v, ve, y

vol. 1 NB1 Lyell

Account of Hutton very eloquent — not credit enough; Metamorph — not blame enough — 138 misprint; 155
190 Whole Chapter inimitably good
New Continent —
193 You yourself remark same form has never reappeared — hardly cautious enough.—

201 Cayman Isd

232; 240, 241 Excellent Chapt; 252; 260; 272; 279; 282,5,6; 295; 296; 317; 328; 330; 370; 372; Springs Chapt very ●; 395; 396
NB2 Self
Spec Theory; 134; 137; 154; 193; 209; 230,248 Chapt IX excellent summary against theory of progressive development; 249; 252
Lyell always considers that there is saltus between man & animals —
Chapt XI Showing chasms in Animate world not real — most striking passages pages p.284, 287, 295, 298, 301
392; 414; ♦ 415 Geology

xvi 22*m/m* 134 28–31*m* 137 15*m*, 15–16*u* "hippopotamus | only", 21–29*m* (Strickland)/24*u* "bear", 31–32*m* 138 20–21*m* 154 22–25*m* 155 *wt* some one says plants of six months growth 1–5*m* pl. f190 *wt* New continent 193 *wt* Facility of transport of seeds & not adaptation perhaps causes this 2–26*m*, 4–8*m*, 14–15?, 17*m*, 18*m*, 19–22*m/w* G?? 201 13–17*m/15w* no 209 19–32*m*, *wb* not sound as species of shells numerous at first commencement of Tertiary 210 1–33*m* 222 23–24*m/!*, 24–27*m* 230 4–28*m* 231 17–28*m* 240 28–31*m/w* not clear to me 241 15–25*m*, 26–34*m/34[...]/w* no 33*u/wb* not quite accurate: parts of continent 248 1–24*m* 249 5–27*m/w* All this applies only to man as cosmopolite, i.e. civilized 28–34*m/w/wb* not man, with such knowledge as he is born with 252 14–21*m/!*, 18–19*m*, 23–25*m/!*, 24–25*m* 260 *wb* I do not think you clearly enough state that there is no evidence of progressive development like metamorphic rocks that we know, species have successively appeared — but we know nothing of first peopling this planet, like its origin. The introduct of man, only greater change than any species ornithorhyncus 261 *wb* we know that species differ much from each other.— 272 3–16*w* ♦ Hereafter enormous area of S. America Tertiary desposits 1800 Tertiary deposits 279 27–28*m/?/27u* "persuading" 282 23–34*m*, *wb* again man as cosmopolite also p.285 283 2–8*m* 284 9–24*m/10u* "with | chasms" 285 15*u* "anterior | man"/*w* p.286 20–21*w* Peru 26–32*w* raised beaches with cotton thread *wb* What would you say even to American Geologist who said man did not exist, because no remains of Patagonian soil 286 10–12*m/!* 11*u* "at earth" 287 3–15*m/7–8w* Self 295 20–23*w* possibly many 24–34*m/29–30w* Self 296 1–7*w* & as nature of bottom changes different distribution 9–16*w* no known relation with respect to change 17–19*w* Scicily elevation

Lyell *wb* My theory goes to show that period is excessively long, during which species do not change, because no case of such change in any one structure can be shown 297 21-24m/w Self 298 14-18m/12-22w add. to this Europe exception & not rule - World simple 301 28-32m 317 12a "in" the breccia 328 25w rain & c & c 331 *wt* Tropical plains 1-2m/? 370 24X, *wb* Col Jackson describes much dirt & stones with Russian 392 20-24m/22u "with|the" 393 2-5m/2w ♦ ● 395 *wt* abundant in Cordillera 1-3m/w very 396 18-19m/19u "many parts"/w where 414 10-14m 415 23-28m

vol. 2 NB1 Lyell-; 266 isl N. of Ascension =; 278; 297; 372; 399
NB2 Self
Geology ♦ 106, 279, 447
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108 29-33m 120 14-16m 130 27-28x/24-28w incorrect layer 134 11-16m 266 15-16m 279 11u "attributes"/w stronger 297 23-24x, *wb* Most interesting feature omitted of volcanos already in action. 372 11-13w V. your Map ?? 399 1-2m/?d/u "hydrometer" 416 27-31m 447 7-11m

vol. 3 NB1 ♦
Where are Wiegmanns experiments on plants p.66 Amoenitat Acad * p.204 authority? * 300 *
Lyell p.116; p.127; 157; 200
295 Coral Chapt. Very satisfactory
Have a recapitulating character (*he means chapter*) on whole bearing of vols to explain present state of earth, which at first every one thinks formed by catastrophe
NB2 Self. Spec The.; 10; 34; 48; 67; 93 to 136; 204; 275; 300; 357
♦ 313 Geolog -

10 13-19m/15-17w extra claw 20-32m (Lamarck)/26-28w weak *wb* no new organs in whole classes 34 *wt* l. St. Hilaire 1-8m/4? *wb* G. St Hilaire 36 15-22m, *wb* ? 39 23-25m/?? 41 22-25m 42 16-20m/?, 20-21m/w no 44 25-28m/? 47 15-17m/? 48 *wt*/1-28w surely new Varieties sport, though individuals may be acclimatised in few years 4-6m, 10-34m, *wb* Think of all this when writing 49 1-21m, 28-31m (Cuvier, Dureau de la Malle) 51 26-28m, 27-29m, *wb* accustomed in early infancy 66 10-14m 67 29-31m (Wiegmann), *wb* Where 74 7-11m 90 4-7m 99 7-10m 100 24-29m 108 7-9m 116 25-29m/w ? Beale 118 *wt* XX My Patagonian case Weissenborn on Libellulia

Squirrels & ●?? *wb* (a) Why do men in fear herd together - 119 *wt* (a) Why does suffering make animals flock? *wt* Not always of same kind in insects XX 17-18m/x, 1-30w The useless ones cannot be for killing the animal, or they would have died from want *wb* 2 kinds of migration useful & useless are here confounded 121 4-6m 125 7-8x, *wb* X once connected with main by verdant continuous trails. 127 6-8m/!!/7u "pumas" 138 33m (Richardson) 139 23-26m (Gmelin), 27-32m, 33m 140 *wb* do any fish live on seeds? fish eaten by Herons- 146 10-14m 157 1u "Pitcairns"/w ● 161 9-17m, 21-24m 174 *wt*/1-26w The number of years some rare plants have occupied same spots - ? exact spot? argument against this - & the fact on opposite page antagonist principle. 20-26m, 30-34m (De Candolle) 175 *wb*/1-34w/*wt* XX would merely affect new countries & new devastations. (seeds in ground part of same class)- in short time struggle must come into play - occupancy can only hold to actual plant or tree, in first seedling struggle must commence - the surrounding land possibly more favourable because leaves of own kind best manure- 3u↔/? 197 33m 200 7-9m 201 4-9m, 17-31m 204 2-7m/w Please tell me authority 7w Thinks M F. Cuvier 221 15-24m 222 10-14m 224 1-11m/5-6? 227 5-32m 228 1-11m/5!!/wt/1-6w Let whole world get hotter or colder whole continent or whole islet 27-32m, *wb* =islands= Absurd - as we know in every country some new forms can be introduced 15a "marshes" 229 *wb* from lake in midst of Africa !!!! whence can come lacustrian plants *wb* Form islet, let this become Mountain, whence the Alpine plants?!! 276 1-3m 292 10-31m/22-24w V. p.297 *wb* Refer to Lunds theory & quote Lyell against it. 293 *wt*/1-2w The cause of this association of iron with limestone & corals - laws of organic forces?? 13-21m/15x 295 10-13m/??/wt What should empty it 297 1-8m 300 24-28m, *wb* p.303 do you believe contemporary? 303 1-13m 305 20-23m/23u "a|colour" 313 1-6m, *wb* as wood drifts by surface currents it may be transported to parts where no sediment is accum 357 6-8m 367 20-22m 370 26x/28-30w Dr Allan p77 372 24-26w at most 30 fathoms 377 23-25m, 30-32m 378 *wt* set of little rings 27w 49 384 3-5m/!/4u "supposes" 388 6-8m/? 14-17w does not give as fragments 21-25w leeward side dead & not growing 391 11-13m/? 394 5-6? 395 1-20w border denuded & real growth of upsurge Corals denuded 396 24-25w no! 398 7-8? 399 24-29m 400 3c "be" is

LYELL, Charles *Principles of geology* 7th edn; London; John Murray; 1847 [CUL, I, S] geo, sp, t

SB *(list of changes from previous editions)*

NB1 Icebergs; 97; 101; 228

NB2 97 ice; Species Theory; 83; 105; 125; 134; 156; 177; 589; 591; 592 596; 600; 604; 605; 606; 608; 671; 697 of ♣ next Edition
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LYELL, Charles *Principles of geology* 9th edn; London; John Murray; 1853 [Down]

LYELL, Charles *Principles of geology* 9th edn; John Murray; London; 1853 [CUL, I]

NB 697; 184; 343; 489; 753; 769; 795
162 39-44m 184 20-21m 238 zt 278 32-35m 279 24-29m 569 3-5m, 6-7m, 11-15m 572 2-6m 669 45w to p.680 670 16-17m, 47m, 48-49m 673 2-4m, 40-41m (Kirby) 675 10-11m, 27-28m 676 3-4m 677 38-43m 680 8-9m 685 38-39m/u "twenty thousand"?, 41u "eight thousand"

LYELL, Charles *Principles of geology* 10th edn, 2 vols.; London; John Murray; 1867-68 [Down]

LYELL, Charles *Principles of geology* 10th edn; London; John Murray; 1867-68 [CUL, I] ad, cc, ch, gd, geo, gr, hl, mg, oo, sp, t, tm

vol. 1 NB 146 on advance of organization
174 on changes of climate
393 Means of Distribution
209 9-10u "sandstone|shale", 14u "300|least", 15u "Vienna|Switzerland", 18u "several|feet", 19u "6,000 feet" 273 2-8m 393 13-24m, 26-29m, 31-33m, 34-36m 394 1-8m

vol. 2 NB Sp. work♦ Theory; 323; 338 to 345 G Distrib.; 355; 358; 366; 369 to 395; 406 to 431 very good
Errata♦ & Remarks; p.291; 307 corrections; 308; 317; 377; 421; why did you not contrast sea & Land-shells; 476; 478; 488; 489 I rejoice; 490 Ditto
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SB ⇨

1867.- Lyells Principles 10th Edit Vol I
p146 Discussion on advance of organisation.
174 Chapt. on causes of change of climate
393 Means of distribution - organisms in borings by Artesian wells - even living fish.
Vol. 2.
p.341 on Geographical Distribution p.341 Japan
p.345 Madagascar - good speculations
p.355 Means of Distribution, p.358 - 365 to p.395.-
p.406 persistence of same Flora in Madeira from Pliocene to present day, shows then separated.- to 431 - Admirable discussion on relations of Fauna & Flora of Madeira & P. Santo to each other & to Europe.-

246 20u "to|extent"!? (Geoffroy and Lamarck)
291 24u "germ cells"/w no 307 26-28m,/? 308 13-16m 309 33w short 317 3-8m 323 26-37m (Linnaeus) 324a 38-41m 338 12-39m 339 38-39m 341 27-35m (Wallace) 343 21-24w chance migration by sea 26-31m 345 28-37m 355 4-10m/11w Singapore 19-24m 358 3-5m 359 17-22m 365 1-3m 366 16-20m 369 17-23m 370a 40m 371 26-28m 377 22u "New Holland" 380 30-39m 387 32-35m 391 7-13m 395b 36-37m (Henslow) 406 7-11m (G. Hartung), 22-24m 408 11-15m 410 4-9m, 35-37m 414 30-33m 418 31-39m 419 10-21m (Hooker) 420 21-25m 421 10u♣ 422 28-34m 423 14-21m, 26-36m 426 7-17m 427 1-4m, 21-28m 428 1-5m, 22-29m 429 10-16m, 17-32m/w well stocked Birds of Galapagos; the case | give of shells & of true genera 430 25-31m 431 26-32m 469 27-30m 471 36-38m (Brace, Wallace) 473 29-35m 474 27-35m (Wallace) 476 27-30m/28u "to vary" 478a 38m/w Error 479 27-38m 481 24-29m 482 8-18m, 19-31m/28u "Gaudry's memoir" 483 31-34m 484 8-13m (Gaudry) 485 18-19m 487 33-36m 488 9-12m 489 14-17m, 20-24m 490 27-31m 491 7-12m/9u "higher|organisation"/w What is higher 21-29m

LYELL, Charles *Principles of geology* 11th edn, 2 vols.; London; John Murray; 1872 [CUL, I] af, geo, h, hl, t, v

vol. 1 NB 149; 159; 162; 212; 342

⌀

149 16-21m/16-17u "primordial|Barrande"/20u "Orthoceros", 27u "chambered|Orthocerata"
159b 33-40m (Owen) 162 14-21m 163 7-11m 212 31-37m 232 5-9z ⌀
342 4-6m (Jamieson)

⌀

vol. 2 NB Resemblance from similarity of exposure – p.295 in Dogs –
p496 Difficulty of a higher grad from lower
Is not a very cleverer man a sight higher
than a dull man? Is not that power of a man
work of ● or power of Brain & wd not the
replication○ of the degree of cleverness
ultimately produce a great result?

⊗

295 9–26m (*Flower and Wallace*)

⊗ 396 11–13m (*Forbes*) 496 31–33m

LYELL, Charles *A second visit to the United States of America* 2 vols.; London; John Murray; 1849 [CUL]

ad, beh, ci, ex, fo, gd, geo, mg, sp

vol. 1 NB Read second time

p.29; p.303; p.330; p.348; p.351

SB 29 Lat 43° 6' S limit of Boulder Deposit

303 Many genera of Birds & Mammals with representative species on two sides of Rocky M

330 Birds & Squirrels having habit of burying acorns allude in my Staffordshire case as not applicable to it

348 No less than 3 species of Horse in N. America

29 28–31m 303 21–25m, 27–31m 304 1–12m, 15–25m 330 19–26m 348 18–22m 351 3–27m 366 14–17m

vol. 2 NB1 250 Rate of deposition of Delta.

NB2 293 ♦ Migration; 294 ♦

150 ♦ Cirripedes; 270; 312

Abstract

p.270 Dr D. Owen says newly introduced Plants, first overrun the country & then become scarcer (Ask A. Gray)

312 Footprints of Air-breathing Reptile in Carboniferous Rocks

250 9–12m 251 12–17m 270 19–23m 312 3–7m 313 25–29m

LYELL, Charles *The student's elements of geology* London; John Murray; 1871 [CUL, I]
ex, fo, gd, geo, ig, no, sp

NB 160 Mammals before & after glacial period

348 Muscle chalk absent in England

357 intermediate ♣ Caspian beds

361 Reptiles in Trias very rich

467 absence of Cephalopoda in Upper Cambrian

470 fossil of Longmynd Groups –

Read Ch VII p263

xii 5–6m, 14–16m xiii 38–39m xv 9–11m xvi 33–34m 160 1–11m 348 23–26m 356 11–16m

357 10–33m, 35–36m 358 20–27m 359 1–2m
361 1–4m (*Meyer*), 22–24m 467 33–41m
(*Barrande*) 470 21–27m

⊗

LYELL, Charles *The student's elements of geology* 2nd edn; London; John Murray; 1874 [Down, I]

LYELL, Charles *Supplement to the fifth edition of A manual of elementary geology* 1st edn; London; John Murray; 1857 [CUL]

gd, geo, ti

1 15–17m, 18a "older" crag 2 40–43m 3 16–21m 5 33–38m/35u "Norwegian | Lemmus" /w Does Lemming inhabit Alps. Vide Waterhouse 6 17–21m, 25–28m (*Falconer*) 9 21–29m /w How blended Eocene & Miocene 11 10u / 7–10w What age of oldest Elephant 11–16m, 34–35m, 37u, 38u "Pliocene" 12 22–25m/23u "partly | period" /18–25w no one dreams sea acting all time 14 30–31u "no | marsupial", 32–38m 15 3u "Triconodon" /w Marsupial 40u "probably marsupial" 18a 45–49m 20 27–31m / 30u "range | marsupiala", 43–45m 22 21–23m (*Falconer*) 23 10–13m 23b 15–18m 24 8–11m, 15–17m, 17–21m, 23–28m 25 2–4m, 6–7! / 7u "climatal", 13–24m/15–17?, 34u "St Cassian beds", 37–39m 28 26–28m, 29–31m, 35–38m 29 18–21m (*Lindley*), 44u "Palaeozoic" /wb not diphthong 30 5–8m, 17–19m/19u "27", 20–24m/20u "beds" /23–24m, 28–33m, 36–43m 32 29–42m 33 39–46m 34 17–25m

LYELL, Charles *Supplement to the fifth edition of A manual of elementary geology* 2nd edn; London; John Murray; 1857 [CUL]

ex, fo, geo, ig

NB ♦ p14 intermediate forms

p30 Old N American Mammal Trias or Permian

Letter from Lyell – new proof that Dromotherium below ● – perhaps not actually Permian same discovery sinks the level of Hitchcocks Birds Tracks

14 9–11m (*Falconer*), 10–23m/16u "Rhinoceros | Anoplothera" 30 5–29m/10u "Chatham | Carolina" /19u ♣, 26–29m 33 25–28m 35 19–24w ee 37 35–39m 39 wt New edition

LYELL, Charles *Travels in North America* 2 vols.; London; John Murray; 1845 [CUL]

af, cc, ch, ex, fo, gd, geo, gr, h, no, se, sp, t, tm

vol. 1 NB1 138. any extinct Gnathodons?? or Fulgur??

LYELL, TRAVELS

Lyell says Cretaceous & Eocene quite conformable & similar substances, so that most difficult to separate.

(drawing of a continental shelf or bank of slow-moving river)

NB2 Species Theory ; p.5; p.7; p.9; 10; p.20; 52; 55; 67; 78; 87; 134; 137; 168; 173; 178; 198; 202

Geology S. America

Mastodon ♣ at Niagara ♣; p.164 Mastodon & Cursed Horse Tooth; 201 Man skeleton in Brazil

p.48. subsidence Glaciers-period.

SB □β

5. Daisy will not live in U. States

7 35 per cent of shells of Massachusetts identical, many representatives

10 On the curves of cold being same at Glacial Epoch as now

20 on certain shells having wide geograph & geotropical Range

52 on time since Niagara formed (since Glacial?) 67 Mastodon since Glacial

78 Of New Jersey Cretaceous shells only 4/60 identical, but many representatives.

Reptiles analogous – some of them identical have greatest vertical range

87 Devonian & Silurian Strata 4 1/2 miles thick

134 shells analogous to Suffolk Crag p.138. only 9 Miocene identical The shell Fauna then distinct of America & Europe (& in Chalk

178 Of Eocene shells 7/125 identical. Now I fancy in S. States very few identical or more but many representatives

202 Number of F.W. shells in U. States

5 21–24m 7 3–6m (Gould)/w now are these
70 Glacial 13–15m, 16–18m 9 1–3m, 6–8m/w
against seeds transported 10 14–19m 20 16–22m
48 3–10m/4"..." 52 3–19m 54 4m 55 2–4m
67 8–10m, 11–16m 78 7–9m, 26–27m 79 1–3m/
w V. proportion of living 8–9m, 20–24m, 27m/
→ 80 7–11m, 15–18m, 20–24m, 25–26m 81
10a/u "corals | insects" /5–14w Satularia very
like of V. Diemen's Land ??? 14m/u "arctic |
antarctic" /w ?!! no wb Dr Beck Margarita is
found in ♣ Antarctica, which is genus not
found in Tropics 87 22–25m/w = 4 1/2 miles
134 12–13m/12u "very | those" 136 23u "147"
137 4–5m/4u "close affinity", 26–27m 138 2–5m/
2u "mine" /5u "with | species", 7u ♣ /8–10m ♣ /
8u ♣, 14–17m, 18–21m 151 2–5m/3w Breath 9u
"absorbed" /m/?, 11–14w The absurdity of
arguing from one position 168 3–7m 172 14–27m
173 1–9m 178 21–23m, 25–27m/x, wb |
forget how many Miocene common to

Europe & America – see to this– 181 1m/?
185 18u "depressing | spirits" 198 19–22m 202
15–20m

vol. 2 NB Sp Theory p.19; p.30; 48; p.50;
p.52 54; 59; 131; 135; 152; 154; 158; 179;
187; 188; 190; 255

Geology; p.60 Mastodon & Elephant with
Recent shells

p.99 – Subsidence during ice-period

SB □β

19 Carboniferous shells some identical, &
most closely related

35 Proportion of Trees on Indian Mounds

Plants many identical, I think not surprising,
when land in fact continuous

2/3 identical of Coal Plants (See Below)

51. Silurian shells not many in common – so
with Russia. Exploded doctrine

52 Orthis still living in Mediterranean, but
very rare – 54 Causes of absence of land-
plants in Silurian – Good discussion –

152. Lat 44°.25' most S. Lat in which Arctic
shells have been found

155 Arctic shells have retreated 14 degrees
of Latitude

158 Lingula. still living, in oldest Silurian
Rocks

179 Carboniferous strata of N. Scotia 4–5
thick p187. Ten layers of upright trees

p187 37/48 Plants identical. Of 35/53 of Coal
plants of U. States, further S. are identical.

19 6–10m, 14–19m, 22–25m, 26–27m 20 5–8m,
13–15m, 17–21m (Brongniart) 21 8–16m/13u ♣,
18u "genera", 20–21m 30 6–10m 35 12–27m 37
20–21w No 48 19–27m, z/wb 50 22–26m 51 3–
10m, 13–20m (Murchison and De Verneuil),
21–25m 52 10–21m/w ie rare genus 53 17–
19m 54 5–6m/?, 11–13m, wb/↓w Old
formations are oceanic; because these have
the best chance of being thick & last brought
up; this rests on idea of movements being
widely extended & continuous, which is also
proved by continents. 55 1–9m/w There must
have been a considerable continent.– 12–
16m, 17–20m, 22–26m, 27→ 56 12–15m
(Murchison and De Verneuil) 57 1–3m 59 14–
17m 99 1–17m 131 1–8m, 10–15m, 20m 135
24–26m 152 3–5m 154 9–13m/w p.149 &
number of species of genus 155 1–2m/wt ie.
Arctic Climate has retreated at least 14
degrees of latitude – effects of changes of
Geography – not connected with central
Heat 158 3–7m, 179 24–27m/→w with vertical
trees 181 20–22m 187 8–14m, 24–25m/25u
"ten | levels" 188 11–15m/w important as
showing former communication 19–27m 189
1–6m 190 25–27m 255 1–27w Mainly ♣ 12

divisions judging from fossils corresponding to Upper & Lower Silurian formations *many lines in table marked; subdivisions 24-28 bracketed.w* Devonian

LYELL, James Carmichael *Fancy pigeons* London; The Bazaar Office; 1881 [Down]

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NB O/

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NB O/

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title page *wb* By the Revd. William P. Lyon (near Norwich)

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McCLELLAND, John *Indian Cyprinidae, part 2* Calcutta; Bishop's College Press; 1839 [CUL, I]

f, gd, oo, no, sp, sy, t, tm, v

NB1 A Good many fish – semi-alpine 4–500 feet nevertheless no species similar to European – I believe – V. Synopsis Contrast with Hope's paper on insects → especial contrast with Water beetles, I believe,

Good contrast with Fish of Pacific & Indian Oceans –

How is this in N. America? –

NB2 The Commencement of this Book good to consider when treating Quinary System – It must be considered

229; 230; 232; 237; 266; 364; 385; 399; 458; 452

SB 230 Fishes bright to be caught

266 on domesticated Fishes of India varying so much – Ch 1 or 2

262 On Salmonidae in India – place filled by Cyprinidae

229 13–22m, 20–22m 230 6–13m/16w see p.229 19–23m/19–26w I must utterly deny this. – If this could be passed – farewell my thesis – 27m/w Nothing new spec 231 3–6m, 18–20m 232 1–3m 237 23–27m 266 12–13m/w V. p.313 26–28m/w p.268 268 4m 313 15–19m/17u "form" pl. 46 *wb* Perilampus perseus 365 23–28m 385 4–9m 399 13–15m 452 1–7m (Hügel, Heckel) 458 22–27m/w not so much destroyed & therefore not become so prolific 459 1–3m, 17–21m 469b 3m, 4m, 6m, 7m, 10m, 12–19m

MacCULLOCH, John *A geological classification of rocks, with descriptive synopses of the species and varieties comprising the elements of practical geology* London; Longman, Hurst, Rees, Orme & Brown; 1821 [CUL, S Chas. Darwin June 1837]
geo, is, mi

MACCULLOCH

NB 185 to 188; 199; 270; 332; 349; 351; 364; 376; 471; 475; 528; 531

Ap 21/57 (CD?)

Macculloch from p- to p will be worth looking at before writing Cleavage

185 22-24m 187 8-14m, 16-22m 188 8-13m, 15-20m 189 1-7m 199 14-21m/17-21m, wb ?ls quartz ever fluid from Heat even in granite 233 5-7m, 18-21m 244 9-14m 270 4-10m, 11m, 13-23m, wt & see p273 & 274 273 6-14m 274 11-18m 301 19-22m 332 12-20m/w like F. Islds. 349 18-24m 350 20-24m 351 13-18m 364 11-24m 365 4-6m 376 7-13m 471 2-4m 475 13-19m 528 13-20m 531 wt Make note to Obsidia paper say it is remarkable that no one has hereto stated the fact of separation 5-14m, 20-24z

McCLINTOCK, Francis Leopold *A narrative of the discovery of the fate of Sir John Franklin and his companions* London; John Murray; 1859 [Down, I by publisher to Mrs Darwin]

NB p16; p20; p102

16 11-20m 20 24-27m 102 22-25m

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af, beh, br, cc, ch, cs, ds, ex, gd, gr, hy, mg, no, oo, phy, rd, sy, t, ta, tm, v, wd, y

vol. 1 NB do show extinction not so easy extinct in England Capercailzie recently extinct, Bustard

p.5; For Pigeon - 25 - Skeleton; 90; 101; 119,20; 153; 162; 173; 192,7; 225; 249; 265,6; 270; 274,8 - Pigeons to 289; 331; 398; ♦ Read from 90 to 96 well; 423; 501; 505; 512; 529 to 534; 538; 569; 571; 604

269 Scutella; 231 Skeleton of Pigeon; 285 number of seeds in crop; skeleton♦; Black grouse 157 superorbital space becomes red in Breeding season

SB 90 - ostrich rudimentary tie

119 Disputes ring-neck pheasant being a Hybrid

153 variation in intestines in length of Black Grouse

162 Q Black & Red Grouse crossing

249 In Pigeons Head & Bill chief characters of Family

270 On Birds having Beak crusted with earth or mud

275 On ♣ House Pigeons taking to Rocks - taming Pigeons

285 on number of seeds in Crop of Pigeon

289 On C. oenas building in Rabbit holes

398 Cases of natural pairing of Green-Finch

& Gold Finch Q

422. Abnormal characters in Cross-Beak varying Q

501 On Faroe Raven (I believe quoted)

512 NQ Ravens build in cliffs in N., in trees in South p604 So starlings in Hebrides

538 Rook varying much in Beak.

569 Eggs of Magpie varying much shape, size & colour

570 Magpie getting 3 females - another case of size Q

157 supraocular carmine space brighter red during breeding season.-

5 18-22m/w nearer literal relationship 24 27-28m 25 11-12m, 16-17m 26 1u "sacral", 33-36m 27 fig.w (naming of parts of skeleton) 28 11u "manubrial", 22u "crest|ridge" 29 9a "is" clavicle 31 6u "iliu", 8u "pubes|latter" 34 20-34m 75 4-6m/4u "a large", 19u "accessory plumage", 26-28m/26-27u "to|length", 28u "in feather"/28-32m (Richardson, Audubon) 90 19-20m plates w (parts of skeleton) 101 4-6m/5u "second|quills", 22-24m, 26w Crows 106 7-11m 111 25u "twelve" 118 13u "Length|inches", 14u "tail 18", 14-17w say 18 to 21 tails 119 3u "26 inches"/4u "tail 11"/3-5w say ab 12 inch 8-10w analogue of P. torquatus 12-14m, 15-18m/17u "very|varieties" 121 10u "tail 20", 14-15m, 18-20m 122 15u, 19-22m, 31-32m/31u "Phasianus torquatus" 151 2-3m, 34-37m 152 28-31m 153 28m 154 32-37m 157 34-38m, 35-38m/37u "a deeper red" 158 3-7m, 7-14m, 21-26m 159 14-16m, 18-19m 161 28-30m 162 6-10m/Q 169 12-13u "breast|white", 16-17u "breast|barred" 172 23-24u "breast|chestnut" 173 3-7w proportions different 9wcc, 12m/wcc, 20-28m/23u "lighter red", 26u "lighter", 27u "but duller", 30u "is|brownish", 31w see over 174 2-3Q 5u "lower|are", 6u "spotted|barred", 11u "less|white", 21-25m/22u↔/24u "tips|feathers" 184 11-15m 185 25-26Q 187 14-19m 193 5-14m 197 20-27m 207 17-19m 216 32-35m 219 35-37z 225 3-5m 249 13-15m 251 22-24m, 25u "seven dorsal" 257 11-12m, 37-38z 265 7-10m 266 16-18m 269 3u↔, 11-16m/14u "the|fourteen" 270 34-36m/w seeds 274 36-38m 275 15-17m/x, 37-38m 276 8-18m 277 24u "James Barclay" 278 16-19m, 22-23m 279 15u "Mr Andrew Duncan", 16-18m/17u "tamed", 32-33m 281 9u "three|long" 282 24-27m 283 13-14m/14u "is|feet", 31-32m (J. Smith), 36-37m 284 5-8m 285 17-19m/18u "1000|odds"/19u "510" 289 31-35m 331 14-19m 352 21u "in|which" 370 14-18m 372 5-8m 373 17-19m, 21-24m 375 30-34m (Temminck) 398 9-11m, 12-13Q 20-23m 422 34-36m/Q 423 1-3m/Q 29-37m 428 1-4m 501

8-10m, 15-17m, 20u "Feroe Isles"/20-24w see in Travels which I have, what is said about this. 26-28m 505 36-38m 512 10-12m, 13-14m 529 14-15m, 17-20m/Q 532 4-5m, 30-31m 533 21-22m 534 1-4m, 11-13w This is good case of doubtful species 13-17m, 18-21m, 21-22m/21u "being|wilder"/22-23Q 24-26m, 25-27m 538 9-12m/9u "remarkable diversity" 569 1-8m 570 34-38m/35u/Q 571 10-11Q 11-14m/12-13u "saw|eggs" 572 32-34m 577 zb 599 10-14m 604 16-27m

vol. 2 NB1 451 Crested Tit female has crest smaller

417 Crested wren crest paler

NB2 Upon the whole little variation in Birds except rarely tendency of colour & size & proportions. No races

p.53; 84; 92; 91,6; 98; 102; 104 transportat of seeds; 113; 118; 125 - transport of seeds; 130; 138; 143; 172; 245; 302; 438; 446; 483; 484,5

185 Anthus breeding flight; 354 do better Q

52 Dipper; 83 T. merula; 100 P. torquatus

SB □β

92 Thrush & Blackbird pairing in Nature Q

96 Nestling Black-birds know cry of danger;

99 crowing like a Cock

104, 125 Disbelieves strongly that Birds disseminate for never but ♣ twice having f any. viz Mountain Ash

172 ♣ Eggs of Alauda arvensis varying greatly

438 Tomtit feed their young 475 times in day on caterpillars Q

483 ♣ Doubt about distribution of Motacilla alba & Yarrelli, after comparing French Birds

27 6-17m/7-9w Voice Muscles 29 17-24m, 22-24m 52 31-35m, 31-33m 53 3-8m, 22-25m 55 14-20m, 31-35m 84 1-4m 91 30-33m (Blyth) 92 13-18mQ 96 7-11m, 13-16m 97 24-28m 98 14-19m 99 10-12m 100 17-19m 102 26-28m 103 7-12m 104 14-20m/19-20u "which|intestine", 30-33m 113 5-12m/6wcc, 7-12w proportions vary 118 8-15m 125 9-17m/11u "sixty|various" 130 14-21m 138 31-32m 143 28-34m 172 4-10m 185 33-36m 188 16-21m♦/16u± 223 16-18m 245 14-15m 256 2-5m♦/3u "much|frequent" 302 7-9m 329 24-28m 354 11-16m 438 36-38m/Q 446 24-27m, 31-33m 451 27-28m 460 13-17m 461 18u "of|fable" 483 11-26m 484 29-34m 485 30-33m

vol. 3 NB1 548 on making preparations of Digestive organs.

NB2 11; 17; 36; 39; 59; 60; 113; 140; 187; 208; 215; 224; 250; 256; 299; 300 rate of flight; 329; 351; 376; 459; Owls prey on

shrew-480; 535; 560; 591; 599; 607; 625; 700; 713; 714; 717; 721; 730; 745,46

SB □β

17 Beak of wren variable; 36 Creeper do

140 American Cuckoo hatching young successfully Q

187 Scutella in Buzzard variable

215 Eagle carrying & dropping Pig alive

225 variation in wings of Tracheae & intestines in Sea Eagle p250 p329 in Caeca intestine p351

257 soles of Hawk crusted with mud

300 Peregrine Falcon does not much exceed a Pigeon ♀ in rate of flight

535 Waxwing - the wax-like terminations variable in number.- Abnormal variable Q

560 Swallow lateral tail-feathers more or less elongated do Q

Swallows entombing Sparrows Q

599 Disputes Swallow Q gluing materials together 625 Q present in Swift X♂

736 on Bird carrying Q egg from nest to prevent discovery

11 17u "Furnarius"/17-18w variable in species 17 16-19m 22 1-19m, 21-30m 23 9-11m (Weir) 24 7-8m 36 8-11m 39 20-23m (Audubon) 59 7-11m/8w differences 25-28m/25-26w diffs. 60 26-29m/w singular organ presenting differes 61 21-22m 79 5-7m 83 3-5m 84 23-26m/26u "till|sonorous" 85 5-8m/7-8u "feathers|crimson" 87 8-11m/9u "crown|crimson", 29-30m 88 8-18m, 24-30m, 25u "vibrates|tree" 89 30-34m, 32u "amatory performance" 94 4-7m 102 23-24u± 113 11-18m, 29-34m♦ 121 24-27u± 122 15-17m 124 20-23m, 28-37m, 33-37m 125 18-26m 126 21-27m 129 16-25m 133 18-26m 139 28-30m 140 3-6m 187 14-16m, 19-30m 208 30-34m 215 8-13m, 14-17m 224 23-34m 225 10m, 12u "scutella", 13-19m 250 27-35m 257 28-29m 299 1-20m 300 19-21m 329 1-10m 351 12-16m, 20m 376 31-37m 459 32-37m (Bonaparte) 480 3-5m 502 9-10u "head|black", 16-18u±/w female barred on parts inferior 535 13-14m, 19-21m/Q 560 21-22mQ 591 24-34m 599 2-3m/2u "no caeca", 35-38m 625 31-37m 626 8-12m 700 5-11m 713 2-4m 714 36-38m 715 1-3m, zb 717 15-17m 745 15-16u "neglected|stranger", 18-21Q 20-22m, 21u "being convinced", 27-29m/27u "The|larger" 746 2-3u "head|white", 5-9u±, 11u "coverts"/w parts of wing 14-16Q 16u "throat|the", 19u "The|white", 32-37m

vol. 4 NB ♦ 371 No difference in summer & winter Plum. of Snipe

SB1 □ℵ

xiii,iv,viii; 89; 155; 206; 309; 370; 422; 446;

MACGILLIVRAY

476; 572,3,4; 593; 606; 611,14,17; 627; 632; 665; 687

SB2 □β

p.89 Remarkable variation in Beak of Plover
p206 do in Tringa p370 Snipe

pxx ♦

155 do in Oyster catcher perhaps case of abnormal varying Q

422 several cases of American Bittern shot in England pxiii, xiv, xviii other American Birds.

446 Q Herons building in trees, on rocks, & on heathy ground

573 Geese & Ducks all blend together, might be left in one genus. Flamingo modified form 593 thinks Anser forms ancestor of domestic goose

655 variations in internal organs

687 var. in number of tail-feathers in Swans

xiii 25-26m xiv 9-10m/w 2 xviii 6-7m/w 3
23 33-38m (Temminck) 33 15u "some|
polygamous" 89 19-23m 103 4u "scarcely|
their" 109 3-4m/3u "males|females" 155 6-
15m/8-9Q 171 16u "Female|lighter", 17u
"more grey", 21u "the|land" 172 8-16m 173
28-30m 177 30-38m/35-36u "nature|birds"
178 17-20m 180 1-5m/4u "May|June", 6-9m,
30u "five|six", 31u "about|ounces" 181 6-8m,
10-13m, 15-23m, 21-22m 187 20m 206 14-
18m 309 24-27m 370 35-37m 371 3-8m, 34u
"zigzags along", 35u "zoolzee" 372 4u "Air-
goat", 16-17u "amuse|more", 25-29m/25-26u
"Wel|has", 27u "by|only" 422 5-21m/9-12w
American Bird 446 12-14m, 33-37m 476 16-
20m/w wader very wide Rangers 537 27-
28m/27-28u "betaking|ease" 545 24m 550 35m,
36m 572 3-7m 573 18-29m 574 17-19m 576
13-15m 580 18-24m 587 25-27m 593 23-28m,
30-35m 606 27-30m 611 25-31m 614 24-27m
617 27-34m 627 27-29m 632 17-39m 639 18-
21m/19u "obtuse|knobs" 651 23-27m/Q 665
10-14m/Q 671 11-14m 678 38-39m 687 9u
"eighteen|feathers", 12-15m, 16u "twenty"

vol. 5 NB Lestris, Gulls & Terns, female like male, except generally smaller - very white Birds - Oceanic

p.226 Princeps tuft on Head & Raff in female rather smaller

228 Merganser crest do

Puffin, Razor-Bill, Cormorants, Uria, Gannet males = females

70 Double-Moult of Pintail within less than 2 months

223 Merganser Moults & makes an appr to female

(reckoned one of most extraordinary facts in Nature)

31-40 ♣ tooth-formed ♦ conical reversed teeth Merganser first Entry

SB1 36; 39; 69; 64; 58; 51; 38; 59; 114 wd fly to water & might be killed there.; 205; 247; 255; 272; 279; 500; 518, 546 vary same way in same genera; 550; 577; 596

SB2 □β

36 Wild Duck, thinks flight 100 miles per hour

69 Pintail Teal & Wild Duck (p38 seeds ♣ feed on p64 other Ducks p.114 p51/58/six species of Ducks p255 Even Grebe eat seeds. 272 do 278

89 Wigeon has bred with Pintail & Common Duck

247 Grebe, tail a mere tuft of down. How is Coccyx - see Brit. Mus.

518 variation with age & almost disappearance of hind Claw in Kittiwake

550 change in Stomach of Raven when kept on vegetable food, & so in Gull, as I understand in times of year, when it feeds on seeds.

577 colour of outer Primaries vary in same way in 2 species of Gulls & in allied Gavia p.596

34 6u "and|coloured", 10u "speculum|male", 23u "24th|May", 28u "23rd", 30-34m, 30u "6th|July", 34u "10th", 31-32w about 3 months 36 8u "Seeds|gramineae", 30-33m 37 1-6m 38 31u "and|spawn" 39 22-26m 51 36u "seeds|grasses" 58 10u "aquatic|seeds" 64 4u "seeds|gramineae" 69 4u "seeds and" 70 2u "by|August", 8u "of|September" 71 8-11m 73 34-38m 89 14-17m 112 20-27m 114 29-32m (Temminck)/30u± 129 10-16m/12u "with orange"/13u "bluish-white patch", 17u "plumage|blue", 20-21u "plumage|black" 134 13u "unguis", 14u "sides|orange", 15u "upper|yellow" 140 13u "upper|yellow" 199 13-16m/14-15u "conical|backwards", 28-31m 205 26-30w It might be worth examining note 30-33m, wb Goosander: ♣ M. serrator Dundiver: M. castor or M. Merganser 207 18u "head|black" 208 5u "bill|duller", 6u "reddish-brown", 8u "upper|grey", 10u↔ 210 31u "scapulars|long" 211 22-25m/25u "scapulars" 213 20-22m/20-21u↔ 214 27-33m 223 17-21m 247 31m/w How are Coccyx 255 35-36m 266 31-33m 272 10-11m/10u "seeds" 279 7m 326 9-10u "a|white" 327 7Q 11-13w see Grebe p.107 13-16m, 24-27m/24-26u "Eye|half" 328 2-5m/Q 329 10-11m, 12Q 14-16m (Yarrell), 19-20m 330 22-24m/Q 331 12u "prevailing|white", 17-19m/18u "plumage|on", 19-22m 436 34-39m/35u "body|pale" 500 34-39m 508 17u± 509 1u "Young|at", 2u

"plumage | brownish" 515 18u "black | grey", 20-21u "except | grey", 22u "head | pure" 518 1-15m 525 19-25m 546 25-30m/27u "unless | quills" 550 19-22m 577 34-37m/36u "the | primaries" 584 15-18m 585 3w L 596 11-14m

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beh, dg, gd, is, oo, no

NB 176; 310; 387; 388; 412; 462; 468; 470; 474; 476; 480; 482; 487

SB □β

310 on massive mountains descend lower than on isolated mountains; & sometimes will be quite absent on such isolated mountains - Perhaps shows that a mass of same species necessary to keep up stock.

474 Deer swimming for isld 12 miles distant
476 Degeneracy of Deer owing to best Stags being killed

176 10-12m 310 19-32m 387 22-23m 388 29-31m 389 5-8m 412 11-14m/11u "var. scotica" 462 2-7m (Bonaparte) 468 7-15m, 18-21m 469 30-33m 470 6-9m 474 19-21m 476 16-20m, 28-36m 480 33-37m 481 14-17m 482 20-22m 487 29-35m

McINTOSH, William Carmichael *A monograph of the British Annelids* 2 vols.; London; The Ray Society; 1873-74 [Down]

vol. 1, NB 3

2 36-43m 3 1-5m, 11-15m, 20-25m, 27-32m

vol. 2 ∅

MACKINTOSH, James *Dissertation on the progress of ethical philosophy* 2nd edn, preface by W. Whewell; Edinburgh; Adam & Charles Black; 1837 [CUL, S]

beh, h, he, t, v, y

NB Whewells Preface good Abstract

56 to 68; 97; 103; 113; 129; 151; 152; 164; 188?; 194; 196; 200 The remarks on Butler contain the cream of Sir J's opinions; 224; 231; 233; 234; 239; 240; 248; 251; 254; 255; 257; 261; 262; 265; 272; 326; 328; 333; 346; 348; 356; 359; 364; 368; 375

16 ought 231 Man Chapt

377; 380; 382; 397

16 3-6m 41 4-5m/!/5u "moral sense" "invariably", 11-14w but why the separate parts? 56 6-11m, 20-21m 57 3-4m, wb A pointer ought to stand 60 16-18m/? 62 8-12m 66 1-4m 97 1-2m 103 4-12m 113 1-11m 128

w∅ 129 15-20m/11-31w∅, wb even our true taste is pleasant ♣ according to habit 131 5-27w∅ 135 13-17w∅ 141 8-26w∅ 151 11-26m 152 1-8m, 12-13m, 17-20m, 26-30m 153 1-11m 164 22-26m 188 16-28m 194 1-7m/4-5?, 12-14"..."/m/w if so, my theory goes.- in child one sees pain & pleasure struggling 196 9-13m 198 11-15m, wb How can cowardice, or avarice or unfeelingness be said to be dispositions leading to action yet conscience rebukes a man, who allows another to drown without trying to save his life.- 199 24-27m/!/26u "desire", 26u "will"/27u "conscience", 29-30m 200 30u "with direct" 201 1-2m/?/1u "action | will" 224 9-18m (Hume) 231 11-14m, 15-17m 233 11-14m 234 2-12m/4-7w common to animals 240 1-7m, wb Try whole question with the breaking mere rule of etiquette 248 6-10m/w Try theory of place in brane 251 33-35m/w/wb See Brit Museum 254 21-24m (Hartley)/23u "perception and emotion" 255 6-15m, 16-25m, 26-31m (Lord Kames) 256 13-18m 257 18-29m/18-22w common to animals hence love of Place.- x wb x will not explain love of parent to child - except hereditary.- 261 22-29m/23-24w rather instinctive 262 26-30m 263 11-14m, 26-30m 265 17-21m/19u "almost instinctively" 267 5-12m 272 17-22m/17-19w with respect to life 17w music? 21-24m 326 7-13m 328 4-8m 333 12-26m/23u "impel the will"/22-28w can the instincts of bird building nest be said to impel will.- 25u "emotions"/wb yet emotions are results - are trains of thought long ♣ associated with action 346 25-28m 348 9-17m 349 25-29m/28u "is | remembrance" 350 1-6m/1-4w so in birds it is 353 7m/u "moral approbation", wb certainly independent of conscience which applies only to one self.- ?sympathy? yes because one feels the pleasure for others which one would have felt, if one had done it oneself 355 5-15m 356 8-24m 357 6-7u "beneficial tendency" 359 1-17m/3x, wb poor attempt to account for beneficial tendency being test of virtue 364 26-30m 368 7-19m 372 1-5m/1-2w assumed 10-30m/17-19w poor 373 11-13m/12-13u "resentment | our" 375 15-24m 377 wt Nonsense - similar association may be made with actions, involuntary as & etiquettes of society broken unconsciously.- 1-7m, 14-21m/?! 378 wt All this applies to moral approbation but scarcely to conscience, which 1-13m 379 20-23m 380 21-27m/23-24u "contact | were"/w trash 27!!/u "mental contiguity", wb because the primary instinctive feeling tends to action like an emotion.- 381 8-10w here considered as

MACKINTOSH

unity *wb* Emotions having been formed by actions will always lead to them.— 382 1-7m/2u "beneficial tendency"/3-4u "that | sentiments", 12-30m/19-20w poor 383 2-19m/7-8w poor 385 zb 397 3-5m/?, 6u "perfectly", 7u "different spheres"

MACKINTOSH, James *The history of England* vol. 1, Lardner's *Cabinet cyclopaedia* London; Longman, Rees, Orme, Brown & Green; 1830 [CUL, on B, S]

NF *cc*

MACLAREN, James *A critical examination of some of the principal arguments for and against Darwinism* London; Edward Bumpus; 1876 [Down, I]

NB O/

MACLAREN, James *Natural theology in the nineteenth century* London; Edward Bumpus; 1878 [Down, I]

MACLAREN, James *Some chemical difficulties of evolution* London; Edward Bumpus; 1877 [Down, I]

12 3-5m ♦

MacLEAY, William Sharp *Horae entomologicae* London; S. Bagster; 1819 [CUL, pre-B]

32 31-32m 42 22-26m (Latreille) 289 4-10m/5-6m/6u 291 30-32m 321 4-20m 447 17-23"..."

McLENNAN, John Ferguson *Primitive marriage* Edinburgh; Adam & Charles Black; 1865 [CUL]

beh, ch, h, he, hl, no, sl, ss, sx, v, y

SB (3 sides, ♦)

M'Lennan *↔* All Used

22,30 It is clear that brides purchased, but man wd choose prettiest— except when bought mostly young.— It will depend on forms of inheritance common to Man, whether females alone or both sexes affected

31,40 —choice in woman— Fuegians Pages marked

74,76 *↔* choice— Betrothed does not keep woman

45 no choice *↔* when captured 50 No Bates

95 *↔* 122 intermarriage incestuous

118,120 *↔* Exogamy keeps distinct tribes similar opened to sexual selection.

166 165 — origin of infanticide to lessen number of Women. to 208 good summary on Polyandry ♦ & exogamy.

As yet idea ♦ of ♦ practice of avoiding incest not explained, probably arose in time of monkey-men

The scarcity of Women from infanticide of females leading to *↔*— to promiscuous intercourse & polyandry, wd make the selection of women very difficult— ● had Men wd then be selected— p.176 (Promiscuousness a grt difficulty)

(*over*) *↔* There must have been a time judging from lower animals, when men did not forsee, when there was not infanticide & when sexes equal, & then sexual selection wd come in & only occasionally since, at least when general licentiousness or polyandry prescribed.—

⇒ p.288 I cannot help doubting whether lesser number of females owing to infanticide was so common as to make so many tribes exogamous.—? Extension of feeling for a cross — where close interbreeding in small tribes — passion — instinctive for foreign blood.

Effects of Habit for Explanation of Younger males — or instinct—

(*over*) Guiana kill most female children bring up about 1/2

& Abortion, which wd destroy both sexes

& Abipones

& many tribes

It does seem rare to kill females alone

24 4-5m/4u "bargain" 30 13-16m/13u "Kalmuchs | price" 31 17-29m 32 1-4m, 12-15m/13u "price" 40 9-13m 45 4-8m, 21m 46 6-10m 50 6-17w why not a father receive money for parting with his useful daughter? 57 4-14m 66 *wb* There is no evidence as yet that men might not marry in own tribe.— if they lost their wives they would steal others 74 14-16m 75 13-14m 76 5-6m/5u "celebrated | beauty", 19-21m 95 13-18m 99 10-15m 102 12-17m 103 2-4m 118 7-12m/w Keep tribe similar 120 3-8m 121 10-15m, 14-15m 122 9-11m 130 5-10m 134 6-11m 138 13-18m 139 5-13m, 21-23m 140 *wt*/1-3w but if all tribes killed their daughters how is this possible? 3-9m 146 4-7m 147 16-21m 148 1-4m 151 7-11m 159 1-4m/w Gorilla 162 3-5m 163 1-3m, 14-17m/?, 18u 165 6-14m, 7-13m, 10-13m 166 1-7w More Males killed in War 8-12m, 12-15m, 13-15m, 18-20m 167 2-5m, 6-8m, 9-11m/?, 12-14m 168 7-11m, 16-18m, 20-22m, *wb* Fuegians 170 1-7m, 7-9u "The existence", 7-9m/8u "assuming", 9-10m 171 7m/?/u "We | promiscuity", 13-15m, 16-21m, 17-21m 172 3-6m 173 3-7m, 5-9m 177 *↓w* There may

have been a stage with infanticide & other stages of almost promiscuousness 5-8m, ↑5-1m, wb Judging from the lower animals, I cannot persuade myself that at any early times powerful Men would not get more wives & ● 178 2-7m 179 11-14m 180 1-8m 181 8-14m 190 19-21m 193 18-20m 194 4-5m/3-16w Has there been so much infanticide??? See the Chapt. on infanticide.- 197 5-8m 204 5-7m 207 1-6m, 7-9m, 10-15m 208 wt can this account for races formerly modified & then being stationary: but now acting a little 1-10m, 6a "earlier" but not earliest 7-9u↔, ↑9u "artificially", ↑5-3u± 209 1-7m, 10-13m, 16-19m 210 2-7m/3u "practising polygunia", 7u "originally promiscuous"/?? 211 1-2m, 3-6m 212 1-7m 213 12-14m 223 8-18m 225 1-4m, 7-11m 228 14-19m 229 10-15m 230 7-10m, 12a "of" foreign 12a "stocks" within the group 233 1-4m 245 1-5m 251 2-7m 270 12-20m 288 5-14m/1-13w but it wd hold to female, with which each man was familiar 289 12-16m

McLENNAN, John Ferguson *Studies in ancient history, comprising a reprint of Primitive marriage* London; Bernard Quasitch; 1876 [CUL, I]
beh

NF (pp. 133-34 of *Nature*, 14 December 1876; review of this book)
133b 8-12m, 26-30m, 33-37m 134a wt I think McL always believes that Lubbock implies by marriage monogamy 3-10m]

MACQUART, Justin *Facultés intérieures des animaux invertébrés* Lille; L. Daniel; 1850 [CUL]

beh, em, h, he, ig, no, or, phy, sp, sx, tm

NB p2, p6, p10, p14, p95, p111, p112, p149, p210, 218, 230, 243, 264
a miserable Book

SB 2 Condillac on Instinct being only Habit
NQ

6 Duges definition of instinct, as Hunger & c-Reflex action; True instinct NQ

14 Flourens Reflexion distinction of man NQ

210 Instinct of larva of *Meloes* hard to account for by gradation NQ

218 Larva of *Hydrophilus* shams death, as does one species of *Zygaena* NQ

2 26-30m/29-30u "cependant | toujours"/wb Hereditary Habit. 4 11-12m 6 22-25m, 27-33m 7 7u "Dugès"/w What written? 15-20m/16w Reflex action 31-34m/w True instinct 10 12-13m 12 1-6m 14 5-6m 95 17u

"d'Hermaphrodites | Androgynes", 17w What difference? 111 19-31m/30-31m/wb They can do more, or as much, with fewer organs.- 112 8-13m/9u "sans | efforts" 149 1-2m 210 7-11m/w How did this instinct come? 13-18m/w Human cases show that larvae can survive & live 218 31-33m 230 26-30m 243 1-15m 264 4-11m

MAGNUS, Paul Wilhelm *Beiträge zur Kenntnis der Gattung Najas* L. Berlin; Georg Reimer; 1870 [Linnean Society of London, I]

9 zt 11 14m/c€ 33 16-18m 36 11€ 37 ↑20m, ↑15m, ↑10m 45 6-12m 61 10€ (CD?)

MALLERY, Garrick *A collection of gestures and signals of the North American Indians* Washington; Government printing office; 1880 [Down]

MALLERY, Garrick *Introduction to the study of sign language among the North American Indians* Washington; Government printing office; 1880 [Down]

MALLERY, Garrick *Sign language among American Indians, compared with that among other peoples and deaf-mutes* Washington; Government printing office; 1881 [Down, I]

MALM, August Wilhelm *Göteborgs och Bohusläns Fauna, Rygggradsdjuren* Göteborg; Göteborgs Handelstidnings Aktie-Bolags Tryckeri 1877 [Down, I] ø

MALTHUS, Thomas Robert *An essay on the principle of population* 2 vols., 6th edn; London; John Murray; 1826 [CUL, pre-B but S in vol. 1 C. Darwin April 1841]
beh, ex, f, h, no, oo, ta, y

vol. 1 NB In the *British Critic* or in the *Critical Review* for 1804 Review of Malthus by W. Taylor of Norwich
(Savages purchase wives - get arms & tools)

(Expelled natives with no stones near death)
5 Increase in U. States; 6 According to Euler
SB1 3; 29; 23; 41; 81; 343 Doubleday; 499; 517; 519

SB2

3 Malthus & Franklin saw the law of increase in animals & Plants clearly

23 Allows increase of some very population may be ♣ prevented by powerful & obvious checks.

343 Force of life in each country in inverse ratio to Fecundity (Doubleday)

MALTHUS

517 On Doubling in U. States in 25 years
(Also attached, a letter to the editor of the Times)

2 21-22Q 3 3-6m 5 12-16m, 21-25m 6 10-14m 23 30-32m 29 *wb* Even in savagest life some preventive check, for all savages do not marry quite young, have generally to purchase wife & prepare tools and implements.- 41 15-17m 81 12-18m 343 *wt/1-4w* This is much the same as to say well-fed are less fecund.- 7-9m/!, 22m/u "mosgt | countries", 27m/u "M. Muret", *wb* give note after Doubleday 344 4-6m, 15-17m, 22-23m 352 23-28m/24u "4871379", *wbee*, *wb* preventive checks come into play.- 353 9u "preventive check" 499 6-8m/w & animals 517 10-19m 519 14-18m, 22-24m 521 16-18m, 22-27m vol. 2 ☉

MALTHUS, Thomas Robert *An essay on the principle of population* 6th edn; London; John Murray; 1826 [vol. 2 only; Down, pre-B, ED]

(markings presumed to be by ED)

MANTEGAZZA, Paolo *Fisiologia del piacere* 5th edn; Milano; G. Bernardoni; 1870 [CUL] beh

NB Like dog not wagging tail when it gets food

119 1-14m 483 1-11m, 15-18m, 17-20m, 22-30m 484 7-9m, 15-16w *illust.* 26-34m 485 1-5m, 7-11m, 12-16m, 17-20m, 22-29m, 30-34m 486 1-34m 489 3m/w 6 491 28-34m 492 8-9m 497 3-8m 522 7-10m, 12-17m, 26-30m, 31-34m 565 17m 567 14m

MANTEGAZZA, Paolo *Fisionomia e mimica* Milano; Fratelli Dumolard; 1881 [Down, I] ☉

MANTEGAZZA, Paolo *Rio de la Plata e Tenerife* Milano; Gaetano Brigola; 1867 [CUL, I]

beh, h, sx, t, tm, v

NB ♦

[Seeing what a passion for ☉ it is strange that races of man not more altered.]

65 87 92

Q 162 163 166-67 186-87

320-325 334 352 389 391 453 457 458-9 463 465 525 to 546 615 624 676X

tembeta

American & Negro Beards

☉ 525 Exaggeration of what he has from nature.

(526 Beards)

529 teeth ☉

530 - & ☉

Nose in all parts of World

525-546 tattoos & ornaments

19 4-5m, 9-10m 20 2-10m 52 24-27m, 30-32m, 34-36m 57 13-14m, 24m 65 15-36m 66 1-35m 71 16-18m 87 30-36m 88 1-37m 92 26-34m 93 14-36m 94 16-35m 162 14-25m, 27-36m 163 18-24m 166 25-36m 167 1-22m 186 23-36m 187 1-4m, 5-15m 320 33-36m 321 1-36m 322 15-19m, 24-35m 323 1-4m, 6-16m, 18-36m 324 1-34m 325 1-21m 334 12-36m 335 1-5m, 8-36m 352 29-36m 353 1-10m 389 12-16m 391 21-36m 392 2-6m 453 34-36m 454 1-36m 455 1-4m, 5-10m, 13-17m, 21-36m 457 29-31m, 33-36m 458 1-36m 459 1-5m, 9-12m, 16-20m, 24-35m 463 5-7m, 10-14m, 21-36m 464 17-31m 465 6-11m, 16-35m 511 15-19m 525 21-30m/23-28w Man always exaggerates what he has 526 1-24m/7-9w Calmuks beardless 16-17m, 16-27w New Zealand No woman for Hairy man. *wb* As from T. del Fuego to Vancouver Isd (Sproat) ie Lat to Lat New Zealand the natives eradicate the beard - not likely to be merely handed down fashion or custom; but dependent on the general principle of man exaggerating natural characters. 527 4-21m ☉ 528-546 (m ☉ on every page except 542-544 inclusive) 528 1-20w deformation of Head (also Mentioned by old Classical writers) 529 15u/wt, 15-18m/w women 18u/wt, 24u "Alto Nilo", 25-26u ↔ 530 8-10m/9u "aver | cani", 21-22m, 24w Nose 531 23w Lips 532 22-23m/u "donne | inferiore"/w women 533 wt lower lip 4 inches in diameter 1-3m/x/3u "quattro | diametro", 24-31m, 24-31m/ →/24u "tembeta"/30u "con | gioia"/wb curious account of man who sold his tembeta from lower lip & was ashamed of hole left & all laughed at him.- 534 2-5m/w women with upper lips perforated 19u "Zenzibar"/w Ears 27u "Negri | australi"/w Ears 535 6u "Bali"/w Earring 8u "Nepal"/8-9w Nepal earring 12u "Car-Nicobar"/w Ears 24-25w New Zealand Earring 536 wt It is curious that face far more operated on than rest of body - in same way as we think more of beauty of face than rest of body.- 15u "qualche | spalle"/14-18m/w Ears distended to touch the shoulders.! 28u "vanità", 29u ↔, 27-34w Motive for tattooing- add sign of tribe & High birth 537 wt It is curious how in all parts of world, Men paint & tattoo themselves - & perforate their ears - In Africa & America both lips are perforated & distended - Every part of face in some part of world is

perforated— lips cheeks all parts of nose.— 5-6m/6-7m/5-9w old Jews tattooed & Ancient British 19u "Nuova Zelanda"/19-21w New Zealand & Pacific Isds 28-31m/30u "donne | tatuatoe", 30m/31w women less tattooed 32-33m/u FN 538 1-5m, 3u "Nuova Caledonia"/3-7m/w New Caledonia tattoo 6m, "Non-hiva", 10m/11u "donne | godono"/10-16w Tattoo but not women except partially 539 9u "Novao Goda"/11u "meno | faccia"/9-11m/w face not tattooed 26-27m/27u "Giapponesi"/w Japanese tattoo 32u ♦/30-32w women only powder themselves 540 wt Women of high birth in some cases allowed to tattoo most.— 1-3m/w Hindoos 6-8m/7u " | tatuano"/w Burmans 13-15m/w sometimes the women 23u "Etiopia"/24-25u "strappano | e"/24-26m/w tattoo & pull out eyebrows & paint lines 5m/wb Tembeta 541 wt (a) Africa tribe-marks also Royal marks (not ●) 1-9m, 11-12m/11u "donne | unghie"/11-16w colour nails & so in several parts of Africa 18-22m/w (a) 542 wt Women of Kattivar tattoo arms & chin & are thought ♣ irresistibly attractive.— Men. My case N. Zealand or Tahiti 2-3m/u "anne- viscono | labbra"/w paint? ♣ Eyelids 5-7m/6u "son | attrattiva"/w (a) 8u/wt, 18-19m/18u "In | hanno"/20u "Esquimesi"/w women & men 26m 543 1-36w They paint themselves in the most diversified manner with various colours — as is notorious.— 11u "vicini | o"/12u "sempre | agli"/10-16w S. America tattoo & paint thinks not for beauty but to look terrible 28u "è | livrea"/26-31w The slaves of same master paint in same way as Livery. 33m/u "tatuano" 544 1-2m/1u "invece | si", 9u "abipone", 11u "quando | nubili", 10-13w Women paint themselves when marriageable 19u "tatuaggio", 21u "la | donne", 20-22w virgins of women 26u ↔/25-28m/25-31w Chief of S. America much tattooed in face 545 4-22m/8u "quelle" 546 1-5m, 11-16m 588 25-26m 589 1-3m, 4-22m 594 29-33m 611 17-25m 615 7-8m, 11-16m 621 12-19m 623 23-28m, 31-36m 624 14-17m, 19-36m 625 1-18m 645-647 ♂, m/wt 676 7-32m

MANTEGAZZA, Paolo *Studii antropologici ed etnografici* Firenze; Tipografia dell'arte della stampa; 1877 [Down, I] ♂

MANTEGAZZA, Paolo *Il terzo molare nelle razze umane* Firenze; 1878 [Down, I] rd

NB Shows that the wisdom tooth is really being rudimentary

MARCHAND, Étienne *Voyage autour du monde* 5 vols., introduction by C.P. Claret Fleurieu; Paris; Imprimerie de la République; 1792 [Down, pre-B] ♂

MARSHALL, William *Minutes of agriculture made on a farm of 300 acres of various soils, New Croydon, Surrey* London; J. Dodsley; 1778 [CUL, pre-B, I]

MARSHALL, William *A review of the reports to the Board of Agriculture from the northern department of England* York; Thomas Wilson & Son; 1808 [CUL, pre-B, belonged to Josiah Wedgwood]

ch, cs, or, sl, t, ta, v

NB Please do not rub out these numbers Ch. Darwin

50; 73; 74; 78; 80; 95; 97; 99; 115; 153; 154; 196; 200; 202; 295; 303; 403; 404; 406; 480; 487; 489

SB □β

78 Oats — varieties very transient

192 Origin of Potato Oat in Potato Field

200 On the want of Uniformity of the unshepherded sheep in different parts of England, whereas those within fences, each have uniformity — owing to crossing

295 Great attention paid to changing sets of Potatoes

406 Speaking of sheep, on common of Yorkshire "as they are mostly in small lots they can never be improved"

50 14m 73 25-31m 74 30-31m 78 9-11m 80 12-18m, 26-29m 95 1m 97 37-38m 99 17-20m, 25-27m 100 5-7m 115 29-36m 153 26-27u "by | advantage", 27-28u "are | disadvantageous", 38m/u "preserve | old" 154 21-23m 177 14-15m 192 5-10m, 12-25m 196 30-31m, 34-37m 200 8-18m, 25-31m/25-26u "Sheep | in"/Q₂ 201 14-19m/15u "p.199"/w Selection 32-35m 202 14-16m/x/wb x But it does not follow that the aboriginal stock varied like present mixed unshepherded sheep 22-24m, 27-29m, 37-38m 262 12-13wcc 295 wt 1808 8-9m/7-12w seeds or false bulbs? 20-21x, 26-27m, wb X Lancashire great authority in Potato crops 296 1-6m 303 9-10m, 11u "curl", 19-22m, 37m 403 12-18m/12u "which | on"/14u "plow | discernable" 404 17-20m/17u "be suited"/18u "soils | climates" 405 2-4m/3u "be | two" 406 19-21m, 38-39m 480 32-34m 487 27-29m/27u "mixed | two" 489 27-32m

MARSHALL, William E. *A phrenologist amongst the Todas* London; Longmans, Green & Co.; 1873 [CUL, S]

beh, ex, h, no, sx, t

MARSHALL, TODAS

SB p100 Infanticide

110 do & cousins marrying.-

193^h infanticide Britons194^h infanticide extinct with Todas

196 good evidence

204 Polyandry ^h among the [♣] barbarians surrounding the Jews212 Todas girls can reject a Man [♣] they are in a very primitive condition & the damsel bought for Buffaloes

225 Natives promiscuous union was aboriginal

228 causes of Polyandry

232 polyandry & female infanticide always together or the latter has existed

as number of sexes differ in animals there must be some other causes than infanticide

xi 26-28w O/ xii 22-23m xiii 16-17m, 23m

xvi 14-16m 1 zb 2 13-16m, 22-25m 8 ↑17-9m

81 17-19m 83 26-29m 99 7-10m 100 5-10m/

9u "Suspected" 101 5-8m 110 6-10m, 34-35m

111 3-6m, 13-15m, 17-30[...], 24-33m 123 15-

23m 124 21-22m, 23-24m 125 1-3m 136 7-

13m 142 15-18m 145 ↑4-1m 154 27-32m 160

↑1m 166 1-3m 176 6-10m, 12-13m 180 4-5m,

11-13m 193 20-22m 194 23-31m 195 31-33m

196 4-10m 198 19-23m 204 14-18m/w

Semites polyandrous 25-28m 206 6-9m 212

1-4m 213 28-32m 215 1-4m 225 7-11m 228

12-19m 229 6-9m 232 15-22m 260 1-2m 263

29-30m

MARSHAM, Thomas *Coleoptera Britannica* 2 vols.; London; J. White; 1802 [CUL, vol. 1 only, pre-B, S]MARTIN, W.C.L. *The history of the dog* London; Charles Knight & Co.; 1845 [CUL] beh, br, cs, ds, gd, h, he, hy, oo, or, sx, sy, ta, tm, v

NB 1 to 21; 18 cross Rabbit & Hare 52; 61 to 71; 78; 84; 104; 107 & 8; 114 to end

SB □β

14 Dog in Zoolog. Garden Q learned to Bark 18 Proc. Zoolog. Soc. Hybrid Hare & Rabbit I see M. doubts parentage of Richardsons Dogs

p.31 admits only a cross with such

51 Dogs of antiquity Q

63 Remarks on instinct : barking do. acquired

67 Yarrell Zoolog. Soc. Proc. on Hairless Dog toothless Q

104 First Dog affects subsequent puppies

106 Classification of all Vars Q

116 Esquimaux Q taking Wolves to improve Breed

146 Rough Greyhound aboriginal form QN

154 In Greyhound females smaller

180 On a Dog liking to catch carp & trout & M. Jukes mentions another Dog in Lapland - ch. 6)

203 African Dogs in Tower never bred Q

title page *wb* 1845 5 12-13m 7 6-8m, 15-16m, 25-27m 9 11-12m, 17-21m 11 3-4m 12 29-32m 14 10-11m/Q 15 1-2m 18 2-4m, 9-13m, 18-19m 19 9-12m 21 26-27m 31 6-17m 45 10-12m 46 4-7m 47 27-28m 49 13-31m/16-17u↔/25u "old turnspit"/27-28u "most dog" 51 3w peculiar 52 27-32m 53 11m, 13-16m, 14-17m, 18-22m/22u "and extant" 54 9-11m 57 2-3m, 8-9m/u "to ears", 17m, 28m 61 3-7m, 19-20m, 23-24m, 25-26m 62 4-5m, 11-14m 63 15-23m/18-21"... 64 10-11m/"...", 27-29m, 29-32m 65 4u "is an acquired", 5-8m, 23u "all scent" 67 2-4m, 9m, 18-21m, 24-30m 70 1-2m, 11-13m 71 ↑14-6m 78 1-6m 84 10-15m 104 21-24m, 26-31m 106 10-35m 108 5-8m 114 27-31m 115 13u "great true", 21-24m 116 11-15m/14-15u↔ 126 21-25m 128 14-22m 129 13-18m 131 29-32m 132 21-24m 134 26-32m 136 9-11m 137 16-18m/17u "All were", 21-24m, *wb* H. Smith *wd* say from crossing 139 14-15m/14u "smooth sprung" 143 4-9m 146 20-30m 147 1-4m 148 1-2m 152 2-6m 153 26-28m 154 23-26m 155 16-20m 170 3-10w St Bernard Dog 9-15m 173 19-22m, 21-23m 176 27-32m 180 29-32m 181 *wt* Jukes mentions dog in Newfoundland 1-4m, 21-23m/22u "abbreviated" 192 13-16m 202 22u "Central Africa" 203 7-9m/8u "wonder bred"/Q 14-17m/15u "related hound", 18u "old Spanish", 19u "vigorous active" 204 27-29m/28u "which quarter" 205 1-5m 212 6-10m 215 5-6m, 22-24m 216 5-8m

MARTIN, William Charles Linnaeus *The history of the horse* London; Charles Knight & Co.; 1845 [CUL]

beh, fg, fo, gd, geo, gr, hy, is, or, phy, ta, v, wd

NB 28 to 50; 86; 97; 129; 134; 155; 159; 167; 169; 171; 177; 190; 202; 205; 208; 211; 212; 220; 221 to end

SB □β

41 Tarpan scrape snow with feet Q^h

97 Red-Back Horses only asinine in colour Q

129 Period of gestation differs very much. Q^h

134 Dappling in black, Bay & Gray Breeds Q

206 Striped common ass & Mule 212

207 Ass more variable than generally supposed: 3 breeds in Syria
222 Zebra Mules Q

title page *wb* 1845 6 14-23m 8 13-19m 10 18-24m 12 3-12m/w Brazil cases 16-20w Beavers 24-38w There are no regular strata, young enough 21 17-21m 28 39-40m 30 23-26m 31 19-21m 34 1-6m/3-4Q, 15-19m, 31-33m, 38-39m 35 5-8m, 32-38m 36 1-4m 37 2-6m 40 15-20m/12-17w ie real wild Horse 41 2-4w S. wind Falklands 5-8m/7x, 37-40m 48 1-3m 50 8-13m 62 30-35m 63 1-4m 86 3-7m, 35-39m 87 12-15m, 27-33m, 34-36m, 38-40m, *wb* Are horses found ♣ in Peat Bogs? 88 3-8m 89 1-5m, 6-9m 97 24-29m/25-26Q 129 6-10m/9-10Q, 25-30m, 40m 130 23-27w like Roulin mules 26-33m 134 13-16m/15u "still circles", 18-20m/18-19m, 23-27m, 31-32m 155 19-21m 159 33-41m 160 1-4m 167 6-9m/9u "mouflon ranges", 10-12w insular quadrupeds 169 19-23m/22u "several ponies"/20-24w not all aboriginal 29-30u↔, 34-37m 171 36-40m 172 1-4m 177 7-9m, 27-33m 190 34-39m 202 5-10m 205 14-16Q 16-17u "clouded ground", 18u "dapple", 26u "dorsal bar", 35-40m/Q/40u "double cross" 206 1-4m, 9-13m/Q 17-22m/18-19m/u "small breed"/21u "Syrian ladies", 28-29m, 34-36m 207 7-13m, 22-24m/m/24u "Arab", 25u "saddle", 40m/u "is stout" 208 2-4m, 7-9m 209 27-29m 211 2-4m/3u "Genesis xxvi" 212 4-7m, fig. Q 218 23-26m 220 21-24m/Q 221 19-24m (Thomas Bell), 33-37m 222 4-9m, 35-37m 223 7-9m, 11u "was dun", 18u "drab dun"/Q 23u "more down"/24u "side fetlocks"/22-25m/w Burchells Zebra & Ass

MARTIN-SAINT-ANGE, Gaspard Joseph
Mémoire sur l'organisation des cirripèdes Paris; J.B. Baillière; 1835 [CUL]
beh, af, ci, phy, sx, sy, tm

2 19w 1806 7 22-24m 8 24-25m 9 26-28m 10 1-4m, 8-10m 11 8-9m, 21-22m/w does not mention inner tunic of sack 25-28m/w are these muscles in 6 bundles 13 15-16m/16-20w Does not perceive homology 22a/u "seconde"/w double 23-24m/w all right 23u "en même"/24u "les une"/26m/23-31w does not state that this is the conum for inside of ● 32u/32-33m/w pedicel not articulated 14 11-15m, 21-24m/X, ↑1x, *wb* ♦ Does not describe much of pedicel of body- 15 *wt* Cirri power of separating from each other & two rows from each other 1-2m, 4-5m, 6-12w does not mention much of dorsal articulation 14-15w or their attchm to 2d joint of pedicel 22-24m/16-24w knows nothing about

apodeme or homology 28-30u±/w !! 4 pair, right Considers palpi as Mandibles 30u "langue"/wb ? & p.23 16 5u "une ligue"/?, 6u "muscle constrictor", 10x, 12w does not moulting 14-16m/w quite right 26x, 33x, *wb* a single caecum!! 17 7u "d'une enfoncemens", 9-12m/w I always have found loose. 16-18m/16-33w is not aware of the distinctness of rectum shown by moulting, for he does not describe the two coats - or two coats of oesophagus. *wb* I believe it contracts itself, when separated by the cloche of rectum 18 10-12m, 13-14x, 14-16m, 17-19m, 20-29w ie what I have called - oviduct - There is hollow in middle of pedicel of body 19 17-25m/x/18u "filet salivaire"/24u ±, 30-33m/x/w thinks legs thoracic!! *wb* is this owing to basal joint being confluent?! probably 21 2-4m, 11u "la queue"/10-11m/w No 16-17x 22 7-8m, 9-17w Male organs differ considerably from those of a true Crab. 23 23-24m/w this must be when agitated by fear 26u "petite langue"/27u "deux dernières"/26-29m/? 24 15-18m, 24-30w is edge of oesophagus fixed to stomach? I think so *zb/wb* ant support Dorsal support muscle attached to end of spoon & opening valvular mouth 25 *wb* Look at stomach of *B. candidus* - 26 28-30m/w in Polliceps too hard to contract surely.- 27 1-3m/2u "sur repli", 6-9m 29 1-11w Body generally bent a good character Articulation oblate except 5. posterior abdominal segments. 26-30m 30 26-27m 36 25-27m/w wrong 37 1-3m/w No 6-9m/8u "branchires"/?, 12w Yes 14-15m/w Yes 20u "autre part"/19-23m/w No 22-23m/w No 26-27m, 29w Yes 33u "sac membraneux"/w No 38 1-3m 41 9-11m Plates (parts of animals named)

MARX, Karl *Das Kapital* vol. 1; Hamburg; Otto Meissner; 1873 [Down, I] ϕ

MASARYK, Thomas Garrigue *Der Selbstmord als sociale Massenerscheinung der modernen Civilisation* Wien; Carl Konegen; 1881 [Down] ϕ

MASKELYNE, Nevil *Tables requisite to be used with the Nautical ephemeris* 3rd edn; London; 1802 [CUL, pre-B, on B, S]

NF *wcc*

♦ When barometer stands higher than the neutral point the Capacity is to be added: when lower it is to be subtracted
The logs at end of this book to be used.

MASKELYNE

NB (a drawing)

57 w p.1 These tables are explained at end
62 w b e c c**MASTERS, Maxwell Tylden** *Vegetable teratology* London; The Ray Society; 1869 [CUL]

he, mhp, mn, sp, tm, v

NB 29; 90; 320 phyllotaxis; 204 ✓✎; 340; 373; 404 ✓✎ Cleistogam flowers; 410; 424; 467; 472; 478 ✓✎ Pang; 483; 485; 486; 488 SB

✎ (not CD) Masters on Teratology

29 Cohesion of stamens in exaggerated degree as in normal species

29 26-32m 90 21-26m, fig. 42.m 91 1-4m 131 30-32m 204 12-20m 251 7-9m 253 24-26m 320 18-28m 340 3-13m 373 7-8w other cases 10-16m 404 2-18m 410 1-6m 424 30-42m 467 13-34m 472 27-34m 478 6-14m 479 2-14m 481 1-3m (Bentham) 483 20-22m 485 11-19m 486 16-29m 488 15-23m 534 zb

MATTHES, Benno *Betrachtungen über Wirbelthiere* Dresden; 1861 [CUL.1900] ♂**MATTHEW, Patrick** *On naval timber and arboriculture* Edinburgh; Adam Black; 1831 [CUL, S C. Darwin Apr. 13th 1860]

h, oo, sl, sp, t, ta, tm, v

NB 32 Oaks 2 vars or species sessile & pediculated

107 on selection of Forest-trees why not flowered

302 Occupancy like Herberts view of plants not growing in soil best suited to them

307 on Selection good Man interferes with law & this causes variation.

357 Size of English & Scottish acorns & quicker growth of tree from English Acorns

364, 381 Law of Natural Selection published in G. Chronicle April 7th 1860

(CD?) 364-5, 381-3, 106-7

32 8-17m 106 5[... 107 6-19m 108 ↑11...] 302 14-25m 303 1-6m 307 24-26m 308 2-17m 328 30-31m 357 22-27m 358 18-21m 365 8-9u "more|kind" 381 5[... 382 17-21m/w too near to ● 29u "nearly|living" 383 1-4m, 27-29m ✎ 388 10...]

MAUDSLEY, Henry *Body and mind* London; Macmillan & Co.; 1870 [CUL]

beh, h, he, mn, pat, sx, t, tm

NB1 ♦ p.48 Hand of idiots – thumb not used in

NB2 p51 Idiots smelling food see Scott Deaf

& Dumb – p86 ♦

p7,8,10 & all 1st Chapter

53 Savage snarl – Selection

p47-49,51 Reverse idiots Hair After Vogt & idiotcy

p.55 Brain weight

59,60 Moral Sense

62 ♦ Brain Wanting parts

All referred to proper places

p10 ♦ Savage snarl of Habitual Microceph○ Insane Reversion

p29,p85 Devotion

2 9m, zb 7 6-18m 8 3-7m/3-13".../8-13m 10 28-30m/"..." 11 7-11m, 14-18m 12 7-12m 13 1u "ganglionic nuclei", 2u "are|with" 28 29-30m 29 16-22m/19w devotion 30 5-9m 31 19-23m/23-25m/20-29w like other secondary sexual characters 41 3-7m 47 10-15m, 19-27m 48 23-24u ✎ "often|hands", 25-27m/27u ✎ "short|cheek", 30u ✎ "filthy" 49 16-22m/17-18u ✎ ↔ 50 29u ✎ "dirty in" 51 3-7m/3-4".../Q 24-29m, 29-30w smelling 30-32m, 32-33u ✎ "his|smell", 35-36m 53 1u "savage snarl"/1-3m/Q 55 10-16m (R. Wagner) 59 1-18m/7w H. Spenc 60 4-8m/5-7".../wt/1-7w sympathy & social affection deteriorated wd suffice 62 ↑3-1m/w○ wanting parts 67 zb 85 11-14m

MAUDSLEY, Henry *Body and mind* London; Macmillan & Co.; 1873 [Down, I] ♂**MAUDSLEY, Henry** *The physiology and pathology of mind* London; Macmillan & Co.; 1868 [CUL]

beh, h, pat, phy, sl, sx, tm

SB1 ⇨ Man

Maudesly on ♣ ✎ Mental Phys; p.220 p.19 p311 imagination

54 Brain of Bushwoman

108 Language & Expression ✎

– Good

SB2 ⇨ Maudesly on Insanity; ♦ Expression; 103; 104; 109; 148; 158; 160; 193 (?)

SB3 □β

19 Man; 54 do; 72; 89; 103 Use increasing sensitivity of senses; 104 Instinct; ♦ 108 Origin – term of Natural Selection –; 109; 132♦ Man (good) Q; 148; 158 Expression; 160; 193; 220 Man (Imagination); 311; 199 Laura Bridgman The tongue grt organ of speech

Look over

✎ Slips all put in proper places

19 28-34m 54 9-20m 72 8-14m, 21-25m 89 25-30m/26w Drosera 103 12-20m 104 26-34m

105 34-39m 109 8-12m 125 28-37m 134 30-31u "of|places"/32u "senses|again"/29-33m/w looks as if man gaining more perfect smell 148 7-10m 149 19-21m/!/20-21u "self-expansion" 158 32-34m, 35-39m 159 13-17m 160 11-15m 193 31-39m 199 14-20m, 27-36m 220 ↑3-1m 311 18-24m (Coleridge)

MAUDSLEY, Henry *The physiology of mind* London; Macmillan & Co.; 1876 [Down, I by publisher]
beh

NB 384 Expression
270 19-20m 384 31-36m 385 5-6m

MAWE, John *Travels in the gold and diamond districts of Brazil* new edn; London; Longman, Hurst, Rees, Orme, Brown & Green; 1825 [CUL, pre-B, on B, S Chas. Darwin Octob: 1832 Buenos Ayres]

18 27u "fazenda"/w Brazilian

MAXWELL, James Clerk *Matter and motion* London; Society for promoting Christian knowledge; 1882 [Down, FD]

MAZAROTZ, Jean Paul *La Genèse des sociétés modernes* Paris; A. Lévy; 1877 [Down]

MEDLICOTT, Henry Benedict and **BLANDFORD, William Thomas** *A manual of the geology of India* 2 vols. and a vol. of maps; Calcutta; 1879 [Down, I]

MEEHAN, Thomas *The native flowers and ferns of the United States* 2 vols.; Boston; Prang & Co.; 1878 [Down] ☉

MEETKERKE, Cecilia Elizabeth *The guests of flowers* London; Griffith & Farran; 1881 [Down, I]

MEITZEN, Ernst *Bhawani* Leipzig; E.H. Manen; 1872 [Down]

MELIA, Pius *Hints and facts on the origin of man* London; Longmans, Green & Co.; 1872 [CUL]
beh, pat

NB p.47 can these statements be true? Deaf & dumb do not know what right & wrong is As dogs have social instincts it is incredible that deaf & dumb shd not – though I daresay they do not know what is called right or wrong

☞ But no doubt they may have social instincts & family affections which wd prompt them to right action.

47 18-23m

MENGOZZI, Giovanni Ettore *Della filosofia della medicina* vol. 1; Livorno; Scuola italiana; 1869 [Linnean Society of London, I]

MERRIAM, Clinton Hart *A review of the birds of Connecticut* New Haven; Tuttle, Morehouse & Taylor; 1877 [Down]
beh, ch

NB 52 Changes in Habit of Birds
52 23-34m

METZGER, Johann *Die Getreidearten und Wiesengräser* Heidelberg; C.F. Winter; 1841 [CUL]

ad, cc, ch, ds, gd, mhp, no, sl, sp, ta, tm, v, wd

NB N.B. The cases of grains changed from Summer to Winter wheats &c is rather a different course of variation from anything which I have hitherto considered; an self adaptive power

12; 24; 36; 47; 50; 54; 56; 63; 65; 66; 68; 88; 90; 96; 114; 116; 137; 185; 206 to 217

SB ☐☉

18 Summer & winter Barley differs only in constitution & easily goes back 54 Wheat do. – a self adaptive power, a habit –

24 Naked Barley changes into common

63 advocates change of seed in Germany

66 & 116 var varied at first, & then came more (20 years) constant being accustomed to climate 25 years This fact very important for shows yet accustomed to change.

69 a var. not injured by late frosts.

91 vars. variable in one climate not in others

116 so in different soils

114 a very constant var; many unconstant mentioned.

206 on Maize, difference in height & period of Vegetation; says American seed gives plants which become acclimatised & altered in form – Each land has its own form; form of seeds & number of rows differs.

208 Description of changes in Maize from American seed, 210 due to climate, so quick – Change in period of ripening. – Variation (p.212) comes on in Europe; & American vars. quickly take European Character.

217 very early Maize. [Believes all maize one species & gives reason for]

All used ☉

METZGER

title page wt 3 Herbaceous 4 oats 9 12w 1 12 1w 2 18 35-37m, wb no difference between summer & winter barley except time of sowing & ripening & will go back again (NB so it is in Mexico) 19 1-2m, 31-32u "eine|hat", wb might be quoted as constitutional difference with no external difference 24 4u "Wir|bemerkt", 6-10w changes in common Barley 32-36m/w naked seeds 27 1-2w 3 36 13-14m/u "weil|ausartet" 47 19-21w no Botanical difference 23-25m/23w changes 50 3-5m/4w changed wb to p.120 54 29-32m/31u "Aussaat|Frühling" 56 30-31u "Diese|Überzug", 31-35m 57 12-13m/12u "jedoch|sich", 27u "artet|Spielart", 28u "jetzt keine", 35→ 58 32-33u "ist|übergeht" 63 18-25m/w strong on advantages of change of seed 65 10-11m/10u "artet|und", 17u "Jahrhundert" 66 29-36m/w varied first year then became more constant 68 9-10m/u "grössere|Kälte" 69 14u "Spätere|Schaden" 88 27-28m/u "und|erscheint" 91 32-34m/35u "einen beständigen" → 92 1u "Charakter angenommen", 9u "wohl|beständigen", 17u "in|wechselnd", 18u "bald|länger" 96 21-24m 97 32-36m/w changes in colour of seed 114 17-18m/u "und beständig" 116 wt/1-16w we have seen that some varieties of wheat in a colder climate have been variable, so no relation to food 19u "günstigen", 20u "magerem Boden", 21-23m/21-24m/w variable for 25 years at last constant 35m, 38-43m, 38u "Seit|lang-jährigen"/41-42w variable 117 17-19m/18-19u↔/19m/wb I do not see that selection has anything to do with this 135 28w 1 137 wt many trifling cases of Variation not marked 8m/wt, 9-12m/w awns vary in presence ♣ 141 12w 2 145 1w 3 24w 4 185 13-14m/w 14 kinds of Rice 206 19u "dem|Jahrhundert", 24u/25u/27u/28u cc, 20-27w no plant more variable than Maize 29-32w vegetative periods 32-33m, 34u "selbst|Form", 35-38m, 39u "Da|besitzt", wb the longest-vegetation American kind sowed in our climate in gd year gives seeds which ♣ vegetate in shorter time & ripen seed, & the form & shape of seed alter & become like common German 207 13-15u "Reihe|Samen", 23m, 28u "eine Stammform"/24-35m/w thinks all maizes same species though some forms more persistent 208 <many m, u ♣> 6u♦/7u "Flach"/8u "kleinen Zahn"/8u♦/5-9m/w shape of seeds seems to vary greatly 10-11w 12 Unter-art. 13u "12 Fuss", 14u "oberen", 22-24m/22u "9|Fuss"/23-25m/21-26w some seed of 1st year seedlings departed from type 27-35u±, 28-36m/m 209 wt see Description

1-7m, 1-6m, 1-7u±, 8m/u "12|Samenreihen", 9u "länger|breit", 10u "Zahn", 16-18m/15-22u±/18-20m, 29-33m, 33-34w same variation as above wb two vars. returning into one.-) 210 3u "Engelmann"/wt good man 9-14u±/wt/1-18w [These are the most striking facts of effect of climate. 18-20m/18-22w no one wd really believe in such change 22u "Chicken corn", 23-24w a more constant form 26u "12"/25-28w rows of seeds differ 29u "ersten Jahre", 34u↔ 211 14-15m, 15-18u±, 24-25m/w long cultivation fixing forms 34u "starken|ausgehend"/32-35w seeds toothed 212 6-7u↔/w wet summer 8a/u/wt, 9u "Diese Spielart", 10u "zeigt|mehr", 18w (a) 20-22u±, 24u↔, 35u "rund|gewölbt", wb (a) Every variety seems to change in Europe 213 1-2m, 5-6m/5-11w thinks all the European Maizes descended from the two great varieties of America 15u±, 26m/u± 214 20-23m 215 10u "12-20", 15m/u "Stammt|Spanien", 20-30w 3 or 4 Spanish varieties 216 <u> 3u "unregelmässigen", 8u "die|beständig", 15u "verzweigten ästigen", 22u "Kolben|kurz", 23u "meist 12", 25u "Italien", 26u "Cinquantino"/26-27w Italian 217 9-10m/x, 14u "artet|aus"

MEYEN, Franz Julius Ferdinand *Beiträge zur Zoologie gesammelt auf einer Reise um die Erde* including

ERICHSON, Wilhelm Ferdinand and BURMEISTER, Carl Hermann Conrad *Beschreibungen und Abbildungen der von Herrn Meyen auf dieser Reise gesammelten Insekten* Breslau & Bonn; Verd. der Kaiserlichen Leopoldinisch-Carolinischen Akademie der Naturforscher; 1834 [CUL, S, on B]

gd

NB p.112 ♦

♢

62 24-26w ● middle Chile at most height & 63 4u "Insekten|Würmen", 6u "paarweise", 26u "Spiegel" 64 21-22m

♢

MEYEN, Franz Julius Ferdinand *Neues System der Pflanzen-Physiologie* 3 vols.; Berlin; Haude und Spenersche Buchhandlung; 1837-39 [Botany School, FD]

MEYEN, Franz Julius Ferdinand *Outlines of the geography of plants* London; The Ray Society; 1846 [CUL]

cc, gd, geo, gr, is, no, sp

NB Hooker says very poor & I quite agree <CD?> Meyens Travels Lichtenstein Martius Humboldt Treviranus Biologie Gaudichaud

SB1 3; 4; 40; 43; 69; 82; 93; 94; 95; 99 to end♦; 103; 187; 251; 253; 255; 256; 258; 261; 264; 270; 272; 323; 326

SB2 43 Trees *Cedrela* washed to Canary Isds from America viz *Cedrela*

103 Representatives of S. African Flora in Spain, according to Link

187 O/ 109 Genera in La Plata 70 Europe & 85 N. Hemisphere (& as few identical species there must be much representation, without these 85 genera are Mundane.

248 *Bejaria* in Florida in Lat 30° at level of Sea

255 very few genera confined to Alpine regions

256 Near Snow-line of Cordillera, the greater number of alpine plants are peculiar (very poor authority)

– Reinwardt says none of Java alpine plants identical with Europe (Hence at least vars)

257, 258 On American Alpine plants of Chile & some European forms

261 Fewness of plants on islands has been disputed by Schouw

3 24–26m 4 24–26m/? 40 19–22m 43 18–31m 69 15–18m 82 8–11m (*Humboldt*), 21–23m 83 6–7m, 26–28m 93 25–28m (*Schouw*) 94 30–33m 95 7–9m, 12–15m, 28–29m 99 11–13m, 21–23m 103 12–15m, 32–35m 119 2–4m 166 5–7m 187 33–35m 248 19–24m 251 13–14m, 22–23m 253 27–29m, 31–35m/? 255 17–20m, 23–24m, 25–26m, 27–29m, 29–33m 256 11–31m, 11–13m 257 15–24m 258 1–2m, 7–11m, 16–25m 259 5–8m 261 15–21m (*Alphonse De Candolle, Von Buch*) 262 21–26m, 28–31m 264 34–38m 265 1m 270 17–22m, 30–34m??/w V. Hooker 35w p.273 36–38m, *wb* i.e. under countries of similar climate, extant soil & height & inhabited by similar forms the proportions keep similar; this is curious.– 272 *wte*, 12–15m 273 26–38m, 36–38m 323 29–30m 326 11–28m

MEYER, Friedrich Albrecht Anton *Versuch einer vollständigen Naturgeschichte der Hausthiere, im Grundrisse* Göttingen; Johann Christian Dieterich; 1792 [CUL, pre-B] tm, v

NB March 19th 1857; Nothing p.38; 98; 119; 125; 126

I have only skimmed after p150 for the whole a wretched compilation though it seems he is Entomologist

38 12–15m 93 7–12m/1–11w *Gmelin* skin on back *saccatus* 98 14–15m/w *Angora* Rabbits 119 18–19m 125 *wb* Molar teeth; 5 toes on hind feet; palmated feet; chief difference tailless 127 28–29m 128 14–15w *Pug*

MICHELL, John *Conjectures concerning the cause, and observations upon the phaenomena of earthquakes* London; 1760 [CUL, pre-B, S, I "the Author's Present", i.e. not to CD] geo, t

NB 16; 459♦; 70

10 vibration from same point; 16♦; 17 & 26 my argument used by Mihell; 46; 55; 58; 70♦

8 20–22m 9 1–2m 10 18–20m 11 13–16m 16 1–2m, 29m 17 1–19m 26 1–11m 35 5–14m 36 1–20m 38 28–33m 39 1–3m 46 1–10m 55 15–27m 58 4–19m 70 30–32m

MIERS, John *Travels in Chile and La Plata* 2 vols.; London; Baldwin, Cradock & Joy; 1826 [CUL, pre-B, S in both vols.]

vol. 1, vii 7m, 8m, 10m, 11m, 13m, 14m, 16m, 18m, 19m 383 21–32m 392 5w → → n 7–12z, 19–29m 393 1–7m 394 1–8m, 14–19m 395 1–2m, 6–7m
ø

MILLER, Hugh *Footprints of the creator* London; Johnston & Hunter; 1849 [Botany School]

cr, em, geo, ig, sp, tm

9 1–2m 15 10–14m/12w Why not? 40 4–7m 46 3–8m 60 20–25m 68 6–9m!! 69 15–22m, *wb* What is embryonic Head of a Placoid or ganoid Fish 83 7–10m, 24–27m, 28–32m/*wb* This assumes no transition of such minute characters 84 1–8m 104 14–18m 105 4–7m/6w Devonian 107 1–4m 109 6–9m (*Murchison*) 133 13–14m 136 4–7m 144 15–18m, 27–30m 146 24–25m 147 25–27m 150 17–21m 154 1–5m 155 11–14m 161 9–15m/8–11w too few 162 28–32m/*w* good but too hasty.– 163 2a "early" p.161 1–5m/*w*t yet in Red Sandstone two kinds 166 20–23m 175 11–20m 179 21u "two"/*w* or three? 182 12u "*Brachiopods*"/*w* & *Cephalopods* 17–21m 193 19–24m 196 7–13m (*Lyell*), 14–17m 197 11–14m 200 16–25m 203 25–32m 204 1–4m 214 9–22m 215 3–7m 216 5–7m/*w* often cease earlier 7–10m, 10–16m/*w* decay when in sediment 13–16m 217 7–11m 219 22–23m 243 17–27m 280 19–20?

MILLER, Philip *The gardener's dictionary* 3rd edn, 3 vols.; London; for the author; 1748 [Down, vols. 1 and 3 only]

MILLER, William Allen *Elements of chemistry: Part 2, inorganic chemistry* 3rd edn; London; Longman, Green, Longman, Roberts & Green; 1864 [Down, FD]

MILLIGAN, Edward A. *Corn. Celsi medicinae libri octo* Edinburgh; Maclachlan & Stewart; 1826 [Down, S] ♂

MILNE EDWARDS, Henri *Histoire naturelle des crustacés* 3 vols and vol. of plates; Paris; 1834-40 [CUL]

af, ch, ci, cr, ds, dv, em, gd, gr, in, is, sp, sx, sy, t, tm, v

vol. 1 NB (on p. 468)

(Species Theory) p.6. p117. p.184,5

p191 – Hence Branchiae in the Podophthalm Crust. perhaps not so anomalous – not more a new organ than in Cirripedes.

196 p121; 227,8

SB □β

186 Newport says in Scolopendra mandibles first formed – Jaws formed before legs in Crustaceans

197 The changes which Crustaceans undergo when hatched are the "complement" of those within the egg

226-8 On 2 methods of classification; that of Cuvier impracticable (very good sentence)

title page u (author, title) 2 29-30m/30u

"cinq|de" 3 1-2m/1u "sept paires"/2u "nommés

antennes", 4u "coeur artériel", 6u "sont

doubles" 6 2-5m, 30-32m 12 1-7m 14 25-27m

15 19-20m 16 4-6m/w V. ● 18 10-19m 19 2-

3m, 6-9m, 13-16m/z/15u "généralement"/16u

"ordinairement|dernier", 24-28m 21 6-8m 23

19m 27 7-9m, 16-20m 29 6-10m 30 28-32m

31 23-29m 40 15-16m 41 30-35m 42 21-22m

43 7-10m 44 1-2m, 5-8m, 14-29m 45 24-29m,

24-26m 47 2-5m, 3-4m 48 14-16m 50 16-18m

51 1-4m 55 14-16m, 26-29m, 30-32m 61 17-

30m/19u "lame cornée" 62 1-4m, 6-8m, 15-

17m, 19-20m 64 9-11m 72 25-30m 73 2-6m,

10-13m, 25-27m 74 4-6m, 11-13m 75 5u

"Édriophthalmes", 6-9m, 28-29m 76 5-10m,

29m (Cuvier) 78 28-29m 79 12-14m 80 14-

18m, 22-28m 81 12-13m/5-23w what

difference in branchiae of Stomapods 82 29-

32m 84 21-25m, 29-30m 97 15-18m 100 7-

10m 104 17-20m, 22-23m 110 5-7m, 10-11m,

12-17m, 27-30m 114 23-25m/Q 115 8-10Q

11-18m/12w stemmate 116 1-2Q 5-7m/16-

24m/w/w Larva of Lepas 10-13m 117 1-

11m/w This must be case in Larva of

Lepas 6-10m/7w Sp. Q 118 18-19m, 19-22Q

20-22m 119 1-2Q 5-8m, 20-22m 120 1-2Q 4-

6m, 17-18m, 28-29m 121 1Q 15-19m/1-19w

Species theory. 2 into 1 – into 2 into none

16-17w V. Daphnia 26-29m, 29-33m 123 12-

15m/w the second pair are the exterior 128

31-32c/w 129 10-13m, 31-32m 131 21-23m

133 5-8m, 10-20w Cirripedes come near

Isopods 135 21u "nerfs"/→/28a "céphaliques", 29-33m 136 20-23m/21u "nerfs gastriques", 25-27m, 28m/u "forment|de" 138 9-11m/7-

18w argues with ♣ cirripedes for 1st thora.

goes to all pied machoirs &c &c. – Jaws &c

18-24m/w This is strongest possible

argument that 1st cirrus is a pied mach 140

wb Pedunculated cirripedes in concentration

about = to half way between Astacus &

Palemon. 141 30-31m (Cuvier) 142 13-16m

143 8m 144 32-35m/34u "la Squilla" 153 1-8m

165 17-21m, 22-24m/w not in cirripedes 166

4-7m 168 25-28m 170 1-4m 184 21-23m/w

mandible already formed 26m/23-26w ie 7

cephalic segment transformed 28-29m 185

wt Now irregular development does not

proceed regularly from ant. to Post. end 4-

5u/1-5m/w ie 1st thoracic segment X 24-

27m, 31-32m 186 wt Brullé so far right. wt

Newport tells me that in Scolopendra

mandibles first formed. 3-5m, 4-6m 191

6-10m 196 25-29m 197 13-15m/15u

"Complément" 198 9-12m 199 21-25m 200 2-

5m 226 24-31m 227 1-4m, 7-28m, 8-10m, 33m

228 24-30m 231 24-28m 233 1-3m/1u

"plusieurs séries" 234 9-11m, 12-17m 236 2w

(1) 13w (2) 19w (3) wb (4) – Cirripedia 238

31-33m 239 1-3m, 11-13m 242 8-11m 253 10u

"pates-mâchoires"

♂

vol. 2 SA (pp. 50-51)

p42; p50

♣♦ add 2 short-styled out of Orchard

(over)

♣♣♣

♣ (Books of Rules)

♂

42 32-34m 50 17-20m, 27-28m 441 9-11m,

14m, 16m 444 4-6m, 5m, 6-7m, 8u "sept", 9m/

u "conformés", 19-20m, 20-22m/20u "au|

sept"/22u "le|de", 23-24m, 25-27m 445 4-6m/

4u "Trois", 14-16m, 25-28m 446 2-3m, 10-

14m 448 1m, 4-5m, 17-18m, 25-27m/w p471

46w p.489 449 6-7m/7u "Schiropodes" 450 1u

"tous les", 3m, 10m, 17m 451 22-23m, 26-27m

455 29-32m/30u "soit|flancs" 465 5-8m/5u

"aplati" 468 10-11m/10u "La|saillante", 14u

"deux paires", 15u "paire de" 470 5-6m/5u

"feuille", 24-25m 471 1m/u "dépourvues|

palpiforme", 2m, 3-6m, 13u "sept|huit", 20-

21m, 24m, 26-27m 473 7-9m, 9-10u

"lamelleuses|apparentes", 15-24m, 20-24m, 25-

32m, wb & 1st thoracic legs very small 474

6m/u "très-petites" 475 1u "il|

rudimentaire", 3-4m, 10-11m, 12-13m ♦ 480

25-27m/25-26u "pates|réduites" 486 22-23m

487 12-13m, 13-16w V, p.473 foliaceous 32-

34xx 488 7-10m/x/w Misprint 9-10m, 21-22m 510 20-22m

vol. 3 NB (on p. 638)

410 On Cirripedia

p412 Even in Copepods organ of generation in last thoracic segment

SB □β

555 Difference of Crust, in proportion to separation of area, other things being equal
561 only 2 or 1 Endemic Crustaceans at Canaries Isld

567 Individuals of same species are almost always continuous areas 571-

573 few cases of interrupted ranges

574 Crust individually numerous in Polar seas

5 13-16m 103 5-9m

∅

349 1w Entomostracous 391 350 16-18m 353 11-13m 354 14-18m 364 11-12m 372 11-13m, 12m 373 9-10m 374 3-13m/6-8w *probably not Copepods* 375 29-34m 376 12-18m 377 2-5m 391 6-7m/7u "rames", 19-21m 393 17-20m 410 *wb* Cirripedes allied to family of Daphnia only by dorsal anus, ovaria, inflected abdomen & shell - (differ widely in cirri & mouth) & in caeca at cardiac end of stoma - More allied to Stomapoda 412 4-7m, 17-18m 432 5-8m 433 29-31m 434 1-3m 437 26-28m 447 22-25m 448 12-15m 539 17-18m, 21u "yeux composés" 541 8-9u "on\paire"/w answers to 1st cirrus 17-18u "plutôt\paires" 542 14-18m 544 11-13m/12u "qui\avant", 17-18m, 25-27m 545 1-2m, 9-11m 555 *wl* How explains this, except by single creations 17-23m/1-24w without regard to anything else - Make a Barrier & you will have species different on opposite sides *wb* I do not think read with sufficient care 556 29-33m 557 4-20m 561 21-26m, 22-23m 564 11-12m 565 2-5m, 15-17m, 23-26m, 23m/u "Palémons" 566 32-3m 567 9-10m, 16-18m 568 1-9m, 11-14m, 31m 571 18-19m 573 3-12m, 6-7m/w Interrupted ranges 30-31m/w do 574 22-23m/19-24w Arctic Sea likes big lake 588 (u) 11u "versans\Atlantiques", 14-15m, 15u "Ptalycarcin", 17-18u "pas\Antilles", 20u "au Chili", 21m/u "au Chili", 23u "Callianasses", 24-25u↔, 29-30u "à\Hollande", 32-33u "Hippolytes" 593 11m/w Mouths 14m/w Mouths 597 10-39[...] 600 39w 2 601 4w 3 602 40w 3 603 15w 4 32w 5

MILNE-EDWARDS, Henri *Introduction à la zoologie générale* Paris; Victor Masson; 1851 [CUL]

ad, cc, ch, ci, co, ct, em, fo, geo, he, hl, ig, in, mn, or, phy, rd, sl, sy, t, tm, v

SF □β

7 Diversity of organisms first condition of nature (Ch 4)

9 Law of "economy of nature" "sober in innovations" - Q has not recourse to any new creation of organ. other strong expressions on do p.10 Q

13 nature varies degree of perfection Q 14 as embryonic development

31 On Highness & Lowness 25 to 34

35 Division of Labour Q p.57 do 60, 61x♦ Q

43 Beautiful gradation in stomach Q- 63 in Respiration Q; in annelid surface & body near legs.

x 61 Q Nature rarely introduces a new organ p.64, 65 In Squilla new organ introduced Q ♦ but cirripedes have shown how cautious one must be 118 do ♦ 121 do Q

68 Q Clearly admits that new organs are at last created. 118 do

96 On Embryological similarity p98 mistake of Branchial slits p102 not arrest p112 p114

111 Point in Classification.

124 Parallel series

126 on animals "borrowing" (instead of inheriting) structure from other class.

132 on different kinds of fusion or unison 137

132 Rudimentary organs tend to become separated from proper connexions!

138 absolute disappearance of organs

141 Law of Balancement of minor importance

148 Law of connexion 151,154

161 If one part is changed others are changed (so with varieties of & monstrosities of gross nature)

163 on various empirical connexions of structures

165 On subordination of characters i.e. character in connexion with other (Jussieu)

169, 166 doubts this pp171

172 on value of characters in classification

NB1 (refers to Catalogue attached to book) 18 Milne Edwards Books; 26 Decaisne Cours Floriculture et Potage- 7.6

NB2 ♦ 132-137 Jussieu primordial

iv 4-7m 7 at (page number), 13m 9 3-4m/3u "sobre d'innovations", 5-6Q/6u "autant\est"/7u↔, 10u "loi d'économie"/Q 28-30m, 30-31u "aucune\nouvelle" 10 6-7m/7u "rendent avare", 8-9Q 12u "quarante", 23-25m/24u "seule\physiologique" 11 1-5m, 13u "apus", 18u "Céphalopodes", 24u "Reptiles sauriens", 26u "Lépidoctée\Mississipi" 12 32m 13 13-16m

MILNE-EDWARDS, ZOOL. GÉN.

14 16-20m 16 17-22m 17 1-3m 21 9-17m/11u "puissance"/12u "perfection"/15u "quantité"/16u "qualité", 20-23m/22-23x, wb x Best way of putting superiority.- though each perfectly (?) (Can young be said to be perfectly?) adapted to conditions. 22 7-8u "il|vie", 18u "grandeur|résultats", 20u "masse|dont" 25 4-9m 26 2-5m/xx/wt Is true individual? Gigantic Saurians.- Cetacea - Pachydermata Devonian Sharks 17-18u "on|celles"/w Megatherium? 27 wt How value secreting, muscular & nervous ♣ organs. 2u "n'entraîne|nécessairement", 8-10m, 10m/x/u "la|dont" 29 wt So relation of size to warmth of Climate 1-4m/3u "cette nature"/4u "cel seulement", 16-17m/17-18u "se répéter"/16-20w vegetation repetitive cellular division 30 1-5m, 9-12m 33 25-31m/27-28u "précision|actes" 35 13-15m 42 14-28m 43 6-20w beautiful gradation 57 1-3m 60 8-11m, 15-18m 61 9-11m, 15-17m, 25u "un|nouveau"/Q 63 23-32m/24-25Q 64 8-11m, 13-21m/14-15Q 65 1-13m/1-3u "d'organes|perfectionné"/Q/4-5u "déterminent|surface" 66 28-31m 68 12-16m, 24-25m/24-28u±, 31-32m 70 25-31m (Prévost and Dumas) 74 17-20m 80 30-32m 81 1-3m 85 5-11m 86 10-13m 94 28-32m/28u "Généralisant|vagues" 95 15-18m 97 20-24m (Tiedeman, Serres) 98 4-11m, 12-17m 102 18u "est|mouvant", 20-25m, 24-26m, 29-32m/30u↔ 103 9-13m 105 5-10m 107 9-14m 109 6-9m, 25-31m 111 6-8m, 23-29m 112 9-12m, 12-18m 113 12-14m 114 12-16m, 23-26m 115 7-8m, 11-12m 117 18u "besoin|variété"/w poor! 20u "tendance|économie"/w poor! 118 11-13m/12-13u "puis|instruments", wt/1-13w This very important: if proved upsets changes in species 119 8-10m♦, 27-32m/27-31m/29u "types fondamentaux"/31u "types secondaires" 120 12-13m 121 24-30m/24Q 26-28!!, 28-30u↔/?, 31-32→ 122 25-26u "un|exemple"/24-27w ? only functionally or physiologically new 123 11-16m, 9-13w natural enough by Selection 19-22m/21u "Dacgtylopère", 29-32m 124 14-17w Marsupial parallel 126 1-32w what metaphorical rubbish, how much simpler my view 127 1-4m, 9-12m 128 4-10m 130 5-9m 132 3-4m/3u "fusion primordiale"/4u "développement confus", 26-28m 137 15-16m/16u "un|confus", 19-22m, 23-25m/24-25u "la disparition", 26-32m/26u "jeune" 138 17-22m, 25m/u "la répétition", 30-32m 139 10-13m, 17-19m, 31-32m 140 3-4m, 10-14m 141 18u "vitales|pouvaient", 20-26m (Geoffroy St Hilaire)/22u "loi|balancement"/23u tenir compte/26u↔ 142 1u "ce chevalement", 16u "la carapace" 143 17u "texture|propriétés" 148 17-20m, 19u "con-

nexions anatomiques", 1-23w because even monstrosity could not invent-; manner of growth + hereditariness p151 20-24m, 25-27m (Geoffroy St Hilaire) 151 13-14m, 18-21m/w if can be moved by steps 152 4u "La|rapports", 5u "tendance" 153 15-18m 154 4-14m/wt/1-15w are not these parts last-formed in womb & so exposed to modifying circumstances? 28-29m/!/17-32w/wb one feels an early embryo more independent of outside world, but why? so less apt to vary - the late-formed parts exposed to sum of influences & to selection; selection cd not act on embryo 158 13-19m/13"... 161 24-25m 162 1-3m 163 9-11m, 15-16m, 18-23m, 28-32m 164 9-12m, 10-15m/10-11u "harmonies empiriques" 165 9-10u "principe|caractères" 166 18-20m, 26u "répondre affirmativement", 28-32m 168 9-12m 169 26-27m 170 25-29m 171 6-11m/8u "conséquences"/10u "effets" 172 2u "caractères prédominants", 8-16m, 17-19m, 20-22m/20u "système dentaire", 30-31u↔/? 173 1-7m, 7-15m, 21-32m Catalogue, 12 9-11m (Milne Edwards) 18 8-11m, 17m, 29-31m (Decaisne)

MITCHELL, Silas Weir *Researches upon the venom of the rattlesnake* Washington, The Smithsonian Institute; New York, Appleton & Co.; 1861 [CUL, S] beh, phy, sy, tm, v

SB ⚡

5 Powers of fascination

12 Relation of Poison to Venom glands

37 do

43 do

⇒ 66 classed

5 10-14m 12 41-42m 13 7-8m 37 32-35m, 42-45m 43 1-9m 66 39-44m/w so with Rabbits - So illustrates variability

⊗

MIVART, St George Jackson *On the appendicular skeleton of primates* (extract, pp. 299-429), communicated by T.H. Huxley; 1867 [CUL, I]

h, v

SB 403 Variation; 410 & 412 Man; 424

403 29m/u "digit", 38-41m 410 31-33m, 35-37m, 38-40m 411 3-5m, 9-10m, 11m 412 3-6m 424 35-38m

MIVART, St George Jackson *On the genesis of species* London; Macmillan & Co.; 1871 [CUL, I]

ad, af, beh, cc, ch, ci, cr, ct, ds, dv, em, ex, fo, gd, geo, h, he, ig, mm, mn, oo, or, phy, r, rd, sl, sp, t, ta, tm, ts, ud, v, wd, y

NB1 ♦ Mivart; p15 I do not understand; 15; 35 false quotation; 54; 60x Not fair; You entirely ignore use - 67 Use entirely overlooked

NB2 Sp. Theory; p120; 145 Distribution Geographical; 155 Homologies Vol 3 p.327 of Cyclop of Anat & Phy. on Larynx of Kangaroo - Owen in Phil Trans p.182 Gascoyen

SB1 □β ⚡ (by Emma)

Mivart Genesis of Species

p21 List of his objections

25 Giraffe, with MS notes

34 On variations in all directions MS notes

37 Flat fish.

39 Origin of limbs (CD, ⇔) do not consider

40 Whalebone

42 Larynx of young Kangaroo (CD, ⇔) (add after Whale)

(CD, ⇔) 44 Pedicellariae

46 Metamorphosis of flies.

47 Mammary glands (CD, ⇔) & p42 for Larynx

50 Cobra.

53 Rods of Corti

62 Objection demonstrably sufficient

72 The shoulder of pterodactyls.

75 & 77 ear & eye of cuttlefish v. MS notes

80 (CD, ⇔) Avicularia

81 Placentae of mammals & sharks.

82 Resemblance of mouse & marsupial.

85 Effects of conditions on butterflies from Wallace

97 Modification as great as between Hipparion & horse -

(over) Mivart Genesis

105 Abortion of finger in the Potto

107 believes wing of birds comp. suddenly developed -

107 On origin of tendrils (CD, ⇔) [see p47]

110 Macrauchenia a very generalised structure.

112 M.S. notes on suddenness of var. good -

130 Seems to believe that bat & pterodactyle suddenly developed.

139 Argues rate of change in progenitors before their divergence from the amount of difference in their descendants

145 The same fishes in distant continent

148 Plurodont lizards & certain insectivora in Madagascar -

153 & 158 Diff. from homologies of skull bones.

163. H. Spencer on ♣ serial homologies

164 Mivart thinks there is an internal force or tendency.

170 There is serial homology in Chitons

(over) Mivart Genesis

174 Correlation very slight between teeth & hair

176 Homology between limbs & fins.

178 M.S. notes on primitive homologies.

(CD, ⇔) p107 sudden change of Birds wing.-

SB2 ⚡ Kangaroo Larynx; Strange arrangement 125 & Pottos forefinger

(CD, ⇔ hereafter) See to Mouth - Find "Brewster" on age of Cephalopods -

Placentae of Sharks & Mammals - like Fritz Mullers cases & Claparede -

Mr Mivart's book consist of all objection to nat. selection advanced by various authors & myself, expanded & admirably illustrated, with nothing said in favour, except in opening chapter

p147 Get Gunthers Catalogue

p196 Morals ⚡ over

(over)

(drawing of lens)

Evolution whether N. Selection is admitted is all important, as long as changes gradual, for then facts can be tested, for scientific purposes Mr Mivarts belief that sudden change, as Horse & Hipparion, & I suppose - Birds bats & Pterodactyles (otherwise his argument of intermediate not being found wd be valueless) seems to me no gain over the old belief of separate creation: Of course it may be true, but will be most difficult to prove

21 17-19m/18a "useful structures" and useless 20-24m 24 15-21m, 27-30m 25 17-18u "supposition | tended" /17-20w only tallest animals in each country 26 7-9m/w only dense forests 27 16-25w Variations not supposed - too large an animal for country 27-31m/29w (a) wb (a) If large antelope & giraffe can now exist or flourish under so much competition, so cd intermediate sizes 28 1-23w We do not know whether in all countries trees are as nutritive as Mimosa 23-26m, wb Escape other beasts of prey 29 4u "these | drought" /w No 34 7-13m/4-12[...]/ m/wt/1-13w I do not see.- no because only the most like some object wd be selected.- if exactly equal Variation they wd counter-balance each other.- wt M. on ● (there I do allow ♣ to the m○ of my doubts) 35 3u "mimic" /w Mock 12x 36 13-17m, 28-31m/w I do not see 37 8-10m/8[...]/8-10w see Portfolio

MIVART, GENESIS, 1ST EDN

on gradation *fig.w* Ask Gunther 15-22m/22[... 38 3-9m/5...], 19u "functionless"/w ♦ No no 39 wt we have no means of judging 7-14w idle objection 40 3-7m 41 wt (Straining or sieving action.) 7-15m/"...", 11-12w Ducks Beak 42 24-30m/[...] 43 1-2w Voice 3-6w ie about Kang & also all oth 44 32-34m/13-34w Cirripede Branchiae first nascent structure applied after to other uses. 24-27m/[...]/w (a) 45 1w He adds 2-7[...] 8-10w never useful structures 46 9-12m/9-14w Lowne explains intermediate conditions 47 17-21m/[...]/w p.53 22-26m/22u "mammary|breast", 22-27[...]/24u "sucking|scarcely"/w Mucus massage fails 28-34m, wb M doubting about sucking; but to this kno does not run 50 *fig.w* Mem snake devoured by Peacock in India to frighten enemies 51 5-11w M ● Linn Soc Fascination 30-34m/w not in native country 52 11-14m 53 25-28m 54 1-17m/4w No 10u "only|enjoyment"/11u "perfect|performances"/6-15w are used for some other purpose - Crustaceans 57 9u "escaped"/w No 60 1-12w not fair not to add 61 22-23m/23u "seems irresistible" 62 wt with mimicry init. resemblance ♣ more distant to one var. & in another to another var. 3-8m/6w (a) 15-17m/15u "demonstrably insufficient", wb I have never said demonstrated but in highest degree probable 67 8-10m/w so do I 21-24m 72 25-29m/wb Here add that Mr Mivart sees such strong improbability ○ I cannot see it.- Variation analogies do arise 75 11-15m/w he always omits the share of selection 76 33m 77 wt Remember what structure is necessary for vision Lens are found in Annulosa 4-6w I utterly deny 6-11m, 7-9m/7-8u "independent|variations"/w (a) 16-21m/w what does this mean? wb (a) you cd not make greyhound & pug - pouter or fantail thus - it is selection & survival of the fittest 81 19-27m 82 1-7m 84 23-27m 85 1-7m, 25-31m, 27-33m, wb Direct conditions 97 16-18u↔, 17-19m/19u "Hipparion|Equus" 98 1u "sphenoid" 102 22-27m/23-25w false quotation 105 11-16m/11w disuse 107 1-3m/w oh 5-7m/w see my paper. 109 9-12m/! 110 6-12m 112 2-7m, wb Says variation, of which we have evidence, & not exceptional cases were sudden changes & unnatural changes, such may sometimes have occurred. wb As dom. productions so much more variable, these variations probably greater, & the strongest partake of nature of Monstrosities.- In large genera, - very known in nature, including recent & fossil, the species are so close, that steps probably not great in line of death. 119 13-17m/13-21w we do not know causes of

variability 120 13-17m/w yet it varies in W.Indies. 21a "some" most 121 19-24m/19-30w I say so merely because other reasons make me believe in it. 123 wt Do I not give it as a mere possibility when arguing against this view? 2w(a) 6-11m 130 1-5w Does he believe that a Bat & Pterodactyle was suddenly produced - such facts tell against Evolution, as well as nat. selection.- so with Whale & Zeuglodon - 139 1-34w this seems false reasoning, he assumes amount of difference in progenitors from amount in existing divergent descendants. 145 22u "distant" 23-31m/27-28u "is|fresh" 146 5-13m (Günther), 31m 147 2u♣, 3u "China|Moreton", 4-6m, 10-12m/w ask Gunther 23-24m/22-28w Is this an aberrant & ancient form 148 1-11m, 15-17w Distinct genus 25-27m/w no remnants 151 20-24m 153 2-6m 157 17-19m 158 11-15m 159 1-3m (E.R. Lankester)/w I have called analogy 163 23-29m 164 16-18m/17u "is|tendency" 166 9-13m 170 16-20m, 20-22m 174 wt/1-12w So add, but the connection, if any, as Mr. Mivart provided not extremely vague.- some evolutionary tendency in both to vary together 13-15m 175 1-3m, 13-16m 176 6-12m, 16-18m/14-28w ask for Günther's view 177 12-13m/12u "tarsus|cartilaginous" 178 wt/1-11w Parts primordially similar wd be apt to vary in same way, but can be congruent to any extent - to moderate extent - Veronica.- How primordially similar, is an obscure subject.- repetition of past one of commonest forms of variation. 179 11-14m, 24-27m (I. Geoffroy) 182 10-13m/11u "Gascoyen", 20-22m 192 18-22m 196 1-17m, 26-29m/27w No 197 2-11m 198 15-20m 200 19-24m 204 7-14m 212 15-21m/wt/1-21w Not longer duration than gemmules of atavic structure such as stripes on Horse. 213 2-8m. 10-15w like pollen-grains within ovule 214 28-32m (Lewes) 215 6-8w gemmule & germs 10-14w absorbs organic matter & divides 19-20w true 21-25m 217 24-30m 221 12m, 24-26m 223 11-13w from conditions 225 5-7m 226 15-20m 227 21-23m 230 9-13m 231 6m 232 4-19w How great, see my remarks at end 20-21m/21u "greatly different" 239 27-30m, 31-34m, wb differs only in colour & size? 240 3-5m, 25-28m/27u 242 wb Urges any amount of sudden variation of which we have evidence, & not monsters (& not reversion) I will admit, but probably less than we see under Domestication.

MIVART, St George Jackson *On the genesis of species* 2nd edn; London & New York;

Macmillan & Co.; 1871 [Down, S]
48 17-22m
∅

MIVART, St George Jackson *Lessons in elementary anatomy* London; Macmillan & Co.; 1873 [CUL, S]
h, ig, rd, tm, v

NB1 ♦ Rudiment in Gorilla
Inguinal mammae in Lemuridae & 2 pairs in Galago → (to NB2, 489)

NB2 125 Hyoid Bone
♦ 396 Lobule of ears
489 Mammae
496 Difference of Man→
→tiny distance under an anatomical point of view

125 6-9m 396 19-22m, 27-29m, fig.m 489 42-44m 496 20-25m
∅

MIVART, St George Jackson *Man and apes* London; Robert Hardwicke; 1873 [Down, S]
NB O/

MOGGRIDGE, John Traherne *Harvesting ants and trap spiders with supplement*; London; L. Reeve & Co.; 1873 [CUL]
beh, che, fg, gd, oo, y

vol. 1 NB1 Very clearly ♣ described Wallace
NB2 p.36♦

p.128 Young spiders make web as perfect as old ones Q

The seeds stored in ants nests not germinating - these cutting off the radicals & bringing up damp seeds to dry are the most remarkable instincts

Trap door spiders very wonderful
Perhaps add to when I specify the wonder of ants

xi 3-5m 128 5-12m (Blackwall), 14-16m

Supplement, NB1 p.161; 164

174 acid on seeds

p.161 closely allied species in the same district have different habits

164 curious instinctive manner in which Cicendela seizes ants

174 acids & seeds

161 7-15m, 20-24m 164 1-23m 174 4-15m

MOHL, Hugo von *Principles of the anatomy and physiology of the vegetable cell* trans. A. Henfrey; London; John Van Voorst; 1852 [CUL, S]

ct, mhp, mn, no, phy, sp, tm

NB1 Drosera; Cells; 37 Protoplasm; 38 do; 79 do; 84; 87 nutrition; Drosera 99; 100 76 Sp. theory; 109 do; 133♣ On Grafting various forms number of pollen-grains in some plants.-

Chlorophyll not absorbed so purple♦ supuration from the purple fluid must be protoplasm

NB2 Orchis 133

147 Tendrils, 151 to 156 to end

143 Knight on gravity

146 Roots turn from light

158 Bot. Zeitung

25 13-16m 26 39-42m 28 8-12m 29 1-4m 37 38-47m, 44-46m 38 1-16m, 3-6m, 24-39w speaks as if nucleus necessary 39 20-24m, 40-43m, 45-49m 40 24-31m 41 16-20m, 47→ 42 2-7m, 34-37m, 37-40m 44 3-9m, 14-18m (Kützing) 75 28-32m 76 30-35m 79 22-26m, 34-36m 84 46-49m 87 44-48m (Bouchardat) 93 16-25m, 36-38m 95 14-25m (Brown) 99 25-32m (Schulz) 100 19-27m 109 36-43m 133 36-40m (Kölreuter)/39u "120,000 pollen", 40-45m 143 34-47m (Knight and Dutrochet) 146 40-46m 147 1-6m (Knight), 24-29m 148 47-50m 151 45-46m 154 22-27m (Dutrochet) 156 11-17m, 29-34m, 35-48m (Treviranus), 35w Phyllt 157 9-21m, 17-19m/18u "of which", 24-27m/?, 41-46m 158 3-9m (Dutrochet, Mohl) 14-19m

MOHL, Hugo von *Über den Bau und das Wenden der Ranken und Schlingpflanzen* Tübingen; Heinrich Laupp; 1827 [CUL, pre-B]

ig, mhp, no, phy, rd, sp, t, ta, tm, v, y

NB p.39 Lygodium; ♣ p.112 Species Theory non-climbing Plant - occasionally climbing; 125♦

SB1 □β ♣

1 Summary twiners

All objects same - twiners either way - glass - will clasp when young & grow - Palm.-

☞ America ● arboreal ● most highly organised tendrils

Dropping off or withering up of uncaught tendrils - these results useful special contraction after clasping or formation of links○-

Anyone who did not understand the ● of the movement of the t. would conclude that as the internodes revolve & carry the tendril, & as these at the same time are revolving, that the tendrils would necessarily twist in♦ advance♦ more quickly than the internodes & get in advance of them one♦ internode♦ instead of both moving harmoniously

MOHL, BAU UND WINDEN

together as is the case. But in fact the ♣ t. incurves to the ♣ upper internode of a twining plant when several are revolving,

♦ but is ♣ generally separated from it by a rigid petiole; & in the former part of the P. it was explained how ♣ several internodes revolve together by their whole length successively moving to all points of the compass. There is, however, this difference that in many cases the revolving t. is separated from the revolving stem by the rigid petiole; ♣ but this makes an important differn in the movement – There is another difference, ♣ namely that ♣ along the ♣ part from which the tendril ♣ arises, the terminal & motionless young shoot almost always projects; this ♣ generally projects on one side, so as to be cut of the way, ♣ of the tendril which at the time is revolving; but when it is not sufficiently not of the way we have seen in E) how well the t passes this obstacle in its path, by shifting & straighten slowly, & rising vertically upwards.–

(over) (various plants listed, with rates and amounts of twining)

SB2 Palm ♦ Mohl on Twiners ♦ Tendrils

p.4 *Tamus elephantoides* X ⇒ – & *Paullinia* winding stems & tendrils it is one of Sapindaceae.

37 gradation of leaves with tendrils

39,50 *Astragalus* rudimentary tendrils No ⇒

39 *Lygodium* leaf-climber

40 *Cocculus* Leaf-climber– ●– *Ophioglossum* leaf-climber

41 *Uvularia* like *Gloriosa* *Nepenthus* ⇒ – *Smilax stipulae*

43 *Fumaria claviculata* tips of branches converted into tendrils

45 *Maurandia scandens* – flower peduncule irritable ♦ – Sapindaceae – on Vines 47 *Passiflora*

49 *Vanilla*

52 on winding of tendrils spontaneously p78

57 tendrils increase rapidly in strength

59 on spontaneous winding with notes by self

63 Sensitiveness of t. touch does nothing!! look (too old) S.65

65 convex side not sensitive ⇒ in *Cucurbit* & *Passiflora*

70 *Virginian* creeper

77 Vine creeper point to N. & dark. other t. not affected by light

82 will wind on glass, tendrils

(over) Mohl on Twiners

103,108 twisting cause of revolving movement

111 no twisting of axis when plant twines!

round smooth support & old twisting disappears

112 a plant already twisted cannot twine!!

do. stems ♦ sensitive ♦

♦ 112 *Asclepias X* ⇒ *vincetoxicum* twines only when it grows in most shady places

116 Experiments on odd ♣ supports, showing influence of light,

♦ 119 Twiners care little for light, especially *Ipomaea*

♦ 125 *Abrus* a right-hand winder

♦ 135 will not twine round very thick support

♦ 135 Hooks on certain twiners, specially *Ipomaea muricata*

♦ 149 has seen axial twisting vary in same plant

SB3 Palm

SB4 Bull. Soc. Bot. de France Tom V 1858. Dutrochet. Comptes Rendus. 1843. Tom. 17.

(over) Comptes Rendus 1844 Tom 19.

SB5 1864. Weights (table of equivalents)

(over) 1863 cc

2 8–9u "Bewegungen|werden"/8–10m (De Candolle), 16–21m/w Tendrils & winding plants totally different 4 5–8m/w Touch not mentioned 24–26m, 25–26u ↔ /x ⇒, 30u "Paullina", wb *Paullinia* winding stem with cissus 5 9–10m/9u ♣ /10u "in\auslaunen", 21–22x ⇒ /21u "Vicia tarba" 6 1–3m, 4c ♣ /w 214 5c ♣, 6u ⇒ ♣ /m, 11c ♣, 13w Sapindaceae 14w ♣, 15c ♣, 16–20w All worked with Lindley 18w ♣, 22w ♣ 31 28–31m 33 10u "bei\Strephanthus"/10–12w ! Apocynaceae 13–14m/x ⇒ /13u "bleibt\Abfallen" 35 19–20m, 21–24m/w *Oenius Gloriosa* 37 24–25m/x ⇒ /26–29w gradation yet jump 38 25–26m/25u "äussern" 39 11–12m/11u "die\aufrechtem", 18–19m/19–20m/16–20w Rudimentary 22w Leaf climber 36m/x ⇒ 40 ⇒ 3–5m, 23–24m/w Leaf climb 41 ⇒ 6m/u ♣, 32–33m 42 1–2m, 8–18w none of these seem to catch 43 16–17m 45 4–5m ⇒, 8x ⇒ /w all wound into a tendril 10–12m, 12u "die\Traube"/12–14w does not say whether catches 19–24m/20u "die\ist" 47 9u "zwei\tragenden", 23–25m/x ⇒, 31–34m (Jussieu) 49 4–18m ⇒ /9–16m 50 4–7m/x ⇒ /w *Mucro* in Legumin 18m 51 31m 52 20–23m/x ⇒ 57 12–13x ⇒ /11–13m/w t. grow strong & long 58 11u "dem\durchaus", 13u "Blattstiels", 31–32m/18–35w seems to think lateral movement consequent on twisting ♣ 59 11–14!!/12–13u "da\Bewegungsfähigkeit", 13–14m/u "die\Spirale", 18m, 21–22u "Fläche\Uhr"/20–24w *Gloriosa* winds up differently from ordinary tendrils. 22–34m/33u "Korkziehers"/w *Smilax* does not wind up. B. un) not Vines do not? *Cissus* does when it catches 60 1–

10m/w does not at all understand reversed twisting of tendrils 10x_u "der|innen"/11-12w i.e. sensitive side 63 9u "eine|besitzt"/8-10m/w Tendril sensitive 13-14x_u/!!/u "Einfache|Berührung", 16-23m/18-27w Touch does nothing were they too old?? I presume expected movement too soon 26x_u/!!!/u↔ 64 1m, 2-3x_u/u "gerade|Zusammenwinden"/w this looks as if he took too old- 13-15!!/15u "von 24 Stunden" 65 2-5m_u/x_u/w convex side not sensitive 3a/u "Passiflora"/w & Peas 21-22m/u±/x_u? 70 18-20m/w Virginian creeper 71 8-9u±/9-10x_u/7-10w swelling in all parts when touch 20-21x_u "Vollendung|Längewachsthums"/w Ament^o 75 13-14m/1-21w Astonishing that he did not see spont. movements.- I presume too old 77 5-6x_u/1-10m/w Grape tendrils point to north & to wall 13-20m/w not common to other tendrils of various plants kept in House 24-27m/w so with Pea 78 27-30m/x_u/28-29u "während|herabsteigt" 79 1-3m/x_u/2-3u "welche nothwendig" 82 wt Big. cap & cot wd not stick 6u/wt/4-6x_u/m 105 14x_u/11-15m/12-18w seems to consider twisting in axes cause of movement 26u "eine"/27u "drei|sechs"/22-26m/23-24x_u/w number of twists 29-32w end becomes spiral 30-34m/31-32x_u, wb (a) I presume from each lower part of internode ceasing to move or acting like a fulcrum- 106 1m, 6-7m 108 16-17x_u/13-19m/w accounts for movements by spiral twist 109 6u "mehrere mal"/6-8w passed mark many times in day. 110 wt He shows well how climbers get to their support. 4-5x_u 111 wt movement ceases when plant comes into contact with support!!! 4-7m/4u "hört"/6u "auf"/w (a) 13-14m, 15x_u/13-16w Vascular fibres^o do not become twisted when plant twines round stem? 19-28m/22x_u/21-26w When plant twines axes not twisted !! 112 4-6m/4u "Kreisbewegungen"/wt/1-4w This looks as if he knew tendrils performed a circle. 11-16m/16u "sich|schlingen"/8-13w a plant which is already twisted cannot climb!!! 21-25m/w twining plants have sensitive stems!! 33-34u[▲]/33-36m/w twines are not according to place of growth wb I must explain why tendril bearing plants do not twine - tip does not move in some - 116 12-13x_u/12-33w experiments on odd shaped support strong influence of light 119 2-4m/w do not so much incline to lighter 6-9m/8-9u "sich|richten", 14m/m, 16u[▲]/16-22w This plant cared particularly little for the light 29-32m 120 7-8m, 9-13w Yet light some influence on Ipomaea 20m, 22-34w Explain little effect of light by all sides turned to it - will not do 122

11-13m/12-13u "sie|Kreisbewegungen" 124 32-34m 125 1-4m/2u "Gattung|Familie", 22x_u/w Legumin. 126 29m 130 29-30u "bei|vorkommen" 134 3-4x_u, 4-12m/5-9w Every thread suffices to wind on 17m, 22u "von|Zoll", 31u "3|Zoll", 32u "9 Zoll" 135 1m, 3-19w will not wind round a very short stick.- I suppose movement not arrested till bent considerably & movement acts on opposite side 32-36m/35-36m/32w Hooks 139 5-7m/w spiral arrangement of vessels 140 4-6m 143 32m 147 5u "findet|desselbe"/4-6w Palms sole proof of identity 28-32m/!!!/29x_u/u "um|gedreht" 149 4-6m/w He disputes this 7x_u, 8-12m/w and says owing to Stutz not being smooth 15m/u "an|Internodien", 18u "beobachtete|ebenfalls", /15-20w he has seen twining in opposed directions 23-25m, 30-32w Disputes Cuscuta case 150 23-30m/w Palm did not discover irritability of Tendrils 151 2u "Rückwärtsbewegung", 9-11!!/m, 12x_u, 16-18m/16x_u/16-17u↔ 152 7-10m, 15-18m/15-16x_u/u↔

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vol. 2 NB 43 particular earth good for particular plants 43 7-34m

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(markings presumed to be by FD)

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vol. 1 NB1 369 Pace of Horse inherited

Earthquakes

3-8♦

33 globe of fire

NB2 30; 36; 57; 62; 81; 95; 102; 105; 114

earthquakes

NB3 earthquakes

28 15-18m 30 15-28m 33 6-37m/29w Copiapò earthquake 36 18-32m 57 26-30m 58 1-5m, 6-8m, 17-18?, 19-23m/w Not to where I say no map of sea 59 1-7m 62 14-19m 63 5-15m 73 5m 76 25-27m/u↔ 81 28-30m 82 1-9m 95 15-29m 100 19-25m 106 1-11m, 13-24m 114 9-13m 223 22-26m 262 7-15m 268 1-16m 294 20-28m 301 25-30m 302 6-12m, 12-13u "ladran", 13-15m, 16-20m/13-20w do the early voyagers say anything about dogs in T. del Fuego 304 26-30m/w↔ V. p.330 330 21-23w V 304 331 7-8m, 10-28m 343 15-29m 368 3-5m 369 22-25m 370 9-13m 373 zb 376 20u "Los Pehuenches", 22-23u "cabrones especie"/Q 418 wb↔ Birds p. 257 Quadrupeds p.301

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cc, ch, cs, f, gd, he, hy, or, phy, sl, sp, spo, t, ta, tm, v, wd

vol. 1 SB1 440 to 446; 450; 453; 458 & 457

♦ In first origin cd not have been transported must have sported in nature & not grafted; 472; 478; 486

SB2 ♦ I think much must be attributed to selection of good sorts

♦ =He mingled his seedlings=
p.215; 218; 221; 225; 230,1,3,4,7; 247,8

♦ Old cultivated kinds tend to vary loose the hereditary quality of goodness

254-6,8; 322; 373; 400; 406; 410; 415; 430,32,34; 437,39; 441; 446

(over)

successive generation. at short intervals, with selection, the key

113; 115 not fixed

160 162,4 Chief end of his system is to domesticate them, ie to give them the effects which richer soil & cultivation will give

172- 179- 180- 183- 184

This system chiefly illustrative of effects of external conditions on successive generations. & fixity of the characters ie goodness - not injured by seasons - taste & consistence *

Short period of renewing must be an element if he is true about earliness - yet not applicable to animals

187 to 209

SB4 □β

115 Cannot account why one stock increases size of part more than other (p113)

180 183 with his successive sowings there was selection; & it is valuable case that after last, he got great majority good p203 almost all good. Whence it is proverbial 204,206 that if you sow seeds of any ordinary good fruit very ♦ you get anything good. Law of character becoming fixed with selection by successive generations 247-472

186 215 Seed not ripe (probably to cause sterility in offspring; & from first fruit, weak

230 Great changes take place at first sowings??

400 "Variation est une chose insatiable." Elle entre dans un sentier sans issue et plus elle advance moins elle peut reculer"

406 Facts against pears crossing in adjoining trees

431 Cd tell by leaves or growth 800 or 900 Pear Trees

437 Has never got seedlings identical with parent

444 Wild seedlings like domestic apples &c - 446 Q↔

§

113 23-27m 115 6-10m

160 5w Origins 6-13m 162 2-6m, 15-21m 163 6-10m, 14-19m, 20-24m 164 17-22m, 22-25m

§

172 9-12m, 13-19m/13-14w like cabbages

179 3-6m, 27-30m, 32m 180 2-4m, 6-7m, 20-24m, 25-32m, 27-32u± 181 4-8m 183 27-31m

184 3-8m/w time only thus saved 185 4-6m

186 4-8m 187 1-5m, 4-7m, 13-21m/w crossing? 188 13-17m/23-28m/12-32w fruits & leaves do not go together 189 1-3m, 16-20m

190 7-12m, 25-26m 191 18-22m/!! 194 12-

16m 195 6-10m 196 1-5m 197 1-5m/2w

curious 21-23m 198 29-32m 203 9-16m, 12-15m, 18-22m/? 204 17-22m 206 14-18m, 29-32m 208 30-32m 209 1-2m 215 12-17m 218 8-14m, 26w not roses 221 20-24m 225 7-12m 230 21-26m 231 28-29m 233 29-32m/30w tulips 234 16-20m, 24-27m 237 11-14m 247 7-12m 248 20-24m 254 16-20m 256 4-7m, 8-11m, 29-32m 258 21-25m 259 19-23m

∅

322 9-13m

∅

373 9-13m

∅

400 5-11m 406 21-30m 410 25-30m 415 wt Belgium good for Pears 1-7m (Duhamel) 430 4-32m 431 15-20m, 21-30m 432 16-18m, 22-26m 433 1-3m 434 14-26m 437 4-20m 439 30-32m 440 1-5m 441 6-10m 442 10-13m 444 13-22m, 27-31m 446 25-30m 450 14-17m/11-21w This makes me believe in other cases.- H. Watson no 452 26-32m 453 4-8m 457 19-22m 458 9-29m 472 6-12m 478 4-10m (Klinkhardt) 486 4-8m, 12-15m

∅

vol. 2, 10 3-6m 16 18-20m, 22-23m 24 2-4m/!

∅

81 27-32m 86 17-23m 108 19-23m/wt/1-22w some trees do a little - period of flowering too slow for selection; in animals, a non-constant is rejected 123 8-17m/10u "concevable | effet" 126 2-4m (Cabanis)/w doubt it 128 15-20m 131 23-29m, wb cases of some good ones springing up, only hypothetically doubted 132 19-27m/19-20m 144 3-8m 149 29-32m 158 3-5m 161 2-5m 170 28-32m 178 8-12m 181 11-16m (Sageret) 184 14-18m 197 3-6m, 1-23m 202 15-20m/w not seed 203 22-28m 205 30-32m 209 3-8m 225 3-13m, 23-32m 226 1-13m/4-9m 241 18-24m/w The experiments are related before 249 1-6m, 9-11m 250 4-22m/wt/1-26w important. not caused by season, for all trees in the same nursery not affected 24-27m, 30-32m 251 1-5m 252 28-32m 253 1-4m, 23-27m 254 11-16m 255 27-32m, wb Can the wild be too vigorous to be crossed by domesticated ones; but I think he tried the reverse 256 16-20m 258 11-16m 263 11-20m 264 25-32m 265 2-6m 271 6-11m/7-9w crossing? 286 1-8m 290 27-32m 291 1-7m, 2-3Q², 6u "séquestration | vigne" 293 12-20m 298 1-6m/w Grape 308 10-18m/w just contrary to Knight 312 20-27m 313 11-15m, 21-27m 314 5-10m

∅

385 9-16m 386 11-23m 388 22-30m 403 14-22m, 30-32m 404 1-5m, 5-8m, 14-19m, 22-27m 406 1-10m, 18-22m 413 8-12m 414 10-

15m, 20-24m, 30-32m 415 1-15m 416 8-22m/9u "prunier | pommier" 418 7-12m 421 4-10m, 29-32m 422 15-22m 424 7-16m 428 18-24m

∅

484 1-9m

∅

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NB p.xx, xxiii

xx 16-20m/16-17w Water plants 17m/w Doubts 18m, 20u "Atlantic"/19-22w doubts whether not naturalised xxiii 10-14m

∅

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NB 252 Nods; 341 ♦ Blackness & Fever 252 2-7m 341 20-29m, 36m

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NB1 266; 271; 285; 295; 300; 303; 305; 309; 322; 324; 326; 328; 329; 342; 345; 352; 354; 370; 385

N.B. I have not attended to variations with normal abortive parts

NB2 V. Back First for N.B.; 19; 20; 25; 29- How then are flowers in fern-leaved Beech Irish yew &c &c; 30; 37; 42; 44; 50; 53; 54; 56; 58; 60; 62; 65; 66; 68; 69; 73; 77; 79; 85; 91; 113; 114; 116; 121; 122; 124; 126 to 130; 132 to 146; 154 to 159; 163; 166 to 192; 197; 213; 214; 216; 219; 221; 225; 229; 235; 236; 252; 254

SB1 □²

30 varieties, i.e. slight modifications rarely congenital

42 Mountains destroying colour sometimes Q² to 58 a good deal about striped flowers

MOQUIN-TANDON

& fruit

61 effects of good soil on villosity, & low elevation Q

68 Atrophy of organ often causes villosity of Part

73 Fleshiness of leaves caused by proximity to sea Q

113 Monstrosity of axil almost always affects the parties appendiculaires Q

115 Monstrosities more common under cultivation than in state of nature.

116 Q Monstrosities are generally normal in some other species.

121,139 organs arrested & rudimentary at different ages of evolution & hence more or less rudimentary.

Q 124 organs often repeated are most variable in form Isidore G. St. Hilaire

126 in Maize a return to supposed primitive form.

128 comparison of rudiments of stamens to normal rudiments in other flowers

138,140,156,167 case of monstrosity analogous to other species- Q

✓ 173 good

156 Believes in Balancement; 158 Q

163 changes of form when organ becomes rudimentary

168 variation of "Piment annuel" see Vilmorin Catalogue

172 analogous variation in most distinct plants; crinkled leaves.

SB2 Q

189 great tendency in irregular flower to become regular (or peloric) - this is return to ancestral structure? p191 hereditary - generally sterile. Why? - see further, for the peloric flowers retake their normal structure

212 Monstrosity analogous to other allied genus

221 in Malus apetala all stamens converted into pistils

225 Rudiments normal of parts.

248,266 on soldering of homologous parts Q

285 on trunk of tree with nuts & acorns in solid wood (& Birds nests - Loudon Journal.)

309 Displacement very rare monstrosity, as in animals

323 342 Q Monstrosity analogous to another genus in Family

327 Q Linnaeus on plants wh. lose corolla in Arctic regions

352 Return in stamens to normal number, even when rudiment not present

353 Remarkable hereditary Capsella bursa pastoris

385 Description of the St-Valery apple

ix 21m 19 4-6m, 19-23m 20 7-12m 25 16-17m
29 1-3m, 6-9m 30 5-6m, 10-11m, 14m/w V.
note 31 16-18m/!, 31-32m 37 29-30m 42 10-
14m, 16-19Q, 20-22m, 28-30m, 32m (Saint-
Simon) 44 9-10m 47 5-7m/w like Apples half
sour & sweet 8-10m, 13-15m (Knight), 19-
21m 50 16-17m, 22-24m 53 29-31m 54 27-
29m 56 9-14m, 22-24m (Sénébier) 57 16-18m
(De Candolle), 24-27m 58 1-4m 60 29-30m 61
7-8m 62 19-22m/20w Ch 7 26-27m 63 2-4m
65 3Q, 6-8m 66 6-9m, 28-30m 67 11-12m,
18-21m (De Candolle) 68 11-14m, 27-29m 69
1-5m 73 23-28m/w Q Good for Chapt. 7 77
3-4m, 9-10m 79 24-26m, 28-29m 85 6-11m,
14-16m, 19m/u "618", 21u "415", 23u
"moitié", 25u "qu'à station" 91 3-4m/4u
"généralement | stériles", 5-7m, 6u "Ses
dimensions"/8u "ses habituels", 13-16m/w Do
they seed 25-29m 113 22-23m/Q 114 7-9m,
28-29m 115 1-4m, 5-6m 116 1-2m, 3-5m/Q
120 14m 121 1m, 2-4m, 5-6m 122 9-18m/w I
suppose frequent 124 at (page no.), 7-8m/Q
125 5-6m, 16-18m/w naturally so, I suppose
126 4u "involucre | calice"/4-9m/w known to be
true - good case 10-13m, 22-24m/w now
known 26-27m 127 wt wild Quince tree 1u/
wt, 3m, 6-7m, 11m, 27-28m 128 1-2m, 5-7m,
17-18m, 20-23m/21-26w actually compares
with normal cases 28-30m/28u "rudiments"
129 3-6m 130 2-5m, 20-23m, 25-28m 132 13-
15m, 16-19m 136 7-9m/5-12w example with
respect to the balancing of organs 137 6-8m/
7-26w also occur normally V. note but in
different families: Does this not bear on such
cases, as similarity in Orchis & Asclepias?
138 18-19u "Solanum Dulcamara", 20u "deux |
étamines", 22u↔, 23-24u "quelquefois |
extranormales", 29-33m/16-19Q 29u "une |
habituel", 32-33u "Solanum tridynamum"
139 6u "Anémones", 9u "les | Goëthe", 11u
"Diplotaxis", 10-14w are these same
families? (No) 15u "Cleome" 140 23u
"Seneçon", 28-29m/u "Barkhausia | Crepis"/w I
think same family 31-32m/w worth reading
146 9-10m/w is this not analogue of Turnip
154 10-13m 155 2w Quote generally 11-13m
156 wt ♦ Q 1-2m, 9-13m, 12-13m (De
Candolle, A.P.), 17-23m/17u▲/19m○/22u▲/21-
22w same Family 25u "temps | pédoncules"/
26u↔/w Balancement 28-30Q/31-32m (De
Candolle, A.P.), 24u "Muscari"/wb I cannot
make out in Loudon whether this is Feather
Hyacinth 157 3-5m/w same Family 13-16m/
14w Balancement 22-28m/w Q cart before
horse 31u▲/32u "caractères | Carex"/31-33m
158 3-6m/w Right horse before cart 10-12m/u
"sexuels | habituel"/w Balancement 24-27m/w
Garden fruits & seeds 30m/w worth reading

159 9-10m/w Balancement 163 1m, 19-20m
 164 1-2m 166 6-12m/9u, 21-23m, 25m 167
 19-21m, 27-28m 168 5a "Podolepis".w● 7-8m,
 13m, 26-28m, 32m 169 1-2m, 16-18m 172
 11-13m/w Umbellifera Coniferae Compositae
 14u "Chou", 14u "Laitue"/14-15m, 16m/w
 Parsley? 28-30m 173 24-30m● 174 wt
 variegation but only analogous 1-6m, 14-
 16m, 18-20m 175 8m, 8-9u "ou|temps", 23m
 182 27-29m 184 9-12m, 19-21m/x● 185 17m
 186 11m, 13-14m, 15-16m, 18-19w 13
 species of Linaria ! 187 3-4w Linaria 10w/
 13w/15w/17w ♠ 7 genera 188 12-14w (10
 genera) 17-19m, 24u "Rhinanthus" 189 3u
 "Chelone", 15-19m, 19m 191 6-9m●, 15-16m,
 20-21m, 23-25m, 26-31w see only about 6
 stamen, too many 192 2m/6-10Q 11-13m, 20-
 22m/w so I saw in Laburnum 193 5-12m, 14-
 16m (De Candolle, A.P.) 197 3-5m/5u
 "habituelles", 7-8m 207 25-27m 213 1-10m/5u
 "Arbousier|Éricinées", 8-9u "Argophyllum",
 24-26m/Q 214 25-27m 216 1-2m 217 6-9m,
 19-21m 218 9m 219 1-2m, 3m, 30-31→ 220
 24-27m 221 19-20m 223 11-14m 225 5-7m/6-
 7u "trouvelonglet", 14m, 27-30m 235 8-10m,
 11-16m 236 15-17m (Richard) 248 1-2Q 4-9m,
 20-24w● Leaves or their lobes 249 27-28u
 "Gleditsia"/28m, wb● 250 2u "Dracontium"
 251 16u● "Sépales", 25u● "Pétales" 252 1-
 2m, 25u● "Étamines" 253 15u● "Pistils" 254
 6-7m/w influence variation 258 15m● 263
 3w● buds 266 23-29m/Q 267 3-5m, 23-25m/
 m● 271 9-11m 285 19-21m 295 29-30m 297
 3-6m, 9-11m 300 16-19m, 29-31m 301 7-10m
 303 10-12m, 30m (Guillemin and Dumas) 304
 16-17m 309 2-4m (Geoffroy St Hilaire) 315 1-
 2m, 28-30m 319 28-31m 320 7-10m 322
 14-17m 323 5-6m, 15-17m/w which is
 Leguminous 23-24m 324 8-10m, 11-12m, 13-
 18m 325 9-12m, 21-25m/21-23m, 31-33m/32u
 "2,500", 33u "658" 326 25-26m, 25u
 "foule|causes", 26-27m, 26u "plupart", 27u
 "normalement" 327 1m, 4m, 5-6m, 8-10m/11-
 13m/8-13w● are there many arctic Plants,
 without corolla 328 5u♠, 5-6u "bois|
 disparition", 6-7m, 19-21m, 22-24m 329 6-8m,
 11-13m, 21-24m, 29m 330 1-3m, 4-6m 342
 20-28m/20-23m/Q/24-27m 343 1-2m, 14-19m,
 23-25m, 27-28m 344 5-6m/5w What is it 14-
 16m 345 8-9m, 21-22m 352 2-6w So in
 Azalea 18-20m, 24-26m, 25u "d'éléments
 nombreux"/27-30m/29-31m/29-30u↔/6-32w
 Here I suppose not even a rudiment present,
 but tending to produce perfect organ, or
 rudiment 353 9-12m, 24-27m, 33m 354 1-3m
 (A.P. De Candolle) 370 7-9m 385 26-33m 386
 10-12m, 31-33m, 31u "Mém.|Linn.", 33u
 "Seringe|117" 394a 39m, 41m

MORGAN, Lewis Henry *The American
 beaver and his works* Philadelphia; J.B.
 Lippincott; 1868 [CUL]
 beh, h, or, sx, v

NB1 Instinct

◆ 300 Castoreum not sexual Used
 p.44 ♣ variability
 89; 93; 95; 100; 102; 116; 133; 140; 158;
 165; 191; 222
 248, 250 to end Best observers admit
 intellect
 instinct 264 good
 289 variability

NB2 ◆

Mind of Man- poor- 252; 256; 258; 259; 272
 Blind Pelican fed
 Our pity is an instinct; Blyth; crows - Fowl

44 3-19m 83 17-33m/22-26m, wb over 84 7-
 11m 89 17u "and|bark"/17-19w instinct first
 arose accidentally? 93 1-3m 95 29-32m 99
 13-18m 100 26-33m 104 20-23m/22m 105 18-
 20m/19u "than|structure" 108 18-20m 116 16-
 22m/1-22w could a lodge have been
 originally found in centre of stream? 133 12-
 15m 140 25-29m 158 16-24m 165 21-27m 172
 28-30m 191 11-14m/11-12m 222 8-9m, 14u
 "much|members", 23-27m 248 12-28m 250
 10-14m, 27-32m 252 6-11m, 17-21m 256 26-
 30m 258 1-5m, 6-8m (Hamilton), 12-16m/14-
 16m 259 3-7m, 18-21m 262 8-12m 264 3-9m
 265 6-9m 266 9-11m/8-14w No - Chicken
 picking up grain - Sphynx Moth 18-19m/w
 Wasp-Ants 272 23-31m 273 15-29m 278 17-
 23m 289 19-24m

MORGAN, Lewis Henry *Systems of
 consanguinity and affinity of the human family*
 Washington; The Smithsonian Institute; 1871
 [Down, I] ♂

MORREN, Édouard *Actes du congrès de
 botanique horticole* Liège; Fédération des
 sociétés d'horticulture; 1877 [Down]

MORREN, Édouard *Principes élémentaires de
 physiologie végétale* Gand; C. Annoot-
 Braeckman; 1871 [Down]

MORRIS, John *A catalogue of British fossils*
 2nd edn; London; by the author; 1854
 [Down]
 geo, ti

NB 363 Hooker Eocene Temperate Plants
 ♂
 363 30-34m

MORTON, Samuel George *Types of mankind; with contributions by L. Agassiz, W. Usher, H.S. Patterson* ed. J.C. Nott and G.R. Gliddon; Philadelphia, Lippincott & Grambo; London, Trübner & Co.; 1854 [CUL]

ad, af, br, cc, cr, cs, dg, ds, ex, fo, gd, geo, h, hy, in, mn, or, sl, sp, sy, t, ta, tm, v, wd

NB ∇ Institute of Mankind 1200B.C. Sir W JD 800B.C. Wilson & ●

⇒ ♦ Prichard Last Edition

♦ ●

Jackinot, Considerations generales Voyage au Pole Sud Zoologie (Royal Soc-? must be studied.-

Rosellini Athenaeum Monumenti dell'Egitto &c

Champion

Morton Crania Aegyptiaca

Lipsium Denkmalen (read)

Mr Birch○ seems to have written illustrated Book

p.459 ♦ 724 Important Book. G. St. Hilaire

p.675 Chronology

688 -Aegyptian Dynasties.-

691,2; 696 Chinese; 701,2 Assyrian; 712;

715 Hindoo

Sir James Brooke○ says positively Dyaks○ ∇ no greyhound, only degenerate Chinese Dog. & Pig seems equally degenerate Chinese

SB1 xlv; liv; lx to end of Agassiz; 56; 54 to 66 to 75; 81-85

90 Have I read Edwards description of Races of Man

94; 141; 156; 169; 175; 179; 181; 186; 194; 212; 237; 256; 272; 275; 280; 305; 309; 322; 338; 340 to 403; 413,14; 425; 436; 439; 440; 449

As mere naturalist, excepting from blending of races to certain extent, independently of crossing, I shd look at races of man as deserving to be called distinct species, yet I consider as descended from common stock, so come back at common belief; only difference is name whether to be called species or variations.

What effect wd idea of beauty have on races and selection. it wd tend to add to each peculiarity. V. our aristocracy.

The question of Origin of our domestic animals from 1 or more stocks, as only of interest, as showing amount of variation & hybridity

(over) ♦ It will be quite necessary for me to state most strongly how impossible it is to

guess the steps by which even vars., as of human race (or of Pigeons) have attained their characteristics.-

It is of course no ways impossible that some of the dogs of the Monuments may have descended.-

I am beginning to conclude that it is more difficult to account for small variations, as of man, when there is no adaptation than greater differences, when adaptation.

Consider cases of Rabbits, mere laws of growth

So geese & Ducks

Nothing is more odd than similarity of Fuegian & Brazilian. Why Puma shd range continent unvaried & Monkeys differ in every province.- It is great hiatus in knowledge. I may contrast Man with Monkeys, for on my theory, the Monkeys have varied.-

xlx 25-28m liv 7-11m/8u "Monograph on hybridity" lx 8-11m, 17-20m/18?, 24-27m lxvi 31-38m/32-33?, 37-43m lxvii 42-43m/43u "A. Wagner" lxix 24-32m/w How false for how distinct S. America & North temperate America. lxx 6-14m, 28-32m/w what forced reasoning ! lxxi 12-14m/12-17w Cape of Good Hope Plants of ! so distinct. lxxii 12-18m/w Here single genus, instead of whole Fauna taken. lxxiv 7-11m/10-12m/1-17w But it will come in, what is meant by primordial, except that not descended from other form. 10a "Characteristics"/11-13m/9-16w nor does analogy cause doubt whether they may not have varied. 26-29m, 35u "as|the"/31-35w this not known 32u "primordial|forms"/31-34w primordial begs the question wb "organic forms now keeping distinct" wd be more correct - but in common acceptance, certainly origin comes into play: hence cowslip & primrose discarded. lxxv 11-13m lxxvi wb Plants used at beginning, ignored at Cape of Good Hope, & New Zealand - look at Madagascar - Look at same race in United States & S. America oh fish pudor Agassiz!.- 54 34-35m (Prichard)/34u "1847" 56 8-9m (Lepsius)/8w read 57 30-34m (Prichard), 46-48m 58 21-35m/26-32w well argued 40-47m 66 8-13m (Pickering) 68 26-33m 72 16-19m 74 35-40m 75 4-7m 76 43m 81 17-18m, 20-23m/19-27w These terms are objectionable because "allied" means also systematically allied. 85 8-11m 90 3-10m 94 1-13m, 22-26m 95 16-21m, 26-30m, wb depends on the individuals or race & not on law of proximity. 141 21-25m, wb can men portraits ♦ rude sculptures be trusted 146 "Memnon".m/wb Knox -Races of Mankind

says p.204 that Bust of young Memnon is that of a Jew (see next Page) 148 "Ramses II".m/wb Dr Birch says this is young Memnon of Knox 154 24u "Romeneen", 29-34m 156 33-35m 159 34-41m 160 23u "Japhetic", 25-30m 163 6u "Chinese"/8u "Tartar"/12u "Mongolian"/6-8m/w are Chinese & Tartars now alike 169 39-41m, 43→ 170 1-3m 173 11-13m/11-12u "variously explained", 19u "Israelitish|Hyksos", 19-23w shows that the races not so easily recognized 27u "Semitic", 39u "Hyksos" 174 12u "northern|origin", 26-29m/26u "Champollion|Greeks"/29u "Hyksos-family" 175 16u "Semitic", 19-26m 179 9-16m, 23-32m 181 23-27m, 36-38m 186 32-37m 190 26-32m (Prichard) 194 37-44m 212 9-10m 237 23-27m 256 37-41m 272 13-16m 274 wt To show how little we know how variations are produced mem. changes of colour in domestication; reduction of size & interbreeding - small & great forms rising in same country, as sheep & Bantams &c &c - why Yankees differ from English? 26-30w mem. an old-world form, mem. nose 31-34w similarity owing to character of first intruder 35-36w a group 40-43m/37-43w slight distances these are. 275 1-9m/wt like the Puma 43m 276 11u "infinitude of types", 13-18m, 36-40m 277 41-43m 280 34-42m/35u "without material" 305 22-26m, 35-37m/37u "peculiar|constitutions" 319 31-35m 322 20-28m 327 25u "Usher"/w unknown to Lyell 338 6m 339 43m (Cuvier) 340 32-34m (Buckland), 38-40m 341 2-3m, 9-10m/10w ancient 26-28m/w European Dog 35-38w Eocene age? 41-42m 342 1-2m, 32-34m (Serres), 37-38m, 41-42m/z 343 1m, 6-8?!!/m (W. Mantell) 347b 43m (Schmerling) 353 41m 357 1-2m 364 wt The age of Man very important, as most savage races have domestic animals (at least dogs), & hence is concerned with origins of Man. 368 13-20m/w Successive extinction 373 18m/w since contradicted 23w do. 25m, 27-28m 374 17-22m 375 wt Race-hybrids Species-hybrids 2-6m/4u "Charleston Medical Journal", 26-30w implying, I think, separately created 38-39m, 40-41m, 42u "turnspit"/wb (A Monster) 43-45m 377 1-4m, 26-28m, 32-33m, 34-35m 378 10-16m, 39-41m, 43-45m, 50-52m/w Col. Ham. Smith 379 13u "unprolific|se", 13u "without|coupled"/12-15m/w ? no precision 17u "victoriously|Morton"/19u "Charleston|Journal"/Q, 27w Buffon 30-31w See Chartsworth Journal 37m/w inter se 45-48m 380 19-21m/20u "Bolta|Layard", 28-44m/41-44m, 45-46w p.724 good references 47-50w not intended 382 12-15m/13u "among

themselves"/15u "wolf-dogs", 18-19m, 32-37m, 38-40m 383 4-7m/7u "continues|remarkable", 8-9m, 19w i.e. C. Lupus of many authors 34-40m/36-40m/36-37w Richardson 37-39m, 39-40m, 52-53m 384 1-3m, 8-9m, 10-12m, 21-29m, 42-45m, 46-49m, 47-49m 385 wt Think of the geographical distribution difficulty 12u "Tchudi"/12-13w most probably in Nat History 13-17m/13-14u "found|epoch"/14-15u "that|seldom", 23-25m, 45-48m 386 10w quoted from Lyell 26?/u "in|forms" 387 fig.235.w Pariah dog 16-18m, 43-50m 388 wt Rosellini fig.237.m, fig.240.m, 1-4m, 3a/u "3400", 16-18m/17a "dynasty" 2400-2100 BC 21w Lepsius 22w♦, 25u "a|hound", 28-30m/29u "IVth|dynasties"/30u "curled tail", fig.240.w How alike Jackall & supposed Greyhound 41-42u "the|BC" 389 fig.241.w Rosellini 7u "from|Roti", 9u "XIIth"/w 2400-2100 13u "gazelle", fig.242.w modern 29-30m, 31-33m, 42-45m, 51u "at|species", 52-55m/53u "small|peculiarities"/w Eyton 390 2-5m, fig.243.w What dog is this? so long in body. Lepsius Dankmalen Rosellini♦ ears not like 13u↔, 15-19m, 20u "Rossellini's", fig.244.w Lepsius short body - what a tail fig.245.w Rosellini big ears fig.247.w ears not like hound, long body 391 2-4!, 5u "common|of", 8u "433"/w Hoskins Ethiopian 12u "434"/13-19m/12-16w Bennett Tower menagerie has figured African Bloodhound (?) 29u "twenty|before", 35-37m 392 8-10m, 10-15m, fig.251.w Layard & Vaux 38-39m 393 6-7m, 14-18m, 27-33m 394 3-7m/4w, 10u "pugs|&c"/10-12w no sort of evidence 17-28m 395 1-10m/2-6w i.e. variation due to crossing 5w Pigeons 41-44m, 46-50m 396 10-17m 397 36m 398 37-40m 400 14-24m, 27-29m, 34-35m 401 3-5m/4u "but|hound", 10-11m, 21-23m, 24-25m, 32-36m, 41-44m 402 4-12m 403 3u "natural"/3-5m/w Giant Horse 12-14m 413 4-10m/7u "no|camels"/8u "no|fowls"/4w Gliddon 21u "may|BC", 24-26m, 27-30m, 44-47m, 48-53m 414 32-35m 415 1-3m (Crawfurd) 424 38-43m 436 28-36m 439 3-15m, 41-44m/43u "excessive" 440 1-4m, 3u "authentic documents", 4u "anomalous conformation", 13-21m/13-16m, 35-37m/37u "foetus" 449 24-28m 669 12-14m (Rosellini) 675 24m, 27m 688 1-4m/3u "pyramids|tombs"/4u "thirty-fifth" 689 8m, 10u "Pyramids|extant" 691 41-45m 692 20-25m/w ∴ Romans probably did not receive domestic Birds 693 35-37m 701 17-20m 702 14-18m 714 20m 715 11-13m, 37-39m 717b 35-39m 724a 51-52m (Ritter), 54-55m, 57m/59m/56-60w Camels hybrid wolves Pallas on wolves 724b 74-76m, wb St. Hilaire

MOSELEY, Henry Nottidge *Notes by a naturalist on the "Challenger"* London; Macmillan & Co.; 1879 [CUL, I]
ad, beh, cc, ch, gd, no, oo, rd, sx, tm

NB 123 Distrib; 125; 133; 154 Rudiments; 168; 265; 457-84 Expression 492; 337; 292; 305; 360; 386; 591

Geogr Distribution; 17; 24; 123; 135; 164; 281; 368; 386; 433

SB Moseley

125 changes of Habit

169 Plants in Antarctic growing on mounds - wind

292 Nesting of Edible swallow

305 Gill-cavity partly lung & partly store for air

386 1 male nutmeg to 50 female trees

586 Competition

591 Light & colour of animals at grt depths

17 25-26m 24 35-37m 35 4-6m 45 17-19m, 36-38m 123 7-10m 125 8u "under stones", 12u "totally new", 14-19m 133 14-25m, 29-33m 135 11-21m, 31-36m 142 17-21m 154 18-26m 164 4-11m 168 35-38m 169 1-7m 265 1-4m 281 1-8m 284 27-33m 285 8-17m 292 35-38m 305 27-37m 337 11-16m (Darwin) 360 12-16m 368 5-10m, 12-14m 386 8-12m, 23-25m, 27-38m 387 1-4m, 5-9m/6u "eject |hard", 12-16m 421 30-32m 432 23-26m/24u "70 |east" 433 15-22m, 32-33m, 35-37m 457 27-33m 492 29-35m 538 22-23m 540 13-14m 581 17-18m 586 17-34w Competition with other forms far more important than conditions 587 23-28m 591 17-35m (Wallich)

MOSELEY, Henry Nottidge *Oregon: its resources, climate, people and productions* London; Edward Stanford; 1878 [Down, S]

MOSELEY, Henry Nottidge *On the structure and development of Peripatus capensis* (extract); 1874 [Down, I]

MOSSO, Angelo *Kreislauf des Blutes im menschlichen Gehirn* Leipzig; Veit; 1881 [Down, I] ♂

MOUBRAY, B. *A practical treatise on breeding poultry, pigeons and rabbits* 7th edn; London; 1834 [CUL]

beh, br, f, he, no, wd

NF1 Recommended by Mr Brent

NF2 p.147

NB1 Hens, Domestic Hints p70

NB2 p13; 17 to 24; 30; 54; 87; 106; 130; 133; 152; 154; 156; 165; 168; 176; 185; 203

SB □β

13 Game Chickens very pugnacious. Q Eggs very thin. Ch 6 Q♂

30 Some Hens much addicted to lay eggs in other nests

54 tapping on board with nail induced chicken to peck

107 colour of Ducks eggs going with plumage - Correlation (Memb. B. Ayles Duck)

133 Q♂ Hen Pheasant lays seldom more than 10 in confinement but 18 to 20 wild

170 London to Liege 4°34'AM 10°24'-5°50' said to be 45 miles per hour.

176 Some Cats Ratters & some Mousers Chapt 6 (Hereditary) & took to water & swimming

♂ Blyth on *Felis cilidigitata* aquatic kitten dabbling in water.-

185 Hare-Rabbit large eyes

13 14-17m/Q 18-19m, 25-26m/Q 17 23-25m 18 4-5m/4u "white tops", 12-13m, 23-25m 19 12-13u "exclusive |very", 16-17m 20 9-10m 22 11-12m 24 11-13m 30 19-23m 54 19-24m 55 16-21m 70 3-17m 87 3-12m (Buffon) 106 14-17m 107 2-8m 130 31-32m 133 28-31m 152 24-25m 154 17-22m 155 14-16m 156 28-32m 162 1-5m 165 1-3m 168 28-30m 170 28-32m 171 3-6m 176 4-6m, 20-21m 185 8-14m 203 2-6m

♂

MÜLLER, Ferdinand von *Fragmenta phytographiae australiae* vol. 7; Melbourne; J. Ferres; 1869-71 [Down, I]

NB O/

♂

MÜLLER, Friedrich *Allgemeine Ethnographie* Wien; Alfred Hölder; 1873 [Down, I] ♂

MÜLLER, Friedrich *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859: anthropologischer Theil* 3. Abtheilung, "Ethnographie"; Wien; Kaiserlich-Königlichen Hof- und Staatsdruckerei; 1868 [CUL]

beh, cc, h, mg, t, tm, v

SB1 p.127- He discusses & disputes whether the civilization of W. coast of S. America is due to immigration from Asia- I wd remark if so, the aborigines must have already been somewhat advanced, for while not nec with our inference, it is very unlikely that a few shipwrecked men from some less civilized nation cd have produced any permanent effect on savages.-

SB2 xi Remnants of Races

xii Beard no connection with Climate.-

xi 34-39m xiii 11-15m/w Beard correlation
19u "Australier stark" xiv 22m 127 21-22m

§

MÜLLER, Fritz *Facts and arguments for Darwin* London; John Murray; 1869 [CULR]
br, ch, ds, em, ig, sp, sx, t, ta, tm, ud

NB 80 Orchestia shown

79 sexual differing good development goes on

40 zigzag above

21 & 26 two such forms

Species Theory

83; 94; 98 to 109 embryology no fixed plan

110, 119 Metamorphosis of Insects acquired

139 like Plant

80 means of transition from changes going on in the sexually mature males Case like the larvae of Batrachians breeding

14 30-33m 19 12w p.9 22-23m 20 1u "anterior antennae", 8u "Copepoda", 15-19m, 22-25m/23u "different", 28-30m 21 fig.m/c/w 25 fig.w Fig 1 11u "powerful chelae" 26 2u "by terms", figs.w Fig 2, 3 27 12-13u "females | species", figs.m, 24-26u "coxal | process" 40 20-26m (Milne-Edwards), 21u/a "inferior".w posterior 47 5-23m 72 23-26m/w this is specific difference 76 6-7u "structure | sexes" 78 1-7m/wt/1-3w acquired only during adult age 79 1-7m, 8-9m, 10-11m, 14-17m, 15-17m, 19-21m, 23-31m 80 1-13m, figs.m 83 19-25m 94 1-4m, figs.m, 6u "plus | the", 27-34m 95 9-18m 98 1-18m 100 29-30m 101 25-28m (Rudolf Wagner) 104 22-29m 105 1-6m 106 26-29m (Cuvier) 107 7-18m/16a "and the" Spider 108 1-6m 109 20-21a "us" ! 110 21-23m 111 4-12m, 7-13m, 19-25w But the Embryo of the intermediate progenitor will reveal this stage 114 14-18m 116 15-30m 117 23-30m 118 1-3m, 27-30m 119 1-6m, 8-40m (Gerstäcker) 120 40-42m/u "among | adult" 121 31-38m 127 11-15m 131 15-24m 137 11u/? "carina" 139 6-11m

MÜLLER, Fritz *Für Darwin* Leipzig; Wilhelm Engelmann; 1864 [CUL, I]
sx, tm

SF (4 sheets, not CD) □β €

13 figs. 3-6.w 2 forms of same male 17 figs. 8 and 9.w 2 forms of same male 19 3m, 14m 71 6-8m/6u "gleichem"

MÜLLER, Hermann *Alpenblumen* Leipzig; Wilhelm Engelmann; 1881 [Down, I]
f, v

169 20-21m 189 35-38m, 40-41m 205 26-29m/26u "Wohlgeruchs"/28u "Auszackung" 206 10-13m 267 5-16m 268 40-42m 269 41-43m 279 7-9m 287 1-3m, 6-8m 288 1-3m 289 1-4m 290 20-29m 297 25-29m, 35-41m 305 2-5m, 18-19m, 20-24m, 25-32m, 40-41m 352 10m 477 37-38m 478 1-2m, 37-38m 479 1-3m, 25-26m 481 fig.m 483 41-42m 484 29-30m 486 4-7m, 24m 487 5-7m, 35-38m 488 30-35m 492 37-40m 493 25-33m 495 2-4m, 7-18m 496 2-4m, 33-35m 497 10-21m/15-17m, 31-35m 498 7-10m, 21-22m, 36-39m 500 4-5m 502 12m 503 table.m 505 23-24m 506 8-10m, 35-40m, 41m 507 1-2m, 25-29m 508 fig.m 509 3-7m 511 17-20m/19-20u "da | dar bieten" 513 1-3m, 11-13m 514 21-25m 515 1-4m, 28-31m, 42-43m 521 17-21m, 34-38m 528 28-32m, 43-44m 529 1-2m, 9-10m 530 22-25m 531 19m, 33-35m 533 31-33m 536 32-34m 539 31-39m 540 31-32m 541 1-3m, 41-43m 543 31-34m 546 12-14m, 18-39m 547 1-5m 548 19-22m, 38-41m 549 38-42m 551 37-40m 552 23-26m, 42-44m 554 23-25m 555 16-24m, 28-36m 558 30-36m 559 9-16m 560 27-30m 561 24-29m 562 26-30m 564 18-23m 565 4-15m, 21-22m, 34-38m 566 19-21m 567 3-5m, 27-28m/27m, 35-36m, 39-40m

MÜLLER, Hermann *Befruchtung der Blumen durch Insekten* Leipzig; Wilhelm Engelmann; 1873 [CUL, I]

ad, beh, cc, f, fg, ig, mhp, no, oo, or, phy, sl, sp, sx, t, ta, tm, v, wd

NB (⊕, repeated ⊕)

extraordinary facts about the 2 forms of *Rhinanthus* & *Malva*- very important as showing new way of variation- Strange they do not blend- wd it not be worth while to cross and experimentise on with ⊕ them & publish separate paper-

⊕ p.369. *Scabiosa* case like *Thymus* - female flowers smaller.

p.37 *Orchids* ⊕ p73 ⊕ all have descriptions separate

430 for *Orchids*

⊕ 433 for *Orchids*

(⊕, overwritten ⊕) p444 of Mullers *Laws of Variation*

title page 2u (author), 10u (title) 3 14-18m 4 11-15m/[...]/13-15u "ohne | müsse"/5-23w have been blamed, but is ⊕ 18-21m, 23?/u "Sprengel | Erkenntnis", 41m 7 17m 13 6m/u "cleistogami" 17 7-38w It seems that Axell has shown that many flowers can be self-fertilised 18 ⊕ 22-25m/24u "Windblüthen" 19 26w ⊕ Why not you give on page 22 38m 27 20u "1868", 23m (Fritz Müller), 27m, 28m,

MÜLLER, H., BEFRUCHTUNG

28m 35 11u "zu fressen"/w Diptera 43-46m
 37 32-40m/36u "Rhingia | Rüssellänge"/33-36w
 Flies not stupid 39 9u "die Empisarten", 10u
 "Anbohren | befähigt" 46 14-22m 47 13-20m,
 16-22m 49 15-23m 58 wt p235/p333
 Erythraea 4a/u "Laburnum | Carum"/w 100 61
 35-37m/39u "sich | blühten" 75 34m/35m/
 31-34w Hildebrand on late pollen 39-44m/
 35-37w self-fert orch 49-53m/w self-sterile
 53-54m, wb Proc 76 35-36w 5 spec 81 21-
 22m 83 24-29m, 33u▲, 34u▲, 43u▲, 43u
 "Blüthen | mascula"/w 2 49u▲/w 3, 4 84 4u
 "32", 42-57m/w shows time right 85 17-20m,
 21-23w 1 ● 6 Bombus 2 other 87 27-31m,
 39-41m 88 13-21m 90 1-5m, 20-22ms 92
 37-40m (Sprengel) 97 wt Ensuring cross-
 fertilisation 20m/u "proterandrische Dich-
 ogamie" 99 34-40m 113 31-33m 115 43-
 47m/45-46u "Diese | ihrer" 122 8-12m, 23-26m,
 24w●, 29-32m, 41u▲, 42-43m, 42u
 "Ritterspornart" 127 15-27m (Fritz Müller),
 30-31u "und | Blüthenstaub" 131 39-43m 133
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 "Prosopisarten", 49-50m/49w no 145 3u
 "Sprengel", 3-4u "Hildebrand", 20-27m,
 23u▲, 26u▲, 31u "diese | bewirken",
 32u "kleine", 32u▲, 32-34m (Delpino),
 34u "Selbstbestäubung | tricolor" 146 21-30m
 147 13-23m, 45-47m 149 37-39m 151 10-
 11m/u "werden | aufgelockt" 153 42-48m/
 46u "von Dipteren und Hymenopteren" 154
 28-30m 165 34-37m 167 35u "fünf
 Honigtröpfchen", 45u "gleichzeitig", 46u "doch |
 statt" 168 18-20m, 23-26m, 27m/u "durch |
 70", 27-28m, 29-32m 169 19-21m, 23-25m
 173 27-47m, 35-36m, 38-39m (Kölreuter,
 Gaertner) 174 9-10m, 27-31m, 27-28u
 "zu | hindurch", 35-37u/m, wb Several
 other non-dimorph species 175 8m/u
 "Insektenbesuch beschränkten", 34u "41",
 fig.56.m/w How like dimorph (must be origin
 of 176 3-4u "proterandrischer Dichogamie"
 185 5-6u 188 20-22m (Axell) 193 6-7x/6u
 "langer", fig.m, 10-21w & different form &
 size. 12m, 13-15m, 13-26w Spike when
 cultivated plants as we shall see variation
 19m, 22-23m 195 1-2m 224 3-6m, 46-47m 232
 45m/u "monadelphisch" 235 15-17m 240 24u
 "honiglos", 24-26m, 32-33m/33u "Honigbiene"
 241 wt excellent observations compare mine
 9u "welche | oben", 15-17m/16-17u "aller |
 zwängen", 30u "die | Rücken", 31u "der
 plattenförmige", 35-41m/? 242 22-27w |
 cannot but think ● adaptation 33-35m/37-
 47m/37u/30-45w Saft-maal & no Honey yet
 he thinks Bees 42-46m, wb a juicy swelling
 near centre of Standard 243 8u "luteus" 249
 19u "Honig | Insekt", 15-26w Beautiful

adaptation 28w must be strong 30-32w
 Difficult flowers for endemic insect 36-39m/w
 Thinks not insects wd be stronger so
 fertilise better 48m/u "Viertelstunde", wb very
 few Bees visit them 250 3-9m, 38-41m (W.
 Ogle) 253 42-46m 258 2-7m/4u "coccinus", 8-
 37w distinct species conclude must be
 crossed - this the one Phaseolus which
 flowers at the same time distinct species 17-
 23m, 23u "vulgaris"/w wrong 46-49m 264
 3-6m, 7-17m/14-16m 265 9u "einen Theil",
 28-32m 267 29-34m/31u "ausgeprägte |
 Blüthen" 277 9-10m/10u "Blumenkrone", 12u
 "nigrum", 30u "Blüthen | Honigtröpfchen",
 32-33u "orange | und", 34u, 36u
 "überwiegend wahrscheinlich", 37u
 "Insektenbesuche | möglich", 46-49m, 47u
 "Saftmaal" 278 12-14w various insects
 35u "Thapsus" 279 40-41m, 42-46m/m
 282 29-33m/30u "Wespen" 284 1-2m, fig.100.w
 It is a dichogam 28 (Ogle & Spengel) 23-
 30m/17-30w Think self fertilisation of seed
 32-34m/33u "Bot. Z. 1865", zb 285 6-9m/w
 287 10-12m, 39-42m 289 wt The more
 conspicuous a flower is the more likely to be
 fertilised by foreign pollen & to be sterile if
 not visited 20-37m/28w (a) 292 41-46m 295
 8-11m, 42-43 296 22-29m 303 46-48m 306
 22-28m, 31-32m/31u "Bezug | Ogle" 311 21-
 26m 318 fig.116.w Polygonum dioicius 18-
 25m/23-24u "weiblicher | seltener" 319 20-22m/
 21u "Die kleinblumigen", 33-36m, 50u, wb
 greater fertility is real cause 325 20-22m, 28-
 29m 326 10-21m 328 5-9m/7u "proter-
 andrischer", 8u "kleinblumiger | Stöcke", 6-7w
 forms 14u 334 1-3m/2u "13"/w p113 341
 20u "Bot. | 67"/w many cases given 342 39-
 41m/28-42w fecundation wind & insects wb
 Begins by saying that D. describes 3 forms
 which note in passing owing to ●
 plants It 343 2u "sammelnde | Pollen"/2-3w
 on pollen from 4-6m, 43u "ausgeprägten
 proterogynischen" 345 1-3m, 5-9w 2 Grad-
 ations between Arumarten & Erbsenarten
 346 37-44m/40u "homomorphische | proter-
 andrische", 38-39w non-dimorphic 42u
 "striata", 43u "Ricea | longifolia" 347 21-25m/
 23u "Kelche | die"/21w 4 Hon 39w cases 40-
 44m 348 5-11m/7-8w 2 forms 349 18-
 19u, 28-30m/28-29u "Narbe | Staubgefäße"/
 30u "honiglosen" 350 7m/u "Den | der",
 fig.130.w between two & three as long 14u
 "0,011 | mm", 30-34m, 32-35m 351 1-3m, 6-
 18m/fig.m/6-8w chiefly Diptera 10u "103",
 fig.c

MÜLLER, Hermann Die Wechselbeziehungen
 zwischen Blumen und den ihre Kreuzung

vermittelnden Insekten Breslau; Trewendt; 1879 [Linnean Society of London]

1 *wt* From the Encyklopaedie der Naturwissenschaften Linnean Soc. presented by C. Darwin

MÜLLER, Johannes *Elements of physiology* trans. W. Baly, 2 vols & supplement; London; Taylor & Walton; 1838-42 [CUL]

ad, af, beh, br, cc, ch, che, cr, cs, dic, em, fg, geo, h, he, hl, hy, ig, in, ir, mhp, mn, oo, pat, phy, rd, sl, sp, sx, t, ta, tm, ud, v, wd, y

vol. 1 NB1 Owen says he can perceive not much difference between reflex action & effects of habits - (he conceives an habitual action takes place through special cord)

404 On division of Planariae

It seems to me most difficult to separate a really habitual (if such there be) & hereditary habit- from real mental willed actions, which the consciousness does not perceive from want of attention, in same manner as it does not perceive all coinstantaneous impressions on the senses -

Associations may become hereditary, which wd account for the alliance of instincts with times, places - V. Hartley on association??

NB2

How then can Geologists say, that animals were first created!!! a capital argument showing that we must not generalize from absence of organic remains
see p.46

9; 10; 16; 19; 20; 23; 26; 28; 30; 39; 41; 43; 47; 48; 54; 56; 72; 76; 89; 90; 144; 158; 165; 193; 194; 198; 203; 254; 225; 290; 298; 302; 320; 350; 352; 354; 364; 373; 394; 395; 399; 401; 402; 407; 431; 448; 460; 499; 500; 568; 570; 572; 624; 280; 686; 698; 713; 719; 720; 730; 735; 739 & following pages for association; 748; 762; 778; 786; 791; 793; 794; 818; 820; 822; 824; 836; 846

Expression; 350-354; 730; 740; 748; 762; 778; 818

p407 Nails Reproduced

721 Theory of reflex actions

SB □β

33 The more developed the parts, the more dependent on each other

54 All organs require occasional use to keep perfect

76 Young Dogs as long as blind generate less heat, born at earlier period

165 Branchial arches in higher animals - p302, 320

290 on same part attracting same

substances, as in Tumours (Pangenesi)

395 Peculiar teeth in ornithorhynchus, Ant-eater & Whale

399 On similarity of embryos of higher animals

403 On monstrosities in relation to division of genus - Double monsters Pang

499 In sucking objects to Cuviers idea of Dream for instinct NQ

686 On the insulation of the will to certain muscles in playing piano NQ

713 Reflex action compared by me with Habit.- 716 Reflex adaptive - 721 NQ

791 On atrophy of nerve of eye from lesions

468 Urea in blood & separated by glands

1 36u "Sodium" 4 28-34m 5 6-14m/? 9 40-43m, *wb* As if this whole function of life was first used in counteracting ordinary chemical laws- 10 3-6m/!4u "of organic", 12-17m/13-15w remarkable 16 *wt* How is this to my theory (& parasitical insects) 3-8m, 6-8m, 10-16m/w like diseases proof of relation of man to other animals 24-26w great change 26-27m 17 4-13m, 24m 18 36-42m/w poor 19 *wt/1-41w* NB in the growth & ground of reformation of those simple animals in which any part out of will make new individuals the ordinary growth must be nearly same as true reproduction. & the theory may probably be extended to all organisms 1-10m/5w poor 11w Yet a snail will reproduce its head!- 21-26w There must be some wider difference between ovum & bud.- *wb* There must be in the bisected parts organs sufficient to keep them alive & then any part may be reproduced.- 20 38a "adaptation"/c "end"/w/ (as the effect of) ♣ circumstances 23 12-15m/w well seen in Zoophyte buds 34-38m, 40-44m 24 *wt* now in a bud we must suppose there is one old particle of old organized structure.- a filament of old nerve 1-22m/7-8w very good 38-42m/41u "anencephalous monsters" 25 3-5m, 6-8m/7u "by dream"/9w bad comparison?? *wb* The inherited structure of brain must cause instincts: this structure might as well be bred. as any other adapted structure.- 26 9-13m 27 38m 28 32-36m, *wb* Combustion, I shoud think, was strongest analogy to live.- instead of heat being produced by the action. life - ♣ 30 27-32m/30x/u "those life", *wb* X The vital principle produces the organs.- as the latter vary, so must the vital Principle. 31 5u "indispensable"/5-6w deep water sea-weeds! 33 26-28m, 30-32m/?, 35-40m/w I suspect false 34 10u/? "transferred" 39 23-25m/23u "organic\also" 41 20-22m, 32-

in (Note p.1661) German Translat. of Prichard
1661 Rudolphi Beitrage zur Anthropologie, treats of Species & Hybrids –
p.1671 List of good Books on Races of Man –

List of good Books

◆ 1144 frowning

NB2 870; 928; 931; 934 Book on Expression; 936 to 950; 965; 1038; 1071; 1086; 1090; 1110 to 1117 to 1125; 1144 & 1150 Expression; 1148; 1169; 1229 Appendix p8; 1233; 1236; 1245; 1262; 1311 Expression; 1315; 1318 Instinct; 1328 do; 1335; 1339; 1344; 1347 to 1364; 1384; 1399; 1400; 1405; 1407; 1421 to end

Best abstract against metamorphosis which I have seen

◆ 1335; 1339; 1347

Expression 933,34; 1311 See Passions, Index; 1328; 1351 animals & man's mind compared; 1399; 1144 frowning short sighted people close eyelid & frown

SB □β

928 Consensual movements – at birth in eyes

935 instinctive walking (Hereditary easy flow of nervous force to certain muscles) Q 939, 943 Q

946 Definition of instinct. 947 – 949 – 950 on importance of Coordination. Q

Müller Phys 2d vol

965 Rudiments of toe in Horse & Pig do not touch ground

1344 Instinct Q – 1347 innate ideas – 1361

1405 Argument that monsters not due to imagination of Mother. (good)

1407 on temperaments of the old writers shows rubbish.–

1425 A Polype is a multiple of all that is necessary for development of individual (Pangeneses)

1437 A good sentence in relation to reproduction in connexion with superfluity for own Life in relation to Doubleday

1453 Tape-worms either bend & fertilize themselves or two unite – shows how important crossing must be as pollen of later dichogamous flower wasted & so with Lymnaei

1454 Tendra is it Bryozoon? sexes distinct

1458 Rudolphi has enlarged on sexual difference in his Beitrage Pang

1478 Imperfect Spermatozoa of Hybrids

1569 Membrane of egg agrees with membrane of uterus (Mem Fish coming to have Placenta

1592 On how far true that all embryos

resemble each other.

1596 on embryo Torpedo increasing in weight in womb (a sort of Placenta * 1597 (striking case of Passage)

1599 great difference in 2 species of Mustelus in placentation

1610 Relation of Vertebrae in Fish to embryos of higher animals

1622 Sharks have gills during early part alone of embryonic life

1661 Definition of Species

1662 On the two causes of Variation: innate & external

1663 characters fixed by long intermarrying (over) Passions

870 26–43m 928 wt N.B The summing up in this chapter good 3–15m, 16–19m, 41–42m/42u "be|habit" 929 4?/u "of birth"/w instinct 931 31–38m 932 8–17m/12–13u "any action" 933 wt what makes a passion? 6–15m, 25–29m 934 wt●, 2–8m, 2–3m, 4–5m, 5–8"..." , 41–42m (Huschke) 935 24–39m, wb this bears on instinctive walking The nervous fluid flows into habitual channel 936 23–26m, 33–37m 937 3–9m/6–7u "There|mind"/8–9u↔, 34–36m 938 14–16m, 15–19m/15–16u "the production", 16–20m, 17–19m, 23–24m, 29–31m 939 25–32m/28–29"..." 946 15–22m/"..." , 36–38m 947 17–18m, 23–24m/u "the form"/23"...., 24–25u "unison|action"/25–28w yet upon some education 948 4–6m, 23–27m, 25–27m 949 20–22u↔, 20–22m, 23w (a) 31–32m, 35u "decapitated", 35u "were spasmodic", wb These are hereditary in Horses paces.– 950 18–21m/18u "the|movements" 965 43–44m 1046 6–7m 1071 9–11m 1086 3–35m 1088 wt Q to p.1162 1089 34–36m/36u "convex|crustacea" 1090 2–4m/3u "three modes" 23–28m, 25–27m, 29–31m 1091 19–21m 1092 1–2u "mosaic|instrument", 2u "concentrating|organ" 1099 1–3m 1110 6–7m, 28–30m, 38–42m 1111 7u "pupil|opening", 10m, 21–22m, 23–25m, 32–33m, 34m, 36m, 38–40m/38u "perception" 1112 4m 1113 4–5m, 9m/u "the cornea", 9u "in general", 15m, 21z, 23m, 27–28m, 33m 1114 6–8m (Milne-Edwards), 8u "Callianassa", 9u▲, 10–11u↔, 13–14u "the|cones", 17u▲, 23m, 24m, 28m, 33u▲, 36m, 39–41m/40u "namely|humour" 1115 1–2m, 7–9m/8u "man|generally", 19–20m, 22–24m, 25m, 28–29u "larvae|eyes", 36–37m 1116 3–4x, 7x/u "the|oblong", 9x, 37–39m/38u "more|body" 1117 11–12Q 12–14m, 24–26m, 37–38m, 42–44m/44u "rudimentary state" 1118 13–15m, 28–30m/w Have they lens for images 1119 29m, 36m/u "characteristic of" 1120 5–6m 1123 24Q 26–27m, 28–30m 1124 11–13m 1126 6m/u

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41m, 33m, wb Plants going to sleep without the stimulus of darkness strongly analogous to a voluntary action from a diffused nervous system. 43 8-10m 46 25-33m, 34-42m 47 wt Look at differences of variation propagated 2-5m/??, 9-27m 48 34-39m 51 20-23m 54 wt in savages no cause apparent. [an ourang more ear? 5-15m 56 4-22m, 11-12w curious 65 25-27Q 31m/1u "torpedo", 38-39u↔, 40u "of|distributed", 41u "gymnotus and", 42m 66 6u "hundred|nerves", 9-10u "branches|superficially", 11u "without", 18u "nervous vagus", 20u "intercostal nerves" 72 13-43m 73 wt Vitality is to ternary compounds, what electricity is to binary - 3-9m/! 76 31-37m 89 26-27m 90 1-3m/?, 23-28m/25-26u "torpor|time", 34z 92 30-35m 107 20-22m 141 21-25m 144 37-43m 145 8-13m 158 wt it shows, I think, that ♣ same external form may be arrived at from two very different courses of generation 1-6w it is an extreme case of analogy 165 33-38m, wb Hence prototype aquatic 192 34-38m 193 12-16m 198 14-30m, wb therefore habit of general movement of body would act on the heart.- 203 18-21m 225 20-25m, 33-37m/35u "such|gallopavo" 290 26-30m/1-39w But it does not follow that any cancerous particles are in the blood to be attracted. 28-37w Transmission of varieties is answer enough. 38-44m/w Rose-gall &c &c wb It is less wondrous that each new structure should reproduce itself if cancer does 295 17u "tembrio"/w tenebrio? 298 3-6m/w impregnated? 302 23-30m (Rathke), 42-48m 303 22m 320 1-21w Hence greater complexity of structure in early than in later stages. 13-23m (Geoffroy) 350 12-15m, 20-25m/w what has pouting to do with respiration 351 9-25m, 20-23w crying imagination disgust 27-38m 352 1-4m, 11-33m/21-25w urine from fear! 353 26-27u "oblongata|nasal"/25-30m/w established by habit 32-35m/w analogous to tickling 37-39w not alae of nostril? 354 35-44w/wb in playing a tune are the fingers connected with brain? or cerebellum wb why more difficult than any instinctive movement. 364 22-23u "Nutrition|reproduction", 23-24m, 26-35m 365 29-30m, 30-34m 373 34-36m, 42-43m 374 1-15m 395 31-38m 399 1-10m/8u "but|while", 11-24m, 28-34m 400 40-42m 401 1-13m, 27-38m 402 1-30m 403 6-11m, 14-43m 404 4-11m (Dugès) 407 31-33m 410 28-30m/28u "it|transparent", 32-33u "affinity|surface" 412 37-39m 416 3-5m 431 25-30m/! 447 32-41m 448 30-37m 460 10-17m, 34-39m/39u "and|ornithorhynchus" 468 4-7m 469 13-33m 473 15-18m 486 27w€ 487 7-12m/? 489 3u/w€ 499 30-42m (Cuvier)

500 1-2m 513 32-33m 514 wt€€, 4-6m/5u "1.14 to", 27w 484 515 34-35m 568 8-12m 570 36-41m 572 34-35m 624 1-5m/w♦ would a blind man have sensation of light 8-10w nerve aborted 680 23-27m 686 22-24m 698 1-6m, 23-33m, 38-40m 699 25-27u "radiation|cord", 27-33m, 34-37m 713 30-36m/w Infant winking see how old Willy was 33-36m€, wb Pretend to poke a man in the stomach, he will ward off. quite involuntary. Mr Wickham. Surely this must be custom 714 32-41m 715 wt Bell wrong 1-3m, 4-10m/6-11w 2 sets of nerves for same end 13-15m 716 4-9m/5-18w but why does it not excite ● instead of this misadapted movement 717 wt the eye would not work 5x, 18-24m/19x, wb x it has been said that respiration, also, subject to the will - Habitual movements show that any may become reflective 718 14-23m 719 37-42m/38-40u "there|action", wb the connection here is hypothetical why not custom? 720 1-2m, 12-24m, 14m/u "some|communication"/14-16w surely custom wb I think Dr. Holland has some remarks on the connection of instinctive♦ reflex & habitual.- 721 wt XX May not a movement be said to be instinctive, when it is become reflex, without connection with true sensation, at least accompanied by conscience 11-20m/14XX 724 26-34m 727 10u "warming agent"/w heat not light 730 26-32m/23-29w♦ Hence there is some such conclusion 30-37m, wb This makes my notion about effects of passion &c very hypothetical No 735 35-41m 739 19-34m 740 10-15m, 23-25m 747 39-43m 748 1-39m 762 28-30m, 39-44m/42u "tickling" 763 5u "reflection|brain" 778 38-41m, 39w Cockatoos wb expression of species of genus same? 786 19-23m 791 30-37m 793 23-36m 794 9-30m 818 19-44m 819 1-14m, 29-37m 820 15-24m 822 34-42m/34-36w/wb I suspect all this is not so certain from the obscurity of sensitive plants. 823 11-12x/1u "it|matter"/wt ? when habit becomes hereditary?? 9-17m/11-12xx, 17-18m/?! , 20u "dreams"/20-21w memories ∴ ? dreams 24-42m, wb curious coincidence of thought with my notion of hinge of shell &c &c &c 824 5-44m 825 9-41m 836 23-26m, 23-31m, 31-41m 837 3-14m 846 31-39m/w in reference to tumblers 36-40m Catalogue 1 6-7m (M. Allen) 2 wb€€

vol. 2 NB1 None hardly worth buying see Coll of Surgeons p.1458 Reference to book on secondary male characters - p.1478 Wagner Physiologie on Hybrids - &

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"cornea|body" 1133 1-3m 1144 13-15m/w
 opposed to frowning theory 1145 24-26m
 1148 38u↔, 39-40m 1149 25-26m/u
 "voluntary|iris" 1150 6-9m 1159 13-14m,
 19m, 32m 1169 3-12m, wb The case of
 chickens shows how inappropriate the
 expression of dream is to this instinct - it is
 a habit. 1129 31-33m 1230 1-4m, 30-32m
 1233 24-29m 1236 15-16m 1245 22-27m 1252
 34-43m 1262 19-23m 1311 10-11m/11u "the
 eyelids"/6-11w | shd say Habit, no in infant
 1315 8m/u "rudimentary|bone", 28-30m, 28-
 29m/29u "human|rudimentary"/w | believe in
 Negro more developed 32-33w Bentham law
 1318 17-20m 1328 19u "may|unperceived"/16-
 26w Has remarked this with all senses,
 bears on habitual actions not being
 perceived 1335 18-22m/18u "germ|parent"/
 19-20u "merely|plant"/?/21u "only|organised"
 1339 23-26m 1344 26-30m, 30-35m, 42-43m
 1345 5-7m/5-6u "The|consciousness" 1347 21-
 27m 1348 1-5m, 8-9???/8-12w savage has
 power 11-13m, 32-33m/33u "distinct power"
 1351 21-33m/21u "human|able", 30-31u
 "and|speech"/28-33w V. Ld Brougham &
 Althorp 42-44m/44u "are|notion" 1352 5-9m/
 wt if there is 'abstraction' on smallest scale,
 it may graduate into the highest - 7-9m/8u
 "image|constant", 30-40w this does not apply
 to animals doing things for first time 1353 2-
 6m, 18-19u "but|reaction" 1361 25x, wb x In
 the case of the Dray horse, there is, he wd
 say, no intermediate step, by generalising or
 abstracting that function retards movement
 &c &c - but simple association - 1362 22m/u
 "special|memory" 1364 28-30m/30u "but|
 relation", 31-33m, 40-43m/40-41u↔ 1399 20u
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 15-19m, 27-30m 1407 13-16m, 32-35m, 42-
 44m/42u "temperaments" 1421 19u±/17-20w |
 remember Owen doubted this. 1424 19-26m
 1425 5-6u↔/3-9m/w good expression 1426
 18-21m, 12u♦, 20u "a force", 25-26u
 "formative power", 32m/u "formative|latent",
 36-37m/37u "then|manifested", 40-41m/40u
 "formative|cytoblastema" 1427 34-37m 1428 1-
 5m, 26-27u "But|may", 27-31u±/29w (a) wb
 (a) differs in duration of life = non-
metamorphosis or less variation.= 1435 10-
 15m, wb | have to treat simply of variation by
 gemmiparous & sexual generation 1437 11-
 15m, 21u "force", 23-26m/23u "differs|
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 35m 1439 13-16m/15u "gemma|division"
 1440 30-34m 1444 36-38m 1445 1-9m, 7-9m,
 10-17m, 10-12m, 18-19m, 30-32?, 33-34m,
 37-43m 1447 7-9m 1448 19-20m, 19-21m
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32m, 23-24u "notion|inadmissible", 30-31u
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 endently", 21-22m/21-24w like dichogamous
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 "but|internally" 1461 31-33m/33u "but|
 atrophied" 1462 42-43m 1463 1-2m 1464 9-
 10m/9u "in|embryo" 1478 wt z) not more
 peculiar ♣ to hybrids than to Mongrels 16m/
 w z)? 21-25m, 27-29m, 30-32m, 34-36m (R.
 Wagner), 34-36w analogue to Digitalis 43m/
 wb Coll. of Surgeons 1479 1-10m/4-7w are
 these dioecious? 35-36m (Meyen) 1480 22-
 24m 1481 30-34m (Geoffroy, Cuvier) 1482 37-
 40m 1502 25-26m, wb the conditions which
 allow free propagation of leaf buds will yet
 prevent flower buds 1504 5-14m, 18-20m/19u
 "down|stock" 1506 15-18m 1516 29-33m
 (Rathke, Reichert) 1520 16-19m 1531 16-17m/
 16-17u "fishes|type", 38-39m 1553 18-19m/u
 "the|arches" 1555 zb 1566 20-22m (Prévost
 and Dumas) 1569 2-4m, 17-19m 1570 34-35m
 1586 42-43m/43u "3|slits" 1589 16-18m, 17-
 18m 1592 2-6m, 10-12/11u↔, 13-15m, 19-
 21m, 22-24m/23u "unaptly|branchial", 25m,
 28-31m, 34-37m, 38-41m 1593 20m/u "are
 reduced" 1596 7-11m, 34-38m 1597 2-3u
 "human|sharks", 3-4m, 15m/u "Mammalia|
 Man"/w always contrasts them 1599 6-10m/
 7-8u "genus|foetus" 1610 25-27m, 37-38m
 1613 42-43m, 44u "which|abortive" 1614 5-
 11m 1615 11-14m, 32-39m 1616 wb All this
 section had perhaps be better reread 1619
 34-36m 1620 1-3m 1621 1-3m, 3-5m/5u
 "early|embryo" 1622 33-35m 1624 11-17m
 (von Baer) 1629 32-36m 1630 20-23m, wb
 ones wonder is lessened, ♣ at selection
 making an eye, when one sees how eyes
 are really formed 1632 39-41m 1633 20-22m
 (Huschke), 34-41m 1639 23m, 32-38m 1640 9-
 11m, 13-14m 1650 28-40m 1661 14-18m/17u
 "certain invariable", 19-25m/!, 27-29m/29u
 "another genus", 30u "natural repugnance",
 36-38m, 39-42m (Rudolphi, Prichard) 1662 6-
 9m/8u "varieties|faculties", 12-14m, 16?/u
 "races"/17w individuals 20u↔, 26-28m/26u
 "is|species", 31-34m, 39-42m 1663 2-8m, 19-
 29m, 27-30m, 31-35m, 37-40m, 44u "also|
 education" 1664 1-3m, 9-12m, 14-21m 1665 1-
 20m, 37-42m 1666 12-13u "caused
 propagation", 35-44m (Vrolik) 1667 4-7m, 9u
 "ossa|one", 18-20m, 29-30m, 33-35m 1669
 15-18m, 42-44m 1671 32m (Vrolik), 34m (R.
 Wagner), 38m/u "R. Wagner|1840" 1675.a

66m 1675.b 2m 1688.a 56m, 57m 1701.a 22-36m appendix, 1 wt O/ 8 19-27m (Retzius)/ 21w gradation 28-31m 10 7-9m ♦

Supplement *Recent advances in the physiology of motion* . . . [ed. Baly and Kirkes]; London; Taylor & Walton; 1848
rd, sx

NB 111 Rud. uterus in Males Q
23 ↑16x/uo "crystalline" 26 12-15m 60 ↑20-17m/w Now there has. Newport 111 ↑12-6m/Q

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ci, fo, gd, geo, gr, is, mi, se, sp, sx, t, ti, tm, ve

vol. 1 NB X means Species Theory
18; 104 X Curculios & Neuropterous insects in L. Coal.; 109; 111

116 In reading an account of the Carboniferous formations – the variety of beds on which the whole rests & the thinning out of certain portions – the footsteps in New Red &c &c show how many partial elevations like East Indian Archipelago –

140; 151; 160; Read Chapt 13 again with sections; 183; 186; 189; 200; 205 list of good sections in Ludlow Rocks; 211; 230; 233; 235; 243; 244; 245

18 18-24m/w compare with coasts of Patagonia in the map appear like isld in the map.– 104 21-25m (Buckland), 29-31m 109 33-38m 111 11-15m 116 24-30m 140 1-31m 151 33-37m 160 23-28m 183 14-17m/w Do they reappear in the Carboniferous 186 6-14m 189 4-8m 200 17-21m 205 14-23m 211 3-9m 230 33-38w/wb p109. look back to Malvern ? several other instances occur of relevation of lines/volcanic eruptions. & on simple lines of violence 231 32-35m 233 14-20m/w Curious analogy with Falkland Isd the sandstone there resembling Caradoc sandstone 235 24-32m 243 12-15m 244 17-33m 245 19-24m 246 20-23m, 26-39m 247 1-7m, 22-29m

vol. 2 NB O Species Theory
256; 260; 262; 271; 273; 277; 278; 283; 291 Bedded trap. worth visiting; 299; 360; 374; 400 how curious the connection of sandstone caradoc at Falklands with quartz; 407; 421; 426; 482; 491; 515; 517; 522; 534; 553 & 554 & 557 On range of Mammalia; 560 do; 564; 569; 572

256 6-21m/11-13w rather faulty 260 21-25m 262 1-11m, 7-13m 271 10w Perr fig.41.m 273 1-6m/w I much suspect metamorphosed dikes 277 25-30m/w Cordillera same case 278 29-31m/w analogous to the copper mines of Chile 283 4-10m 291 30-42m 299 1-8m 360 18-25m, 26-33m/28w V. p.362 362 32-39m 374 11-15m/15w V. p.377 377 22-24m, 24-28m/24w see p.378 378 16-21m, 22-28m 400 5-9m 401 1-5m 407 25-38m 421 12-18m 426 1-6m 482 10-15m 491 25-29m 515 5-9m/w this shows the withdrawing power of the sea 517 12-15m, 23w i.e. islands 522 6-32m 528 8-10m, 24c/wæ 533 3-5m 534 37-39m 536 8-11m, 9-14m 553 20-22m 554 9-12m, 15-17m 555 15-16m (Strickland) 557 wb Mammalia on both sides of channel dividing England good instance to remove difficulties – they might have been before united. 560 21-24m 564 15-22m 569 9-26m 570 20-22m, 32-38m 571 3-5m 572 6-12m

vol. 3 NB 583; 584; 585; 589; 665; 666 eyes in Cymothoadae, sexes of Q; 671; 701 583 10-43m 584 5-35m/25-29w if seas less divided this would follow 585 8-17m/10u "true|transition", 28-31m, 33-36m 589 4-6m/!! 595 31-39m/33-35w only analogy? 665 1-15m, 29-32m 666 32-37m, 33-44m 667 43-44m 668 wb Nesocila 669 20-29m, 30-33m/33u↔/w from me?! 671 14-16m/15w Falkland Isld 701 33-42m

ϕ

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af, beh, ds, he, hl, mhp, ig, no, oo, pat, phy, sl, t, tm, v, y

vol. 1 NB p.215; 233; 237; 238; 241; 253; Carp 258♦ Man♦; 263; 265

294- contractile Sarcodae with muscles- Hypothetically there must be diffused nervous muscle in lower animals & even Plants – 304 Surely ♣ in fish we have

MURPHY, HABIT, 1ST EDN

gradation to bone from cartilage?— Other tissues?—

301; 303; 307♦; 322

♣ 339 Causes of difference in number of offspring — Ratios of increase & Struggle for Existence. See H. Spencer, Principles of Biology

SB → 1.

233 Medusae will root & develop polypites

237 ● of Ungulates alone bear horns

238 Tissues of all Vertebrates homologous

241 Serial Homology ought to precede Homologies between distinct species.—

247 on Difference in no of cervical vertebrae in different Mammals.—

253 differentiation of tissues & organs mark of Highness

265 The young flowers which swim vertically retain primordial condition & so may be said to reverse—

294 on possibility of transitions in tissues — (see M.S. notes at end of Book)

301 Homologies of Trachea — Mucus-sack

322 striped muscles common to Vertebrates & Invertebrates, cd have been derived from common ancestor for wd have been too low.—

215 17–20m, 36–37m (Huxley) 233 34–38m (T. Hincks) 237 22–24m 238 18–23m, 24–27m/w● 239 18–21m 241 11–20m 247 5–19m 253 1–5m 258 1–5m 263 11–16m, 18–23m, 28–37m (Huxley) 265 29–35m/→ 294 1–11m 301 19–25m 303 16–25m 304 35–38m (Spencer) 305 13–17m 307 4–18w♦ This seems all rubbish 35–38m 320 1–15w Look at the greyhound See dom. animals 322 11–17m, 27–29m 323 28–30! 339 21–29m/17–27w Death falling on young more probable selection

vol. 2 NB p.2; 186♦ read; 187 ♦; 190♦ Copied

SB → Vol. 2

p.2. forms of Blindness in which iris opens & closes & yet no transmission of light.—

v 3m viii 2m xiv 8m, 21m xvi 25m 2 35–37m 59 24–31m 186 37–39m 187 33–36m/34u "selfish | contentious" 188 1–6m, 12–17m/14u "are fidelity", 26–30m 190 31–36m

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no, sp, v

NB 241 Delboeuf

Law of Equality of number of vars & species

241 21–28"..."

MURRAY, Andrew *The geographical distribution of mammals* London; Day & Son; 1866 [Down]

MURRAY, Andrew *The geographical distribution of mammals* London; Day & Son; 1866 [CUL]

ad, af, ch, gd, geo, h, sp

NB All on Geographical Distrib.

♦ no explanation of adaptation—

p.8 Change of dogs in W. Africa

17 error

19; 20 & 30 & 32 Glacial

34; 36; 38 to 56 Man; 57 do; unimportant

126; 138; 140; 144; 151; 155 Reindeer of N.

America; 197; 209 Glacial; 213; 216; 261;

312; 314

8 33–42m 17 28–30m 19 16–23m 20 15–23m/16–17w | dispute 30 13–17m 31 3–8m 32 26–32m 34 23–28m 36 6–10m 38 39–41m 39 26–28m 40 9–12m 42a 32–38m (Malmgren) 42b 33–38m 43 8w Spain 45 34–41m 56 17–21m 57b 36–42m (Pickering) 59a 22–35m 59b 38–43m 126 2–15m 127b 35–43m (Falconer), 46m 138 15–19m, 22–27m (Lund) 140 6–10w Dr Hayes○ says now a native of Greenland 144 20–27m 151 32–36m 155 5–8m 197 31–35m (Cuvier and Owen) 209 22–36m 213 31–43m 214 7–10m/1–9w This theory does not account for affinity of American & Indian genera. 12–23w Same species being accorded 2 distinct Indian lines will account for their similitude 39–41m 216 7–14m 261 1–8m 312 1–7m/3–4? 314 5–14m

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vol. 1, 218 4–6m 219 13–16m 220 1–6m, 26–32m♦ 221 14–18m♦, 27–30m, 31–33m 222 1–3m, 5–9m, 10–11m, 13–15m 225 22–23m 226 14–24m 228 21–29m 229 1–10m 395 25–26m 396 29–30m 397 3–5m, 15m, 19m 398 5–6m

vol. 2 ♂

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2. Band; München; F. Staub; 1866 [CUL]

ad, af, cc, ch, che, cs, ct, ds, em, ex, f, gd,
geo, h, he, hl, hy, ig, in, mhp, mn, no, oo,
or, pat, phy, sl, sp, spo, t, ta, tm, ts, v, wd

SB □β

106 Von Baer – believes Bee on its own
type higher than Fish

210 He has 2 embryos in his possession
that he cannot tell whether they are
Mammals or Fish or young Birds – (good to
quote)

211 The more different 2 animals, the further
back we must go to ♣ find similarity. (I
believe date 1828 see last number. Must
have preceded M Edwards

214 The embryo of higher animal resembles
the embryo of lower

217 Dog & Pig resemble each other – still
longer Pig & Cow

219 & 220 But embryo of Mammal more like
mature fish, than embryo of Fish is like
mature Mammal

221 Arrests of Development well established
for Monotremes

228 The higher the histological &
morphological differentiation, so is perfection
of type

229 Retrogression of types

231 Ruminants stomach more perfect than
mans

267 Twisting of leaves in relation to great
size: correlation??

103 wt All marked 110 25–34m/w/wb var.
grows everywhere in all soils strongest
Europe – But other vars also produced (it is
a polymorphic genus) 111 9m, 16–17m, 21–
24m/w also Differt vars in same plant 113
10–17m 114 wt other examples as before 115
5–11m, 14–15m, 17–20m/17–25w 2 vars
adapted to 2 stations rarely mixed in equal
number ♣ in both 31–33m 116 1–2m, 4–11m,
16–22m/w cases of direct action 23–30m 118
3–22m/5–12w On Hardyness of Plants 13–
32w Various vars in same station, so not
effect of evolution 24–32m 119 16–19m 120 wt
growth of size & chemical products direct
effect of conditions– 1–7m/w Light on
colouring matter 121 wt Alpine forms due
only to want of food & not form true races 1–
10m 122 15m 123 1–14m/w He argues from
these facts that height no influence but these
no proof – so others wb He overlooks effect
of length of exposure & inheritance – 125
16–26m, 29–34m/29w Summary wb Maintains
that Alpine height does not cause Large size
of flowers. 126 3–13m/w My objections of

time & chance = spreading considered. 127
wt/1–19w Variation must depend on some
chance relation between state of organism &
certain conditions 17–19u "Ueberhaupt |
Ausnahme", 32–34m 128 1–3m/wt/1–20w
These close species which inhabit distinct
Districts ♣, shows how little we know about
adaptation of near var – So some close
species, live mingled together. Are we sure
that the 2 Oaks are not specially adapted for
special circumstances – 2 Anagallis○ 15–16u
"Primula elatior", 23–24u↔, 29–30u "die |
andere", 33–34u↔ 129 wt When alone, each
will grow on wrong formation; but not in
company for then I suppose competition, this
looks like adaptation. 1–3u ↔, 4–7u, 19–
26m/7–17w says all true local vars. wd
behave thus. 130 wt/1–11w All foregoing
reasons do not apply to vars. arising from
inner causes; but something must set inner
causes into action. 5–6u "durech | sind", 25–
30m/w Opposed vars. arise under cultivation
131 wt one plant might absorb different
elements from another 1m, 1–2u "äussern |
können", 18m 133 1–7m♦ 134 wt/1–24w♦ He
seems to admit there is some relation
between variation & extreme conditions &
1–24w He remarks that greater size
independently of good soil ♣ never could
become hereditary & constant wb Effect of
grafting – & cultivation & wide range & bud-
variation all show that extreme condition
have close relation 135 3–20m/1–20w/wt He
admits that difference of soil &c may in
course of generations affect chemical &
molecular constituents & then lead to
changes of form – this is the same thus –
23–33w as individuals differ so will results
differ in fluctuating variability 136 wt a chill is
direct cause of various illnesses – 1–11w but
here denies all before apparently admitted
16–33w Denies that a plant can in same bed
with others absorb different nutriment ♣ 138
15–18m, 30–34m/26–34w/wb permanence in
culture in garden no test of specific
distinction 141 wt Yet if these sp. were
cultivated like P. Ponticum it wd no doubt
vary thus perhaps not so much.– 5a/u
"Alpenrose"/w Rhododendron ferrugineum 6–
7u↔, 8–10m/w (a) 8u "trockenen", 8u
"oberitalienische", 9u "700 | 1300", 20–27w
similar facts 143 wt/1–10w objects to Hooker
on acclimatisation.– (He is a general
objector.) 13m, 20–31m/w He tried
experiments but failed with uncertain results
144 3–6m, 11–12w explains fact 149 wt
difficulty of knowing direct action of
conditions on account of Selection.– 1–6m

150 *wt* Asks Have plants which ♣ have long lived under different conditions different constitutions, though externally alike? He doubts 151 1-2*w* Conclusions on Direct action 5-6*w* natural Distribution 7-9*u*↔, 11-12*u*↔, 19-20*u* "innere|bedingt"/*w* But what excites them; something must, as with illnesses.- 25-34*w* His Causes work through chemical condition of Plants & cause direct & indirect effects 152 29-34*m*, *wb* He assumes direct effects never become hereditary.- 155 *wt*/1-28*w* He allows that changed conditions give impulse to variation; the differences in the results must depend on differences in the individuals; but these differences must have had some cause. 17-34*m* 156 10*m* 158 *wt*/1-23*w* I think here he attributes the mixed vars in same locality to selection, or adaptation *wb* Finally I do not see that he throws much light on ♣ subject - Everything remains as odd as before - some good facts on Distribution of Varieties.- 164 *wt*/1-21*w* On Alps when no detritus - chemical nature of rocks has influence on distribution.- 18-31*m*/*w* representative species on different soils 170 13*m*, 16-32*w* Closely allied plants excluding each other - my view 172 6-26*w* Struggle for existence explains well, but not new.- 174 34*m* 175 *wt* Both the Achillaeas will live on wrong soil - if only one form is present, so no struggle.- 7-13*m*, 16-18*u*± 176 11-26*w* These sp. exclude each other according to dampness.- 20-23*m*, 28-30*m*, 29-32*m* 177 9-13*m*/11*w* do 179 *wt* Thinks many plants do not grow in certain places, because seeds have never been brought there. 3-7*m*, 25*m* 180 9-11*m*, 24-25*u* "Auf|Arten", 27*u*♣ 181 11*u* "Kerner"/11-13*w* doubt his observations 29*u* "Gültigkeit"/*w* authenticity 182 19-21*u*↔, 29*m* 187 19*w* I have not read 294 10-12*w* some close plants distinct 15-18*m*/16*u* "Mittelformen", 17*u* "Verbindungsgliedern", *w* some thus 20-21*m*, 25-27*w* says very important?? 300 12-14*m* 305 14*m* 310 25-34*m*, *wb* argues well against those intermediate forms, which are constantly or frequently found, near the forms which they connect, being Hybrids 312 *wt* a complete graduated row of intermediate forms may be hybrids, but such cases are rare - The exactly intermediate wd be rarer than the steps on either side. 12*u* "Verfechter"/*w* defender 313 25-29*m*/28-29*u* "zwischen|officinalis"/25-31*w* intermediate forms exist both Hybrids & really intermediate & constant & fertile.- 314 1-20*w* He evidently doubts (with reason) any ♣ constant

intermediate form being Hybrids. 318 12*m* 319 *wt* (a) If species which are connected by intermediate forms are blended with single species the result monstrous.- 5-10*m*/7*w* (a) 13-18*w* must be enumerated as intermediate forms- 320 7-18*w* these are good instances of a species constant in one place & variable in another from crossing with intermediate forms. 21-23*m* 324 10*m*, 17-20*m*/16-26*w* Middle forms not Hybrid generally inhabit nearly same districts as the forms they connect- 29-33*m*/*w* but less in number *wb* I presume he attributes the intermediate forms to variation 326 12*u*♣/*w* Hybrid 18*w* Hybrid 28*w* Hybrid 327 2-3*u* "beiden|Uebergänge", 3-5*w* Hybrid? or middle form? 34*w* Hybrid 328 5*w* Hybrid? 11*w* Hybrid 21-22*w* Hybrid 25*w* Hybrid 32*w* Hybrid 329 18-20*w* gradations from crossing 29-30*u*♣↔ 330 5*w* Hybrid 23-24*u* "da|vor", 30*u*, 32*u* "Das|Vorkommen"/32-34*m*/*w* not Hybrid yet intermediate 331 2-26*w* it seems improbable to decide whether a hybrid, which in places has become constant, or has arisen from variation of one of the 2 species which it connects.- 332 *wt*/1-8*w* another doubtful case 8-9*u* "Sie|acaule", 10-15*m* 333 4*w* Hybrid 335 5*u*♣, 7-8*u* "Dieses|Ursprungs", 13*w* Hybrid 17*u* "Zwischenformen", 18*u* "wiederholt|Floristen"/*w* not Hybrid 21-24*u* "fast|der", 31-32*u*↔ 336 13-14*w* Hybrid 24*w* Hybrid 32-34*w* True intermediate form 337 17-18*w* Hybrid 23-26*m*/*w* Hybrid 338 15-16*w* Hybrid 23*u* "Sie|Uebergangsreihen", 24-28*m*, 30*w* Not Hybrid 339 3-4*w* not Hybrids 342 5-10*m*, 6-8*u* "welche|auftreten", 28-33*m*/29-31*u*↔ 343 32-34*m*/34*u* "entspringen|Ursachen" 344 3*u* "verzichten"/*w* delay 4-6*m*/5-6*u*↔ 345 10*u*♣/10-14*w* most variable & graduating of all endemic genera. 31-32*u* "die|sind", 34*u* "nur|Species" 346 4-6*m*/*w* between the 3 no intermediate forms 24-32*w* looks at this species as in process of formation the intermediate forms not extinct 347 5-8*w* also Hybrids formed. 349 *wt* The Hauptformen are much commoner & ♣ then the intermediates 1-3*m*, 4*u* "Die|vielen", 5*u* "die|finden", 7-8*u* "Ich|von", 10*u* "Tausendfache übertroffen", 11-17*m*/*w* Intermediate do not extend beyond range of Haupt-formen 19*m*, 20-28*m*/*w* range in height rather more than Haupt-f 30-34*m*/*m* 350 14-17*m*/*w* no intermediate forms between exclusively Alpine & exclusively plain species 351 2*m*, 12-13*m*/10-15*w* What he has said before on Hybridism applies to ♣ Hieracium 355 18*m*, 21-25*m*/*w* are Hybrids in some places 357 9-11*m*/*u* "H.|angesehen"

359 1m 361 10m 362 17u▲/18u "Welche Zwischenformen"/16-19m/w the only 2 forms previously characterized 366 2-12m/w Evidence from treatment by authors how intermediate some of these forms are 367 wt The Haupt-forms must first be settled & then the intermediate forms - (so it wd be if we possessed all linear descendants) 1-3m 393 14-24w I think because as much vars of one form as of other 22-24m/22u↔ 394 12-16m/12-14u↔, 23-28m/w Constancy most important element. 396 10m 397 wt We must judge of constancy only from many individuals from many different stations.- 1u "verschiedenartigsten" 399 28m 401 19m 402 11-15m/w closely allied species exterminate each other 404 30-33m/w/wb but no great difference effect of good soil- 406 5-15m/6-7w grades of species 16-27m/w He does not believe Kerner 407 15-22m/w natural selections of genus going with power of Hybridity 410 wt/1-13w Does not believe the intermediate forms are commonly Hybrids 411 17-24m/wt/1-11w Between 2 forms either a few intermediates or a whole series of steps, & in the latter case the species more allied ↓w N.B May not many of Nagelis constant intermediate forms be Hybrids. which ♣ are constant like Gärtners ♣ hybrid Dianthus? I suppose not.- 27u "grenzlose Verwandtschaft"/27-34m, wb In these the Haupt-form, (independently of the intermediate forms) is variable, whereas in former case, when growing solitary the Haupt-formen are constant 412 13-15m, 21-25m/22w examples 413 wt We have, also, variability in the first individual planting Constant as in Vine-tendrils - or occasional i.e. sports, or bud-variations ↓w We have protean or chaotic species nowhere ♣ constant - species constant in places but connected by few or more intermediates, & true species not thus connected.- it looks like a process of exterminating the intermediate links.- 28-31m, wb His grades of affinity graduate into each other.- 414 10x/wt This shows that conditions have certain effects 17x/wt The chaotic forms in places have fixed characters 9-11m/w Hybrids & intermediates absent in certain localities 12-16m/w examples 15-20m, 22m, 28-31w mingled vars. adjoining & representative vars Distinctly-inhabiting vars 415 5-6u "hängt | dasein"/3-6w This refers to true species 12-14u "entweder | sind", 15-22w so much 2 plants mingled, generally so much more synodically distinct 19-21w & therefore can live together 21-23m♦, 30m/wb Close♦

species of same genus tend to exclude each other.- 416 4-7w representative forms. 6-8u "oft | die", 20-21u▲/21-22u▲/19-23m/w more forms adapted to different stations 25-27m/wb These forms sometimes found mingled, sometimes as synodic or representative 418 wt/1-16w Constancy alone will not decide what forms to call species; for many finest varieties are constant & Jordans species wd all have to be admitted. Comes to what I said amount of difference deserving a name. 20-22u↔, 28-34u↔ 419 1-2m, 17-21u "Sol Zeiträume"/17-33w a species depends on degree of relationships (or difference from) other forms. 420 24m 421 11m, 22-27m/w all the forms which are connected by intermediates cannot be united as a single species.- 33-34u "doch | sind", wb "generally sharply defined" must be admitted as part of definition of species!! 422 11-29w Rules cannot be applied to forms inhabiting distinct areas. 423 33u "Zwischenarten", 34m, wb Ought to be so designated, so new term 426 31m 427 3-4u↔/6u "bleiben | Hauptformen"/wt/1-6w Thinks the variables & intermediate forms extinguished by competition. 22-24m/22-23u "Gattung | Entwicklungsprocesses", 23-32m/25-29w The glacier is a stream, though one does not see the streaming 33w examples

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(markings presumed to be by FD)

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cc, ch, cs, ds, fg, fo, gd, he, ig, in, mn, no, pat, sl, sp, sy, t, tm, ud, v, wd, y

NB ☞ 103; 104; p133 use; Use Q☞

NATHUSIUS, VORSTUDIEN

SB □β

Used

Nathusius Schweineschaedel

(over) ↗ *(not CD except X and ♦⇒)*

Nathusius p.2

p.104 X↗ The culture, shape of skull does not depend upon race most different races have it, yet most seem crossed with the Indian.

p.105 x↗ about skull – dogs & Nata cattle

106 but common swine have not the short culture-head

113 the Diploe different in wild & culture races. Extremest culture-skulls

131 x↗ Great Yorkshire race – probably crossed with Indian, has all its characters. wonderful changes incisors do not touch. not monstrosities for all inherited (u↗, CD)

133 X↗ articular surfaces of condyles of occiput modified head not much used

134 case for brain not much changed

135 all these great changes only a climax of those seen in wild boar races

136 all house pigs belong to the above two races

138 X↗ 1/32 even 1/64 of Indian blood is sufficient plainly to modify the skull

138 great differences in the ears & c & c in the 2 great tribes

139 all Indian Swine introduced into England have short ears

140 X↗ Q Berkshire swine of 1780 is quite different from that of 1810 & since that time 2 quite diff races have borne that name

141 All the new English breeds seem to have Indian blood

142 Sculptures in Herculaneum shew no doubt that Neapolitan breed then existed. this breed & Andalusian & Rutimeyer's grau bundtner race are all like Roman therefore like the Indians

144 Roman probably is a cross from the Indian

146 is not convinced that the turf-swine was wild, but will not dispute it – 147. gives reasons why with swine difficult to tell – 148 in India wild cross with tame

149 almost certain that turf & Indian closely allied

150 curly swine with curly wool in South East Europe from lower Hungary – closely allied to Indian

153 Japan swine in skull is near to Indian.

157 certainly stands near to short-eared Chinese race.

(over) Used⇒ (CD)

(over) 160 Nathusius

Rutimeyer has shewn that N. African wild

swine is like European

163. S. verrucosus excluded 164. S. Celebensis skull like Past

165 S. vittatus from Java like skull like Indian

166 S. Timoriensis close to vittatus

167 in S. barbatus tho' with long face, lachrymal bones are short

168 S. lucomistax from Japan like S. vittatus

169 Arn wild Pig

↗ (CD)

173. Summary on wild swine

175. Diagnosis

185 wild Boar of Hindustan

(over) ↗ ♦⇒ (CD)

Laws Nathusius Pigs 1

p.2. X Gestation earlier in Culture-races & features less matured

20 – teeth developed in well-fed races

63 S. scrofa – tamed races – ♣ greater height of head in relation to length – in all dimensions broader – p.66 – all differences variable 68.– in tamed intermediate in character between young & old wild explain changed shape by less use of scratching in ground.

71. The position of rows of teeth a central character.

72. Much intermediate variability.

74 X↗ In these swine beginning of changes more plainly seen in culture-races–

75 These swine in Russia & all over N. & central Europe.

76. Difference in length of Ears– hair– colour. length of limbs & shape of body all different.

Indian

(not CD; X↗CD)

77 Almost all now crossed with Indian; not known wild, comes from China

83 Shortness of lachrymals most remarkable character

86 and the shape of the palate & position of row of teeth

89 position of last upper molar– 89 X Considerable slight differences in teeth – 90 width of fore part of palate does not depend solely on divergence of pre-molars

91 X skull broader in relation to length than in common swine

94 Indian swine a distinct species if no reference made to domestication. [⇒Culture races]⇒

95 the above Indian pigs not more affected by culture than common swine

99 X Berkshire not high culture race & descended from Indian, a born dispeptic individual had skull much modified & legs

elongated, & period of appearance of the teeth & crowns of molar teeth affected.

Laws

103 rich food during youth gives short & broad head

103 X in high culture races the incisors stand much higher than back teeth; the canines of upper jaw stand before the canines of under jaw & this is a most remarkable anomaly.

2 ↓m/w period shorter in the early matured races. gestation different in sheep & swine.— In early culture races of swine, the young less matured in skull ♣: perhaps from crossing with Indian. 3 16m, ↑4m 4 ↑5-1m/w change of skull from growth to adult comes from elongation of front part of skull & separation of the 2 laminae 20 ↑15-10m/w teeth developed earlier in well-fed. culture-races than in common pigs. 23 1-2m 27 20-23m 63 6-8m/w — in tame i.e. face shortened. ↑2-1m 66 ↑4-1m/w differences in these swine from wild are variable. 68 ↑20-15m/w common swine's skull intermediate between that of young & old wild swine ↑15-1w/wb Explains differences by primarily wild swine wholly living by rooting○ & using greatly the muscles attached to back of head— entailing that other differences in skull by action during youth — lays great stress on this view.— Mem. he does not here refer to Culture-races.— 71 ↓w a ♣ constant difference in flexure of row of teeth ♣ in common & Indian swine or their crosses.— 72 ↑12u "kürzen|des", ↑15-10m/w individual variability 74 12m/u±, 10-13m/w In these swine beginning of changes, which are variable, in teeth which are greater in culture-races 17-20m/w wild swine with simple teeth 75 ↑16-13m, ↑4-3m/u±/w such swine in these countries 76 6-7u "Ohrlänge| Rippen"/w of these swine with same skull these parts differ & can be selected 22u "lang|kurzohrige", 24u "osterlogisch| begründet", 25-27m/w He formerly placed some of the short-eared races in this class, which have been crossed with Indian. 77 9u "indischen Hausschwein", 10m/u↔, ↑8-3m/w almost all cultivated swine crossed with Indian ↑1u "nur|Culturrasse"/w not known wild 78 14-15u±/14-18m, ↑5u "zwei"/w Few skulls exist only 2. 79 2m/u "chinesischen Hafenstädte", ↑5-1m/↑4u "China|14" 83 ↑8-7m 86 10-15m/w shape of palate or space between teeth different in Indian & wild ↑14-12m 89 3-4m, 13u "bedeutende Verschiedenheiten"/w considerable slight

differences in teeth 90 6-8m/u±, 12-16m/w width of fore parts of palate does not depend solely on divergence of premolars ↑12-11m 91 ↑8u "ist|zur", ↑6u "Hausschwiene sind", ↑5u "in|geringerm" 92 8-10w Breadth may have been graduated. 14u "Kürzel Breite"/m/w no trace of these in common swine.— ↑1u "eine|Schweine" 93 1u "dass|im", 3m/u "Breite|Gaumens" 94 5-12m/w concludes that Indian race descended from distinct wild species & this wd be admitted by Zoolog. if no reference made to identity & domestication 95 10m, 11-17w The above Indian pigs not more affected by culture than common swine before described.— not highly cultured race ↑8-7u "und|Jugend", ↑6u "einen|aller" 99 15-18w Berkshire not very high culture race. skull & descended from Indian.— ↑16-13w A Dyspeptic individual from youth ↑10-9u±/w skull thus modified by want of food — Can this be Reversion? 101 ↑4-1m/↑4-3u "Kopfl|geworden", ↑2u "ernährten| geworden" 102 20-22m/w Period of teeth appearance & structure affected in this dyspeptic pig. 103 4-7m/w division of crown of molar teeth affected. 11-12m/u↔, 16-20w & Do not use their muzzles because ringed ↑6u↔, ↑1m/u/c/wt±, wb see p.130 104 5-6m/w Proofs 9-12m/9u "langohrige|Rücken", 10u "diese|wie", 15-22m, ↑9-3m/w Nata Ox 105 1-8m/w Offspring vary in shortness of head according to keep○ 17-19m/w says not hereditary!!! 19-21m/w happens with our cattle & sheep 23u "Egelkrankheit", ↑14-12m/w Bull-dog analogy ↑11-5m/w argues this does not contradict his explanation of want ● of Snout 106 1-2m/1-4m/w common swine like wild-Boars have not this short head 13-16m/w probably might be gained. by progeny of common wild Boar. 19-21m/u↔ 108 13m/a "Form" i.e. short-head 112 3u "Stirnhöhlen", 4m/a "Schwein" in cultur pigs 4u "Entwicklung|aber" 113 4-7w Diploe different in wild & cultur-races 130 9-11m/w p.103 ↑20-5m 131 8-10m/u±, 21-22u↔, 21-30m/↑3u "Gehörgänge" 132 2u "Augenhöhle", ↑15-13m/w do not touch 133 4u↔/m/w all inherited ↑20u "Gelenkfläche"/↑20-15m/w articular surface condyles of occiput modified → ↑4-1w because head not used 134 ↓w can affect Brain? Very similar 135 9u "nur|dort", 8-12m/w All these great changes only a climax of those seen in the races like wild Boars. 14u/wt, ↑10-1m/w two Races 136 3-7m 138 ↑15-13m, ↑12-8m/w Argument for Indian Race being parent of Domestication ↑4-1m/w All these differences in pure European & Indian Races 139 ↑14-11w Siam & China all

NATHUSIUS, VORSTUDIEN

with short-Ears $\uparrow 9u$ "Siam", $\uparrow 4m/u$ "Rasse | Pallas", $\uparrow 1m$ 140 $\uparrow 5-2m$ 141 14-19m, $\uparrow 10-7m$ 142 11-16m/11u "aus Herculanum"/w Neapolitan Breed! 143 2-5m/4u "Andalusien", 6-9w All these like Indian 11u "Graubündtner", 12u/wt, $\uparrow 16-15u$ "dass | steht" 144 19m/u "romanische Schwein" 146 $\uparrow 11-10u \leftrightarrow$ / $\uparrow 12-6m$, $\uparrow 12u/wt$, $\uparrow 5u$ "wilder"/w is not convinced that turf swine was wild 147 11-16m/w wild swine in fertile plain joints different $\uparrow 19-14m/w$ turn out tame when stock of wild reduced 148 7-14m/w In India wild swine cross much with tame $\uparrow 19-14m/w$ Rutimeyer difference between wild & tame born generally correct, but must be received with caution with pigs $\uparrow 13-11u \pm$ 149 1a "Formen" Turf & Indian 1-3u \pm , 5-6u "Die | Gaumens", 10-12m, 15w Not certain 16-17u \leftrightarrow , $\uparrow 16u$ "des indischen"/w only for Pallas $\uparrow 13-12u$ "alle | Japan", $\uparrow 8-7m/u \leftrightarrow$ /w not certain for E. India 150 7w curly Hair 12u "südöstlichen Europa", $\uparrow 14m/u$ "sogenannten | Schwein", $\uparrow 12u$ "aus Ungarn", $\uparrow 4u$ "Niederungarn" 151 1-3m 152 8-10m/w like Indian 153 $\uparrow 15-13m$, $\uparrow 8-7u$ "Der | bekannt" 154 1-8w Gray makes it a distinct genus $\uparrow 14-13m/u$ "das | nahestehend", $\uparrow 5-4m$, $\uparrow 1u$ "weil"/m/w Indian swine has not forked snout 156 3-9m, $\uparrow 14-12m$ 157 $\uparrow 7-5m$ 160 4-6m, 10-13m, 15u "Nilinseln"/16u "Aegypten"/15-17m, 19-20? 161 $\uparrow 14-13u$ "das | ähnlich", $\uparrow 6-4m/w$ doubtful 162 13-14m, $\uparrow 10-1w$ Gray not to be trusted in the least 163 7-9u "kann | nahe", 14-18w whether Hindostan & European different not yet known. - $\uparrow 4u$ "S. verrucosus"/w Excluded as parent of our domestic Pigs 164 $\uparrow 8u$ "S. celebensis"/ $\uparrow 8-1w$ skull very like that of S. verrucosus & not parent of domestic 165 5m, $\uparrow 13u$ "S. vittatus"/w different from European & like \clubsuit Chinese skulls 166 17-18m/u "Sus | vittatus", $\uparrow 10m/u \leftrightarrow$ 167 12-13u "dass | Wildschwein"/w though with long face 14-17w argues that \therefore specific character in Chinese 168 3-5m/w in general appearance like S. vittatus 11-13u \pm /m/w but in these respects liker to S. vittatus 19-20m 169 5-6m, 7u "Typus | haben", $\uparrow 8-6m$ 170 8-9u "dass | Thränenbeins", $\uparrow 19-15m$, $\uparrow 14-8m/w$ no proof that wild 171 wt/1-2m if Arn Pig is feral shows constancy of character of Indian Swine 173 $\uparrow 10-1m$ 174 "5"- "7".m 175 $\uparrow m$, u \pm 176 $\uparrow m$ 179 1m/u "Das | kurz" 183 7-8m/u "männlichen | Cochinchina", $\uparrow 5-3u$ "Eckzähne | gleich" 184 15-16m, $\uparrow 14m/u$ "ächten Maskenschwein", $\uparrow 6u$ "Breite | Gaumens" 185 1m/u "auch | von", 7-11m, $\uparrow 10u$ "sind | europäischen", $\uparrow 9-8m$, $\uparrow 6-3m$ 186 $\uparrow m$ Atlas Taf. II, "10".*

NATHUSIUS, Hermann von Vorträge über Viehzucht und Rassenkenntnis 2 vols and supplement; Berlin; Wiegandt & Hempel; 1872-80 [CUL]

cs, ds, f, fg, he, in, pat, sp, sx, t, ta, tm, ud, v, wd, y

vol. 1 NB 8; 26; 63 Descent; 64 Horse; 135 Sheep Case Q

title page wt Horn of Sheep 8 4-8m/1-13w now so many no such need 21 20m 26 9-17m/w False the Chili ones are cross between goat & sheep 24-30m/w swine distinct. 28 10m 35 14-15m 47 10-11m 50 12m 59 31-34m/32w/wb (a) individual differences 63 5-9m/w females more like males most variable 11-13m, 11u "eigentliche Representant"/12u "welches | Universellen" 64 1-11w can Long Horns be Reversion to wild state? - See Antelopes 18-20m/16-20w castration stops Horn in Sheep (a) 3-31w castrated rather late - the effect may be known when done earlier - castration ought to produce greatest effect. How with Welsh sheep on both sexes - but then they end wb (a) Is there not here curious relation & evidence of Horns retaining more of S. Lex. character than in cows - in as much as the females of some breeds have no horns? In Merino is white males alone are horned. 68 3m, 5u "ganz gleich"/4-7m/w Free-martin horns like oxen - ! 69 12-16m/17-18m/12-19w Food makes differences of period when adult character attained 21-22u \leftrightarrow /21-24w even when capable of reproduction 71 24m 93 wt (a) early & late maturity depend in part on food of pregnant mother & milk, & partly on race. - 4m/w (a) 7m 94 25-33m/3-34w proportion of 3 stomachs altered in highly nourished young 98 14m, 16-21w early maturity only slightly hereditary 99 3-6m/w Treatment alters period of gestation 18-25m/21-28w related to early maturity & 1/2breeds show hereditary 100 wt individuals differ in profiting by same amount of food 4-10m 102 23m 109 17-18m, 27-29m/27-31w castration causes less consumption of food. - 112 1m 118 25-31m/11-31w Rule of male or female transmitting certain parts false. - 122 19-27m/15-28w Merino sheeps tails cut for years & not inherited. 127 1-3m \diamond 135 25-30m 140 1-6m/wt/1-3w of same race individuals transmit with greater power 19-20m 142 5-10m, 13m, 15-23w Does not believe in individual potency of transmission 145 24m 158 4m 166 27m

vol. 2 \wp

Supplement "Kleine Schriften und Fragmente"
Berlin; Wiegandt, Hempel & Parey; 1880

iii ↑15x/u "249-264" **Inhalt** "93".m, "179".m
∅

NATURAL HISTORY 2 vols. of plates;
London; Whittaker; 1824-26 [Down, pre-B]

THE NATURALISTS'S LIBRARY ed. W.
Jardine *Ornithology* vols 9, 14; Edinburgh;
W.H. Lizary; n.d. [CUL]
beh, cs, gd, hy, mg, sx, tm, v, wd, y

vol. 9, Pigeons; SB □β

117 *Carpophaga oceanica* excrescence at
base of Beak sexual

178 Wilson & Audubon on rice in Pigeon
crops at New York

90 23-26m 113 21-30m 117 18-23m 136 20-
23m/w● 140 1-5m 144 9-11m, 12-15m 146
23u "Orkneys" 148 5-6m 151 19-23m 153 12-
15m, 24-31m 157 12-17m 158 10-16m 160 5-
9m 161 6-8m, 15-17m 164 11-13m 179 1-5m

vol. 14, Gallinaceous birds; NB 203 205 P
superbus

166 169 Argus Pheasant

SB □β

129 Turkeys associating. 3 sitting on one
nest

138 wild often crossed with tame

173 Siberian or Russian Muffler with tuft
from lower jaw

184 *Gallus forcatius*

126 17-22m/Q 127 1-10m/2-3u "strut|
feathers"/6u "strutting|puffing"/3-4Q 128 17-
19m 129 27-30m 138 6-16m, 10-15m 139 1-
3m 140 1-4m 141 15-19m, 28-29m 166 20-
25m/22u "feathers|inches" 167 12-15m/13-15u
"being|flight"/"...", 18-24m (Temminck), 27-
29m 168 3-7m 169 1-3m, 7-22m 171 18-21m
(Temminck) 172 1-18m/3-10w Malay 21m/w
Sultan Persian 25-26w X Bearded crested
173 5-8m/w Bolton Grey Siberian or Russian
Muffler. 10-11w This Dorking is baby one
17w The true Dorking 26-28w A cross from
the Silk fowl 174 1-3m/w Jap 15c "Crested"
Frizzled 175 24-25u "with|chestnut"/12-28w
Resembles the black breasted Red Game
176 1-6m 177 7m, 12m/w nonsense x 13-
14m/w J right I think 17m/w pumilo is crested
21-22m/w Sebright not a Bantam 23m/w not
near wb x Crawford says from Japan. on
what authority? 178 11m/w Malay pl. 9 w tail
purple 183 wt Mr Blyth says positively a
hybrid between *G. varius* & ...? wt N.B. *G.*
varius is distinct from *G. furcatus* or does he
mean only Synonym?? 184 wt When Blyth

says not *furcatus* does he only mean that *G.*
varius is prior name - I suspect so.- 10u
"with|entire"/w yes 11u "single|springing"/w
yes 12u "they|red"/xx wb xx if *G. furcatus* =
varius this utterly wrong description.- pl. 10
w Feathers on neck short & rounded
Crawford says wretchedly unlike 185 23-24w
so will a pheasant 188 7u "the|margin", 9-
10m/10u "mottled|markings", 15-20m (Latham)
203 9-12m/11u "feather|feet", 13-14m, 15u
"more|feet", 15-17m 205 12u "3|long", 21-
23m, 22u "The|length" pl. 19 wt♠ 237 zt 251
3-5m (Dickson)

**NATURAL SCIENCE, religious creeds and
scripture truth** by "the author of the *Divine
footsteps in human history*"; Edinburgh &
London; William Blackwood & Sons; 1870
[Down, I by publisher] ∅

**NATUURKUNDIGE Verhandelingen van de
hollandsche Maatschappij der Wetenschappen, te
Haarlem** Part 3, 3rd edn; Haarlem; De Erven
Loosjes; 1878; containing
FRITZ, Hermann *Die Beziehungen der
Sonnenflecken* [Down] ∅

NAUDIN, Charles *Nouvelles recherches sur
l'hybridité dans les végétaux* Paris; 1862 [CUL,
I]

cs, fg, he, hy, no, sp, t, v

SB □β ↗

151 Pangenesis - good on Hybrids being a
living mosaic of 2 species & on specific
essence of each (this is vague term) being
accumulated & self-alternated○ either in
ovules or pollen-

161 Definition of a species-

title page wt *Nouvelles Archives du Muséum*
/Tome 1 p25 27 4w Father; Mother 20-22m/
20-21u "turbinée|ovoïde" 29 25-26m 30 2-6m
32 23-28m/w First generation flowers of both
colours & panachee 33 1u "bandes|pourpres",
2-3u "quelquefois|couleurs" 36 1-14m/3u
"deux"/7u "un|cependant"/10u "dix-sept"/13u
"un|maturité"/10-18w given in full in
Chapt 27 on Pangenesis 22-31m/23-25w
Pangenesis 37 7-10m 41 25-28m 42 15-20m
45 28-30m 47 5-7m/1-8w ? yet most distinct
species 15u "fleurs|fertiles"/!!, 23-30m/w
action of pollen good - like Hildebrand's
facts 49 7-13m/13u "influence|annihilée", 24-
25m/w like my sweet pea case Ch. X 25-
31m/26-31u±, 31→ 50 1-3m/1u∅ "qu'un
quart"/2w Loevis 4-6m, 9-10m/9u "hybridité
disjointe" 51 1-6w He does not say the seed
was separated, only other capsules

NAUDIN

produced the two forms 19-23m 53 22-25m 54 16w Sweet Pea 22-24m/!!!/18-24w ♦ Polyanthus & Cowslip one of grandchildren returned to pure Cowslip 58 8-17m 60 29-31m 93 28-31m 99 25-30w/wb He admits the *L. vulgaris* grew near !! & yet advances the case as one of Reversion- He never counts seeds! Seeds were forgotten & other negligences & never apparently protected from variation Careless experiments in every way.- 100 12-14m, 25-29m/w colours not blended 113 8-22m 126 12-17m 127 3-6m/5u "pas | embryonée" 131 17-20m 135 20-31m 136 8-14m 137 9-11m, 13u "la | année"/13-14w crossed with common none were peloric 22-24m/23u "cinq | égaux", 24-25m/u "alors | présence" 141 14-15u "l'hybridité | ovules"/w confirmed 142 8-11m/10u "un | ovaire", 17-19m, 21-23m, 24-25m, 27-29m 143 23-27m/23-25u "car | vertu" 145 3-8m 146 6-9m/6-7u "une | génération" 147 23-27m (Klotzsch)/23-25w Reciprocal Hybrids like each other 148 6u "intermédiaires", 7-9u "l'immense | espèces", 18u "c'est | tort", 19u "au | père" 149 11-12w prepotent species 12-14u "dont | espèce", 24-26u "la | hybrides" 150 22-26m/21-28w/wb If so this pollen of a hybrid placed on one of parents or on third species wd give widely different results from Hybrid fertilised by the same. 151 1u "deux | essences", 10-16u±/10-11w Pangenesis 19-35→ 152 1u "les | hybrides", 13-18m, 20-23m, 25-28m 153 12-14m, 16-21m 154 19-23m, 28-31m 155 1-4m, 32-35m/32w loevis close 161 9-14m, 15-18m, 26-29m

NETTER, Abraham *De l'intuition dans les découvertes et inventions; ses rapports avec le positivisme et le Darwinisme* Strasbourg; Trenttel & Wurtz; 1879 [Down]

NEUMAYR, Melchior and PAUL, Carl Maria *Die Congerien- und paludinenschichten Slavoniens und deren Faunen* Wien; Alfred Hölder; 1875 [CUL, I]
cc, ch, ds, dv, gd, geo, gr, ig, oo, sp, sy, t, ti, tm, v

NB1 All marked very important on direct effect of conditions-

NB2 p57

57 25-28m/w like Hyatt 30-33m 84 40m 90 1-3m/w gradual slow changes 45-55m/45u "viele | Typen"/48-50u "Viviparen | müssen"/53-55u± 91 36m (Lyell) 93 26-28m/29m/17-35w Is vehement that it is arguing in a vicious circle to call all forms which can be connected by gradations the same species [true but useful or necessary for systematic work.] 95 22-

27m/23-25u "die | sind", 27-32m/30-32u "dass | Gestalten", 36m, 41-45m 97 26-31m/28u "Auftreten | Formenreihen"/30u "variiren | Abänderung", 33w 3 species of new genus 34-39z/39w 3 species 43m 98 9u "Reihen", 11-12u "während | slavonischen", 13u "mehrfach Ammoneen", 17u "sondern | Uebergänge", 20-21u "dass | feinsten", 31-40m/31-35w each form in a successive bed. 52-54m/53-54u↔ 99 1m, 20u "auf | X", 19-22m/w Table of Descent 47-48u↔, 49-51m/50-52u "eine | Hauptverbreitung" 100 3-4u "während | auftreten", 4-12w Looks as if periods of rapid variation & then of rest, but denies. 25-27w modification goes on in same district. 31u "kein", 32u "innerhalb | stattfindet", 33-34u "Auftreten | Mutationen", 33-40w a row of forms divides into 2 rows only in separate districts 41-46m/42m/45w an exception 101 wt just what I have said 3-5m, 18-19u "von | hin", 20u "die | Variationen", 21u "erhalten sich", 24-27m/27u "die | nicht", 30m, 32-33m/33u "so | Auge", 35-38m, 40-41u "Verdickung | Sculptur" 102 2u "Verdickung | Sculptur"/3u "Unionen"/4u "Dickschaligkin"/1-5w in a distinct genus, (showing effects of conditions. 7-10m/8-9u↔/12u "Einwirkung | suchen"/8-13w in a different district another series of forms. 18-24m/14-22w Thickening of shell in small pond to be due to water becoming more fresh. 30-34m/30-32u↔, 36-37u "Nur | angenommen", 46m 103 19-23m, 40u "abgeänderten | wird", 41u "constatirt | können" 104 1u "innerhalb | ihrer", 4u "von | bekannt", 16-17u "dass | Reihen", 18-22m/w fail on sea because we do not have whole area 33m, 42-45m/43u "Mealnopsis | nachgewiesen"/45u "Jahrb. | Heft" 105 1m, 19-20u "betrachten | Formenkreise", 20-21u "wie | Verbindung", 50m, 51-52m/51-55w same kind of variation in several distinct forms 106 1-3m/1-5w same var. at very distinct periods

NEUMAYR, Melchior *Zur Kenntnis der Fauna des untersten Lias in den Nordalpen* Wien; J.C. Fischer; 1879 [CUL, I]
fo, geo

NB 45 Parallelism of Ammonites

♂
45 8-18m

NEUMEISTER, Gottlob *Das Ganze der Taubenzucht* Weimar; B.F. Voigt; 1837 [CUL]
beh, cs, f, he, oo, ta, tm, v, y

NB 4,6

SB □β

Neumeister

17 Dovecots do not like Fancy Pigeons
 18 Crosses very fruitful
 21 In young white bars nearly red & true Q
 character remains only till 3 or 4 years 24
 Nearly parallel case
 29 odd hereditariness in Trumpeter
 31 Hinkel flight-feathers doubts Q
 P19 Never seen yellow or red Fantail

title page *wt* A working man enquired all himself; Laugher & Finnikin Spanish rust not mentioned ⇒ Frill-back i 11-12m 4 9w 20-24 years 8-10w These fancy races 6-8 years age.- 12u "Holländerknopftaube" 17 *wt* 17 5u/*w*, 10u/*w*, 13u "Gesellschaft | zahnen"/12-14w Dovecots do not like fancy pigeons 18 8-9u "Es | Tauben"/6-9w House Pigeons crossed with Fancy very fruitful 21 13u "schwarz"/11-16w correspondence in age 18u "gewöhnlich"/19-20u "der | schön"/18-22w in young the white bars are rust-red & perfect character remains only till 3d or 4th year old 22 12w shell-shaped cap 13m/14m "Muschelhauben"/13-23w cross at back of Head top of head white upper & lower Mandible different colours 23 11-12w ♣ This seems rather different 12u "etwas grösser", 13u "Brust | Oberrücken", 14-15w Head smooth white tail flight feathers & feathers on feet white 17u/*w* 19-24w These have strongest shell-shaped caps of all Breeds-runs down half neck 24 5-8w In young the white feathers are first edged with colour 11w Spot 25 1u "wegen | kurzen", 5u "Schnabel | als"/w I see this is mine 26 7-11w I have now written descriptions on plates 27 10m/w Blue 23w (a) *w*b (a) called Riedel Polish Pigeon 29 2w, 2-9w Mr Gilbert will back one of his to travel for 1/4 of hour 7u "einen | Schnippe", 16-17m/u "doch | trommeln"/Q, 17-18u "Ohne | tauben", 18u "noch | gut", 19u "Altenburgische" 30 24u± 31 1-2m/1u "Schwungfender | doppelte", 4u/*w*
 (all plates.w (descriptions of varieties of pigeons and doves))

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 ig

NB O/
 10 Gradation
 10 1-22m 29 22-25m

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 h, oo, t

NB I a universal law that strong tribes extirpate weaker; 104; 248
 I 26-30m 104 2-9m/w identity of man under similar conditions 248 29-31m (Lovén)

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 no, tm, y

NB 39♦; 110♦; 16♦; 13 numbers of feathers; 14 young birds
 13 40-43m 14 8-12m

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title page *wt* as Mark *w*b 233

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title page *wt* Prof. of Mainz

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 ss

NB 97 Sexual Selection, dogs
 97 11-23m/11-21[...]

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ad, br, cc, ch, ds, gd, mhp, no, oo, or, sp, sy, t, ta, tm, v, wd

SB1 18; 20; 34; 41; 43; 48; 51; 54; 55; 70♦; 70; 72 to 84; 107; 228 variation; 243; 244 taste &c &c varieties besides common peculiarities resisting wind another quality early fruits – age at which it produces; 254; 268; 327; 362; 397; 401; 429; 436; It is striking how many varieties there are, & how some seem to do better in one province than another

SB2 266 Journal Geolog. Soc♦

SB3 □β

42, 44, 48 of immense numbers sown, rarely new variety produced.

70 on classification of grapes – 74 p.80 wd like descent if possible p107 is possible (p244 Sub-families)

71 same grape has round & oval berries Q

78 Simon (like Van Mons) cannot think all came from one Parentage (Ch. 2)

227 grape like dry, but apt to rot when ripe p243 slow to ♣ breed but ripens fruit early; fruit resists long-continued humidity; attracts wasps♣♦♣; p254 apt to be broken off bunch – resisting wind & 254 More attacked by insects 362 Early excited by April sun ♣ & so killed by Frost

243 & 254 & 362

327 a Grape more than. 600 years old.–

397 see♣ leaves turning yellow when fruit ripe

429 Pulp adheres slightly to seed 436 in other case turning red, at lower part of shoot.–

(All Quoted)

18 4–8m (Dussieux) 19 17–20m, 30m 20 1–3m 34 1–2m 41 29–30→, wb very few & yet thousands sown; applicable to domestic birds 43 23–30m (D. Simon) 44 3–5m, 22–30m (Rozier) 48 4–9m 51 19–24m 53 12–13w♦ 600 to 800 54 5u "ait|huit", 6u "un|cultivées" 55 1–3m 70 1–3m/wt/1–7w Wants to make classification natural 4–9m, 11–14m, 16–18m, 19–24m 71 15–18m/16–17u↔, 26–29m/Q♣ 72 3–6m 74 16–19m 75 12–14m 76 13–19m 78 17–25m/w like Van Mons on peas 79 20–21m/20u "où|trouver"/21u "sur|la" 80 24–25m 84 12–18m 85 22–24m♦ 107 2–3m "ce|toujours", 10–22m, 21–25m 227 ↑2–1m 228 1–3m←, 2–4m 243 20–21m 244 11–16m/13–14w Sub-family 254 18–19m/19u "cet|fragilité", 28u "passeriller|guêpes", 29u "cette espèce"/w raisins? 268 1–2m, 8–11m 327 2u "plus|six",

8–11m 362 26–29m 397 23–25m, 25–27m 401 5–10m 429 7–10m 436 4–9m

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NB 8 use of broom for cordage – Pliny 8 last paragraph.x 170 1–5m 173 1–2m, 4–7m, 9–16m

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NB 31; 154 bears on concretion○ in worms 31 14–19m 154 29–33m 155 1–9m

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NB O/

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NB 1/4 of Plants near Quito are Compositae colour of flora due to chemical rays 103

107 Geese not breeding; 283♦

103 3–6m, 20–24m (Herschel) 107 21–23m 283 1–5m♦

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NB 154 Extinct deer fossil in Amazonia 154 15-17m/15u "deer"

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NF (prob CD) Sept 24 1830 Kendal

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NB 69 72²◆
69 Floating Isd 100ft long & broad covered with grass about 4 leagues at sea -
69 12-14w² See p.64. probably 4 leagues from shore 14-18m 72 6-15m 448 1-3m

OWEN, David Dale *Report of a geological survey of Wisconsin, Iowa and Minnesota* 1 vol. with vol. of illustrations; Philadelphia; Lippincott, Grambo & Co.; 1852 [Department of Earth Sciences Library, I by J.D. Dana] fo, ig, ir, sp, sy, ti

NB Think what wd classification be if only Eocene fossils had been unearthed○
p.50 Fossil ● Lingula
p.198 Nebraska - some of Leidy genera very intermediate - *
p.571 do. Nebraska intermediate mammals

50 14-19m 19³ 5-17m 199 2m/u "eocene",
↑1→ 200 8-16m 571 ↑3-1m

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NB 52; 40 an halln.; 51; 134 judgemt 179 do (some editorial marks in text)

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vol. 1 NB 168; 170; 179

SB1 Vol I Owen

331 Eyes of Fishes in Lancelet & some other as simple as in the lowest crania○; 342◆ range of gradation great in F. & R.; vol I; 354 Electric organs; 358 similar action with Muscles

xxxvi; 254; 345; 378; 393; 401; 409; 486,7; 492,7; 533 Wollfian glands Man; 543 551 567 - Regrowth for Chapter on Inheritance -; 576; 588; 589 sexual selection; 609; 611; 612; 615 sexual sel.; 616; 640

SB2 □β ◆ (not CD)

Owens Anatomy of Vertebrates Vol I 1866

p.xxxii Rudimentary & nascent organs. Cases of fins becoming rudimentary in old age.

254 Gradation between homocercle & heterocercle tail - also in embryos.

345 On air bladder in Colitis aiding organ of hearing

378 Six modifications of structures of teeth in fishes, 2 sometimes in same fish or each in same tooth.

393 On egg feeding serpent with mouth without teeth but with vertebrae acting as teeth in the gullet.

401 Dicynodonts approach mammals in having growing tusks, besides as in other reptiles being implanted in a socket.

409 In an extinct crocodile the teeth can be divided into canines, incisors & molars.

486 on the persistence of an embryonic structure of the branchiae in certain low fishes.

487 on an accessory breathing organ in the climbing perch.

492 Structure of air bladder in fishes. 497 ditto.

551 Drawing of the female Surinam toad with eggs on back

588, 576 Gradation in reproductive organs of fishes

609 Embryonic characters of fishes permanent in sharks.

611 Metamorphoses in fishes.

640 On transitory tooth in young sharks & lizards for cutting through egg

xxxii 10-18m (Tiedemann and Vrolik), 19-25m

xxxiii 3-6m, 6-10m xxxv 7-15m, 21-27m

xxxvi 1-7m, 27-31m xxxvii 14u "selective" 9

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167 22-24m 168 23-27m 179 16-19m,

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345 19-25m 346 1-8m 354 1-6m, 19-23m 355

29-36m 356 25-32m 358 31-42m 378 12-27m,

23-27m 393 17-33m 400 38-41m 401 1-5m

OWEN, VERTEBRATES

409 7-12m 486 17-32m 487 1-6m/fig.325.m
 492 35-43m/fig.327.m 493 1-7m, 25-30m, 34-
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 26-29m (Van der Hoeven) 568 10-12m 570 39-
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 3-5m, 12-15m, 17-19m, 21-24m, 23-24u
 "submaxillary glands" 616 24-38m 617 3-6m
 640 6-13m 646 54-56m

vol. 2 SB ♦

p.12^{ab} affinities of Birds – greatly Modified
 Birds their affinities

read as far as p.14; 517 ♦ Tail of monkeys ♦;
 551 & 552 ♦ Apes anthropomorphism Man;
 544 & 560 to end Man

All used

258 ♦ Sexual diffn in Beak

12 23-27m 13 10-16m

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p.258 27-34m 517 27-36m 520 33-35m, 36-
 38m 551 27-29m/29u "mastoid processes", 31u
 "the|the", 32u "auditory process", 33-43m/37u
 "posterior|internal", 40u "ectopterygoid|the"
 552 1-3m, 13-17m 553 8-14m/10u "great toe"/
 11-12u "perhaps adaptive"/w adaptive 564 4-
 15m 506 16-21m

vol. 3 NB ♦

Law of Inheritance 619 Hair in foetus; 628;
 624 & 630 Man; 632 & 634 to 638 sexual
 selection; 641; 675 Rudiment; 676; 685 Man;
 687; 701 Sexual; 706; 739 Law of
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 244 Ear; see about external ears

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^{ab} affinities of Hippopotamus shown by Milk
 Teeth; 348 ♦ Relation of Horns & Canines ♦;
 415 Kangaroo Ruminating; over ♦

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 417 fig.315.m 433 36-38m/38u "terminal|
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 "follicular glands" 585 35-37m 595 7u↔/6-
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 wb J. Müller Archiv fur Physioly 1837 624
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 Inheritance 1u/a "Commencing|1855", wt
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 629 4u "in year", 20-22m/21u "20 points", 24u
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 32-39m/33-34? 771 9-13m, fig.605.m 791 16-
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 19m 798 37-42w Say, as far as I mention –
 damn this 41-48m 799 3a/c€/w Man 9-11m
 (Darwin) 800 18-22!!/20u "my basis", 26-30m
 807 10-13m

⌀

OWEN, Richard Description of the skeleton of
 an extinct gigantic sloth (Mylodon) London;
 John Van Voorst; 1842 [CUL, I]

af, ch, em, fo, ig, rd, sp, sy, tm

NB 83; 97 to 106; 137; 154; 155; 162; 165;
 166; 170

SB □β

100 striking gradations in abortion p.101-106
 162 Sloth now seems to be a remnant of
 large class – Sloth most anomalous if looked
 at by itself

165 Modifications of teeth in this order
 extreme – indicating low ebb & flickering of
 development

166 approach Birds in some respects

83 28-31m 97 1-4m, 4-6m 98 1-2m/1u
 "atrophy"/1-2w another term 99 9-10m 100
 11-15m, 23-26m/w entirely aborted 101 20u
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 absent in Unau. What a gradation of
 abortion! 106 18-23m 137 17-18m/17u "The
 structure", 31-33m 154 32-34m 155 15-19m
 162 30-31m 163 1-4m (Cuvier, Blainville), 10-
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 3-5m 170 19-25w Is Glyptodon in the
 Phyllophagous group?

OWEN, Richard *A history of British fossil
 mammals and birds* London; John Van Voorst;
 1846 [CUL, S]

af, beh, ch, ds, em, ex, fo, gd, geo, ig, ir, is,
 mg, no, or, rd, sp, sx, sy, t, ti, tm, v, wd, y

NB Owen - Queries?

♦ p.81-; 83,7; 99; p212 - Reference to
 Corsica cavern

p441 & 432 How far are ♣ Anoplotherium &
 Palaeotherium distinct; are they as
 distinct as are at present the unequal &
 equal-toed Pach-Rum:- or rather were the
 two Eocene groups of equal and unequal
 toed animals as distinct, as present 2 groups

p245 width of tusks 160 sp.

SB1 All Introduction

It is important S. America having Mammals
 in Eocene Toxodon & Rio Negro & Miocene
 Mastodon

Most of cases animals also found in Strata
 This looks as if record not so imperfect
 p.151 How few skeletons even any number
 of perfect Crania! though enough to make
 out species

p.7,8,10; 20; 25; 31; 49; 53,5,6; 61,2,7; 74,6;
 78; 30,3,6 to 91; 107,9,12; 114,7; 121; 129;
 130,1,3,5; 171,3; 192; 197; 202,8; 211;
 213,4,5; 220; 236; 243,4; 293,5,6; 300; 311;
 341; 334, 342; 346,50,354; 359; 372, 381,5;
 388,90,92,97; 413,14,18; 427,29,30,32; 436-
 441; Over

(over)

♣ Owen B. Blanca. Toxodon plateau

♦ p.xxi; xxiv; p.28; How far can close
 species be distinguished by skeletons for
 instance American & English Beaver

How isolated would the elephant be without
 fossils ♦ How is pachydermata & Ruminanta
 fall into 2 new classes not this

Mastodon & Dinotherium to connect it with
 Tapir? or Palaeotherium

p.442; p.449; p.451,2,4; p.458; p437,8;
 473,8; 483; 488; 493,4; 499,500; 505,8; 510;
 512; 514; 520; 526; 540,2; 546,8; 557

SB2 ☐R (2 sheets)

xxi Dinotherium & narrow t. Mastodon
 diminish distance between Lophiodon &
 Elefant

xxxvii - On relation of fossil to recent
 mammals of same districts to xliii no fossil
 Mammal in N. Zealand - xlv

♣ except seal - Huxley

87. variability in rudimentary premolar in
 Ursus ♣ spelaeus

111 Badger oldest existing mammal Red
 Crag

133;2 varieties of Dog ♣ doubtful case Q

173. Domestic cat. not from F. maniculata

197. On the animals which have existed
 since Peat cd form in Britain.-

212 Rabbit Bones in Corsica

214 Lagomys do & in Britain N.B variability
 of Tusks of male Elephant in India is a
 variable sexual character

261 Southern range of Mammoth in
 America. p359 of woolly Rhinoceros in
 Tuscany

296 Mastodon older than Elephas &
 intermediate in structure of teeth

334, 342 affinity shown by rudimentary
 organ

(over) 2

394 Elasmotherium forms link between
 Horse & Rhinoceros, especially some fossil
 Horses.

413 Fossil genera between Sus &
 Hippopotamus

432 Anoplotherium, remarks on rudimentary
 teeth in Ruminants; young of latter approach
 anoplotherium.- (N.B. A form whilst forming
 would not spread?♦) p.436

540 on Rudimentary teeth in Whales, &
 embryonic character in Ruminants

514 Bos longiform parent of British wild
 cattle

title page *wb* 1846 xiv 31-33m xv 35-36m
 xvii 21-24m xx 16-19m, 29-31m xxi 1-3m,
 25-26m, 30-31m xxii 1-3m, 10-11m xxiii 24-
 33m xxiv 1m/w♦ at same time 20-21m, 29m
 xxv 1-8m, 16-19m xxvi 17-20m xxviii 12-
 16w♦ about Tiger swimming a few miles
 xxxi 25-27m xxxii 7-9m, 21-27m xxxiii
 19-20m (Nilsson)/w see Description to
 understand fully *wb* altogether 2. Bos
 Primigenius & longiform 2. Bisons priscus &
 minor xxxiv 25-30m, 32-33m xxxv 33m xxxvi
 1-5m, 6-10m xxxvii 1-2m, 5w Hippopotamus
 7-11m, 14-19m, 27-31m xxxviii 9-11m, 13-
 17m, 18-19m xxxix 10-14m, 15-16m, 31-32m
 xl 11-12m xlii 9-13m xliii 4-6m, 17-19m xlv
 6-8w (see my Journal) 10-13m, 23-26m xlv

OWEN, FOSSIL MAMMALS

3-8m 7 11-13m 8 8m/u, 21-23m 9 18m, 20-24m, 23m 10 5-6m (Lyell) 20 21-22m 25 9-11m, 13u▲ "gigantic Beavers", 14u "water-mole", 17-19m, 22m 27 1-3m/3u 28 21-22m, 25-28m 31 33m 49 5-8m 52 24-26m (Cuvier) 53 13-16m, 24-28m 54 1-4m, 31-34m 55 1-6m, 27-28m (Cuvier) 56 9-11m, 31-34m 61 9-12m 62 3-6m 67 29-33m 69 15-16m, 27-29m 74 3-6m 76 6-8m, 9-14m (Cuvier) 78 10-14m, 28-33m, *wb* Philippi shows in shells, that decrease in size does not go with increasing rarity 79 1-3m♦, 5-6m♦ 80 8-10m, 11-14m 81 3-4m/4u "very|exceptions", 25-27m/26-27u "from|character" 83 24-25u "in|obliterated" 86 23-25m 87 18-20m, 21-22m/w ∴ direction variable? 88 20-23w firm species are hard to settle from Bones 91 9-17m 99 5-7m/5-6u "the|destructive" 107 1-3m, 27-34m 109 14-17m 111 22-24m 112 16-21m 114 10-13m, 15-16m 116 4-5Q 117 18-19m/u "the|Weasel" 121 21-22m, 33-34m 126 4-5m 127 27-30m/29u "Wolf|Dog" 128 28-31m 129 12-21m 130 2m, 5-12m, 19-21m (Cuvier, Daubenton) 131 4-7m, 19-22m, 24-30m, 32-33m 133 6-7m/6u "two|notably", 11-13m (Blainville), 21-22m/! (Schmerling), 22u "recent", 23u "Human remains" 135 2-4m/! (Bell), 30-32m 171 9-15m 173 12-15m, 19-20m, 22-23m (de Blainville) 178 12-19m 192 7-9m 197 11-26m 202 8-16m (Lyell) 208 12-14m (Bell) 211 16-21m, 24-26m 212 15-16m/u "osseus|Corsica"/w See to this as change of surface 213 15-17m, 21-24m 214 8-10m, 14-15m 215 27-28m 216 4-7m, 13-15m 220 1-4m 232 3-8m 236 1-5m 243 31-33m 244 33m 245 24u "hundred|sixty" 261 15-17m 293 16-21m 295 17-22m 296 2-5m, 27-31m 300 10-11m, 31-32m 311 10-13m, 15-19m 334 1-12m, 9-13m (Cuvier)/w affinity from abortive organs 341 6-13m, 36-38m 342 20-26m, 33-35m (Pallas) 346 1-2m/2u "Caldy Island" 350 13-19m 354 12-17m (Pallas)/12-22w England & N. America good case of range, interrupted, with Siberia between 359 26u▲/23-26m/w This is the cold animal 32m 372 8-13m 381 4-7m 384 23-25m, 28m 385 9-10m, 14m, 23-25m (H. von Meyer) 388 5-6m 390 29-30m, 33m 391 9-15m 392 10-12m, 21-22m (von Meyer) 393 1-4m, 22-26m, 27-33m 394 1-5m, 7-9m 397 1-3m, 14-16m, 19-21m, 29-33m/w 4 species in England *wb* ? whether Drift & Pliocene & caverns will not turn out very different periods 413 13-16m, 23m 414 25m/w Eocene 415 1-3m 418 14m/14-17w X analogical or real 18-22nm 25-28m 427 11-12m, 16m, 20m 429 2-4m, 20-22m 430 12-15m 432 12-13m/7-16w Reference to Lamarcks views 16-17m/!/u "or rudimentary", 19-20m, *wb* Owen says young of present

Ruminants in not having horns & rudimental teeth approach Anoplotherium 433 5-12m, 31m (Goodsir) 435 17-20m 436 27-30m, 31-34m 441 wt/1-18w Did ruminants then exist in some other quarter - 1-3m, 4-5m, 9-10m/10u "for|Ruminant", 15-18m/18u "young Musk-deer" 442 26-28m 443 1-8m 449 32-34m 451 6-8m 452 4-5m, 13-14m, 18-19m, 29-30m/29u "The|both" 453 32m 454 7-10m, 26-29m 458 28-29m/28u 467 19-25m 468 3-7m 473 3-9m 478 8-10m, 11-14m, 18-20m, 23-28m, 29-32m 483 25-29m 488 9-13m, 19-20m 490 2-4m, 8-10m/9u▲/10u▲, 14-15m, 19-20m 493 24-30m 494 28-31m 495 6-10m, 19-21m 496 3-9m, 17-19m 497 23x, *wb* This seems whole evidence of Bison minor 499 21-23m/w now extinct? 500 12-20m, 31-33m (Bell)/w V. p.510 505 2-4m 508 18-20m 509 wt Nillson (V. Annals 1849 p.350) makes another doubtful species *B. frontosus* 1-2m (von Meyer) 2-5m (Cuvier) 3x, 7-10m, 19-22m/21x/21-22u "primitive|Bos", 31-32m/32u "species" 510 wt/1-29w NB The Rhinoceros, Elephant Hippotamus (Horse?) *Bos primigenius* & *Bison priscus* all having had such immense ranges; is opposed to the cattle of different parts of Europe being descended from several species. 1u "or variety", 10-13m, 11-13m, 27-31m 511 6-11m (Ball), 30-32m 512 33-35m, 36-39m/38u "have|Bos" 513 1-2m/x 514 7-14m 515 6-9m, 18-22m 520 14-16! 526 10-11m 540 25-33m 541 1-8m, 26-27m, 32u "eocene"/31-33m/w♦ only probable age → 542 5-7m 546 3-8m (Cuvier, Mantell) 548 29-33m/31u "still|any"/! 557 4-5m/u "referred|approximated", 21-25m

OWEN, Richard *Lectures on the comparative anatomy and physiology of the invertebrate animals* 2nd edn; London; Longman, Brown, Green & Longman; 1855 [CUL, S]

ad, af, beh, br, ci, cs, em, ex, fg, gd, hl, ig, oo, phy, sl, sp, sx, sy, t, ti, tm, v

SB1 91; 110; 125; 130; 152; 153; 157 to 162; 179; 183; 187; 194; 208; 211; 212; 220; 223; 236; 239; 254; 264; 267; 268; 297; 301; 324; 334; 339; 342; 346; 354; 399; 405; 406; 425; 437; 439; 443; 455; 459; 467; 476; 479; 498; 508; 521; 525; 527; 528; 537; 543; 560; 563; 565; 566; 576; 589; 603; 615; 638; 642; 643 to end

SB2 □β

86 Union observed in Planariae
125 Hydra sometimes male, sometimes female, sometimes both Q variable by double organs p.137 Q▲

151 Spermatozoa escaping from Bryozoa Ch.3▲

161 My notion of relation of Medusae & Hydrozoons
 179 On dioicous Acalephae
 213 Synapta only hermaphrodite Echinoderm
 221 Parasite of Synapta, wd seem impossible to cross
 239 On Homology of Tracheae (?) Q
 256 Earth worm & Leech unite
 264 Great diversity in having or not metamorphosis in Annelids
 268 346 In low organized classes, there is extreme gradation in forms – Perhaps more extinction in lower than in higher forms
 297 Thinks Larvae typical of Epizoa & Cirripedes!
 425 In all insects the 1st segment is quickly modified & most modified
 439 Owen compares Embryo of Vertebrate, of independently living to larva
 443 Arachnids a short special branch, beginning very low
 455 Spiders with both pulmonary sacks & Tracheae
 459 Hermaphrodite Acarus 467 do
 477 Solitary Ascidians of distinct sexes, aggregate hermaphrodite
 521 Lamellibranchs generally dioicous
 527 Doubts locomotion in larval stage of Molluscs
 539 Pteropods coitus reciprocal
 543 Gastropods, before Lias have simple shell-mouths
 560 In a few Gastropods pulmonary sack combined with Branchiae
 565 Bulini make nest for eggs with leaves – is it water tight? in Coll. of Surgeons
 567 Larvae of naked Mollusc Tritonia survived for 2 weeks in sea-water
 577 Nautilus Pompilius & Spirula only representative of the vast assemblage of old Cephalopods – (single species in genus) Vide p.650 Classification
 603 Belemnite combines characters now separated
 638 No Metamorphosis in Cephalopods & I believe none in Spiders
 643 Vegetative repetition
 645 all organisms alike in very earliest stage – 647
 648 Laws of embryological development

8 6–9m, 10–17m 29 39–41m (Barry) 38 32–34m
 39 32–34m, 33–34m 42 34–40m 58 12–17m 69
 6m, 7–8m/7u "androgynous", 12–15m/14u
 "small orifice"/15u "pore\male", 22–24m 86
 34–37m 91 34–37m/35u "dioecious generation"
 92 40–42w (renumbering of lines of text which
 are wrongly ordered) 93 1–6w (renumbering

continued) 1, 6, 7, 8, 2, 3, 4, 5, 9 110 36–39m
 118 27m 125 15–17m/Q 130 7–14m (Ehrenberg
 and Krohn) 135 22–25m 137 14–19m/Q 150
 15–16m, 33–35m (Van Beneden) 153 16–19m/w
 but others are dioecious 157 14–21m 159 12–
 24m 160 14–19m, 23–25m 161 6–9m/8u "few
 analogous"/wt/1–22w If some larvae of Beetle
 truly bred in this state we shd have then
 have parallel of Hydrozoa & Acalephae. If
 the male glow-worm had been like female
 then wd have been case. But all Acalephae–
 ought to have hydrozoa larvae, without the
 embryo be concealed in egg state i.e. either
 Hydrozoa or none.– p183 some have &
 p187 40–42m 162 1–6m 179 11–13m, 17–18m
 182 35–38m 183 5c "3" 7 7–12m 184 fig.w
 The Medusa first produces an infusoria
 planula which turns into a polyp 187 35–37m
 188 1–3m 191 13–15z 198 1–6z 199 6u "star-
 fishes", 8–12m 208 8–9m 211 38–40m 212 34–
 36m 213 1–3m, 7m 216 39–43m (J. Müller) 217
 8–11m (von Baer) 220 29–33m (J. Müller) 221
 11–16w Mollusca parasite of Synapta 30–
 32m/w seems impossible to intermarry 36–
 40m 223 15–25m, 27–31m 236 1–5m 239 24–
 34m/26–27Q/29u "lateral sacs"/33–34u↔ 254
 37–40m 255 22–23m, 25w worms couple 28–
 29m 256 18–19m, 30–31m 264 6–19m, 21–24m
 267 21–28m 268 6–7m, 26–29m, fig.114.w
 Extinction. 269 14–15m 283 33–37m 297 1–2m/
 !/1u↔, 41–42m 301 37–39m 324 27–37m/w
 Daphnia do their females or larvae undergo
 metamorphosis 325 31–36m 334 1–4m 339 5–
 9w not adapted to active life 342 14–30m 346
 7–11m/7–16w retrograde development or
 rather in another line, less height.– 23–26m/
 26–27u "the\varied"/19–28w because not
 really lowest, but retrograde developed 353
 5–6m 354 40–43m 399 10–13m, 32–34m 405
 29–33m 406 17–21m/w I wonder whether
 any○ selection 425 5–9m 437 17–21m 439
 15–17m/16u "the\structure", 37–41m 443 20–
 25m 445 36–41m (Simon) 446 5u▲, 8u "water-
 bear" 447 40–43m 455 23–29m 459 24a
 "Macrobotus"/24u "is androgynous"/19u▲/19–
 22w is acquatic p446 23–26w p.446 see fig.
 of.– 466 41–43m 467 36a "Macrobotus"
 aquatic 37–38m/38u "hermaphrodite", 39w/wb
 Inhabits follicles in skin – p.445 they swim in
 Pus– ∴ hardly land animals 476 33–35m/
 34w● 477 37–38m (van Beneden) 479 7–10m
 (Milne Edwards) 480 19–23m 481 15–23m 483
 31–32m (Krohn) 498 34–37m 508 13–19m/w
 nearly terrestrial 521 35–37m 522 26–28m
 (Krohn) 523 2–4m, 23–26m 525 27–31m, 29–
 32m 527 33–40m (Forbes), 42m 528 11–13m,
 14–16m, 29–32m 529 19–23m, 36–38m 537 40–
 41m 539 31–33m 541 1–2m 543 22–25m 560

OWEN, INVERTEBRATES

7m, 12-14m 563 1-2m 565 8-10m 566 9-10m/
w how transported 567 18w Tritonia 19-20m,
41m 568 30-34m 576 24u "from|types", 35-
37m 577 5-6m/6u▲/w Dibranchial 589 17-
18m/18u "ink-gland" 603 11-17m 605 8-12m
615 1-2m 638 21-30m/21-24w p.466 Q 34-
38m 641 22-27m 642 1-6m, 34-37m 643 1-5m
645 21-24m, 30-36m 646 15-17m 647 11-14m,
27-35m 648 2-7m, 10-18m, 18-22m, 27-31m

OWEN, Richard *On the nature of limbs*
London; John Van Voorst; 1849 [CUL]
ad, af, ch, ds, em, fo, h, ig, rd, t, tm, ts, v

NB I look at Owens Archetypus as more
than ideal, as a real representation as far as
the most consummate skill & loftiest
generalizations can represent the present
forms of Vertebrata.- I follow him that there
is a created archetype, the parent of its
class

NB2 2; 9

SB □β

2 the primal pattern of all the modifications
of a part

9 Man does not trammel himself in his
inventions by any common type

10 Final causes not sole governing principle
14; 37

13 Capital comparison of hand of Mole, Bat
& Fin

33 In Elk rudimentary hoofs of use in marshy
ground

35 Abortion of one toe variable in Ourang

39 a desire to ascend to cause of
Homologies

40 On Head of Human foetus formed of
pieces for parturition not applicable? Chick

45 Horses legs & Lepidosiren good contrast
if simplicity from abortion & original

45 Only rudiment of Pelvis in Whales - 78
rudimental limbs in Boa

82 Lepidosiren realises nearly ideal
Archetype (see my remarks at end of
Volume)

84 Some think falsely (I argue. that
conformity of plan is opposed to idea of
design.

86 Alludes in grandiloquent sentence to
some law governing progression, guided by
archetypal light - &c.-

99 Vertebrae of head & thorax first
developed

103 on variability of coalescence of segments
of vertebrae.-

115 Rudimental tail proportionally longer in
embryo man, than subsequently.

2 28-30m/28-29u "essentiality|form", 35u
"primal pattern", 36u↔ 3 16-18m/17u "special
homology" 8 zb 9 33-36m 10 9-11m 13 1-3m,
22-25m, 33-35m 14 3-6m 15 1-2m 30 9-14m
32 19-23m 33 20-24m/21u "dangle|project" 35
6-8m/7-8u "commonly", 10u/wε 36 28-31m 37
27-36m 39 14-28m 40 6-11m, 24-26m 45 22u
"lepidosiren"/9-23w In all these cases the
tibia & fibula shows that they are simple by
abortion & it is rash to argue from. about
original simplicity of limb. 23-24m/13-25w
apparently aboriginal simplicity. 31-35m/34u
"rudiment" wb The contrast between the 8
almost singly serial bones of Horses leg.
(p8) & appendage of Lepidosiren good
instance of ♣ rudimentary & primeval or
transitory stage 49 28-31m, 35m 56 10-14m/!
10u "return|it"/12-13u "development|point",
16-18m 59 17-18u "osseous fishes"/17-21w
What is relation in Sharks? 78 21-29m 79 15-
19m 82 33-35m 84 12-14m, 21-34m 86 7-9m,
12-17m 89 34-39m 96 39-40m 97 1-8m 99
29-36m 103 27-30m/?, 33-37m 115 6-10m

OWEN, Richard *Palaeontology* Edinburgh;
Adam & Charles Black; 1860 [CUL]
e, geo, ig, tm

NB 57 & 69 shows how important record is
70; 132; 145; 150; 152; 199 Enaliosaurians♦

SB □X ♦
57 & 69 & 70 shows how imperfect record of
Mollusca is

132 gradation in ossification of first bones
145 generalised ancient member of Sturgeon
Family

150 The History of Fishes indicates mutation
rather than development - good remark -

57 2-4m 69 30-33m 70 12-15m 132 16-19m/w
grades 145 15-19m 150 16-22m, 31u "special
piscine type" 151 10-14m 152 6-8m 199 9-21m

OWEN, Richard *Palaeontology* 2nd edn;
Edinburgh; Adam & Charles Black; 1861
[Down, S]

25 9-14m, 24u▲, 27u▲ 27 22-25m 28 5-6m 30
19-31m 39 9u▲ 54 32c/wε 55 2u "long", 8-
10m/9u "mid", 24u▲ 57 1u "having|spires",
4u "deltidium", 11u "internal partitions"

∅

OWEN, Richard *On parthenogenesis* London;
John Van Voorst; 1849 [Botany School, I to
Alexander Bain]

OWEN, Richard *On parthenogenesis* London;
John Van Voorst; 1849 [CUL, I]
br, ci, em, fg, h, he, in, -phy, sp, t, ti, v

NB ♦ 13; 25 metamorphosis of epizoic Crust

5, 6, 7, 8 Pangenesis
25-26 - Owen's Belief

64 do

75 Pangenesis - buds & ova alike

Remember that Metagenesis (generation or growth within) blends into Metamorphosis - any explanation for one must hold for other.-

SB1 □ 13; 20; 25; 35; 53; 62; 64

To Owen's view, there appears to me ♣ 3 objections.- 1st the astounding diffusion of the spermatic force in many mosses & c which for centuries do not breed - 2d the vis medicatrix - nails produce over stump in Man's ♣ fingers, which facts blend into gemmation. 3d facts of buds & c partaking of character of old time, & not varying, whereas seeds go back & take new characters.= 4th (p26 - growth & gemmation are hardly distinguishable

SB2 □ β

13 Larva of cirripede more typical of class than Mature Barnacle

title page *wb* 1849 5 27-35"..."/32-35m 6 8-9m/8u "individuality|spermatic" 7 26-28m 8 22-23m, 25u "legacy|virtue" 9 29-34m 13 4-8m 20 7-16m (J. Müller) 24 19-22m, 28-31m 25 14-17m, 21-24m/25-27m/"..."/23-27m/17-34w He uses expression that it is Metamorphosis - growth within 36m/"... 26 1-5m, 6-10m/6...", 8-22w all growth may be thus called parthenogenesis for metamorphosis gradates into metagenesis 35 29-35m 53 5-11m 62 3-8m 64 3-7m 75 11-13m

PACKARD, Alpheus Spring (the younger)

A guide to the study of insects Salem; Essex Institute; 1868 [Down]

beh, sx, tm

NB1 124 On Cells of Bees

NB2 149; 177- Mutillariae females wingless, but in 2 species females winged; Habits of Ants

177 28-32m 181 10m (*Huxley, Latreille, Kirby, Spence*)

PACKARD, Alpheus Spring (the younger)

Insects injurious to forest and shade trees Washington; Government printing office; 1881 [Down]

PAGE, David *Man, where, whence and whither* Edinburgh; Edmonton & Douglas; 1867 [CUL]

beh, cc, ch, ex, geo, gr, h

NB ♦ Man; 55; 62 good Q; 88; 92; 98; 142; 153; 171; Extinction of old civilisations

55 17-24m (*Agassiz*) 62 6-8m/1-12w Tropic Dr Hayes ♣ yet little change, not more than between Tropic of old & new world 8-13m/16-22w Effects on Habits of Life 88 12-19m, 19-23m 92 6-16m/9w refer to 98 *wt* but not through inheritance 3a "members"/3-8m 142 22-27m (*Huxley*) 143 1-7m 152 24-27m 153 1-5m/1w *Lyell* 170 12-17m 171 23-28m (*Owen*)

PAGET, James *Lectures on surgical pathology* vol. 1; London; Longman, Brown, Green & Longman; 1853 [CUL]

af, beh, cc, ch, che, ct, em, h, he, in, pat, phy, rd, sx, t, ta, tm, v, y

NB p.25;32; 39 & 41 Size of Bloodvessels through attention to part- Expression; 63; 67; ♦ I have read First 3 & last Sections; 69; 71; All read; Ch 7 wd be worth reading; Pangen♦; p.11♦; p.13♦

SA (pp. 38-39) □ β

Lectures p39 & 41 On thought increasing Blood-vessels

SB1 Pagets Pangenesis 1

♦ p.11 growth of new tooth & hair by offset go for simile with cell-gemmules

♦ p.13 each hair

•♦

a feather lives its appointed time & then dies.

p.19 On differences in parts or cells appearing alike as shown by symmetrical diseases due to ♣ matter in blood which has affinity with those certain parts

✓ O 27 On affinity of each part for

PAGET

certain substances in blood Kidneys for urea & for certain morbid poisons. as chancre.- Hydrophobia

50 scar propagating itself for years; & bears on blood altered for life by certain diseases

72 transplanted spur of cock, excessive growth of.-

150 ✓/✎ Repairs of parts wonderful provision ready though so seldom wanted.- adult repaired by adult form - tail of tadpole-hence same force which was O before occupied in its maintenance during wear & tear

154 ✓/✎ power of reparation inverse to amounts of power, already consumed in development of individual

158 Gemmation retards repair of injury

159 Nais cut into 30-40 pieces & all formed individuals

163 Insects which do not go through much metamorphosis can alone when adult repair injuries p.164 power of development of embryo same as that ♣ in restoration from injury

SB2 181 & 331 The theory of coagulable lymph developing structure & as I supposed containing gemmules

219 ✓/✎ - cuticle on sole thicker than elsewhere & so renewed, independent of pressure. good sentence to quote under Nisus, & on identity of power of development & of repair

239 Q On the tissues of scars gradually & slowly altering & assuming proper character

243 first material thrown down in uniting Bone.

343 assimilative power was assigned formerly to each tissue or the coagulable lymph in the vicinity

357 ✓/✎ False membranes assume character like adjoining parts ✎ 369 Lymphatics

384 on Pus cells

✎ 254 Repair of Bones

✎ 256 good

SB3 ✎ Pangenesis; Pagets Lectures on Path.

11; 13; 19-20; 22 ♦ Laws of Variation ♦; 27;

32 ♦; 50; 58; 60 good - refer to in *; 72;

150; 154; 158; 163; 164; 181 good; 199 ♦

Nisus formativus; 209 quote; 239; 243; 263;

268; 290; 331; 343; 351; 357 Ask- Nisus

Formativus; 384; 483 Direct Action

I must say that Paget maintains that ordinary reparation & growth & gemmation &c are all the same.-

[I shd say that unknown cause prevents a man cut in twain from reproducing - partly too much injury]

SB4 □β ⇨

25 Rudimentary organs serve to excrete matter Human foetus covered with wool

27 Kidney increases & does double work if one destroyed 67 skin growing thicker from use

39,41 on thought of part increasing blood-vessels

71 on growth of Hair, near where surface inflamed 73

72 enormous growth of spur on comb did not decrease spurs on legs

SB5 ✎

✎ Mem.- it is possible that gemmules may come from surrounding tissues & be developed in the Lymph - case of Negro-skin looks like this so with elastic tissue, which comes afterwards.-

(over, part ✎)

Mullers Phys I p410 speaks of effused Lymph as transport & formation of new parts as due to its reciprocal action on inflamed adjoining structures.

[p416 regenerated skin in Negro after a time became black.- shows that gemmules entered after a time over

1 zb 11 2u "shows |connection"/wt/1-6w These germs must be very different from my gemmules; far larger & with power of male & female gemmules uniting - probably always distinct & not united into germ like that of tooth. Yet there is analogy in these cases. 15-19m, 15u "from |germ", 16-17u ✎ "separating |germ", 28-34m (Kölliker)/15-34w These germs may be compared with offset-bulb 13 15-19m 14 3m 18 15-24m 19 3-5m 20 11-16m 22 7-10m (Budd), 12-16m 25 21-32m/22-24w like milk teeth 33m 26 1-9m, 9-14m 27 1-9w special affinities 12w Hydrophobia 13-16m, 17-20m 32 5-12m/9-15w Horns for fighting 13-17m, 19-24m 33 10-16m (Treviranus) 39 29-30m 41 14-17m 50 15-25m 58 12-13m, 14-15m/18a "But"/w not 23-28m, 28-33m 59 7-11m, 14-17m, 17-18m 60 1-31w How on my view can milk ♦ 2d teeth, what are effects of old ♦ first teeth resemble those of father 5-9m, 17-21m, 25-30m/w important 31-34m/34w good 61 3-5m 63 12-13m/u "dependence |composition" 67 9-16m 69 5-9m, 22-26m 71 10-14m, 22-25m/w Bears perhaps on wet producing more hair 35 → 72 2-6m, 16-18m 73 4-6m 150 2-6m/"..."/6c/7c✎, 32-34m 151 1-3m/1-2u "to |parts", 9-29w Newport has some remarks on this in Myriapoda 31-34m/w tail of tadpole which ● cut off 152 15-19m/17x ✎ 154 7-9m, 13-18m/13-16m/11-21w when body grows old

gemmales like rest of structure cannot multiply. 155 1-2m 158 27-29m (Trembley) 159 2-5m, 8-11m (Lyonet)/9u "Nais" 163 6-8m/w some mature incr 164 4-10m 181 8-14m/1-31w must contain gemmales of many kinds; coag. lymph. I suppose is not cellular but forms cells 29-33m, wb p198 - coagulable lymph is apparently ♦ exuded always with ♣ some inflammation.- 182 1-6m, 23-30m 187 5-7m 198 10-12m 199 3-6m/w false membranes 209 1-2m, 11-18m/w from Coag Lymph but has said before on Hairs 28-31m/"..." 210 6-8m 217 1-3m/wt outgrowth of Blood-vessels into granulations 238 13-16m, 19-22m 239 2-4m/4u "change|year", 7-11m, 12-19m 243 28w Bones 29-31m 254 8-13m 256 ☉ 11-13m/12u "exposed", 14-15m 257 ☉ 9-14m 263 30-34m/30w cartilage 268 11-12m 290 10-12m 331 9-10u "coagulable lymph", 11-19m, 11u "inflammatory exudation", 12u "pellucid", 13u "through|capillaries", 17-19m, 34m 333 wt These are evidently formed 2-5m, 2u "coagulation|ordinary", 3u "corpuscles form", 9u "corpuscles|cells", 10-14m, 15u "first", 20-22u "not|nucleus", 23u "in|hours", 24u↔, 26m 334 7u "exposes|nucleus", 9u "the|cells", 15u "various degenerations", 15u "pus-carpus" 335 3-10m, 31-35m 343 22-34m 351 1-3m, 16-18m 356 6-10m, 10-12m, 14-15m, 33-34m/34u "fibrous|ligamentous" 357 2u "bone", 2u "osseus", 3u "epithelium", 3u "epithelial", 7-9u/7w Bone?? 14-18u↔, 23-27u±, 32-34m 369 11u☉ "that|first" 384 28-31m/19-31w Differs from L. Beale 483 20-30m

PAGET, James *Lectures on surgical pathology* 3rd edn; London; Longmans, Green & Co.; 1870 [Down, I]

PALEY, William *A view of the evidences of Christianity* London, 1822, 7 vols [CUL.1900]

vol. 1, 130 ↑11-8m 307 9-11m 315 6c "fortuis" 342 11-13m

vol. 2 NB 159

33 11-15m 34 ↑15-10m 39 wt Peter & John 41 wt Stephen 18w persecut 43 11w James 44 ↑6-5w Barnabas 45 3u "one"/w Paul ↑5w Luke 46 wt● 57 ↑10-5m 80 ↑2w Matthew 81 1-10w Mark Luke John 140 1-7m, 9-17m, 9-17m, 20m, 20m/u "our Digesta", ↑10-9m/u "Old|Testament", ↑6-5m 190 16u "Nothing"/w the letting of a house some times depends upon it! 233 18-25m 236 ↑18-1m 238 ↑15-1m 239 1-6m, 13-16m 257 ↓m 258 1-20m 263 1-12m 264 ↑7-1m 265 1-20m 269 ↓m 270 1-6m 272 ↓m 273 ↓m 274 ↓m 275 ↓m 278 1-15m 280

1-6m 289 9m 309 13m 310 6-10m, 16-22m 335 ↑18-1m 336 1-12m 341 ↓m 342 ↓m 385 ↓m 386 1-8m 393 ↑20-1m 394 ↓m

vol. 4, xxii "vi-xxii".m xxiii "Part II".m, "x-xii".m/w read "Part III".m, "Book IV".m/w read "Book V".m/m xxiv "Book VI, ch x".w read

vol. 7, vii-xiv (dates between 29 November 1840 and 4 September 1842 written against contents entries)

PALM, Ludwig Heinrich *Über das Winden der Pflanzen* Tübingen; C. Richter; 1827 [CUL, pre-B]

gd, mhp, or, phy, sp, v, t, wd

NB1 Phaseolus cirrosus; 29 & 52 Momordica winds to left; 52

NB2 p.34 Hops

NB3 ☉ Species Theory

p.26 Convolvulus sucking plant like Cuscuta.- origins of new habit - Anagous var. see p.45 perhaps describes growth of papillae of Cuscuta

41 on certain plants becoming ♣ Twiners - good analogous variation.- see my Paper on Climbers

☉ p45 On growth of Cuscuta

☉ p2 Movements of Plants

1 ↑4-1m 2 19-21m/19u "Calcana" 6 17-23m/23u "Fünftel", 26u "6|10" 7 6-7w 4/5ths 10 27-32m/27-28u "die|führen" 11 3-7m/4x☉, 19u "Blumenstiele", 21u "Amplideen", 22-24m, 32-34m/33u "Blattstiel" 12 18m/w 424 22m/w 339 24m/w 378 29m, 31m/w 589 33m/w 402 13 2m/w 664 33m/w 653 14 2m/w 686 6m/w 511 8m/w 524 12m/w 538 16m/w 281 20m/w 205 21m/w 205 23m/w 158 25m/w♦713? 27-28(line across page), 29-31w all world not - Lindley 15 12m 16 17-20m, 32-34m 17 6-8m 18 8-10m 26 10-19m 27 2m 28 25-27m/26u "Arten|Gattung", 30-31x☉, 30u "wahrscheinlich", 31u "Gattungen|natürlichen" 29 14u "Passiflora", 14u "Mormodica" 30 31-34m/x☉/32u "Stengels|sich" 32 26m 34 3-4m, 6-8x☉, 13-17m☉ 35 31-32m 41 3-4m/x☉/u↔, 15-20m, 22-26m/x☉, 26-28u↔/28-30m/25-30w wild plant 42 6-9m/7-8u "es|Habitus", 21u♦ 43 10u☉ "Periplora", 14-16x☉/u "denn|Aesten" 45 9w not read 48 19u "sich|Gegenstände"/17-21m/w Mohl devices 52 11-15m 53 27-29!, 28-30! 54 15-17m 55 3-6m/4x☉/u "für|hält", 26-27m/u "sind|Blumenstiele", 29-30x☉, 31u "Sie|von", 32-33u "und|untersten" 56 5-12w do not curl up 12-14x☉/m 57 14u "Cardiospermum", 16-24m/22-24m☉, 32-34m 58 5-7m/5x☉/u♣, 30-34m/

PALM

34x/23-34w Cirri more like Ivy Plants 60 12-14m, 14-15x/m 61 11-12m, 23-29m/14-29w Will not twist Ivy 62 27-28m/28u 63 10u/10-11w Linaria ● 14u "die|selbst"/x 68 31-35m/33-34x 79 20-22m 92 13-14x, 15-28w no irritability!!! 93 4-7m/4-6m, 7m/x 94 30u, 31-33u "ersteres|Windung" 95 wt This shows his theory 1m, 5-6m, 7x, 9u "Die|Spiralform", 33-35m/34m/u "mit|Breite" 96 3-7m/5x, 32-35m/x 97 34u "die|selbst" 98 1u "aber|variire", 10-11u "indem|Pflanzen", 15-16x/u, 26-27m/u Wachstum|unabhängig"/x 100 21m/21-22u/1-25w there is no relation of quickening in movement of cirri to revolution 31-33m/31m/u "paralell|Wachstum" 101 wb I cannot make out whether he knew revolving movement of tendrils

PAOLUCCI, Luigi *Il Canto degli uccelli* Milano; G. Bernardoni; 1878 [CUL, I] ♂

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PARIS, John Ayrton *The elements of medical chemistry* London; W. Phillips; 1825 [Down, pre-B, S] ♂

PARIS, John Ayrton *Pharmacologia* 6th edn, 2 vols.; London; W. Phillips; 1825 [Down, S]

PARKER, William Kitchen *A monograph on the structure and development of the shoulder-girdle and sternum in the Vertebrata* London; The Ray Society; 1868 [Down] ♂

PARKES, Edmund A. *A manual of practical hygiene* 4th edn; London; J. & A. Churchill; 1873 [Down, FD]

PARKINSON, James *An introduction to the study of fossil organic remains* London; Sherwood, Neely, Jones & W. Phillips; 1822 [CUL, ED, S (Erasmus crossed out and replaced by Charles)]

PAUCHON, A. *Recherches sur le rôle de la lumière dans la germination* Paris; G. Masson; 1880 [Down, I] ♂

PENNANT, Thomas *History of quadrupeds* 3rd edn, 2 vols.; London; 1769 [CUL, S in vol. 2]

beh, hy, tm, v

vol. 1 NB ↔ 237-242; p.21

21 16m 33 11-14m 34 14-17m 151 1m 237 1m

238 16-17m, 21-27m/21u "produced|puppies"
239 22-26m 242 17-21m/20u "vide|i.49"

vol. 2 (markings presumed not by CD)

PERNETY, Antoine Joseph *Journal historique d'un voyage aux Îles Malouines en 1763 et 1764* 2 vols.; Berlin; Étienne de Bordeaux; 1763-64 [CUL, pre-B]

vol. 2, 438 1-9m

PERRIER, Edmond *Les Colonies animales* Paris; G. Masson; 1881 [Down, I] ♂

PERSOON, Christian Henrick *Synopsis plantarum* 2 vols.; Paris & Tübingen; C.F. Cramer & J.C. Cottam; 1805-07 [CUL, ED] gd, sx

vol. 1, 222a 31m, 38m, 43m, 52m

vol. 2 NB1 Eucalyptus Icosandria
NB2 Many monoecic dioecious plants in New Zealand & many trees & bushes compare Monoecic & Dioecious here marked by crosses

(untranscribed w: W meaning Water-plants)

506b 15u "labello tripartito" 512a 7-10m 529b 4w, 30w 530a 11w 531b 5m 532a 37w 532b 19w 534a 17w 550b 11m 551b 9m 557b 23m 561a 9-11m 562a 28m 562b 21m 565a 27m, 42m 566a 2-3m, 11-12m, 45-46m 567a 18-20m 571a 43m 571b 25-26m 572a 15-17m 572b 46-47m 573a 16-17m, 28-29m, 50-51m 576a 32m, 49-50m 576b 1121m, 114m 577a 50-52m 578a 2-3m, 36u "geminis elongatis" 579b 36m, 52m 580a 31-33m 580b 32m 588a 39-40m 588b 34-35m, 45-46m 589a 3-5m, 15-16m, 32-33m 596a 6m 597a 6-7m, 33m 597b 28m 598a 50-51m 598b 21-22m 604a 41-43?, 44m, 54-55m 608a 6-9m 612a 32-33m, 41-43m 612b 31-33m 616a 12-13m, 35m, 39-40m 616b 47-48m 617a 2-4m 622a 12-13m, 29-30m, 42-43m, 51-52m 622b 43-45m 623a 2-3m, 14-15m 623b 3-6m 624a 24-26m 626a 2-4m, 20-21m 626b 2-4m 628a 47-48m 628b 27-29m 629a 23-24m 639b 9m 630b 29-30m 632 6-8m, 21-23m 632b 39-40m 633a 22-24m 634a 44-46m 634b 22-24m

PETTIGREW, James Bell *The physiology of the circulation in plants, in the lower animals, and in man* Edinburgh; Oliver & Boyd; 1873 [Down, I]

PETTIGREW, James Bell *On the physiology of wings* Edinburgh; Neill & Co.; 1871 [Down, I]

PHILIPPI, Federico *Catalogus plantorum vascularium chilensium* Santiago de Chile; Imprenta Nacional; 1881 [Botany School, I] \wp

PHILLIPS, John *Geology of Oxford and the valley of the Thames* Oxford; The Clarendon Press; 1871 [Down]

fo, geo, sy

NB p.404 on the filiation of Secondary Molluscs

404 1-9m/w see previous cases 405 17-20m/17w Palaeotherium

PHILLIPS, John *Life on the earth* Cambridge & London; Macmillan & Co.; 1860 [CUL, I] ch, fo, geo, ig, ir, or, sh, sp, t, ti, tm

NB1 (a) argue against this; it is not always the perfect types which first appear - Ruminant & Pachyderms. Intermediate Reptiles - Intermediate fish-

\wp In Asa Grays Review of this book (I think in Origin Portfolio) I have some remarks on one important subject, why some forms are changing I bring forward some mammals not changing

p.163

NB2 Species Theory; 212 & 214 good (a); 66; 69; 99; 126 calculation of sediment of Ganges; 133 - Time required for formation of Coal; 141 Retrocession of Falls; 167 Age of chief axes of Britain; 207 Breaks are not real, elsewhere filled up

When I come to Geolog. Record or Laws of Succession look over this Book

69 21-27m 99 23-27m 126 9-15m/6-14w Blank interval omitted 127 17-18m/→ 129 16-20m 130 8-11m 133 24-26m/26u "127.5" 134 3-6m, 9-12m 141 23-25m 163 wb 233 167 14-19m 206 2-27w Silurian strata not like Tertiary - one steep inlet \circ at Malvern \circ 207 1-17m/wt/1-18w but what percentage of identical fossils in these stages - what term for each 3 or 4 percent 1-13w How can this be said, when we have such cases as Forbes 3 sets of shells 17-24w It is hard to judge of breaks. 210 9-21m 212 7-22m 214 4-12m, 17-26m

PHILLIPS, John *A treatise on geology* (Lardner's Cabinet Cyclopaedia), 2 vols.; London; Longman, Orme, Brown, Green & Longman; 1839 [CUL, S in vol. 1]

che, fo, gd, geo, mi, sy, t, v

vol. 1 NF Buy Brewster on Microscope

267 37-38m 268 20u "red masses"/19-21w \wp
272 19-22m 277 36-40m

vol. 2 NB1 \diamond Lyell; p.13 wretched classification; Mention this, whenever I come to S. America; Copied

NB2 18 (he means 13) List of Mam. of Europe must be referred to for notes

\diamond 46; 51; 57;

The whole of Plutonic including trap veins perhaps do not differ greatly from the whole of the Volcanic.- But in the latter there has been a greater separation of ingredients, from position, causing cooling & crystallisation

lead & silica do not separate, whilst both fluid - How is brass, & glass with red lead in it? Attraction \circ in these cases.-

63; 65; 73; 80; 83; 100 St Jago; 115; 125; 135; 160; Copied

1 zb 13 21-43m (Lyell, Cuvier, Owen, Agassiz)/26-36w not applic. to S. American fossils 24 25-27m/26u "Irish Elk" 27 15u "Irish &c" 28 27?/u "fallow"/26-29w see Bell's quadrupeds 46 27-33m/30-31w see p.50 50 \uparrow 10-1m 51 24-39m 52 1-28m 57 29-35m, wb This classification infers that there is as great a difference in the Plutonic as the Volcanic which I reject 65 9-15m, 2nd fig.m 66 11-12m, wb Felspar is in excess surely see analysis of greenstone 68 1-27m (Phillips) 72 wb There are dikes of granite 73 wt Tortuousness still more distinguishing character hence not stretched mechanically shrinking 1-37w The Plutonic rocks being so much most internally heated would shrink more than volcanic. Do most substances shrink in solidifying, yes, except water. iron shrinks?? wb Trap veins most analogous in Salisbury craigs to Plutonic: 80 37u "porphyritic", 39u "never case", wb Andes 81 17-22m/w argue granite near surface of all ages in all parts of world hence thinness of crust 83 5-39m/wb thin crust theory 84 3-20m 100 4-6m (Daubeny, Von Buch) 115 30-37m, 38-39m, wb augitic porphyry: granite:: basalt: trachyte 116 1-8m, 20-24m/w thin-crust theory 125 1-28m, zb 126 4-39m 127 1-38m (Necker) 128 1-26m (Dufrenoy) 129 15-18m/w No 135 3-18m (De la Beche) 160 12-19m (Fox) 162 14-23m (Patterson) 209 3-32m (CD)

PHILLIPS, John *Vesuvius* Oxford; The Clarendon Press; 1869 [Down]

PHILLIPS, William *An elementary introduction to the knowledge of mineralogy* 3rd edn; London; W. Phillips; 1823 [Down, pre-B]

che, mi

PHILLIPS, W., MINERALOGY

SA (pp. 224-25) Jamieson lecture 2.2.1846 about iron when cmpds. scratched
SA (pp. 62-63) ditto, about Hornblende
SA (pp. 350-51) ditto, about Tin when scratched
xxvii 26-27m cvii 4w potash 58 wtee, 17-19z wbee 114 wt/wb (calculations for making various compounds), 10m/13-20w Jamieson 136 14-16m 146 wbee 147 wtee 161 14-15m, 31-32m, 34-35m 368 1-4m

PHILLIPS, William *An elementary introduction to mineralogy* 4th edn, ed. R. Allen; London; Longman, Rees, Orme, Brown, Green & Longman; 1837 [CUL]

55 fig.wtee 218 10m, 36-37m

PICKERING, Charles *The races of man* new edn, to which is prefixed *An analytical synopsis of the natural history of man* by J.C. Hall; London; H.G. Bohn; 1850 [CUL]
fg, gd, is, ti, wd

SB1 I have not read this book sufficiently

☞ Read again

46; 74; 63; 315; 317; 318; 323; 326; 333
Table; 339; 340; 346; 366; 369; 372; 374; 377

Consult Index for History of ancient animals
♦ Mr Birch told me that History of Fowl is given in some work by Pickering

SB2 ☐☒

Selected References Oct 56

317 Dog, thinks introduced into America.-

338 Feral Animals of Pacific

315 (he means 335) Rhamses Sethos, Bullocks in Aegypt during his age

361 Domestic Pigeon in Sama Vida

374 Ancient History of Fowl

361 & in Institutes of Menu

58 on island only 2 plants & drift wood

55 transported seeds

59 lizards

46 25-33m 55 3-10m 58 13-27m, 31-34m 59 30-33m 61 31-33m 63 6-8m/7-8u↔ 75 20-29m 274 1-7m 314 ↑4-1z/zb 315 6-8m, 17-20m/25u "Greyhound|Turnspit" 317 3-6m 318 29-32m 323 25-31m 326 4-8m 339 9-11m/11u "has|wild", 16-17m/16-17u↔, 22-25m/23u "Hawaii", 23u "according|Samoa", 26-27m, 36-39m/38u "greatly|Honolulu" 340 27m 345 27-29m 346 9-11m 355 33-34m 359 36-39m/38u "Rhamses Sethos", 45m (Rosellini), wb age 360 29-30m, 43m 361 13m, 14-16m, 34-37m, 36-46m/37-46m 362 4-5m 363 13-15m 368 38u "sixth|Saccara" 369 4-21m/4-5m, 10-15m, 19-21m 370 2-4m 372 19-21m/19u "BC2200",

23u "Beni-Hassan", 29-33m, 33-37m, 39-41m 373 45m 374 18-27m, 26-28m, 29-32m/30u "Medinet Abou" 377 36-38m 415b 48w

PICTET, François Jules *Traité élémentaire de paléontologie* vols. 1 and 3; Genève; Cherbuliez; 1844-45 [CUL]

cc, ch, ds, em, ex, fo, gd, geo, hl, ig, im, ir, is, mg, no, or, sp, t, ta, ti, tm, v, wd

vol. 1 SB1 ☐β

67x-x91 Law more ancient the animal the more different from living (must mean in mass p.69)

89 argues no important differences in domestic animals

91x argues against change of species, from apparition of new types. Good like new organs

91 admits that successive stages of same formation have closely allied forms

108 curious to see how lately my conclusion wrong on coming in of Mammalia

126 what a number of monkeys over world must have existed since Eocene period & tertiary beds of Hymalaya & Brazil - continuous in Europe - How rash to judge of what world holds from Europe: no insectivora or hollow-horned Ruminants in S. America - Madagascar no Carnivora Australia Carnivora. Europe probably once an isld.

144 Cuvier doubts on species of Ursus

154 on intermediate forms

165 Dog, origin of, important

Bearing in mind Glacial periods rash to say conditions similar in stages of one formation; or if so look to space as guide.-

I will cease extracting better get new Edit

SB2 read as far as p37 ♦ Pictet Vol I

66; 80; 83; 91; 108 creation; 126; 129; 134 to End of Vol.; 362

66 16-20m 68 5-11m/5-7w Fish!! 69 6u "terrains anciens", 15-16m, 19u "térébratules", 24-25m 80 16-17u "gastéropodes", 24-30m/25w ancient 83 1-11m 89 5-16m 91 3-5m, 23-30m 108 20-25m/w immigration of ruminants?? 126 18-30w/wb What an immense number of monkeys must have existed - this highest form being Eocene convinces me of prior existence of Placental Mammifers. How many marsupials since Jurassic ones. we may always put on one side cases ie those of Brazil & N.S. Wales 127 24a "Simiae"/w old world 129 19-25w In Europe from Eocene to Miocene & only 2 fragments 134 24-26m 138 1-5m/wt/1-6w Australia now no great Carnivora - 141 1-3m/w none fossil or recent

in S. America 145 18-21m/w Madagascar no Carnivora? 149 24-27m 154 10u "bassin | Paris"/w Eocene 11-19m, 14-15m, 18-21m 157 24-25m/24u "des | sa" 158 3-4m/4u "miocène" 160 22-24m, 24-26u "dès | qu'ils", 28m 165 5-7m, 17-19m 166 10u "osseuses | Sardaigne"/10-11m 168 26-28m 172 26-27m 174 23-25m/6-25w It is evident that Carnivora more connected formerly than now 178 10-12m 182 15-19m/14-21w yet widest ranges, ought to have lived long 187 26-30m (Lund) 188 19-20m 190 14-17m 195 24-26m 212 23-25m 231 20-21m 235 10-14m 236 11-16m 237 5-8m, 11-13m, 15-16m/16w recent 238 10-11w Miocene Mastodon 255 26-29m, wb I do think it odd that not more intermediate forms - many as they are. Preservation only at periods 256 24-26m 258 20-22m 259 8-9m 260 30-31m 264 6-8m, 12-14m 267 9-12m, 14-16m 269 1-2m 274 28-30m 275 15-16m 276 13-15m 280 2-4m 288 6-12m 289 9-12m/9-25w Ruminants & pachyderms coincide in India- From Edentata of La Plata how rash to argue Rumin not created - or Australia 297 13-14m 308 9-11m/w S. America wb We see now that several tribes more restricted than at latest Tertiary period, so formerly they might have been still more so - If we knew that the Anoplotherium was created at Eocene then we might argue that Ruminants were created lately 320 16-19m 346 16-21m (Cuvier)/19u "onze espèces"/16-21w cf. Water & Land Birds! 13-25w/wb How strange not more common in Secondary period - Lobsters Fish in Old Red also - Didelphys again What a gap from Lower Jura to Tertiary 347 8u "l'argile | Londres", 16u "l'argile | Londres" 349 22-24m (Schmerling) 350 20-22m 351 7u "à | doigts"/5-8m (Lund) 362 18-21m

vol. 3 NB1 I must allude to Pictet in Preface as having argued against perfectibility & variability with great skill.-

NB2 45 Ampullaria Branchiae & pulmonate cavity

SB1 In the Gasteropods & in a lesser degree in the Acaepales, it is really surprising how few exceptions there are to the succession of the genera - when a genus appears in Silurian it almost always (all exceptions marked) appears in nearly all the great formations. When we consider the different mineralogical nature of some of the formations; & difference of depths (such as chalk Sea probably deep) it is wonderful - when an existing genus appears in Jurassic

almost ♦ always ♦ far most generally appears in Chalk & Tertiary [Fish are ♦ genera are too short-lived for this to appear: but yet I think it holds pretty often; but then the formations for fish are so rare] It must be remembered how easily errors occur.

SB2 See to this & to Chelonia & Crocodiles, & in few existing genera of Mammifers which are formed in Eocene. It wd be very important to show that this is law; certainly in Mollusca it is impressed on one; & so in few Cephalopods? - It would be like showing connection in Geographical Range. so in space & time.- [I did not think of this, till beginning Gasteropods: easy to see to it in other orders] In Fish the law had better be tested by families. It will signally fail if M. Bolca in Cretaceous

7 15-19m 10 13-15m/?, 28-30m 11 19-20m 12 23-26m 21 3-4m 27 18-21m/w certainly 26m, 27-30m 36 1-5m (d'Orbigny) 39 6-9m, 16-18m 43 13-15m/w Have they Branchiae 45 11-13m/11-17w V. Cuvier would the abortion of Branchiae give structure of Pulmones? 46 15-18m 47 17-21m 53 3-4m/w Turritelles 90 12w Triassic 15-17m 95 1-2m 128 15-18m 133 12-15m 208 28-30m 223 18-24m 224 18-22m 225 3-9m 241 1-2m 252 10-17m 256 9-12m 270 11-12m 273 12m ♦ 305 28-30m/25-39w Thus the extinct genera occur in considerable formations wb What a number of genera are Silurian; it is most clear that according to me Silurian must have been preceded pretty much by longer time than has since elapsed. Cephalopoda lead to same result. 313 23-25m, 26m/? 322 15-17m 325 16-18m 327 27-30m/29u "tandis | Europe"/w perhaps not 333 19m, 23-24m 362 22-27m 365 13-29m/14-15w series is extinct wb It may be said, when a genus is extinct & occurs in several formations, those with rarest exceptions are consecutive formations → 366 wb/23-28w This class of facts makes one think the record for Mollusca pretty perfect, but it does not affect frequency & size of gaps in record. 397 1-5m 408 25-28m 409 9-15m/w so found in consecutive formations

PICTET, François Jules *Traité de paléontologie* 2nd edn, 4 vols. and atlas; Paris; J.B. Baillière; 1853-57 [CUL]

af, ch, ds, em, ex, fo, gd, geo, gr, hl, ig, ir, no, oo, or, se, sp, sy, t, ta, ti, tm, v, wd

vol. 1 SB □β

42 to 55 D'Archiac Law to 75 to 133 157; 166; 169 to end

PICTET

573 important on classification
202 on fossil Dogs Q
363 on Bos

46 16-19!!/17-19u↔, 27-30m/28u "verra que"/
29-30u "les |tranchées" 47 9-16m, 20-22m 48
18-20m 49 13-23m, 30-33m 53 12-14m, 20u
"de |pour" 54 11-16m 55 8-11m/Q 56 20-25m
57 26-28m 58 15-18m 59 7-11m, 28u "terrains
anciens", 29-30m, 31-33m/33u "térébratules"
60 5-6m, 8-12m/8-18w not evidence enough
- How few new orders have appeared 61
14-25m/16-18w decreasing Forms 62 2u
"dévonien"/w Lizard 7u "époque oolithique"/!,
9u "monodelphes"/! 65 29-31m 67 6-7m 68 13-
15m 69 1-7m, 20-22m 70 24-26m 71 8-14m/
8u "genres"/9u "celle |familles" 73 14-15m 74
9-11m 75 29-30m 77 24-28m/25w Extinction
30-33m, wb it is not surprising that
Geologists shd talk so, but it is astonishing
that Naturalists shd do so - 78 1-6m 79 27-
28m (Elie de Beaumont), 29-31m 82 20-23m,
24-28m 85 1-4m 87 29-33m, wb like Vestiges
89 1-3m, 25-29m 100 9-19m/13-14? 101 20-
22m/? 111 7-14m 133 21-27w 5 ● or 6
Faunas in France beneath recent 157 27-
33m 161 1-2m 163 14-17m 166 5-7w yet how
specialised a genus 9-10m, 11-12m/u▲/w
same genus 169 8-10m, wb 1854 Spal-
acotherium tricuspis present Mammals in
Purbeck 179 20m, wb Machairodon f. in
Nebraska Eocene 186 12-14m 188 4-
11m (Serres), 31-34m 192 16-17m/17u
"intermédiaire", 21-24m 193 6u "pendant |
existence" 194 6-8m, 9u "miocène", 28-33m
202 14u "tertiaires éocènes", 15-17m 203 16-
21m 204 5-7m, 13-19m (de Blainville), 26-29m
205 6-8m/7u "crânes |sont" 207 16-17m, 18-
19m 209 13-15m 211 20u "miocène
d'Auvergne" 214 17-19m/18u "transitions
intéressantes" 216 4-5m 223 20-28m 226 29-
30m 230 6-8w Now in N. America & I believe
S. America 234 17-18u↔ 257 23-26m 261
22-25m/24u "comblé l'espace" 262 4-7m 263 9-
12m 273 8-11m 276 18-21m/18u "tous |
habitent"/19w no 292 6-7m, 11-17m, 20m, 21-
23m, 32-33m 293 3-5m, 10-11m/6-12w Look
at globe & see where a spot explored 25-
26w 2 series of Pachyderms 28-29u↔, 31-
33m 313 29-30m 318 29-34m 335 15-16m/12-
34w Ruminants may have existed in other
continents wb In all such cases, it is not that
Ruminants & Pachyderms then existed. How
often people have wondered why no
Ruminants in Paris Basin! 343 21-23m 344
5-8m, 11u "moyenne" 352 10-12m/11u
"tertiaires |supérieur" 361 19-21m, 26-27m 363
22-23m 364 29-32m 365 5u "comme |boeufs",

12-13m (von Meyer), 14-15Q 16-17m (Owen),
18u "brachyceros" 366 28-29m/27-35w I shd
think Probably new order; but naturalists
object properly to new orders. 367 13-15m,
28-31m 375 7m/u "ordre nouveau" 383 26w
Arctic seas wb & Sirenidae Tropics 384 14-
15w What range 386 25-28m 390 4-10m
(Buckland) 392 15-18m 393 wb 1854
Stereognathus ooliticus a larger quadruped
Charlesworth Stonefield 2ce the size of
many of his ↗ 395 27-28m/u "espèces de"/w
Didelphus in lower Miocene 404 18-24m/20-
22w Iguanodon Owen 407 26-28m 408 10-
12??, 13w↔ see p.527 410 22-23m/22u "la |
de" 411 18-19m/18u "Strix"/19u "gypses |
Montmartre"/20u "genre |caverne" 412 22-23m/
22u▲ 414 2u▲, 3u "cavernes |Brésil"/m, 6u▲,
8u▲, 15-17m/17w Am 415 7-8m/7u "gypses |
Paris" 416 1-3m, 6-8m (Lund), 19u "sous-
genre Rhea"/18-20m/w Good Birds follow law
417 11-12m (Owen) 419 6m/u▲ 420 20-23m
(Mantell) 421 17-18m/18u▲ 425 1-3m 429 27-
33m 430 11-15m 431 10-12m, 17-20m, 29-
35m 432 5-8m, 10-14m, 18-21m 439 11-13m/
w 4 families & Chelonians 440 28-32m 455
14-16m 459 13-17m/13-28w Emys & Trionyx
being now present alive in F.W. is another
instance of F.W. preserving alive ancient
forms. 474 wb 1654 Nothelis destructor a
minute Megalosaurus - Owen ● 475 28-30m,
33-35m 493 21-27m/22w Transition 500 wt♦/
1-6w♦ Even to a certain extent our generally
FW crocodiles are only remnants of the
large families numerous Secondary &
ancient Tertiary Marine genera So many
were formerly F.W. forms 501 7-8m, 9u
"rappelle |crocodiliens", 12-14m 513 21-22m
527 10-12m (Owen) 529 13u↔, 22u "sauriens |
de" 530 12-16m 532 19-22m 543 7-10m, 18-
21m 544 3-5m, 6-8m 545 27-29m 547 9-11m
551 4-5m 554 15-17m, 20-23m (P. Duff and
W. Mantell) 555 23-26m, wb Excellent case
of Analogy (?) 556 6-10m 560 3-6m, 8-9m
568 13-20m 572 34-37m 573 wt Does it come
to be whatever is fixed? 1-4m, 5-6m

vol. 2 SB1 22 to 40; 77; 98; 101; 102; 127;
132; 196; 226; 309; 310; 318; 349; 361; 363;
368; 371; 386; 396; 399; 405; 406; 409; 411;
413; 476; 481; 482 to 484; 490; 502; 580;
582; 585; 601; 619; 649; 659 groups of
ammonites more or less confined to different
stages; 485 Balancement; 476 blending; 480
soldering; ↗ Vol 2

22 13-16m, 19-22m 23 1-2m 24 5-8m (J.
Müller)/5-6u "esturgeon |polyptère", 14-16m 25
7-9m 26 19-23m, 23-28m 27 11-14m, 22-25w
Eocene mammals very different 24-26m, 34-

35m/34-35u "à l'époque" 28 11-13m, 30-33m
 30 8-11m 31 3-6m 32 22-26m/27-33m/17-
 33w/wb sea shells & echinoderms convince
 one sea was salt if there was rain there wd
 be lakes. Might as well say no caves. 35 1u
 "Glavis"/w Tertiary 36 24-27m/17-29w So he
 thinks Teleosteon a recent fish the most
 perfect 37 16-20m 40 14-16m 77 14-19m 98
 30-34m 101 wt Constantly removed from
 sea, is why not more ancient. 7-13m, 15-
 17m, 33-34m 102 8-9u "d'eau douce", 9-11m
 127 16-18m, 28-29m 128 13-21m/w If we look
 to sea alone more striking still 129 1-4m 132
 16-21m 133 1-5m 196 31-34m 226 21-24m
 309 16-22m 310 12-19m, 22-24m 318 21-23m
 329 20-22m 349 1-2m 361 1-9m 363 21-24m
 368 3-8m 371 24-25m 380 23-27m 386 1-4m
 396 13-15m 399 25-26m 405 18-20m 406 23-
 26m 409 13-14m 411 23-26m/23-32w & very
 different in Fish & in Mollusca Cephalopods
 27-30m 413 7-8m, 22-28m, 28-29m, 31m 414
 28-32m 476 23-29m 480 12-13u "mais
 ensemble" 481 21-28m 482 15-22m/6-22w
 Gestation or incubation necessary for
 discovery of Metamorphosis or free &
 different life 483 6-11m, 12-14m, 27-28m 484
 1-5m 485 1-2m/1u "à l'thorax", 3-7m 490 16-
 25m (Barrande) 502 22-25m 570 wb▲ 574 1w
 is a boring sponge 8w is a boring sponge
 580 9-11m, 31-33m 581 19-25m 582 1-5m,
 26-30m, 31-33m 584 29-33m 585 2-8m, 9u
 "des diverses", 11u "pendant primaire", 16-
 20m, 33u "deux branchies" 593 1-2m 594 14m
 601 3a "spirulides"/wt all Tertiary 4a
 "céphalopodes"/wt Lias 2-6m, 7m, 12-14m/
 13u "famille tenthides", 14u "bélemnites", 16u
 "aptiens" 619 6-8m, 10-14m, 16-19m, 21-24m
 649 24-31m 659 5-12m

vol. 3 SB □β

7 & 11 & 12 & 14 & 36 & 38 & 128 How
 excessively slow Gasteropods species♦
 change - how few groups appear or
 disappear since Eocene.-

250; 333; 416

463 It is evident thus very few exceptions at
 whatever stage species♦ a genus or Family
 commences it is continued till it becomes
extinct. This being capable of in fact
 strongest fact I turn against Imperfection of
 Record. Perhaps only shows no enormously
 long blank intervals

7 26-33m 11 10-13m, 17-21m 12 15-20m 13
 13-16m, 21-25m 14 5-11m 36 25-29m
 (d'Orbigny) 38 6-7m 128 26-31m 250 5-11m
 333 12m, 17-20m, 32m 334 3-4u "orthoconques
 sinupalléales", 26-33m 335 1-5m, 14u↔ 416
 2-5m, 7-9m 463 3-9m

vol. 4 SB □β

2; 7; 8; 42; 79; 90; 119; 231; 261; 263; 284;
 293; 360; 481; 487; 532; 562 to 569; 577;
 578; 580; 584 to 617 to end of Vol.

All evidence in this Book relates to Genera It
 may be that species change quicker
 without♦ than genera; about higher & lower
 forms changing quicker

SB2 (over) On my view of formation of long
 intervals (because during subsidence &
 when mud) & though each very long in years
 yet infinitely short compared to all time; the
 chief difficulty is contemporaneousness of
 formations over Europe & in America - it
 shows some grand movement of earths
 crust yet very existence of continents implies
 very wide elevation-

2 6-9m 7 16-18m, 20-22m, 27-29m/28u
 "presque moitié" 8 1-3m/m♦//3u "vingt-huit",
 7u "dix", 10-12m/9-17w♦ le genera which
 change quickly necessarily have short
 duration wb When many species & genera
 exist they change quickly because they are
 too common & varying forms not in class but
 in whole Kingdom, & are quickly replaced 9
 1-3m, 11-12u "quatorze inférieur" 42 11-15m
 79 28-31m 90 3-5m, 4-8m, 19-20m 119 23-
 26m 231 wb so many cases of this (leaving
 out Silurian) that it must be a rule, though
 exceptions as in Fish Ctenoids coming in
 261 wt show how small proportion of lines
 from Silurian to present day compared to
 what has existed 3-9m/5w (a) 263 17-19m
 284 12-16m 285 17-20m, 30-31m/31u "trois
 quarts" 286 1-5m, 5-21w There seems no
 relation to speciality & absence of genera
 here 293 27-28m 360 15-21m, 24-26m, 27m
 361 1-4m/1u▲, 6-8m 481 4w 79 6w 51 9-13m
 487 7-11m 532 16-21m 562 3-7m/3u "Si", 15-
 16m/15u↔, 23-25! 563 2-4m, 9-13m, 16-18m
 564 27-30m 565 18-23m 566 17-22m 569 19-
 21m, 27-30m 577 3-6m (Agassiz) 578 fig.w
 Inequality of relations of successive
 Formations 580 17-26m, 32-34m, wb Marine
 Triassic not well known 581 1-3m/w less
 marked 583 24w St Cassian? 584 18-21m
 586 15u "six genres"/14-16w In total 588 27-
 28m 589 19-20w change rapidly 29u "dont
 spéciaux" 617 4-5m, 8m, 14w St Cassian 16-
 20m 618 12-16m 619 20-25m/w & very
 closely allied 31-33m 620 1-3m, 23-31m
 (d'Orbigny) 622 34-35m 624 25-27!/27m/u
 "Un l de", 29-30m 627 4-5m/4u "deux genres"
 630 4m, 8-9m 634 12-14w no Genera see
 Table 636a 27m, 37m 636b 7m, 8m, 12m, 17m,
 25m, 26m, 28m, 42m 644 37-38m, wb So he
 brings down to level of Teleosteans & before

PICTET

that Fish not very rich 645 9u "en Amérique"/
1-31w shows how many sub-divisions can
be locally traced, not so everywhere 646 24u
"sont|abondants", 31-32m 649 3u "gault|de"
650 9-11m 651 12u "y|connus", 15-16m/15u
"genres" 652 36-37m/36u "mont Liban" 666 2-
4m 667 1-4m/4u "ont|tranchées" 668 14-16m,
31-38m 669 10-13m/w 7 672 37-39m 678 19-
24m 684 2-4m 687 18-20m, 28u "Monte
Bolca" 688 12-16m 692 7u "quelques|douce",
13-14m 702 40-41m 703 4-5m, 25-27m, wb
Palaeozoic, Secondary & Tert., only due to
larger gaps

PIDERIT, T. *Wissenschaftliches System der
Mimik und Physiognomik* Detmold;
Klingenberg; 1867 [CUL]

af, beh, ds, h, pat, phy, rd, t, tm, v, y

NB 21 to 27 His view given

p.88 do to end of Chapt

p107-9 Th. resume -

☞ p.91 Perhaps a rudiment ask W. Turner.

After p.109 Not one word for me

Many good bits in this Book, but the
fundamental idea seems to me groundless &
fanciful - Nov. 67

SF □β ☞ <10 sheets, not CD; mainly a
translation of pp. 21-27>

4 4-13w Man understands expressions
without a grammar Very interesting 24-28w
No explanation 5 6-12m/w Sir C. Bell does
not explain why certain muscles act during
certain emotions. 14u "Oken", 15-18w
explains by Homologies of muscles of Limbs
& face.- 7 5-6m/w madness? 21-23m/w
order 8 wt He prior to Gratiolet 1-5m, 16-
17m 19 7-13m/w Face most expressive
because nerves site nearest to Brain!!! 21 2w
Translated 23 3-16w Each abstract idea
appears to mind like real object 19-20m, 20-
25m 25 2-4m 26 19-21w His theory!! 21-27m
40 14-26w Hence face muscles not very
distinct so Huxley says 23-25m 44 wt
corrugators used in shutting eyes very
closely 1-2m, 10-11u "und|Auges", 20-31w
Henle considers Corrugator as part of Osb.
Palp. 46 1-13w wrinkle forehead pulling on
Boot.- a stammerer.- Concentrated thought,
when difficulty - seeing or hearing anything
with difficulty. Suffering diseased Men.- 48
4-8w Expression of eyes modifies character
of frown- 50 wt widely open eyes
astonishment 52 7-12w occip-frontal raises
eyebrows & thus opens eyes widely 56 24-
27m/w shining of eye 58 8-20m/w secretion
of tears excited differently from saliva or milk
59 15-33w Rubbish - no explanation - nerve

excited because near seat of mind.- 60 12-
23w why do tears relieve grief why do
scream relieve pain - 61 24u "Lebensmonate"/
22-26w Q☞ Cretins do not cry nor babies 63
wt Brightness of eye depends on fullness of
ball 1-4m/w In Cholera eye collapsed 7m/w
in dead do 64 18-19m/9-23w in Fever eyes
sparkle owing to capsules gorged with blood,
so perhaps in passion - 65 20-24w in grief
circulation depressed & eye dull 31u
"Freude|Zorn" 66 14u±/w sparkle 67 7-8w
Drinking eye dull 70 13-23w Kissing initiation
of sucking - movements of Babies: after
nodding, but not instinct for Fuegians do not
kiss.- 72 7-18w mouth opened with bitter
taste that the tongue may not be rubbed
against palate 21-30w good account of
expression from bad taste. upper lip raised
74 5-28w Thinks the bitter look, with raised
upper lip comes in expression of horror -
Leonardo says upper lip raised as if for
scream 79 4-8w In great exertion one shuts
mouth & teeth firmly. 11-5m/11-22w the
exertion spreads in useless way to other
muscles: especially face muscles- (so in
yawning○) 80 26-30m/w nearly my view 81
15-17w firmly closed mouth expresses 18-
22m 82 18-28w in ♣ rage upper lip raised!!
for bitter taste & teeth closed for energy wb
X Wings of nostril raised, because
respiration & heart action increased. & with
closed teeth person must breath through
nose - No ↑3-1m/x/w All like my views 83
29w Contemplative expression 84 1-5w lifts
head & looks downwards & sideways & half
closes eyes. 20-29w upper lip bitter
expression Lower lip as if to push away
something disagreeable 28u, wb blows out
air as if to blow away some insignificant
object. 85 ↑3-1m 87 wt/1-23w When
Eustachian tubes plugged by mucus in
inflammation of the throat Hearing rendered
difficult 14-22m, 25-27m/w He who listens to
unclear sound opens his mouth→ wb See
my old Notes - Whales Dr. Murie. all very
doubtful 88 4-7w I must quote him 8-13w
elevates eyebrows in astonishment opens
mouth. 11-15m, 15-22w My theory is here
given, & is applied to mental phenomena.
22u 89 wb When horses & dogs surprised &
startled they prick their ears, Man opens
mouth - & raises eyebrows 91 23-26m/w
rudimentary wb See Moreau's Essay - He
does not know this Essay The variability of
Muscles of face stated by Moreau perhaps
indicates the tendency to rudimentary
condition in many & agrees with descent 92
11-23w nostrils distended in surprise & in

Careful observation This f true curiosity.— Perhaps owing to being startled. 93 2u "Mm.l.nasi", 3–5m/w orifice of nose made smaller 13–16w in bad smell shut nostrils with upper lip 96 8–13w by Laughter after powerful respiration goes back by starts; conversely in crying 9u "rückweises", 9u "Zwerchfell", w diaphragm 15–24m/w attributes respiration affected by emotions to nerves arising near sense-organs!!! 97 1–18w In fact he explains nothing about laughing or crying. 28–32m/28u "Zeichen|Innervation", wb spasmodic action, want of force, the nerves which wd show during exertion of respiration 98 wt see Duchennes photographs 4–17w In laughter & crying mouth opened wide speaks as if no difference in shape○!! 99 2u "l,h,o", 4–6m/4u "p,q", 22–25m/23w Smile 100 6–12w dimple caused by some muscles not extending to corner of mouth 101 wt Great laughter approaches to pain, thinks brows contracted!!! 1–4m/w oh 102 wt/1–13w action of depressor alae nasi only difference between crying & violent laughing. I rather trust Duchennes; but how little known about muscles The action of this muscle is to narrow nose & says it can be easily perceived. 26–30m/w This muscle does not contract in Babies 103 14–17m, 22–34w in Babies tears irritate eyes & surrounding muscles contract !!! oh oh!! Sir C. Bell fig. 15 w Bad taste fig. 19 w Horror fig. 46 w excessive laughter fig. 47 w still more excessive laughter, so as to have bitter expression

PISTOR, E.M.W. *Das Ganze der Feld- und Hoftaubenzucht* Hanau; C.F. Edler; 1831 [CUL, on B, S Ap. 10/56] beh, cc, cs, f, he, hy, v

NB p.12–22, p.46

SB □β

15 Hybrids of Barb & Fan-Tail sterile Q
46 Lesser fertility of Dovecots only owing to less food
v 11m, 13m 7 wt will not feed themselves 5–7m 12 12u "krumme"/10w bowed 15–18w carriers 27u "Augenkreis", 27u "weisswarzig", wb white wattle & very big only differences 13 14u "zwölf"/15u "zwei|besitzen"/14–16w 12 to 32 14 3–5m/5w will cross with Turbits & have both characters 16u "bläuliche", 19w Jacobins 15 12u "Ciprianer", 13w Barb 19u "Hövchen"|Pfauentauben", 24u ↔, 26w like barbs but bigger wb Eggs of Barbs & Fantails sterile 16 2–4!/3u "kurzen", 5w Runts 21 5m, 9u "dreht|Burzler"↔, 15w C. Coronata 46 5–7m, 12–17w owing to food

PLANCK, Karl Christian *Seele und Geist* Leipzig; Fues; 1871 [Down]

xviii 6m xxii 43m

PLANCK, Karl Christian *Wahrheit und Falschheit des Darwinismus* Nördlingen; Bech; 1872 [Down]

NB not read

PLANS of the various lakes and rivers between Lake Huron and the River Ottawa Toronto; John Lovell; 1857 [Down, I by M. Logan]

PLAYFAIR, John *Illustrations of the Huttonian theory of the earth* Edinburgh; Cadell & Davies; 1802 [CUL, pre-B, S] geo, mi, t

NB 414 sand & gravel moving

(CD?) 501; 511; 524 Theory & observation viii 4–10m 5 4–9m 6 1–3m, 22–25m 9 7u "other|series" 12 18–20m 13 9u "Primary", 9u "Primitive" 14 26m* 15 1–9m 18 1–5m 21 8u "pressure", 17u "increased pressure" 22 14m* 25 19–27m/22? 26 6–10m 30 14–20m 31 1–4m 32 1–5m 33 1u "pyrites", 3u "the|fire", 4* 37 18–21m 39 11m/1u "trona" 42 24u "moved angularly" 43 4–5u "in|layers", 6–9m 45 1–5m 46 21–24m 49 16–20m 51 5–9m, 18–19u "breccia|between", 21–22u "is|general" 5 8–14m, 26–29m 54 7–16m 55 2–3u "expansive|heat" 58 20–23m 67 11u "spathose", 19–20u "series|gradations" 68 11–12u "This|former", 29u "so|whinstone" 69 5u "carbonat|lime", 8u "compressing force", 24–26u "hence|surface", 27u "whinstone", 28u "un-erupted lava" 71 22–23u "one|them" 72 11–15m 75 20–25m 78 10–13m, 20–24m 79 6–10m 82 4–9m 83 16–19m 84 14–19m 99 3–6m 102 18–26m 104 13–21m 107 1–5m/"..." 114 1–3m 119 21–26m/? 125 19–25m 135 6–10m 144 18–22m 148 6u "Buffon", 9u "A|mistake", 14u "omitting", 15u "coal", 15u "carbon" 151 22–24u "at|degrees" 163 15–21m 167 20–25m/24u "small|other" 170 17–21m/19–21u "it|formation" 186 14–15u "Friction|heat" 189 10–14m 191 14–16m/? 195 22m 198 7–13m 208 17–21m 210 5–20m, 23–27m 211 4–8m, 27–29m 217 11–17m 222 16–20m 225 19–23m/19–20u "have|soft" 226 1–3m 227 11–16m 240 13–16m 242 25–27m 243 1–2m 246 23–27m 248 11–14m 256 2–4m 258 22–26m 263 19u "large|terraces", 22–23u↔ 265 9–13m, 19u "granite", 20u "basalt" 267 14u "extinguished volcanoes", 17u "fire|mineral" 283 12–17m 284 21m, 27–28u "that|which" 285 1–18m/1–2u "is|other" 294 2–8m 296 12–24m 298 16–19m 304 17–19m/18u

PLAYFAIR

"plumbago" 336 11u "schistose", 15-20m/18?/
19u "fluidity" 338 23-27m 340 1-4m 351 21-
22m 362 13-23w explained ice theory 364 7-
10m/8w ice 371 10-16m 373 1-4m, 15-19m
374 13-17m, 24-27m 377 8-11m 378 10-14m,
23-28m 390 11-14m 393 1-3m 394 17-28m,
wb Geneva Stone angular 399 11-19m 401
17u "is|we"/w retiring sea 414 20-29m 417
23-27m 488 14-22m/"..." 494 17-26m (Buffon)
497 1-8m 499 15-16m, 21-28m 500 1-5m 510
13-17m 505 18-24m 506 1-14m 511 5-6m 512
20-25m 518 1-4m 521 11-13m 523 17-21m
524 24-27m, 28-29m 525 1-7m, 8-19m, 21-
28m 526 1-6m

(other markings here and there not by CD)

POMPPER, Hermann *Die Säugethiere, Vögel
und Amphibien nach ihrer geographischen
Verbreitung* Leipzig; F.C. Hinrich; 1841
[CUL]

gd, is, v

NB 1 *Lepus variable* Iceland

p.5 Animals of Greenland & not Greenland
(lists follow)

title page wt Nothing 1 21-23m/23u "Island"
5 7-8m/7u "M. | Grönland", 9-11m/10u "auch |
Grönland", 14-15m, 16u "Grönland", 17-19m/
18u "C. | zwischen"/19u "nicht | Grönland"

PORCHER, F. *Du Fuchsia, son histoire et sa
culture* Paris; Audot; 1844 [CUL]

f, sp, v

NB Oct 1857 O Nothing

3; 94; 98 Read; 105; 35; 95 722 vars 34
species

title page 10w Porcher p. 102 3 3u "trente-
quatre", 5w ♦ 35 32u "Constellation", 33-35m/
34u ♣ 93 20-33m/21u ♣, wb Corallina not in
list! 94 6-8m 97 24-26m 98 9-12m 101 37-
38m, wb How fruitful Corallina has been 102
22-24m 105 16-20m/17u "tube | nul"

POSNETT, Hutcheson Macaulay *The hist-
orical method in ethics, jurisprudence, and
political economy* London; Longmans, Green
& Co.; 1882 [Down, I]

POUCHET, Georges *The plurality of the
human race* trans. of 2nd edn by J.C. Beavan;
London; Longman, Green, Longman &
Roberts; 1864 [CUL]

h, is, pat, sp, t, tm, wd

NB 50

SB □β

50 Aegyptian types not so distinct

60 Negros Yellow Fever

♦ 83 Pouchet has argued at length that
domestic animals are quite different take
easily plants removed to new isld

♦ About Will of Animals being destroyed -
does not apply to plants

114 & 118 Remarks on Species Theory of
no value-

114 Definition of Species

50 2-12m 60 28-44m 83 3-19m (Cuvier and I.
Geoffroy St Hilaire) 114 1-6m, 16-23m (Buffon)
115 1-4m 118 30-33m 119 11-20m

POURTALÈS, Louis François de *Illustrated
catalogue of the Museum of comparative zoology,
at Harvard College. No. IV: Deep-sea corals*
Cambridge (Mass.); Museum of comparative
zoology; 1871 [Down]

POWELL, John Wesley *Introduction to the
study of Indian languages* 2nd edn;
Washington; Government printing office;
1880 [Down, 2 copies]

POZZI, Samuel *Du crane* (extract); Paris;
1879 [Down, I]

PREYER, Thierry William *Die Blausäure 2
parts*; Bonn; Max Cohen & Sohn; 1870
[CUL]

che, in

part 2 NB1 I cannot find place where said
that different individuals are differently
susceptible to P. Acid

NB2 Not read

PREYER, Thierry William *Die Blutkrystalle*
Jena; Manke; 1871 [Down] ∅

PREYER, Thierry William *Das myophysische
Gesetz* Jena; Manke; 1874 [Down] ∅

PREYER, Thierry William *Naturwissen-
schaftliche Thatsachen und Probleme* Berlin;
Gebrüder Paetel; 1880 [Down] ∅

PREYER, Thierry William *Die Seele des
Kindes* Leipzig; Th. Grieben; 1882 [Down, S]

PRICE, John *Old Price's remains* London;
Virtue Brothers & Co.; 1863-64 [CUL] ∅

PRICHARD, James Cowles *Researches into
the physical history of mankind* 3rd edn, vols.
1 and 2; London; Sherwood, Gilbert &
Piper; 1836 [CUL]

beh, cs, f, gd, h, he, hy, oo, pat, sp, sx, tm,
v, ve

vol. 1 NB1 w ♦

NB2 ♦ Alpine Botany of do

The entomology of Tierra del Fuego with respect to Europe – Patagonia to S. Africa must be well studied–

Vol. 47 Zoolog Soc about contagious diseases my Father about diseases common to animals.

The Highlands & Western Isles in Letters of Walter Scott: 4 Vols

W. f D. Edwards sur les Characters des Races Humaines

Lesson Hist. Nat. des Mam. often quoted

NB3 ♦ p114 Lyell's mark

14 to 56 all worth reading again – to 164. 174

ask Henslow to put name in my catalogue.– March. 1857 I have not looked through all these, but I have gone through the later Edition

206; 216; 220

225 on  Blushing & 271 – Good

242,4; 258; 264; 266; 286; 288; 305; 311; 314; 318; 333; 334; 340; 350 to end of Vol done Feb 25/01 (FD)

xii 36–38w this not in Ed ii xiii 36–37w =p130 Ed ii xv 29w =192 Ed 2 14 27–32m/? 15 3–5m, 11–19m 17 39m (Rudolphi) 21 27–31w singular/catacea/converse of antiquity 31–32m♦/w Latin 24 2–39m 25 1–8m, 26–30m/w How does my collection show this 31–32w a great difficulty 35–36w I suspect not so 26 24–32m/28–30m 29 1u "analogous species"/1–4m/w in a limited sense.– 7–22m (Humboldt, Robert Brown)/11–12w insects forms 30 3–12m (Humboldt), 7w B 31 7–10m/w Waterhouse similar remark 29–34m, 35–37w Tell Henslow 35 22–28m/27w aquatic? 37 22–28m (Rudolphi) 43 6–13m (Rudolphi), 15–17m, 23–28m 44 12–20m 45 1–3m/?, 38–39m 50 1–7m (Linnaeus) 51 1–39m 52 1–38m (Humboldt, A.P. De Candolle) 53 1–5m 57 23–28m/24u "the|no", 37–38m (Latreille) 58 1–11m 60 37–38m/37u "Quarterly Review, vol. 47" 61 6–33m (Lyell) 63 38m (Lesson) 64 34–36m, 36–39m 66 wt consult Beales Book 1–15m 67 3m, 6–9m, 39m/u "Gmelin|Amoenitat." 68 17–30m 73 20–27m/24–27m (Lesson), 35–37m 74 18–23m/19u "chironectes"/?, 32–37m/35u "parameles", 35u "New Guinea" 77 26–33m 80 10–14m 82 10–23m/14–17w Flying squirrels in N. America 84 16–20m/16u "The|everywhere" 85 3–11m/4–6w Relation to trees?? 86 11u "Moluccas"/w ! Baluchian 89 34–35m/36u "Annales|vii", 38–39m (Cuvier) 90 38–40m 93 9–11m (Lesson) 95 11–13m 105 6–20m/6!!!, 7u "definite", 8u "separate origin"/10–11?!!!/11"... "always" 106

4–19m (A.P. De Candolle) 107 31–40m (A.P. De Candolle) 108 36–37m (Geoffroy St Hilaire and Serres) 112 1–4m, 33–39m/35–36u↔ 115 18–25m, 31–33m 118 23–29m 119 36–38m 130 11–22m, 29–36m, wb I have heard of some facts different from this 138 36m (Rudolphi) 139 37–38m (A.P. De Candolle) 144 37–39m 145 24–27m/?? (Gaertner) 149 9–13m 153 30–36m 155 12–21m 156 19–31m 157 31–36m, wb In Malcolmson's Pamphlet is there not something about goitre peculiar to races 158 1–5m 163 2–37m 166 37–38m (Jacobi) 174 4–8m 175 6–31m/31u "everywhere", 36m (Hancock), wb Anafuras have no such beliefs 176 1–39m 180 28–31m/29u "voyager Kolben", wb consult for Cattle &c see p.182 183 5–10m 216 26–31m 220 30–33m 225 31–33m/32u "par|honte" 242 20–23m 243 17–32m, 17–19w Consult Rengger 22w when? 29u "permanency|breed"/w how long? 244 1–7m/w strongly versus Walker; if considered races 32–33m, 39m 245 9–15m/13–15m, 19–21m, 27–31m, 37–38m 258 31–35m 264 16–20m 266 10–14m 271 18–22m 286 10–15m, 17–24m 288 27–33m 304 38m (W.F. Edwards) 305 11–15m 311 26–30m 314 21–32m 318 12–21m/12–13? 333 6–11m, 21–29m (Vrolik) 334 18–22m (Owen) 340 18–29m 341 1–11m 350 31–39m (A.P. De Candolle) 351 38m (Pallas) 352 29u "by|organs", 27–30m, 27w retriever ! 38–39m (Meckel) 354 4–25m, 27–37m (Buffon) 355 1–34m (Blumenbach) 356 5–10m, 10–36m (Blumenbach and Cuvier) 357 1–28m, 29–31m (Pallas) 360 31–37m 361 wt I have note of small sheep on Red Sea 1–2m 367 30–39m 368 23–30m 370 9m, 10–13m/w This being cross, father ought to have given 20–27m/w Mr. Walkers Theory!!! The father here gave only part of cuticle!!! 30–40m 371 23–28m 374 6–11m/8–9? 375 10–12m/u "separate|economy"/10–13m/w assumed 17–20m/?, 31–39m/? facing 376 4–18m (Prichard)

vol. 2 NB March 1857 I have not looked through.–

2; 3; 10; 33; 95; 97; 141; 175; 181

197 All before Chapt X: very dull This whole Chapt. amusing

207; 210; 221,2,3,6; 264; 275; 278– is this true; 323,5; 329; 331; 336,8; 340 whole section; 344 –copied FD; 348 Done FD

SB (by FD, referring to 2nd edn, vol. 2 & 4th edn, vol 4)

2 3–8m 3 34–36m (Lacépède) 10 31–33m 33 3w Galapagos 7u "abounded|size"/5–8m/w New Zealand 9w Gap 95 33–34m 97 4–37m 141 16–20m 154 9–16m 175 34–37m (Rüppell) 181 19–32m/25–26m 197 wt The case of African

PRICHARD, MANKIND

nation which has grammatised its language from the Arabian has been mentioned, so much so, that it might be mistaken for Semitic dialect 15-18m 207 19-22m 210 38-41m 221 26-28m 222 1-38m 223 1-39m/39u "purposely framed" 224 1-8m, 13-38m/15-20m/14-17w What evidence? 226 2-14m 264 25-30m 275 29-31m 278 14-21m, 28-30m 279 4-5m 323 1-16m 325 9-22m, 25-38m 329 34-38m 331 17-22m 334 wb ● 336 17-24m 338 7-34m, 36-39m 339 1-4m, 19-27m 340 1-4m 344 5-13m/8-9"..." 345 17-21m 348 24-35m

PRICHARD, James Cowles *Researches in the history of mankind* 3rd & 4th edns, 5 vols.; London; Houlston & Stoneman; 1841-51 [CUL]

beh, cs, f, gd, geo, gr, h, he, hy, is, mg, mn, no, pat, sl, sp, sx, ta, ti, tm, ud, v, ve, wd

vol. 1 NB1 (note on Mendel by FD)

NB2 Blumenbach de Unite de Genre Humain

Blumenbach Beytrage zur Naturgesichte & Meckel Traite general de Anatom Compr Must be read Has not Erasmus one of their works

Pallas Spicilegia Zoolog

p311,320

271 Blushing said to have been acquired by Negroes (passage in text is about Amerindians)

SB1 Prichard Vol I p.23; 26; 33; 41,42; 61; 84; 87; 90; 94; 112; 115; 133; 141; 144; 153; 163; 175; 224; 228; 245; 271; 311; 316 How like my Book all this will be.

I must read some Book on geograph distrib of insects or of one great class

p.321; 322 & p.324 & 331 on relation of body, pelvis & Head

311; 334; 340; 345; 349; 351; 353; 366; 370 SB2 □β

23 S. African plants in Europe (Glacial?)

42 quotes Lyell & Keith on seeds in Baltic from Germany do. 61 Eding. Phil. Mag. 1832 on Distribution of Parrots

84 Bat in Sandwich Isld 87 Pteropus keraudren at Marian & Oualan; at Tonga peculiar species

90 Australian Dog same as that of N. Ireland M. Lesson N.Q.

141 Sparrmann says hybrids of common & Aethiopian Hogs fertile

144 It seems Buffon was strong on repugnance to 2 species to cross

155 On Heredetary Plica Polonica - on races of Man becoming predisposed to disease in certain countries

163 do ♦ on diseases of Hot countries

224 Albinos subject ♦ sensible to bite of flies 245 Good Heredetary cases of toes & fingers - Heredetary rudiments

311 X Nasal cavities large in American skulls, Blumenbach connects with high smelling powers

321 X Cox says flattened head "an essential point in Beauty" in American Indians

324 Vrolik says shape of Pelvis must have some influence on that of Pelvis ♦ Head 331 333

334 Lumbar vertebrae sometimes six in Negro

341 In Tobolsk Cats generally red Q

343 Skin & hair go together in colour - Sheeps Mouths black when hair black

345 On complexion & temperament.

349 Porcupine Man coming on at same time in him & children

353 Blumenbach on some strange vars of Pigs - Marcel de S. on skeletons of dogs & wolves Eding. Phil J July 1835 p.244

356 Feral horses of Pallas in Siberia. Dun or brown Q||

23 16-18m/w N. Migration during cold Period

16-20m, 20-25m 26 3-10m 33 38-41m 41 27-35m (A.P. De Candolle) 42 26-29m/w Fundus maris semina non destruct 43 28-29m 44 39u

"marine birds" 58 19-22m (Latreille), 36-39m

59 36m (Illiger) 61 36-37m 84 8-10m/9u "small crepuscular" 87 4m/4-5u "has Oualan"

90 31-33m (Lesson) 94 25-28m (Buffon) 112 29-39m 115 3-9w who can tell - it is begging

question to say constant. 11-12m, 19-23m

133 9-12m, 21-23m 141 13-14m, 37m (Sparrmann) 144 35-37m 153 31-35m 155 6-

10m/10u ↔, 11-15w The point to show is that a race by living in district long may acquire

hereditary tendency 14-21m/w proof of peculiarity acquired by certain race in certain

area 24-25m, 26m, 33-38m/37-38m, 39m 156 1-6m, 8-16m, 23-30m 157 18-21m, 27-29m,

32-33m, 36m 158 1-4m 159 6-10m, 36-37m (Winterbottom)/36-38w would be worth

reading 38-39m 163 3-9m 175 1-3m 224 35-39m 225 30-34m (Buffon) 228 6-18m 245 7-

16m/11u "rudiments of"/15u ↔/11w Heredity 17-21m 271 17-21m/w no doubt wd increase

tendency 311 1-3m, 28-35m 316 12-17m (Tiedemann) 317 39m 318 16-22m 320 22-25m

321 7-9m, 7-8u "They point", 18-19u "Dublin 1834" 322 16-18m 324 3-10m

(Vrolik) 331 26-29m/w see references to Book p324 333 25-28m/w p281 for main character of skulls 26u "oval shape"/w do.

head 28a "oblong" do. head 28a "Mongolians" do. head 334 19-21m 340 40m (Blumenbach) 341 16m (Gmelin) 343 5-8m, *wb* over 344 33-35m 345 14-16m, 17-21m 347 21-23m *wccc*, 29u "bark\hide" 348 11-13m, 21-26m (H. Baker) 349 7-9m, 21-24m (Lawrence) 351 7-9m/7u "J.F. Meckel" 353 13-20m, 33-35m (Serres), 36u "Beyträge\ubi", 38m 354 14-16m, 18-20m 355 18-21m (Blumenbach) 356 6-7m/6u "dun\brown" 366 18-23m 367 36-37m 370 32-36m/w Piebald

NB [done FD Feb 25/01]

vol. 2 SB1 p33; p45; p181; p334

SB2 □β

33 Dogs & Goats in Canaries - Cada. Mosto discovered C. de Verdes

181 To produce effect on race by crossing, the two parent races must be nearly equal in number.

334 Reference to table of complexions by Esquirol, possibly may allude to liability to disease (But it was madhouse)

33 9-13m, 30-32m/31w♦/u "Cadamoto" 35 22u "bandages\skin" 45 23-32m 46 6-9m 47 7-12m 181 20-31m 334 31-34m

vol. 3 NB O/

vol. 4 NB ⟨*w*, not CD⟩

[FD copied] p103; 243 -X not N. Sel; 407; 413; 423; 454xx; 477; 492; 519x Beauty; 525; 529 - ext condus

530 common mule (c of Ass & Horse) shows that no great variability or appearing of new characters in Hybrids

534 537 Beauty 539 Climate 616

SB □β

103 Date of Vedas 1343 B.C. 477 History of China 2200 B.C.

407 X on shape of Head in relation to senses

454 X On variability of chief characteristics of each Race of Man 519, 530

519 X Chinese admire Chinese beauty

534 so Siamese 535 Cochin China 537

103 6-12m/8w concludes 243 30-39m/34-36m

407 19-21m, 23-27m 413 6-10m 423 1-5m 454

21-23m/21-38w/wb so darkness variable in

Hindoos - Bump in Hottentot, & I think many

other particulars which I have omitted to

mark, wd require selection to separate.

There was something on skull of Australians.

So shape of Pelvis.- Shin Bone of Negros?

476 18-26m, 31-37m (Rémusat) 477 4-7m, 10-

12m 492 22-25m 519 12-13m (Barrow)/u "the

nose", 15u "high\bones", 17-18m, 24u

"Pallas", 25-29m, 39m 520 2-5m/5u "short\

flattened", 15-16m/15u "hands\feet" 521 34-35m 525 10-19m 529 6-10m 530 35-38m 533 30-36m, 38-39u "features\bold" 534 1u "small", 2u "nostrils", 4u "rather thick", 8-13m/9u "breadth\of", 13u "large", 27-28u "beauty\them", 29-30u↔/29-32m/w Siamese 535 4u "Cochin China", 26u "globular", 27u "orbicular\face", 33-35m/w Cochin China 39m 537 21-26m 539 22-28m 615 13-15m

vol. 5 NB 67 Beauty

SB1

X 67 Beauty

146 Drift wood Easter Isd

168 Spaniards introduced Stag, Mariane Isd? From Freycinet. Lib 3. p.270

283 Differences of Oceanic People - 292 N. America - Man in a Polymorphous condition.

419 Mandans grey-hair

463 Chest & Body of Indians

✓ 476 Beauty

542 Differences in American Races

✱ X 145 Difference low level Islets & High Volcanic Isld-

⟨over⟩ ♦, ◊, ♦

In my note on Man - Ask what makes any peculiarity not always hereditary; then why shd not this cause act & react.- Effect of civilisation on poor children & rich.- Hair & colour - Polymorphous state Geographical representatives most difficult to decide whether to call vars. or species.- Moral ♣ restraints - (Spreading not like spreading of other animals?) Allude to Pritchard on colour & ◊, ♦

Mans Sexual characters like tufted Ducks.- First○ spreading out even○ families wd be part○

67 16-21m/19-21m, 22-25m 141 18-21m 144

32-36m 145 2-7m, 21-29m 146 33-36m 168

30-35m 283 6-10m (Foster) 293 17-29m

(Morton) 418 31-35m 476 35-37m (d'Orbigny)

542 28-33m (Humboldt and d'Orbigny) 543

17-23m (d'Orbigny)

PRINCIPLES of organic life London; Robert Hardwicke; 1868 [Down, S]

NB O/

✱

PROCTOR, Richard A. Pleasant ways in science London; Chatto & Windus; 1879 [Down, I]

geo, oo

NB p379 Dust important for Worms

379 *wt* But this cannot apply to a whole country 6-37m, *wb* St Jago When covered

PROCTOR, RICHARD

with vegetation ♣ very little dust raised 380 1-2!, 26-37m/30-35m/13-35w But clay○ must have been taken from one part to another

PROCTOR, Robert *Narrative of a journey across the Cordillera of the Andes* London; A. Constable; 1825 [Christ's College Library, on B, S]

NF Have read as far as the pages are cut
 ♣ ● X Vizcacha Azara ●; Biscacho – Proctor; Cachia Caldcleugh; Cuvier Viscatcha
 15 wb Gau (for Gauchos) 368 wt/1-2w Gua Gua Gau quipos Gau

PSYCHOLOGICAL ENQUIRIES (published anonymously by B.C. Brodie); London; Longman, Brown, Green & Longman; 1854 [CUL]

beh, ch, gd, gr, h, or, phy, t, tm, ud, ve

NB1 Emma 104

NB2 ♣ much good on man
 p166; p183,4; 186; 190; 192; 194; 196; 198; 203

p.196 Man wd not spread beyond Tropics till fire invented nor very widely, perhaps, till Boats?

Perhaps first Learnt in a Volcanic region, with lava flaming things around

SB □β

188 Q Good case of Bees building comb beneath a fallen hive temporarily

192 Moral sense due to Social Instinct p203

195 Man must have had more instincts when first Produced

199 Q An acquired habit converted into instinct show change in Brain

166 13-19m 183 19-22m 184 20-23m/? 186 5-9m 187 18-22m 188 13-19m/17..." 189 24m (Dujardin) 190 23m 192 16-18m, 17-24m 194 21-24m 195 4-8m, 15-18m 196 14-18m 197 21-22m/u "instinct of self-preservation" 198 5-7m 199 18-21m 203 7-10m, 22-24m

PUBLIC LIBRARIES in the United States of America Part 1; Washington; Government printing office; 1876 [Down, S]

NF 419-442; 476-504

∅

PUGIN, Augustus Welby *Contrasts or parallels between the noble edifices of the middle ages and corresponding buildings of the present day* London; Charles Dolman; 1841 [Down]

∅

PULTENEY, Richard *A general view of the writings of Linnaeus* London; J. Mawman; 1805 [Botany School, pre-B, ED]

PUSEY, Sidney Edward *Bouverie Permanence and evolution* London; Kegan Paul, Trench & Co.; 1882 [Down, I] ∅

NB All mere rubbish

PUTSCHE, Carl Wilhelm Ernst *Taubenkatechismus* Leipzig; Baumgartner; 1830 [CUL, on B]

no, v, wd

NB ♣ Nothing March 1857

p27; p30

iv 16-19m/17u↔ v 6-8m/6u "dreyssigjähriger"

vi 9u "Leipzig", 9-10w I have 22 19u

"Montauban", 20-22w Leghorn Rump

scanderosus &c 23 9w Carrier 26 9m, 32u↔/

31-32w/wb Almond Tumbler has been

reduced in England 27 14-15u "auch ihnen"/

w Turbits 28-30m/28u "1573" 30 21-24w

same as spots 31 22w with a mane 32 13-

24m/w Swallow-Pigeons thus seem to be

domesticated

PUVIS, M.A. *De la dégénération et de l'extinction des variétés de végétaux* Paris; Huzard; 1837 [CUL]

ch, che, cs, dg, fg, phy, sp, t, ta, ti, v, wd

NB p1-41 → chiefly on old vars of Fruit-trees dying; 48; p.63,5; 76-79; 82

SB 36 on apples half one sort, half another.

Attitude to direct fecundation

37 on genera varying in having only single

species Q

41 on vars. of Peaches within recent times

76 on certain fruit-trees coming true

77 81 in cultivating a number of Cereals, all

those near each other, were greatly modified

in garden of Society – attributed to crossing

but I doubt Q

<over> ♦

p10 M.S. reference to Lindley on grafting

5 8-10m/w Fruit-trees 15 11-16m, 18-21m 22

27-31m 15 11-16m, 18-21m 22 27-31m 25 25-

28m 30 1-8m 31 1-5m, 10-13m 34 10-15m 36

1-7m, wt/1-4w attributes all variation

to crossing 11-12m, 19-23m (A.P. De

Candolle), 24-26m, 27-32m 37 wt Maize

Rice Potato 1-4m, 1u "principalement", 4u

"kolreuteria", 3u "seigle"/w Rye 5-6m, 7-8Q

11u "platanes", 12u "encore entr'eux"/9-14m/w

Ch 4 Big grain & small grain – 13-15m, wb

The Variation in Fruit-Trees shows that many

generations are not necessary to cause

variation 39 20–28m 41 1–4m, 11–14m 48 19u
 "Annales"/19–21m (Sageret) 49 5–8m 63 20–
 23m 65 4–10m 76 2–4m, 15w cultivated 15u
 "franche", 16–18m, 19–21m, 24u "prune", 31–
 32m 77 1–2m, 9–11m, 21–23m, 24–29m 78 3–
 7m/w chemical change 18u "été"/9–18w
 Thinks it all due to crossing affecting the
 very grains. 79 11–14m 81 23–26m 82 wt
 spell. Dict. French 1–3m/1u "épeautres", 8–
 11w ask about Aegilops 12–15m 83 10–12m

QUADRI, Achille *Note alla teoria Darwiniana*
 Bologna; Giuseppe Vitali; 1869 [CUL, I]
 ad, ex, fg, is, no, sh, t, ts

NB1 p26♦; p.28 very good; Struggle for
 existence

NB2 (not CD)

SB Ch2 p37; 3 p105; 4 p137; (I have not
 read)

28 wt/1–9w (a) Prophesied that Culicidae wd
 be rare on account of vast number of
 Empitae, & these abounded because Water-
 beetles sick & very rare 9–30m/w (a) 32–35m/
 34w (b) wb (B) Land-shells devoured by Mice
 – one kind protected by Carduus – like
 plants on commons by Thorns – Beans on
 shells in islands, where no mice, lately
 exterminated → 29 wt He classes the
 relations of the Economy of Nature 8–9m/4–
 21w The more perfect the organism the less
 Evolution (external) wb Mr Traherne
 Moggridge remarked to me that he cd find
 seed of Legum. climbing plants only when
 dropped among thorny plants, in all other
 places devoured

QUATREFAGES DE BRÉAU, Jean Louis
Armand de Charles Darwin et ses précurseurs
français Paris; Germer Baillièrre; 1870 [CUL, I]

NB ♂ O/

♂

QUATREFAGES DE BRÉAU, Jean Louis
Armand de Études sur les maladies actuelles
du ver à soie Paris; V. Masson; 1859 [CUL, I]
 ad, beh, br, em, ex, gd, he, mn, oo, pat, rd,
 sl, sx, ta, v

NB 12; 31; 101; 209; 214; 304; 321

SB □β

Q

12 & 214 do One knows that everywhere in
 France white races have resisted disease
 better than yellow.– [It may of course have
 been accidental coincidence]

31 Disease Hereditary The old races
 promptly disappeared from whole country

101 Great care is always taken in selecting
 cocoons for breeders.

209 a breed of which females had much
 finer & not so monstrous wings ♣ as in the
 South–* certain black caterpillars resist
 disease much better

214 some breeds have lost property of
 attaching eggs to any support

304 Often mere rudiments of wings (u) –
 doubtful whether due to disease

321 an account of diff vars. of Mulberry with
 leaves of different qualities some only fitted

QUATREFAGES, VER À SOIE

for caterpillars in latter stages; Hence selection might easily come into play – as the stiff-leaved vars could exterminate a species.– No doubt judging by our oaks only the more delicate trees wd be thus exterminated.

12 27–28m 31 18–20m 101 21–24m 209 1u "vers|Jean", 17u "plus|dans", 18u "sont|étalés", 25–28m 214 14–15m, 16–17m 217 26–29m 304 1–13m/7–8Q 321 4–12m/6–9Q/8–9m/9u "qu'on|davantage", 14u "assez|découpées", 15u "feuille|plus", 19u "laquelle|ramassage", 23–26m/25–26m, 29m

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Histoire naturelle des annelés* 2 vols.; Paris; Roret; 1865 [Down, I] ♂

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Métamorphoses de l'homme et des animaux* Paris; J.B. Baillière & Fils; 1862 [CUL, I]

cc, em, fg, gd, mn, oo, phy, sx, t, tm, v

NB 32; 79; 84; 94; 99; 103; 113; 118; 122; 129

SB ☐☒ ↔

32 Embryology

79 do

84 – Destruction of caterpillars by Ichneumonida

94 – Neuter insects

99 4 forms of successive Respiration in Frogs

103 do.

113 Retrograde development

118 F.W. Molluscs no metamorphosis

122 Embryology

129 Period of monstrosity X

174 alternate generations

251 True generation always necessary

280 Parthenogenesis in Wasps

299 do.

293 do.

312 & 315 & 317 Embryology

32 8–16m 79 17u "quatre formes"/13–25m (Fabre), 28–34m (Joly) 84 27–30m 94 21–24m/1–24w I doubt – will not explain two castes of ants 99 21–30m/18–30w four forms of respiration 100 1–9m, 19–25m 103 1–6m, 8–24m 104 22–32m 107 31–34m 113 23–27m/23w Lernaean 118 wt/1–2w Why? No food 23–27m 119 13–16m 121 27–30m 122 24–29m 129 4–8m (Meckel and Geoffroy), 13–23m/7–19w so with all variations 28–30m 174 12–30m 251 12–19m 280 4–11m (Leuckart) 282 12w ovipary 290 9–14m 293 6–13m 312 18–22m 313 9–12m 315 4–7m 317 29m (Dufossé)

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Nouvelles recherches faites en 1859 sur les maladies actuelles du ver à soie* Paris; Victor Masson; 1860 [CUL, I]

NB O/1860

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Physiologie comparée. Les métamorphoses* Paris; Estrail de la Reine des Deux Mondes; 1855 [CUL, I]

ad, cc, ct, em, fg, in, no, sx, t, ta, v, y

SB1 ☐β

In insects variation cannot come on till later in life– so no necessity for coming on early The case may be early if measured by year towards close of life.

85; 96; 102; 118; 121; 125; 126; 134; 136; 138; 140 Hermaphrodite Fish.

By the enormous increase of individuals by gemmation in animal & vegetable kingdom number of eggs increased, & at times of year when perhaps not good for seeds or eggs to be produced–

SB2 ☐β

96 great differences in Metamorphoses of closely allied Polyps

125 Transformations, Metamorphoses, genea-genesis.– all forms of Metamorphosis

138 Summary of do

140 Serranus Hermaphrodite Fish

N.B. In an ephemeral insect how late a variation appears in life as measured by time – though the causes may act at a very early period

85 26–41m 96 7–14m (Löwen) 102 23–29m 116 9–11m 118 18–24m, 28–32m 121 1–6m, 21–25m 123 1–10m (Owen) 125 5–11m 126 23–25m/20–34w This after all turns on metaphysical point of what is individual. 37u "monogénèse", wb In young Anodon wd it be mono or digenesis – the cases blend together 127 15m, 22m (Carpenter)/u "son|fond" 128 3–4m, 6–9m/w just as I thought 129 3–7m 134 16m, 26u "n'aura|germe"/w No 27–31w His own case of Moths.– 136 17–21m 137 35–37m 138 1a "oeuf"/wt & the young organisms adapt to external conditions 2–8m, 37–40m 140 40–43m (Dufossé)

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Souvenirs d'un naturaliste* 2 vols.; Paris; Charpentier; 1854 [CUL]

af, ch, dg, em, gd, no, or, phy, sx, t, tm

vol. 1 SB1 vol 2 p.184; p.193; p.278; p.338

vol I p.116; p.121; p.123; p.135

p.254 works out well particularly of laws of

propagation in animals & vegetables.—
p.296; p.306; p.308; p.321

SB2 □β

121 On division of labour, 297
137 Great size with degradation in Nemertes
vol 2 193 simple eye of Annelid
338 On important change in one part not
compelling changes in other parts, with good
remarks against the subordination of
Characters of Cuvier

116 2-6m/4-5w analogue 117 18-23m 121 wt
How applicable to Plants – Shark & Salmon
& Pike The mere facts of being less like
Reptile makes more Fish-like 1-4m, 7-10m/
9u "inférieur", 24-25m (Milne Edwards) 122
11-15m/11u "types", 17-21m/20u "plan
général", 23-25!/23-24u "le | branchie" 123 5w
Lamprey 22-26m 135 15-18m, 26m 137 3-6m,
25-26m 139 14-20m/16w Fish? 26m 140 3-5m
257 18-22w The leaf buds are ♣ larvae 295
24-26m 296 1-11m 297 24u "illans"/23-25m
(Milne Edwards), 25-26m 306 1-7m 308 22-
26m 309 3-8m, 19-22m 321 10-22m/22u
"réunis", 23m/w Land 24w some Rotiferae
are bisexual 26w Land 27u "Turbellariés"/w
Land 29-32m (van Beneden), wb♦ There have
been land-forms produced because such has
been possible owing to these being M All
wrong

vol. 2 NB1 40; 48; 52; 64

NB2 40; 48; 52

NB3 ○

40 17u "représenter" 41 26m 43 9-14m 52 13-
17m/13u "parenté zoologique", 16-21m, 23-24u
"d'identité apparente" 53 2-4u↔ 62 10-13m 64
4-8m 184 1-7m 193 1-13m/3u "partout |
centre" 278 6-15m/10-11w Teredo 338 2-23m,
15-18m, 24-26m 339 1-5m (Jussieu), 9-16m,
20-21m

QUATREFAGES DE BRÉAU, Jean Louis
Armand de *Unité de l'espèce humaine* Paris; J.
Claye; 1861 [CUL]

beh, br, ds, em, h, hy, phy, sp, v

SB1 □β

20 Man. Language

31

39- ⚡ Definition of Species

Some truth to similarity, some truth to
descent alone

52; 53; 57; 78; 119; 152; 156; 158; 161;
169; 205 a Book on Health of World

Americans altering looks like conditions

Whatever produces 6 fingers, could if
prolonged produce six.—

Nothing important

Jan 1861 Quatrefages on me

SB2 ⇨

20 Compares Languages of Man & of
Animals

152 Results of crossing Primrose & Cowslip

156 on the crossing of 2 species of Camels.
doubts thrown on.— & 2 species of Guanaco.

158 on the sheep & Goats of Chile.

161 Naudin on Law of Return of Hybrids – I
doubt – It is certain that he does not believe
much in insects.—

19 11-16m 20 28-35m 21 21-23m/22u
"caractères moraux", 26u "vertu | vice", 37-
41m, 43u "sel généralement" 31 27-30m, 31-
38m, 40-41m, 42u "compagnie" 32 9-14m 33
1-6m 39 20-25m 52 31-38m (De Candolle) 53
26-34m, 35-40m (Linnaeus) 54 34-39m 55 33-
40m (F. Cuvier, I. Geoffroy St Hilaire) 56 3-9m
57 6-12m (Sageret) 59 21-22m 69 29-33m 78
12-15m 79 24-36m (Geoffroy) 88 14-21m
(d'Orbigny) 93 40-41m 95 39-40m
(Desmoulins), 39u "seize" 119 25-35m 125 2-
10m, 28-33m/29-30w like Wallace 128 24-
43m 129 21-24m, 36-39m 152 12-20m
(Naudin) 156 5-24m (Khanikoff) 157 37-41m
(H.A. Weddell) 158 18-24m 159 2-9m, 31-34m
161 wt I must study Naudin on Return; I
cannot but suspect crosses 25-30m 169 26-
37m (Geoffroy) 205 21-27m (Winterbottom),
31-38m (Boudin), 39-41m, †3u "Boudin"/wb I
must read that book 206 11-16m

QUETELET, A. *Sur l'homme et le dév-
eloppement de ses facultés* 2 vols.; Paris;
Bachelier; 1835 [Down, ED]

THE RABBIT BOOK London; Journal of horticulture; n.d. [CUL]

v

NB p.2; 4; 14; 16; 22; 24; 34

2 2-8m (Confucius) 4 33-35m 14 5u "Double | Full"/w Oar lop - Horn-lop 13u "5th | eye", 20-23m/21u "1 | inches"/22u "5" 15 fig.m 16 2-4m, 29-32m 22 28-32m 24 27-33m 26 16u "Chinchilla", 20u "wild | sprig", 23-29m 28 1-3m, 12-14m 30 15-17m, 19-21m, 22-23m 31 11u "Ram Rabbit", 17-19m/18u "from | 20" 32 4u "Rouennais", 4-16m/12-16m, 19-23m, 26-28m/26u "Nicard" 34 8-10m

RADCLIFFE, Charles Bland *Dynamics of nerve and muscle* London; Macmillan & Co.; 1871 [CUL, I] beh, phy, tm

NB1 Does killing Drosera cause contraction - is elasticity contracted during life?

NB2 ♦ 9 & 27 & 29 & 38 Torpedo

144; 165 Blushing

178 contraction of muscle due to elasticity contraction of amoeba

237 Trembling- why excitement, because too great

9 3-5m (Du Bois-Reymond) 27 25-31m (Matteucci) 28 30-31m 29 1-11m, 23-27m 38 2-8"..."/3-10m 144 7-17m 165 4-10m, 19u "vaso-motor" 178 22-31m 179 20-23m 237 20-30m 238 3-15m/14-16m

RADENHAUSEN, Carl *Osiris: Weltgesetze in der Erdgeschichte* 3 vols.; Hamburg; Otto Meissner; 1874-76 [Down] ø

RAM, James *The philosophy of war* London; C. Kegan Paul & Co.; 1878 [Down]

RAMES, J.B. *La création d'après la géologie et la philosophie naturelle* part 1; Paris; F. Savy; 1869 [Down, I]

RAMSAY, Andrew *Descriptive catalogue of the rock specimens in the Museum of practical geology* London; G.E. Eyre & W. Spottiswoode; 1858 [Down, I]

11 1-3m 13 1-7m 148 13-14w Galapagos 149 16-19m ø

RAMSAY, Andrew Crombie *The physical geology and geography of Great Britain* London; Edward Stanford; 1863 [Botany School, I]

RAMSAY, Andrew Crombie *The physical geology and geography of Great Britain* 3rd edn; London; E. Stanford; 1872 [CUL, I] geo se

NB Will Shrinkage account for surface grt elevation & subsidence on same area p.261 Earth brought down by Rivers 261 1-9m

RAMSAY, Andrew Crombie *The physical geology and geography of Great Britain* 5th edn; London; Edward Stanford; 1878 [Down, I] ad

NB p107 On Marine animals getting accustomed to salt water 107 31-34m

RANG, Sander *Manuel de l'histoire naturelle des mollusques et de leurs coquilles* Paris; Roret; 1829 [CUL, on B, S]

RANKE, Johannes *Grundzüge der Physiologie des Menschen* 3rd edn; Leipzig; Wilhelm Engelmann; 1875 [Down] ø

RAY, John *The correspondence of John Ray* ed. Ray Lankester; London; The Ray Society; 1848 [Down]

NB (not CD) 356 4-7m

RAY, John *The wisdom of god manifested in the works of the creation* 2nd edn; London; Samuel Smith; 1692 [Botany School, S]

NB1 & Instinct so Babies

Vine 99 manured in Vine leaves

99; 107 babies; 100

NB2 p106 112 114 115 121 125-140

p.134 p.136 Part II

part 1, 106 9-18m 107 1-5m(FD) 108 ↑w As domestication makes some animals more prolific (? fresh teats produced?) questions answered 109 1-8m/wt/↑w are the last eggs fertile If so, possibly animals might regulate their prolificness according to case of feeding young Will not apply to caterpillars.- Was not Doris superfluously prolific 112 ↑3-1m 113 ↑12-1m 114 ↑10-1m 115 ↑10-1m 116 6-20m 121 4-6m, ↑6-1m 125 1-10m 127 1-7m/w if not they would not live. This argument shows in what strife each species lives wb Adaptations might be classed always necessary to existence, necessary under ø 128 ↑10-1m 129 3-12m 130 ↑16-1m, wb burrowing animals grow analogues 132

wt Co relation in structure, as breast & womb, must be result of laws of organisation
 †w Adaptations which may have grown with formation of the species 5-20m 136 "II"?.
 139 †10-3m
 (other markings not CD - some FD)

part 2, 68 †20-1m 69 8-14m 134 10-16m 136 4-20m

RAY, John *Memorials of John Ray* ed. Ray Lankester; London; The Ray Society; 1846 [Down] ∅
 149 8-10m

READE, Thomas Mellard *Chemical denudation in relation to geological time* London; David Bogue; 1879 [Down, I] ∅

READE, Winwood *The African sketch-book* 2 vols.; London; Smith, Elder & Co.; 1873 [CUL]

beh, gr, h, sl, ss, sx, tm

vol. 1 NB African do not 41 Kissing
 ♦ 60 Error; 306 Aymara (text has "Amyamara")

152 Direction of Hair on arm of Gorilla & manner of killing
 223 Women ugly in lowest tribe & selected as slaves

♦ Ananga pretty story (Sketch of African discovery)

445 Rage Expression
 109 wonder

41 21-23m 60 3u 109 16-18m 152 25-27m/25-26u "rain|head" 223 9-13m 306 †1u "Amyamara" 445 5-17m

vol. 2 NB African Map. ingored
 Missionary 153 313 savages singing when excited

253 Beauty, & 521-522 Blackness

258 intelligence of Negros

306 & sexual selection man

♦ 310 Language

313 singing

394 Blue eyes in negress, uncanny

364 M. of N.

Your map not alluded to

153 16-19m 253 1-7m, 11-14m, 18-22m 258 10-16m 306 17-23m/19-20w like male Birds 307 29→ 308 11-14m, 15-16m, 19u "women fanciers"/18-24w American Men have as long hair as women 310 18-22m 312 11-15m/?, 26-29m 313 11-12m/11u "the", 16-20m 394 1-4m, 10-12m 520 6-10m, 16-19m, 29-32m/31u↔, 32-34m 521 1-2m, 7-10m, 22-24m, 29-

31m, 33-35m, 38-39m, 40m 522 1-4m, 12-15m, 20-21m, 31-34m, 35-36m 523 1-2m

READE, Winwood *The martyrdom of man* London; Trübner & Co.; 1872 [CUL, I]
 beh, h, or, sl, t

NB 112♦; 410♦; all very striking & original; 415♦ Poetical♦ 434♦; 420; 423; 237; 441 & 453 What authority

SB □R ↔

Passion

420 & 421 combination depends on language ⇌ Selection Man

423 Sharpening sticks by rubbing probably origin of Fire.

♦ 437 Origin of curiosity

441 Savages - When excited singing What authority ⇌ Own

453 Origin of ♣ decency ⇌ & propriety

⇌ Mind of Man

W Reade *Martyrdom of Man*

112 14c "West"/w East 410 12-17m 415 3-10m 420 13-17m 421 17-18m 423 8-9m 434 6-9m 437 15-18m/w Why not danger 441 19-30m 453 8-20m

RÉE, Paul *Der Ursprung der moralischen Empfindungen* Chemnitz; Ernst Schmeitzer; 1877 [Down, S]

NB O/

REEVE, Lovell *The land and freshwater mollusks indigenous or naturalized in the British Isles* London; Reeve & Co.; 1863 [Down, I]
 gd

NB 255-57 Distribution of
 255 2-10m, 41m 256 10-17m, 20-24m 257 18-21m, 21-22m, 21u "have|influence", 32-34m 258 24-30m

REICHENAU, Wilhelm von *Die Nester und Eier der Vögel* Leipzig; Ernst Günther; 1880 [Down] ∅

REINKE, Johannes *Untersuchungen über die Quellung einiger vegetabilischer Substanzen* Bonn; Adolph Marcus; 1879 [Botany School I to Grisbach; FD]

RENDU, Victor *L'Intelligence des bêtes* Paris; L. Hachette & Cie.; 1863 [Down]

NB Mere Compilation not worth reading

RENGGER, Johann Rudolph *Naturgeschichte der Saeugethiere von Paraguay* Basel;

RENGGER

Schweighauser; 1830 [CUL, on B]
ad, beh, br, cc, cr, cs, dg, ds, fg, gd, geo,
gr, h, he, mg, no, oo, or, pat, phy, sp, sx, t,
ta, ti, tm, v, wd, y

NB

I did not notice whether tame Monkeys have
bred

354; 357; 360

334; 336; 340; 364; 368,9,70,90

10; 21; 38; 41; 43; 45; 47,8; 50

71; 100; 106; 110; 115; 118; 125; 126; 149;

152; 155; 165; 212; 214

368,9,10

173; 174; 175; 185; 189; 196; 201; 208; 224;

233; 249; 250; 259; 263; 265; 268; 276; 288;

291; 294; 295; 298; 301; 309; 327; 331; 342;

345; 351

xv 6m, 9m, 10m, 11m, 12m, 14m, 15m, 16m,
17m, 18m, 19m, 20m, 21m, 22m, 23m, 24m,
25m, 26m, 27m, 28m, 29m, 30m, 31m, 32m,
33m, 34m, 35m xvi 2m, 3m, 4m, 5m, 6m, 7m,
8m 3 5-14m/7-10w resemble of women to
men 20-22m/w Beard 26-27u "Die|Farbe",
30-32w complexion in passion 4 18-20m/w
from Life in Canoes 8 19-22m, 24-25m/w
See correction pxv 9 7c/wæ, 115c/wæ 10 32-
38m, wb Jemmy Button sharper eyesight
than sailors 11 1-5m 14 12u "ums|Zoll", 22-
34m/23-28w sexual differences in colour
26u "graulich-gelb", 27u "bräunlich-gelbe",
29u "jungen Carayas", 30u "tragen|Weibchen",
34u "rötlich-braun", 35u "dritten Schwan",
37u "vierten|Jahre" 15 27-28u "Das|
Stimmapparat", 33-37m, 34u "Beim|dieser",
35-36u "zwei|Männchen" 20 19-22m/w
Polygamy 21 5u "Des Morgens", 6u "der
warmen", 11u "Männchen|gewöhnlich", 14-
15u "oft|lang", 17-24m/w these Monkeys
make noise merely for pleasure 23 2-4m 26
14-17m ♦ 27 26u "sieben" 31 30-31m/u ↔ 34
32-37m 35 12u "Cebus-Azarae", 16u "der
Eckzähne", 17u "etwas|Schwanz", 18u
"Gesichtswinkel" 38 15-17m, 22-23m 39 21u
"einige Töne", 33-34u "mit|lösen"/33-37m/w
Beat the oranges to losen rind 40 2-4m/w
Yet oranges not aborigin 41 19-22m/w
Monkeys drive flies from their young 42 35-
37m, wb afraid of cold Mothers 43 20u
"häufig", 36u "Käfig" 45 30w Cebus 34w/
36w/wbt 46 wt Ennui - desire for object -
astonishment - passion - Fear & pain -
Joyful recognition 1-8w Desire astonishment
(2) Passion (3) Fright or Pain (4) (5) (6) 9u/
11wt 13-16m/w same in all - instinctive 19-
27m/w the crys cause very strong associated
emotions & act on them 30-33m/w Crys &
laughs 34-35m/w Laughter 32-34u±/wb

Expression wbt, wb Humboldt mentions
crying monkey 47 28m 48 25u "Zorne"/24-
27m/w Harm by passion ! by spirits 49 1-2m,
11-12m/w male monkey arrives later at
puberty than female 15-18m 50 1-6m/w
Monkeys diseases very like men 5-23m/w
colds, coughs consumption. Cutting teeth die
from fever accompanying. Cataract.
Apoplexy & inflammation of the bowels.
Medicine produces same effect on them 51
5-19m, 5-12w directly accustom to
confinement - very affectionate & loose
even wish of freedom 26-30m/w like Negros
best 34u "Hunde", 32-36m/w People say
horses created for men, I might say dogs
created for monkeys wb (With reflection a
monkey with these feelings would be sorry
having attacked his friend) 52 wt How like to
man's character! do for comparison 1-4m,
6m, 8-20m/7-16w (Vengeance encircled○)
21-26m, 29-31m, 34-37m 53 wt Emma often
perceived he had been on dining room on
the table & found it so - 1-10m/2w Jemmy
did this 3-5w but Squib○ was not so 12-13u
"Habsucht", 17-24m 54 5m, 6-8m, 14-15m/14u
"selbstständigen Charakter", 20-22m/20u
"andere|unterwerfen", 24-29m/25-33w Rides
dogs & makes them go where he likes. wb X
Man to horse, Molothrus to cows dog to
monkeys (& even some crustacea probably
to Cetacea see Macleay in ● on accidental
selections; 55 1-3m/w/wt was easily taught ♣
to open shells of Palm with stones 7-15m/8-
11w generally learns to break eggs.
15w Learns by exper 15u "sachte", 16u
"zerbrochenen Theil", 17u "nur einmal", 17-
18m/17-20w if once cut himself with tool very
careful 35-37m/w wasp always listened to
paper 35-37m/w knows expression of Man
wb these alpaca in S. America Man to
Mule! better 56 wt A This shows how arts
wd be acquired. 6-18m/w A once taught to
break nuts, with stone, uses this art to break
nut with stones with bad taste 19w & boxes
20-27m/w N.B Monkey gave me nut out of
herself & seem to expect it to be cracked 57
wt strength of judgment 2u "Urtheilskraft", 6-
10m/4-11w senses of Monkey ♣ are much
impressed by circumstances 8u/wt, wb X 58
10w Nothing about breeding 61 22-27m/w
p38. lay only on other side 62 10-11m, 17-
18w Nocturnal Monkey 64 15-20m 71 16-18m
99 19-26m/20-23w Occasional differn in
sexes 100 10-18m ♦, 20-28m, 29-37m, 34-
36m/36u "Farbenabänderungen" 106 18-23m/
19u "Gefangenschaft"/19-20u "Jahre lang"/21u
"zeichen" 107 1-3m/1-2u "der|Behandlung",
12u "Der|zahn" 110 7-9m 115 5-9m, 14-18w

This is a representative species 16-26m/18-19u ↔ 118 13-15m 125 5-7m/7u "von Geschlechtstrieb", 12-13m/13u "sehr zahm"/14u "folgt|wird" 126 13-14m/14u "grösseren|zu" 129 29-32m 141 26u "sol|zahm" 148 12-14m, 31-36m 149 1-5m, 26-32m/w like Bizatcha useless instinct 151 1Q 152 12-19m/w Proofs from name of places that Dog is aboriginal 21-22m, 32-36m, *wb* Thinks hairless dog probably aboriginal - is called Chinos - which is evidently wrong, as African species is nearest 153 18-22m/18w (a) 22-28m, 30-33m/w not uncommonly some of the Hairless Dogs, are dumb, only howl - *wb* Q² The naked dogs appear to cross less with the common than the latter amongst themselves - where they do cross young take after mother - ♣ never knew a hairy dog produce hairless or half hairless how in vixen 154 XX Although Spaniards introduced many races, now so generally mingled that it is rare to find trace; though that sometimes can be done 6-9m/w concludes hairless dogs descended of aboriginal dumb dogs 11-18m 155 14-18m/14-32w wild dogs like tame in colour & form - burrow holes hunt like wolves single or in packs do wolves burrow 24-25m 161 29-36m 165 7-9m/w curl end of tail like cats 18-21m/w do not break neck 173 25u "bewegen|Schwanz"/24-27m/w like cats. 174 23-26m 175 17-23m/w does not live probably 20 years produces 1 or 2 young 183 2-6m/w like young deer 8-22m/11-17w slight different shades of colour 189 25-28m/27u "schmiegeten|an"/26w & p.190 30u "Spinnen"/29-32m 190 14-15m 194 10-14m 196 5-8m, *wb* the variation of wild animals probably is only at different point of wider range - very different from domesticated animals 199 16-24m/w Toads & serpents kill this Cat 32-36m 201 3-6m/w even in Native country 7m/u "Niederkunft|seine"/w odd possession in instinct 210 *w*t/1-7m/w Two cats in same country with very similar habits yet much rarer 212 *w*t/1-10w Most important instance of my theory Marriage keeping form constant 10Q 11-14m, 13-30m, 16u "300 Jahre", 22u "fortwährend", 26u "kürzere", 28u "Schwanze", 15-19m/15-32w/*wb* The cats of interior of Paraguay differ in quantity of hair, & places of body where most scanty, & ♣ forms for European, but not in Aegyptian where European Cats have perpetually been introduced 213 3-4u "verschnittene Männchen"/w castrated males larger 11-12m, 35-37m/w no wild cats! *wb* wild dogs rare in Paraguay common in La Plata 214 1-7m/1u "Eseln", 10-22w no old wild cats - even

when left behind, die 224 22-28m 233 4-8w not good case p.236 9-14m/10-12w representative Species 23-26m/22w exceed 28-33m/w/*wb* but wild far from Man 236 1-2m 249 28-29m/29u "wie|Kaninchen", 32-34m/34u "alle|kamen" 250 25-31m 251 25-35m/28-29w variation 33u "dritte" 252 1-4m 259 18-22m/w variation 260 31m 261 11-13m 263 24-25m/23-29w shows how necessary for ♣ pheasant to avoid this path *wb* has confessed it varies a little from British species 265 33-37m, *wb* Is it not unhealthy women which most miscarry? 268 31-32m 276 34-36m, *wb* no variation 277 6-10m, 27-36m/w not parent of Guinea Pig - *wb* without indeed the changes in constitution of latter, prevents its breeding with the Aperia 288 20-25m 291 33m 294 24-31m/w ankylosis kind of vis medicativa 295 29u "nicht|vor"/28-32w yet very similar habits 298 6-8m 299 5-6m/5u "gemein" 301 26-30m 304 3-6m 309 1-6m 310 27-28m/27-35w other species rarer than foregoing but habits rather diff. 312 18-20m 325 1-2m 326 13-16m 327 11-15m/w yet so tame almost domesticated 331 1-3m/1u "gross"/2u "sol|Junge", 24-27m 334 1-29w² & in 1580 (ie 43 years afterwards) Sarmiento saw horses with the Indian in Str of Magellan. 1-25w² Horses new in 1545. have run wild for 300 years 27-29m, 34-38m/w so increased without man's care *wb* Pampas did not exist 335 13u "bei|von"/w like Capons 23-31m/w Q Compare Azara 34-37m/36-37u "brauner|Farbe" 336 14-19m 340 21-27m/w rickety horses short in legs 30-32m/x/30u "gourme", *wb* Glanders & gourme, shows that contagious diseases peculiar to constitution & break out without contagion. 341 26-27m, *wb* ass remained unchanged in colour - more degenerated than horse - 343 13-18m ♦ 344 26u "braunlichroth" 345 6u "Mittellinie|Brust", 10-14m/12-13u "Der|und"/10-11w Deer 19-22m 351 28-30m 354 6-9m/w therefore different habits 355 22-27m/w secondary character 357 3-10m 360 14-22m 363 6u "1546", 26-29m, 28w ♦ oranges 364 6-12m/w Paraguay no wild cattle - from flies 369 2-17m, 3-8w no monkeys rest of Andes 13-17m 370 1-7m/1-20w apparently horse constitution peculiarities go with genera C.D. 8-19m 371 1-8m/2-6w these limits of genera all wrong 15-18m/15-22w species of Carnivora, Bats genera. not generally confined in longitude, with some exceptions. 372 20-25m 274 2-10m/5-6? 375 *w*t Thinks distribution of these animals, which do not feed on grass, is determined by vegetation, which changes

RENGGER

much in longitude. I doubt- X 1-26m, 29-32m, 32-33m 376 2-7m, 13-15m, 18-22w
 Distrib. of Carnivora indirectly follows plants
 27w (see p.396) 28-31w Distribution bears
 relation to process of locomotion of species
 32-37m/w even rivers separate Monkeys *wb*
 in some genera chiefly depends on the form
 of the tail!! *wb* NB Mem^c Sir F. Chantreys
 story of tame Monkey readily taking to water
 377 4-10w (a) examples of distrib in
 proportion to tail 13-18m/16w a 21u "zum
 Laufe"/20-27m/w surely this does not apply
 to antelopes of Africa 31-32u "einige
 ausgenommen"/31-37w one exception shows
 range not determined by powers of
 locomotion but by adaptation *wb* (a) Surely
 the doctrine of range being determined by
 locomotion powers & kind of foods (such as
 can be perceived) is false; for think of case
 of two ostriches: they living together shows
 (rest \diamond) 378 1-9m/wt/1-4w This is all absurd,-
 powers of locomotion will perhaps greatly
 limit in many cases most wonderful overuled
 Coypus extension, but adaptation is great
 feature N.B Are not these remarks applied to
 genera if so perhaps true 8-9w Biscatcha &
 Agouti 27-31m, *wb* ie as far as \clubsuit food &
 climate (& enemies preoccupation by other
 species) ie conditions allow species &
 genera to range, so will they range in
 proportion to their mode of progression & the
 form of the land 379 4-8m/w S Africa 15-
 22m/w Monkeys partial migration & of other
 animals 380 1u "Auch | Einfluss", 2-12m, 25-
 29m/24-33w \diamond Beasts of prey destroyed
 others increase immensely, & drive others
 from habitation 381 1-3m, 25-26w probably
 increased 26-28m/27-28u "fünften | aller" 382
 2-4m/3u "kleinen Raubthiere", 11-24m/w chief
 deaths of carnivora when young 390 *wb*
 Waterhouse Mice generally or sectionally
 very large range, but many species of S.
 America show that species small range -
 Now this agrees with Rengger 376 fact
 about Monkeys, but the larger range
 coincides with possibility of transport.

RETZIUS, Gustaf *Anatomische Untersuchungen* Stockholm; Klemming; 1873 [Down, I]

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REYNIER, Louis *De l'économie publique et rurale* Genève, 1818 [CUL.1900]

SB all Q

363 Merchants visited England & Ireland before Caesar

418 several vars of Cereals cultivated by the Celts at time of Caesar

486 nomad people do not improve beasts. Celts did attend to this subject.

499 Celts had 2 races of sheep with work for different purposes

503 Celts improved Horses.

363 \uparrow 6-2m, \uparrow 2-1 \rightarrow 364 5-9m 486 14-17m 487 4-8m 499 9-14m 503 9-13m, 13-15m

RIALLE, Girard de *La Mythologie comparée* Paris; C. Reinwald & Co.; 1878 [Down] \emptyset

RIBEIRO, Carlos *Noticia de algumas estações e monumentos prehistoricos* Lisboa; Academia; 1878 [Down, I] \emptyset

RIBOT, Théodule *L'Hérédité psychologique* Paris; Germer Bailliére; 1882 [Down]

RIBOT, Théodule *Heredity* London; Henry S. King & Co.; 1875 [CUL]

beh, h, he, mn, pat, t, ta, tm, y

NB \diamond p.25; 33,34; 39; 142; 323; 373

SB \Rightarrow

25 33 34 Relation of instinct & intelligence.

39 Effects of Habit in giving short-sight

142 Calculation like Lutke \circ on chances against accidental reappearance of attribute in children.-

373 Average duration of French noble-families

25 2-34m 33 32-38m 34 6-12m/7u "if | exist"

39 19-37m 142 25-28m (Mauertuis) 323 25-36m 373 27-36m (Benoiston de Châteauneuf)

RICHARD, Louis-Claude *Démonstrations botaniques ou analyse du fruit* Paris; Gabon; 1808 [CUL, S]

RICHARDSON, H.D. *Pigs* Dublin; J. McGlashan; 1847 [CUL]

cs, f, or, sl, tm, v, wd, y

NB p.15; 24; 29; 30; 32; 38; 41,2; 44

SB $\square\beta$

26 Cross with Chinese restores lessened fertility Q

29 Berkshire a spotted Breed Q

30 Irish Grey-hound Pig with appendages Q

37 16 British Breeds NQ

41 Westphalian 1/2 wild Breed always have

young striped like wild (p.43 do)
 42 Crossed Breed of 3 kinds in Pigs, forming
 a Breed Q
 44 Good sentence on selecting short legs of
 Swine

15 2-7m, 11-12m 19 12m 24 5-8m 26 1-3m,
 5Q 12-15m, 22-24m, 8u "Lawrence"/Q 29 1-
 4m 30 fig.w compare with drawing in title 32
 1-2m 33 14-18m 34 4w 1 5w Berkshire 7w 2
 31w 3 39w 4 35 22w 5 36w 6 36 5w 7 10w 8
 19w 9 26w 10 32w 11 38w 12 43w 13 37 4w
 14 22-23Q 38 16w 15 29w 16 33-36m 41 9-
 10m, 11-12Q 13-18m 42 11-13m, 26-27m 43
 33w N.Q. 34-36m 44 5-8m, 34-37m/35" .../
 37u↔/34-35Q, wb it has been obtained
 ♂

RICHARDSON, John *Fauna Boreali-Americana*
 3 vols.; London; John Murray; 1829-36
 [CUL, on B and later, I (14 August 1837)]
 ad, beh, ch, cs, ex, gd, gr, ig, mg, oo, sl, sp,
 sx, ta, tm, ts, v, y

SB1 Richardson Vol I.

p.xxxi.

Fauna B Americana

◆ NB Write to Dr Richardson about selection
 of dogs of

p3; p.11; 14; 16

◆ 26 (p35 Journal) - Canis Azarae Bahia
 Blanca cat in Chile - an armadillo at
 Concepcion Mntains

29 42 47 to 51 61 to 95 116 125,7 136
 140,2 157 161 166 181 191 195 231 233
 239 241 250 p252 p.263 p.268 p.276 p.280
 vol. 1 SB2 □β

15 White rings around neck characterises
 several bears when young Q

29 Vars. of Bears in colour differing in
 ferocity p.66 variation in Wolf

49 Mustela with aquatic habits Q

51 Local races of Pine Martins

64 on resemblances in appearance & voice
 of Dogs & Wolves 75 do. 79 do.

67 variation in Wolves Q

62 Dogs broader feet for running on snow Q

72 Crossing of do
Q 76 Var. of American wolf analogous to
 European wolf - 84 Q do. in Foxes in C.
 lagopus, fulvus & vulpes

93 on Cross Foxes Q

140 on Brown Rat exterminating black in N.
 America, as Europe, (& as N. Zealand?)

so Hooker shows how many plants which
 are naturalised in America are same with
 those in Europe

142 Field Mouse occupying sheds in N.
 America

191 Squirrel approach to structure of Flying
 Squirrels Q

239 Rein Deer & distinct vars. inhabiting
 woods 250 & other barren grounds

241 Horns various Sexual Q

263 Herds of Deer which remain, all
 destroyed by wolves. Q here we see manner
 of destruction p88 Colonies of Foxes do.
 destroyed.-

268 Female ♣ antelope with only
 prominences & no horns see the account Q

xxxi 23-24m/24u "same|animals", 35-37m xli
 25m 3 34m 11 25-26m/25u "larger|tail" 15
 17-23m/Q 16 28m, 30-32m 26 37-39m 29 10-
 12m 35 10-11m 42 25-26m 49 4-6m, 7u "its|
 otter"/w a Mustela 10u "haunts|hunts"/9-14w
 Q good to argue against the assumed
 impossibility of otter-transformation 51 20-
 21m/20u "Particular races" 61 16-17m/16u
 "others totally", 23-24m/24u "Wolves|litter" 62
 1-2m, 4-5m, 13-15m, 16-18m 63 19-20m 64
 25-26m/Q 28-29m/28u "four|nine", 30-32m,
 33m/Q 65 1-3m 66 12-13m 67 5-6m, 8-9u
 "reindeer", 10m, 22m, 25-28w shorter, though
 larger animal 29m 70 17m/15-21w greater
 than in last, though this is smaller wolf 30m,
 33-34m 71 1-2m 72 12-13m 73 1-3Q 74 1-
 2m/1u "muzzle|ears" 75 7-8m, 10-13m, 14m/
 Q 76 1m, 3-4m/Q/3u "characters"/4u "which|
 wolves" 77 13-14m, 15u "five|litter" 79 20m,
 25-27m/Q/"...", 31u "the|paws" 80 19-21Q
 26-27m/Q 81 22-23m 84 42-43m (Gmelin) 86
 35-36m 88 5-9m/6-7m 90 13-15m, 24-29m 91
 19m, 22-24m, 27m 92 21-24m/21-22u "Cross|
 Foxes"/Q♦ 93 15m/Q/u "inclined to", 24-25m/
 25u "be|difference" 94 26m 95 25u "an|
 arrangement" 116 38-39m 117 3-4m/u "three|
 young", 11u "great|cause"/w So with Beavers
 125 31-33m 127 23-25m 136 9-11m 140 20-
 22m 141 5u "1730", 6u "1775", 8-9m 142 10-
 13m 143 4-5m, 13u "varieties|met", 14-15m/
 14u "in|tail" 157 18-19m/18u "rudiment of"
 161 3-5m 166 1-3m (Sabine) 181 18-23m
 (Pallas) 191 24-25Q 25-26m (Vigors) 195 15-
 17m, 18-21m 231 9-10m 233 8-10m 236 30-
 33m, 34-36m 237 20-22m/20-21"..." /21m 239
 6-9m/w only for keeping distinct Q 19-20m
 240 top fig.w 19 points low fig.w 29 points
 241 12-15m/12u "largest|horns"/Q/13u "have|
 branched", 18u "majority", 29-33m/32u "by|
 bucks" 242 1u "month|May" 250 5m/6-7m/wt/
 1-9w other var In May the Females proceed
 northward to coast & the males follow in
 June 8-10m/11u "Lake Superior"/9-14w Q
 only for keeping distinct 15m/u "September"/
 16-17m, 15-19w other var. proceeds
 southwards at this month 24-30m/w does not

RICHARDSON

appear that Bucks & Does migrate separately in the other var: does 252 7-9m/8u "moose|rein", 16-20m (Cuvier) 259 35-37m ♦ 263 29-33m/Q 32-34"... 268 1-4m 276 17-20m 280 15-18m, 20-23m

vol. 2 NB ♦ Remark about ● Beak

G.R. Gray ask about number of tail-feathers; 27; 30; 31

SB □β

pxx The Younger Birds are driven away & go wandering

27 var. in tooth of mandible of Jer Falcon, present or absent p30 Q

31 var. analogous to other species of Hawks Q

60 variability in length of primaries - 80,90 Q all 3 quoted

89 Owl fishing 139 Tyrannus do

192 Orpheus changing range with man

268 Similarity in Habits of Goldfinch - Habits often more constant than Structure

283 Var. geographical of Sturnella

292 Eggs of Magpie different from those of Europe; so with an Owl

331 & 332 Change in migration of Swallow - Q nest differing Q only for nest

361 On a Grouse running in circles

404 Fulica var in number of tail feathers Q

469 Variability in length of tarsus & toe in Anser canadensis Q

xix 34m xx 1-10m xxxv 2-3m ♦/3u "mostly|birds" 27 25-26m, 28-33m/33Q 30 30-31m, 32-33m, 35-38m 31 5-9m/w analogous Q 57 21-27m, 34-36m/36u "perhaps|birds" 58 3-4u "third|fourth", 4-6m, 20-21m/20u "third|equal" 59 3-5m, 34-37m 60 4-6m (Savigny and Temminck) 70 19-20m 72 9u "bird|of", 26-28m 77 8-9m 80 1-2m 83 4-6m/5u "localities"/6u "rufous tints" 85 26-29m, 30u ↔ 89 8-9m 90 5u ♦/5-6u "The|shorter"/w not equal 8u "about|fifth"/w 1st short 34-36m 91 11-13m/13u "the|other" 118 12-13m/13w very close 139 35-36m/36u "dives|fish" 150 35-38m/37u "octave|whole" 177 1m 187 12m 189 zb 192 18-19m, 22-25m 226 30-32m 231 36m 233 33-34m 249 32-33m, 34m 250 10m 268 22-26m (A. Wilson)/20-28w other instances of representative species, having allied habits - Thrush in their songs & nests - Gull in S. America 278 7-9m, 22m 282 24-27m 283 30m, 33u "6"/w yet small 34m, 35-37m 292 16-18m/17u "blotches|diffused", 27-35w English eggs shorter but broader 33-36m/35m/w broader 293 34-35m 305 13-16m, 25-27m 306 36-37m (Swainson) 331 18-19m, 20-22m, 25-29m, 36m 332 2-4m, 4-7m, 9-13m, 25-29m, 34-36m 343 1-5m, 6u ↔ 355 35-38m (E.

Sabine), wb observes measurements from stuffed specimens often vary apparently. 359 5-17m/7u "celebrating|wedding"/8u "buzzing|ground"/9u "bare|size"/13u "presence|intended" 361 32-35m 362 1-3m, 4-7m/4u "last|more" 404 29-30m, 32-33m (Cuvier) 407 39-40m/39u "than|among" 413 31-35m 422 17-21m, 22-24m 443 18-21m (Pennant), 22-23m, 25-27m 448 38-39m 453 22-27m, 38m 456 36-39m 469 19-22m/21u/22u (numbers), 23u "same length"/w Q (a) 24-25m/24u "middle|lines", wb (a) many cases especially amongst these water birds, of variations in total length, have not been marked 472 17-23m (Pennant and J.R. Forster) 475 8-9m, 33-34m/33u "The|but"

vol. 3 ♂

RICHARDSON, John and GRAY, John Edward *The zoology of the voyage of H.M.S. Erebus and Terror* London; Longman, Brown, Green & Longman; 1844-48 [Down, I by Gray]

RICHARDSON, Samuel *The history of Sir Charles Grandison* 7 vols; London; W. Strachan; 1781 [CULR, on B; vols 1 and 2 missing; S in each vol. Charles Darwin Buenos Ayres Sept. 1833]

RIEDEL, W. *Die Taubenzucht* Ulm; F. Ebner; 1824 [CUL, pre-B]

ad, beh, br, cs, ds, f, hy, no, oo, or, sp, sx, ti, tm, v, wd

SA (pp. 232-233) □β

17 Fertility of Crossed Pigeons

25 Turbit & Fantail with Bald Pate - 27 other Hybrid Q

41 On Hawks catching light-coloured pigeons

42 Dragon silent Q

86 Some she pigeons prefer stranger pigeons to own husband

158 Same coloured pigeons pair more readily (Ch. 6)

163 Results of crossing different colours

9 wt Home-doves not so fertile as field!

12u ↔ 10 21w carrier 25w Turkish Pigeon

29w Ranger 11 wt long wing-feathers 1u

"Möven", 4u "Schwungfedern"/w (a) 7u

"Hauben"/w Capuch 8w Top-knots 9m/w

Tumbler 11w Fantail; 17 wt Bastards very

good breeders Vilmorin Turkish to Carrier

& common Pigeons either bastard will

bastardize with other bastard 19 3u

"gewöhnlich behaupt"/3-6w German variety of

carrier 20 30-32w Horsman on origin of Carrier 21 1-2w great Pigeon ♣, 6-14w Beak middling long little curved great Wurzel & skin at nose Body & wings small 22 wt Either these Turkish Pigeons or as cross with common pigeon, so not pair breeding with Owls & Trumpeters - Owl hybrids & trumpeters 6-9m/w (a) 13-18w Canton crossed with Powters fertile 23 21-23w all kinds can inflate crop. 25 26-31m, wb Hybrid Turbit - fantail X into a Bald Pate 26 5-10w can be crossed with Capuchin & Powters 19w Jacobin 23w (a) wb (a) Wings so long as often to sweep ground 27 wt very quiet 1-3m/w (a) 25-27m/w (a) wb Hybrid Capuchin - Trumpeter X Turbit 28 8m, 26-28m, wb Bechstein never sees so many as 32 feathers 29 8-9u/w Bald orbits 30w Trumpeter 30 14-17w male & female trumpeter alike 31 31m, wb Trumpeting varies 32 7w Pair 8w Swallow 12u "Feenl Feentaube"/w Fairy 16-29w Marked like the PowO of Sea Swallow of the Germans colours vary I think mine very pure. Purest not very true. ♦ Those with crest have been crossed generally wb Swallow smooth beaked feather footed coloured as mine - only little smaller than Field Dover but slenderer quick flyer Thin legged 33 1u "einerlversehen", wb Good flyers & at first wild 34 wt not caught by Hawks for manner of flight like swallows 4-6m/4u± 35 8m, 9u "Cypersche", 10-15w Bald Pate? a toy Neumeister Priest 23u "Pfaffen"/w Priest 36 21-27w Bechsteins birds 1 genus 38 29-30m, wb 14 sub vars colours of the Monck Pigeon or Bald Pate 39 4w Toys 40 17u "Spot Pigeon" 41 16-20m/17w (a) 21-28w same account as Neumeisters variety of Horseman or Carrier wb very great difference is attributed to colour in facility of Hawks catching them 42 wt very silent; I think our Dragon is.- 3m/w (a) 8-12w crossed with Turkish produces following 10w The Turkish is figured by Neumeister 12w I cannot think what this is 13u "Römische", 14-17w/16u "Schnabelldick" used for carrying letters 20-24w not the Spanish Birds wb (B) Moore says white Barb is the Mahomet Pigeons, so little known 43 wt ♦ I suspect all details here copied 4w Barb 5u "Indianische|Judische"/w Barb see Neum 10-11w Leghorn, Runt. 16-19w Tail stands up 24w a Toy wb on Finakin and Turner 44 wt These strike their wings together like trumpeters 1u "Trommler", 8-14w very small fingers, Legs very short feathered Beak excessively short 17-29m/w Not the Lace Pigeon but the Foilback 33-

35m, wb with a mane He has not seen this 45 5u "Col.|Forficata", 6-10w Pigeons with forked tails 12u "Thiergärten", 26-28m/w very modern 46 wt Ring Dover 54 3-12w Blue Rock Pigeons 9-11m, 32-33m/w doubtful 55 9-34w (not CD) 56 8m, 10-15m/12w (a) wb (a) Will occupy old trees when house destroyed 61 30-34m 62 23c/wæ 86 13-20w some she pigeons prefer stranger to own husbands 158 5m/wt/1-13w This seems to imply like coloured Pigeons prefer each other. 159 wb same coloured Pigeons pair most readily 160 22m 161 wt (a) difference is reciprocal cross of Pouter & common Pigeon 11-12w Hybrids bigger 12-19m/15w (a) 21-24w male gives form the female instinct 24m 162 17-32w Rules of results in crossing colours 164 5w cry back 227 4-34w/wb (not CD) 244 8-16w (not CD) 245 1-2m/w a popular error 246 wt (not CD) 3-6w Whitish yellow skin over nose 11-19w (not CD), 21-26w V. Dixon.- 24-26m/24u "Campana" 247 5w Foilback 15-16w Sea swallow Turkish 248 5-12w Tumblers turn on ground with Crop inflated 13-17m/w (not CD), ↑13u "Paggedetten"/w Horsemen ↑13w Carrier 249 3-8m/w Powting Horsemen wb (not CD) 250 ↓w (not CD) 251 ↓w/wb (not CD)

RIEDEL, Wilhelm *Die vorzüglichst bekannten Feinde der Tauben* Ulm; F. Ebner; 1824 [CUL, pre-B]

NB O/
ø

RILEY, Charles Valentine *Annual reports on the noxious, beneficial and other insects in the State of Missouri* Jefferson City; Horace Wilcox; 1871-77 [CUL]

beh, ds, em, fg, gd, h, ig, mg, mm, no, oo, or, r, rd, sl, ss, sx, ta, tm, v

no. 3 (1871) NB 14 Stridulating insects; 46; 52; 67 Transitions; 92; 97; 101; 127; 131; 139; 141; 148 Descent; 156; 164 ✓/ø; 168 Origin

SB1 □✕ ↔ (not CD)

Riley on noxious insects

156 Autumnal broods alone of a certain caterpillar having a peculiar instinct of forming house, so that it is developed in alternate generations

SB2 (as SB1)

Riley Noxious Insects of Missouri

46 Pea Weevil one of the few injurious insects endemic in Europe ♦ America & introduced into Europe.

52 Sudden spreading of *Bruchus fabae* (i.e. *fabae*)

RILEY, MISSOURI INSECTS

67 Larvae of a ♦ same moth of 2 distinct colours & respectively attached to corresponding objects. Means of sudden transition

92 & 139 Native insect which has lately acquired an appetite for cultivated apples, but only in certain districts, so considers it a newly formed race with new habits.

97 Rapid spreading of potato-beetle.

100 Increase of its natural enemies; certain vars. of potatoes more exempt than others

127 Phytophagous races.

131 Same insects forming cocoon above or below ground & varying in being single or double brooded

⇒ (CD) Very good essay on Mimicry

14 48-50m 33 40-44m 35 12-17m 46 27-35m
52 16-20m 67 6-15m, 17-25m 92 3-12m, 17-20m 97 3-6m, 8-21m, 39-45m 100 19-23m 101 24-28m, 38-41m 127 38-45m 131 4-8m, 40-42m 139 7-11m 141 20-24m 148 43-47m 149 14-16m 156 27-36m 157 17-27m 163 21u▲, 26-32m, 37-42m, wb Archippus has bad ●
164 21-25m 168 wt/1-13w Grt destruction of the grey makes the preservation of the Old Type important 15-19m, 22-25m, 33-37m

no. 4 (1872) NB p10; 11; 16; 23; 35; 58; 63; 66; 74; 85; 119; 123

SB □ R ♦

10 On new colonists at first most injurious

16 Enemies increase & acquire new habits

11 change of Habits in introduced insects

23 local var. of moth of caterpillar attacking peaches.

35 Migration of an American insect

58 Aphis, two distinct types of Habits though forming same sp. → to p.66

74 Silk-moth the caterpillars of distinct sp. quite alike at first

10 6-13m 11 2-4m, 7-12m 16 29-33m, 41-43m
23 1-3m 35 7-13m, 21-24m 58 wt leaf-galls & roots-galls 1-4m 63 10u "No leaf-galls", 11u "Leaf|abundant", 26-27u "No|lice", 29u↔, 32-34u↔, 43-45m, 46m 64 1-3m, 24-26m 65 3-5m, 46m 66 25-31m 74 7-15m 85 15-27m, 33-34m, 38-42m, 43m 86 5-7m, 20-22m 119 25-29m 123 13-18m

no. 5 (1873) NB 63 Change of Nature; 66 Phylloxera; 83 Mistaken Instinct; 86 ♦ ↗ Transportation of Pollen of Coniferae Q

● 87 Scale insects of Vars. of apples

150 The moths which fertilised Yucca for crossing

Nothing for the Descent of M.

SB ♀ 63 Phylloxera. Change of instincts

83 Mistakes in instincts in Scale-louse

150 The Moth which fertilizes the Yucca

63 17-24m 64 13-18m 66 39-43m/40u "as|most"/42-43u "Some|here" 83 25-33m 86 36-40m 87 1-4m/Q 7-13m/Q

no. 6 (1874) NB 115 Sexual Selection in Curculio; 131; Pronuba Moth, Yucca 114 33-38m (Wallace) 115 4-20m

no. 7 (1875) NB 20; ♀ On Hemiptera with perfect wings & more or less wingless - copulate together & continues inhabit distinct regions, the wingless generally to the north.- 20 31-40m 21 1-6m

no. 8 (1876) NB1 103 Grasshoppers drifted far down Mississippi clinging to logs

106- take advantage of wind & often travel 100 miles per hour-

122 very curious changes of vegetation owing to Locusts destroying certain kinds; & the change in vegetation caused proportion of insects to change

NB2 ♦ 103; 106; 122

103 12-17m 106 16-21m 122 wt because the l plant not eaten 1-7m, 14-18m, 22-27m 123 12-14m, 14-17m, 18-23m, 31-39m

no. 9 (1877) NB 18; 17♂ Indigenous insects how learn to prey on endemic; 20 Rudiment; 24; 37 Rate at which potato bug travelling; 40; 52 new Habit in insects attacking Wheat 57

8 28-35m 17 3-8m 20 fig.m 21 6-16m 24 14-18m 37 8-14m/9u "average|bribes" 40 13-27m 52 3-7m 57 8-12m

RILEY, Charles Valentine *The cotton worm* Washington; Government printing office; 1880 [Down]

mg

NB 23 wide migration of moths; 34 ants

15 20-24m/21u 23 22-30m, 32-34m, 35-44m
34 1-10m, 17-24m/23u, 24-28m

RILEY, Charles Valentine *The locust plague in the United States* Chicago; Rand, McNally & Co.; 1877 [Down]

RILEY, James *Loss of the American brig Commerce ... with an account of Timbuctoo* London; John Murray; 1817 [Down, S C. Darwin Feb. 13th 1826] ♂

RITCHIE, Archibald Tucker *The creation. The earth's formation on dynamical principles* 5th edn; London; Daldy, Isbister & Co.; 1874 [Down, I] ♂

ROBINET, Stephane Manuel *de l'éducateur de vers à soie* Paris; Dusacq; 1848 [CUL] beh, sx, v

NB p267 female cocoons heavier – (separation of Sexes) probabilities

p.275 I suppose Males were tested again – ley eggs immediately

4 9–11m 5 26–29m, 30m 7 16m/u↔ 8 16–20m, 29–30m 12 1–6m, 10–16m, 17–20m 13 17–24m 15 7–11m 26 2–6m/2w mistake 30 25–26m/m 31 1–3m/1–2m 37 24–29m 266 20–26m 267 1–3m, 20–21m 269 19–20m 271 16m, 22–24m, 25–27m 272 7–9m, 26–29m 273 2–4m 303 16–18m 304 4–8m 306 21–23m, 24m 307 11–12m 308 28–29m/28u "vers" 309 2–3m, 14–17m 310 1–3m/2u "teinte verdâtre", 15–17m 311 1–2m 312 9–12m 313 9–10m 314 13–14m 315 6–7m 316 5–7m, 23–24m/23u "Les|deviennent" 317 20–22m, 22–25m, 26–27m 318 16–20m

ROLLE, Friedrich *Darwins Lehre*

cc, ex, gd, oo, spo, v, wd

66 31–36m/w crocodiles of Egypt 76 1–6m/w variation of forest trees 14–20m/w rich soil produces variation 78 4–9m/w wild sport 84 6–9m/w Tacitus says Germans ate wild apples 85 1–4m/w Perhaps but O cultivated of Crab cider? 1–4w parents 33–34m 87 10–22m/10–12w acclimation 107 5–6m/w Properties of sexes attended 177 5–7m/w Rutimeyer says not known 15–18m/w 1st record 26–30m/w treating Common Rat 31–35m/w kill each other 179 3–6m, 15u "Deutschland", 19–20m/w 180 14–15m/w Mice earlier 182 3u "grossen", 6–10m, 10–15m, 13–15m/w are the larger beasts of ● destroyed?

ROLLESTON, George *Forms of animal life*

Oxford; Clarendon Press; 1870 [CUL, I]

ad, af, fg, gd, geo, in, no, sp, sy, t, tm

NB1 (w by FD)

◆ p136, 152

NB2 XXI Sp Theory

XXXII La

–VIII Generative Organs

XXXV Reproductive organ

LI Sp Theory

LXVII Affinities of Fishes to Dipnoi & Ganoids

LXXX CV◆ Classification of Fishes

Sp. Theory

XXI ◆ Ascidiens C.I

LI; C.V. Spe Theory; CX CXXV CXXVI

SB ↔

pXXI Von Baer paucity of individuals & species & confined area go together

pLI Dental papillae with caps of dentine observed in Parrots

p.C.V. On important organs multiplied in Annulosa, but not in Arthropoda

p.CX Transition between aerial & aquatic respiration.

⇒ Rolleston

xxi 1–5m, 33–36m (Wyville Thomson) xxxii ↑2–1m xxxv 13–27m xxxviii 4–6m li 34–36m lxxv 27–29m lxxvii ↑12–7m lxxviii 7–11m, 11–14m lxxiv 39–40m lxxv 15–17m, 30–37m lxxx 21–24m, 24–27m, ↑8u "Ganoidei|type" lxxxi 5–8m/w La, 11–15m, 24–26m lxxxiv 6–13m, 20–22m ci 13–14u "distinctive|Vertebrata" cv 3–6m/w I suppose multiplied inversions in Vermes cx 19–30m cxxv 20–24m/21–28w these might seem O at every point cxxvi 11–32m cxlvii 1–2m facing Pl. 10 w (barometer readings)

ROLPH, W.H. *Biologische Probleme, zugleich als Versuch einer rationellen Ethik* Leipzig; Wilhelm Engelmann; 1882 [Down, I] ∅

[ROMANES, G.J.] "Physicus" *A candid examination of theism* London; Trübner & Co.; 1878 [CUL]

⟨markings presumed to be by FD⟩

ROMANES, George John and EWART, James Cossar *Observations of the locomotor system of Echinodermata* (extract from Phil. Trans. Roy. Soc.); 1881 [Down, I]

ROSENBUSCH, Carl Harry Ferdinand *Mikroskopische Physiographie der massigen Gesteine* Stuttgart; 1877 [Down] ∅

ROSS, James *The graft theory of disease, being an application of Mr Darwin's hypothesis of pangenesis to the explanation of the phenomena of the zymotic diseases* London; J. & A. Churchill; 1872 [CUL, I]

beh, ch, ct, em, fg, he, or, pat, phy, r, sp, t

NB Pangenesis; p40

quotes Hippocrates on Pangenesis – 42 48 description of growth of cells –53

113; 114; 241; 247 249 252 Beauty; 262; 267

conclusively inquires on origin of contagious Diseases – 269 272

40 1–11m, wt/1–11w This bears on pangenesis i.e. not gemmules in blood 42 1–3m, 29–30m 48 16–23m 53 18–23w but the skin on sole of foot is inherited 54 25–30m 55 18–26m 58 25–30m 59 3–20m/9–11? 112 16–18m, 21–24u↔, 25–28m 113 4–6m, 9u

ROSS

"circulation"/8-11m/w this is against me 114 26-30m/w I look at quantity *wb* ♦ No Nature must be different *wb* The prepotency of foreign pollen depends on general vigour for a change 224 *wt* development may be said to result from the fecundation of tissue by gemmules from older tissues 1-3m 241 30m (Adam Smith) 247 3-9m/w The delicate kind of Beauty 249 16-21m 252 2-13m (Burke, Dugald Stewart) 261 14-22m (Wallace) 267 12-20m 268 8-28m 269 15-20m 272 8-19m

ROSSI, Darius C. *Le Darwinisme et les générations spontanées* Paris; C. Reinwald; 1870 [Down]

NB O/

ROUX, Wilhelm *Der Kampf der Theile im Organismus* Leipzig; Wilhelm Engelmann; 1881 [CUL, I, FD]

14 22m 65 21m 71 11m 81 23m 94 16m 100 5m 121 31m 127 9m 134 5m 141 13m 149 28m 154 11m 171 11m 218 19m 224 19m

Royal Commission Report on the practice of subjecting live animals to experiments for scientific purposes London; HMSO; 1876 [CUL]

NB ♦

p.30; 74; 166; 172; 200

iii "Colam..77"m x "4672"- "4667"m/ ["..."] "1188"- "1543"m/["..."] xii "1442"m xv "1018"- "2242"m xvi "1867"- "1874"m xvii "5627"m, 21a "knowledge"/w, "4934"- "5037"m, 112m 78b "1538/1541/1543/1546/1548"m 166b 112-1m 167a "3163"- "3178"m 169a "3218"m 172b "3298"m 176a "3383"m 279a "5583"m 282a "5627"m 335a "Innervation".m

ROYAL SOCIETY *Catalogue of scientific papers, 1867-79* vols 1-8; London; Eyre & Spottiswoode [Botany School]

vol. 2, 142.b 22m (Dana) 153.b 36w General work 154 *wt* Lythrum Illustration Essay ♦ 655.b 57m (Forbes) 656.a 53m (Forbes)

vol. 3, 482.a 59m (Huxley) 483.a 53m (Huxley) 483.b 57m (Huxley) 687.b 10m, 24m (Knight), 42m, 45m (Knight) 688.a 33m (Knight), 39m, 43m 688.b 11m

vol. 6, 247 *wt* A narrative of travel on the Amazon 1853 *wt* 7 papers 1850-53 247.b "8".m, "11".m, "12".w large number of papers put here 248.b 18m, 27m, *wb* 55 papers up to 1863

vol. 7, 140.b 13m (Bentham) 744.a 26m (Gaudry) 1046 5m (Hyatt)

ROYER, Clémence *Origine de l'homme et des sociétés* Paris; Guillaumin-Masson; 1870 [CUL]

beh

NB ♦ 67; 84; 89; 328; 337 good; 339; 121 good note ♦ on growth

67 6-10m/6w courage 84 2-6m 89 15-20m/w No quite different 121 23-26m (Gratiolet, Huxley)/26u "atropié", *wb* some monkeys here becoming extra arboreal if so hand degraded Hence degraded in some of the swinging monkeys 111 → 122 3-8m (Huxley) 328 6-15m 337 at p.337 *wt* never defend each other only good, perceiving danger (Rabbit social & silent) C.D. 339 14-18m/w Birds pair & yet are social

RUDOLPHI, Carl Asmund *Beyträge zur Anthropologie und allgemeinen Naturgeschichte* Berlin; Haude & Speuer; 1812 [CUL]

NB (on p.188)

40 ♦; 58,72,78 (he means 73) Felis Manul origin of Angora; Pallas Books 115 to 137 to 167; 184; 186

SB ☐

Rudolphi

115 does not believe after careful looking that seeds ever stick to birds feathers, as Willdenow accounted for water-plants, 139 Bring case of F.W. Fish, difficulty in diffusion

139 Linnaeus asserts that the Pike is disseminated by Birds

♦ 143 Rudolphi argues f

155 Rudolphi was greatly misled by little knowledge of antiquity of world in present state

161 cases of Hybrid Fish

163 - Zebras (only references), no one good case for me

163 - Rabbit

165 - Hellenius case Q

184 on the Hen of ♣ Vidua(?) with long tail disowns cock when robbed of it (very good) 186 Beautiful male butterflies more difficult.

40 8-11m (Pallas) 58 14u ♣, 15-17m/15u "stamme lab" 72 26u "Petrop. 1780", 31-32m (Pallas)/*wb* I have, I think, read 73 3-4m/w supposed parent of Angora Cat 78 16-18m 81 2w not read 115 13-16w Bird & beasts can do but little in spreading plants 20-26w still less sticking to feathers of Water Birds,

for feathers oily.- 116 1-6m/w Has looked to many Water Birds & fd. no seeds. Stomachs of migratory he has always fd. empty.- 21u "Wassergewächse"/18-30w He thus accounts by water-birds for wide distribution of water plants - by sticking to feathers & in dung 119 22m 120 9-12m/w When salt, sea-side Plants occur 124 14-20w wind cannot transport from mountain to mountain 127 4-6m/w when cold 129 5-9m/w 1812 137 10-12m/8-18w When wingless insects fd. in 2 parts of world proof of distinct Origin 139 wt/1-3m/w (Remember Water-spouts) So before Agassiz - Fish speak strongly that they have been created at many points, as same Fish in distinct rivers - 7m/u "Fischen | Wassers"/w (Remember Löss) 11-12w Rivers of Scotland. 14-20w Alps; But if all under sea, it requires more means of transportat. 22-24m/w Glacial case makes of Fish much more difficult 25-26u↔, 26-27u "ab | seritur", 28u "Th | 1391"/w My Edit - 35-36m, wb Take North of Gt Britain alone all under water, except Peaks perhaps, & then wd not have Fish.- But then since united to Mainland, as shown by land-animals.- 142 22-27m/w if only pair created then carnivores wd have destroyed the herbivores & c 143 19-22m/19-29w When S.B. found on Alps & Mtain of Asia what right to suppose came from one to other 154 wb How completely all this is Nott & Gliddons work in Abstract - fortified by the Aegyptian work 155 wt All that I shd expect wd be that Negros raised in U. States wd be more variable in slight degree in colour & other respects.- 6u "Anfang"/6-11w there shd be at least the beginning of variation in Negros & c in U. States 13-14u "nicht | ist"/13-18w as we know the world not so old in present state!! 156 26-28m/17-32w Mem Races have been driven from place to place, confounding effects of conditions & so with animals. 159 5-7m/w how like Agassiz & c 10-11u "alle | bleiben", 21-26m/19-29w species or no according as one looks to variability of limits 161 4-11m/6w Hybrid Fish 32-33m/w Hybrid Canary 162 1-7m/1u "Citronenzeisig"/w Siskin 5-6w Bechstein fruit Bronn- Have 163 3-4m/3-8w Donkey painted like Zebra before it was permitted to cover the Donkey 23-24m (Hartmann)/23-26w This Book I have seen referred to 25m/w Hybrid Zebra 164 6-8m/7u "äthiopischen | gemeinen"/Q 10-12m, 14-16m, 38u "Auszuge"/w abstract 165 3u "Rehkuh"/2-7w Sardinian Roe-Cow was this not probably a Mouflon?? 13-17m/w case os Seals old observer offspring not described 166 zt, 22-23u "Meerschweinchen"/w vars of

Guinea Pigs true 167 wt albino 2a "Kakerlaken" albino 2a "Kaninchen" rabbits 180 14-16m/u↔/w female elephants & Rein-deer 181 24-26m 182 29-31m/u "bey | mehr"/w I suppose confined to male 183 13m, 18-19u "der | hindert"/w checks flight 21-22u "Dann | fliegen", 26u "fesseln", 30-32m/w Polygamous 184 2-5m/2-10w The female does not recognise the "Anmer" without tail when robbed of tail - 4u/wt, 20-27w What cause of beauty of snakes? 30u "fand | zwey" 185 wt Lizard or Newt 1u/wtt, 5u↔, 8u↔, 9-12m, 19-21w Salmon Hook male fish different 20-23m 186 7u "Leuchtkäfern", 9-13m/w female shells 15-19w male butterflies most beautiful 187 1-9w female Bees sting 20-22m/22u↔/w spiders 188 10-15m/w generally no differences in flowers in dioicous flowers 17-19m, 20-24w Exceptions of Male flowers authority Ask Hooker

RÜTIMEYER, Ludwig *Beiträge zur Kenntnis der fossilen Pferde* Basel; Schweighauser; 1863 [CUL, I]

gd, geo, sp, tm, v

NB Milk teeth; 38 Sp. Theory; 57; 79; 136 Sp. Th

38 20u "so | dieser"/21-22u "Moschusarten"/24u "Anoplotheriumart"/26-27u↔/15-31w milk teeth of Moschus like 2d teeth of Anoplotherium 57 19-21m, 28-32m 79 1-14m, 15-20m, 23-30m 126 12-17m 131 5-6m/w Slight difference in teeth 6m, 8-9m, 12-17w does not know whether present Horse of same district like the ancient one of Lake ●, 23-25m/u±/w great differences in other respects 26m 132 1-2u "Celtisch bezeichneten"/1-4w In Horses of bronze & Celtic periods 5-7m/7u "Bronzezeit", 24m, 32-33m, wb E. fossilis distinct from E. caballus which is the living Horse 133 4-7m/w one Horse; probably not endemic, but imported from several places & times 11u↔, 12-14u "Equus | Varietät"/w fossil Horses in S. Russia 22-24w but not same as true E. fossilis 134 3-4?, 8-12w In Switzerland few remains belong to E. fossilis 135 26-28m/28u "Diluvium" 136 14-18m/w E. plicidens doubtful

RÜTIMEYER, Ludwig *Die Fauna der Pfahlbauten der Schweiz* Basel; Schweighauser; 1861 [CUL]

br, ds, e, f, gd, geo, ig, mg, sp, tm, v, wd

NB p30 Wild Boar formerly larger than now Changes in Foxes, Weasels & c & c

RÜTIMEYER, SCHWEIZ

SB1 Variation of Nature; Spec very good
Look through volume

SB2 □β

◆ 75 Friesland ox nearest to B P

Cattle ☞ Rutimeyer

130 cows bones proof of old domestication

133 teeth present certain difference from our present cows

134. People of Stone period possessed race of cows of different sizes

– Turf cow oldest race short body & fine legs & feet like Zebu ✓☞

– 136 & very large races

137 Trochoceros race fd only in 1 locality

140 domesticated – 148 doubtful sp.

140 Primigenius races found everywhere, of slightly variable size, & agreeing closely with wild type mixed races

143 Brachyceros Brachyceros race or longiform p148 very distinct ✓☞ – small race – B. frontosus very close to it – This agrees closely with Turf cow of which is so common in oldest buildings

145. B. frontosus of Owen race now living in Switzerland, did not exist during Stone period.–

145 from moment of taming wild allied races, then stability is lost & hence he calls them races – B. taurus for commonest races – Bos. primigenius &c for species.

148 Simmenthal race now in Switzerland belong to frontosus-races

201 Oldenburg Holland Friesland race. = Primigenius

205 Brachyceros-race fd in Switzerland ✓☞

207 frontosus-race – thinks, possibly the Norwegian race descended from it not fd in Stone period – but living in Switzerland

211 Canton of Freiburg cattle belong to this race

The great part in all these fd fossil & domesticated

214 Brachyceros race no white, different shades of – dark-colours with lighter stripe along back ✓☞

215 Frontosus race red or black – ♣ or some patched with white

216 for M. & W. Europe – Brachyceros race East & South

◆☞ 221 B. trochoceros – formerly domesticated, but does not recognise as parent of any country race – so may be passed over–

SB3 □β ☞

Rutimeyer Pfahlb Pigs☞

27. S. crofa & S. scrofa palustris – latter wild & domesticated

30 wild swine formerly bigger otherwise

identical

42 Summary on difference of teeth of Turf swine

52. X☞ Stone turf swine as wild species. 53 X☞ nearest to Siam

120, 121 on domestication of Turf swine & common swine

163 Turf swine domesticated towards end of Stone period X☞

167 – a still smaller race at a later period

168 a Roman race with different teeth

171 Races of 6th century

181, 184, 186 Bundtnerschwein – Turf-races

188 all tame swine have different back head

190 Turf & Indian swine closely allied X☞

SA (pp. 102–3) □β ☞

Rutimeyer

Cats. 23,28◆☞ Swine p.27 & 120, 160, 168, 171, 175, 176

Cattle p.71 to 112 – 130 to 149 p.161, 172, 200 to 223, 235

Dog 117, 119, 162, 170, 238

Horse 122, 164

Goat 127

Sheep 128–191

Swine continued 181

Hens 231 about

15 wt character of Bones different in wild & Tame animals. 1–5m, 4w/5wt, 16–17m/16u

"Ur und Bison" 16 8–15w urges effect of domestication on the Bones 11–17m, 21–28w

Recent skeleton of wild swine darker than tame 22 25–30w Fox not so large as wild

certainly same species 23 28–31m 25 7–12w

Beaver of greater size apparently teeth modified 7u "ausser", 8u/wt 27 5w excluding

sub genera 8w only 3 known species 13w

Fitzinger rubbish 23w House-swine few remains 24–30u±, 26–33w the common swine

is a race, now extinct, which he calls Turf swine existed with the wild swine – 27–28m

28 1–7w Turf swine also domesticated – People would call this a species. 29 11–13w

Bones of wild & tame swine break differently 30 19–28w The wild swine of old period

bigger than recent, otherwise identical.– 33 2u "Das Torfschwein", 9–11m/w From reasons

given does not consider distinct species. 42 6–18m/w summary of differences of teeth of

Turf swine 49 22–23m☞ 52 ☞ 32–34m/32u↔

53 ☞ 1–5m, 1–8w Later Turf-swine was domesticated & traces yet remain in our

Breeds.– now extinct in wild state 23–29w comes nearest in short face to Siam swine,

which is not known wild 55 21u "erlischt"/17–22w☞ Turf-swine has some characters of

Miocene Suidae 57 ☞ 6–8w identical with

recent 13w Horns variable 18-21w differences do not bespeak new race 58 ⑥ 7-9m, 8-14w great weight of Horns in old animals causes slight differences in back of skulls 20-22w great size of skeleton 60 23-24u ⑥ "um|übertrauf" 61 1w ⑥ no change 70 20-30w ⑥ Musk & Bison both lived during Stone Period.- over all Switzerland.- 72 ⑥ 6-9m/w cattle descendants of Urochs 75 ⑥ 14-15w Friesland Ox nearest to Urus 84 ⑥ 3u "Der|Zebu"/3-8w | see many references to differences in various Bones 85 15u ⑥ "Zebu|Taurus" 98 ⑥ 2-3m/2u "Genus|Mitte" 101 ⑥ 8-11m/9-11u± 109 ⑥ 4a "Auerochs"/wt Bison 3-4u "gemeine|Auerochs"/w B. primigenius 6u "Urochs|Ochs"/8u "doch|constant", 6-8m/w points of anatomical agreement 13u "auch|Ausnahmen" 111 12m ⑥ 112 13-19m/w What a History of changes 117 ⑥ 28u "kleinsten|Race"/25-28w Stone Period one very constant race of Dogs. 118 ⑥ 23-24m/23u "welche|Grösse" 119 ⑥ 2u "Wachtelhund"/2-4w quail-Dog setter-Spaniel agrees with this 10-12m/w agrees in these respects with Hunting dog - 21u/a "Jagd|Wachtelhund"/19-25w both remote in equal degree from Wolf & Jackall; & agree with the oldest known domestic dog.- 120 ⑥ 6u "Wangen"/6-8w no tame swine here 9u "Moosseedorf", 29-33m/w in these later buildings the Turf-swine was domesticated 121 1u "Schwächung|derselben", 5-7w good arguments that turf-swine was domesticated 18u "gewöhnliche Wildschwein"/w not then domesticated. 25-28w in these the wild swine were domesticated & which agree with present swine 122 13-15w very rare, though present in all 27-33w common in newer Buildings; large & small Big & Small Horse *wb* as they kept so many domestic animals, probably many domesticated.- 127 12-15w Goats identical with present Swiss goats 19u "ältern Pfahlbauten", 19-21w Goat commoner than sheep in older Buildings 128 *wt* Goat has not altered since the old period. 129 14a/u "Solche|Ziegenhörnen"/m/w wild horses like those of Stone-period. now in Orcades, Wales.- 15-18u±, 22u↔, 26u "Schaf|war"/24-27w very small sheep with thin & rather high legs. 130 29-33m/w cows bones show marks of long domestication. 133 24-28m/w some teeth like those of present kinds, some different.- 134 12-16m/w differently sized Races.- 18-20w Different Breeds at all seasons localities 23-30w The commonest races, especially in oldest buildings (but these not exclusive) is the Turf-cow.- This had short body & very fine legs & feet. like

Zebu.- 135 1-3m/w Zebu very unlike our cattle in proportions 30u "Concise"/w has the turf cow & a race larger than largest present race. 136 2-6w Robenhausen besides Turf cow race as large as one between largest race & Urus.- 12-14m, 23-25u↔/m 137 9-11m, 16u "welche|engster"/17u "aufgestellte|Species"/15-18w only found in one ♣ locality 140 4-8m/1-8w Trochoceros shown to have been domesticated by variability of size of Bones 14-15w♦, 18-24w Trochoceros is a very large-horned race.- 24-27m, 28-33w Former domestic race confined to W. Switzerland. This present race found everywhere, of variable size & agreeing with wild B. primigenius. 141 20-22m/21-22u↔ 142 21-23m/w size does not vary greatly 143 1a "Concise"/1-3w skulls certainly of mixed races between these two 4w or longiform "mit|Rhinoceros", 8u "Torfmooren|Megaceros", 9u "römischen Antiquitäten", 26-30w B. frontosus comes very close to B. longiformis.- 26u↔, 28u "kleinhörnige|auf", 31u↔ 144 2u "ab|Torfkuh"/1-8w The foregoing agree with Turf cows which is so common especially in oldest Buildings.- rarer in the more modern- 145 15-20w The above 3 Races alone found- A common living "frontosus" race now in Swiss, is not found. 18-20m, 25-29w From the moment of taming allied wild species, their stability as species is lost - Hence he calls them races. 29-31m/w a 31-32u↔, *wb* (a) The right of giving the descendant of distinct species under name of Bos taurus is not so difficult, as the separating the wild parents.- *wb* What a proof of fertility of distinct species.- If not good species what variation in a state of nature.- 146 *wt* the races, Bos primigenius, trochoceros & c for wild Taurus primigenius, trochoceros & c for tame 1u/wτ, 18u "Owen"/w Nilsson 19-20m/u "Bos|indicus"/w 3 other parents of our tame oxens 32-34m (*Cuvier*), *wb* Cuvier thinks primigenius one of parent races 147 9m, 11-12u↔, 13-17w Yet some difference between these & tame Oxen of present day. 29-31m/w differences perhaps due to crossing 148 1-3w more doubts about specific differences of B. trochoceros 9w or longiform 11-14w This form very distinct from the 2 others 149 1-6w Zebu more distant from B. primigenius & others, than any of these from each other. 15-18m/w difference in no incisors in such as he has seen - Does not Blyth speak about differences at birth? 17u "Verminderung|Incisiven", 21-22u↔, 31-33m/w/*wb* quite immaterial in bump of fat - appears in Argali & Rein Deer

RÜTIMEYER, SCHWEIZ

in winter.- 156 22-25w Extinction & rarity of some species. 157 wt who could have ever expected so much change??- 1-2m, 3-8w Changes in wild anims gigantic size of - perhaps differs in Horns of the(1) - small size of Foxes - the sharper teeth ♣ of some of the Carnivora 25-27w Abbeville 2 races of cows of different sizes 159 15u "Verschiedenheit"/11-19w Morlot's Bones from Railway cutting, are like present races & very different from Pfahlbauten - & of variable size, whereas constant in the Pfahlbauten -. 161 17u "Brachyceros"/w or longiform 18-28w Turf cow almost exclusive in oldest buildings.- In later supplanted by large primigenius races. & in one region the other larger B. trochoceros.- wb (The whole importance of case depends on the 3 forms being found fossil & not domestic. C.D.) 162 1u "einer|zahmen", 2-3u "Concise|Rindvieh", 5-7w native Concise only tame beasts were Turf-cow & one small dog. 7wt 10-15w Dogs do not change, whilst cattle do 163 1-3m/w In Morges, dog larger 9-11w Turf-swine domesticated towards end of Stone period. 20m 164 10m/9-13w The Horse of Morges belonged to very small Breed 167 4-6m/4-17w a still smaller race of swine than the Turf-swine.- in a rather recent Building, this Breed a strong Breed - so diversity in the lost race of Turf-swine 168 23-31w or Roman - this race of Pigs like little turf race, but with stronger marks of domestication, & change in Molar 3 170 5-7w In 563 different Dog from Stone Period 171 2m, 3-9w in 6th century Swine large race & above mentioned smaller domestic Turf-races with difference in teeth. 26-31w The shortening of row of teeth.- Here comes question whether race really same as Turf swine 31-32u "äusserst | 3" 172 21-27w a very small race of cows of rather recent date 175 25-30m/w Does not doubt that long-raced common swine descended from S. ferus 176 4-10w Turf swine - wild seems to come nearest to Siamese swine.- 179 10-11m 181 wt He has before remarked that all the Eastern, Chinese, Siamese are pretty closely the same 9-11m/w Berkshire & Chinese Swine skulls closely alike 17-23w a small peculiar Swiss race somewhat allied to Berkshire. 184 16-22w Turf swine differs greatly from Berkshire but with some exceptions comes near the small Swiss Race p.181 186 7x, 7-19w Berkshire reverse in Teeth of Turf-swine 20u "Bündtnerschwein", 23-28w This Breed near to Turf swine, like common swine to the wild Swine 29-30u↔ 187 15-19w Berkshire

perhaps related to S. Celebensis 23-24w Berkshire a crossed Breed 188 5-8m/w certain of back of Head common to all wild Swine 10-12m/11-15w all tame swine have a ♣ different back Head - 13u "sondern| betrachten", 16u↔, 25w Summary 26-27u↔, 32u↔ 189 3-4u↔, 8-9u "das|Formen", 16-19m/w not improbable that Turf-swine related to short-faced Breed. 25-29w Turf-swine in wild state assuredly not confined to Swiss. 190 8-13w He widely thinks Turf-swine & Indian swine closely allied.- wb The great point is that a distinct wild species or variety, ♣ has been domesticated - (probably more). Whether the Turf-Schwein be called a race or species is unimportant - it differs osteologically 191 17m, 19-21w Stone sheep different from present common races 192 20-21m/21u↔ 193 3a "Wildschafes"/wt Wild forms not enough known.- 1-5w Thinks many parent-forms probably.- 6-9m/w The only known fossil sp. differs from the known wild 19-20m/w Not one to him known race of sheep agrees with that of Stone Period 195 1u "den|Nalpsthales"/1-8w Here a race of Sheep like those of Wales & agrees with Stone Race (I do not think this race wild.) 201 16-20w He misses in Stone period one existing race; & amongst the existing there is one not found in Stone period.- 21u "Friesland|Holland", 22-27w These races agree with the Primigenius race of Stone Period closely in skulls. 205 1w This is the same as fossil ♣ longiformis of Owen 207 21-22w Found in Turf in Scandinavia 23-24u↔ 208 5-7m (Nilsson)/6u "Ausser|dieser", 11-13m/11-22w thinks that some Norwegian cattle may be descendants not found fossil in Switzerland in Stone Period but domestic races belong to it in Switzerland. 211 18m, 20u "Freiburg"/19-22w These cattle belong to frontosus race * wb * The great point is that 3 or 4 species or forms of cattle have been found fossil, & clearly allied domestic groupd are found at the present day.- 212 12-14m/11-16w apparently a crossed race with that of Brachyceros 214 21-28w agriculturalists make 2 chief Swiss races, which are geographically separated 30-33w/wb all dark coloured - a lighter stripe along Back - This agrees with Brachyceros Race (ie longiform) see next Page 215 12w a Southern Breed 21-22u "roth|gefleckt"/21-25w patchy colours This is Frontosus race 216 6-7w a Northern Race 19-21w This present at oldest period 20u "Brachyceros", 21u "Frontosus", 22w this is a later importation 32u "nördliche|zweite"/wb ie frontosus 218 1m, 7-8u "romanische|

Vieh"/w with great Horns 8u "folgenden | rechnen", 27-32w 4 Wild Races primigenius frontosus longiform or Brachy & trochoceros 220 18u "Simmenthal | wahrscheinlich", 19-20u ↔ 221 1a "brachyceros"/wt Norwegian wt longiform 8-9m, 14-15m/14u "bracyheros"/15w longiformis 16w Final result 17-21u ±/w longiformis 20-21u ±, 22-26w as this found in oldest Buildings, probably endemic in Switzerland, not so B. frontosus 22u "Bos", 27-28u ↔/28-32w This formerly domesticated; but he does not recognise it in any living race.- 222 8u "podolische | romaische"/8-10w origin doubtful perhaps from 10u "Bos primigenius", 11u "trochoceros"/w or 14-19m/15-17w Indian ox distinct 223 11-14m/13u "Mischform | ansehe" 225 15-16u ↔/13-16w Robenhausen true old Stone period Q₄, 23u/wt 24u "Roggen | Hafer"/w none 226 4-5u ↔, 9u "Frucht kappeln", 10-12u "kleinere | Klappen", 14-15w more like this 17-21m/17-19u ↔, 29-30u ↔/w apples 33u "14mm"/34u "22 Millim" 227 1-3m/3u "oder | Robenhausen" 228 6-8m/6u "Vorkommen | Scop."/7u "fehlt | ganz", 9a "findet" now this is found 9u "ist | L.", 14-20w Hooker disputes that they can be distinguished 22-24w The P. mughus now in Mountains 25-27m/w case like as in Ireland turf-bogs 31-32m, 33-34m, wb These plants now only in mountain-lakes 229 3-4m (Kölliker)/w this plant now very rare 6-7m/w formerly very common in turf-waters 9-15w Altogether flora of old & present times nearly the same; so different from Denmark 23-26w yet some traces of vegetation changes in Swiss 230 10-14m/w Except for Bones of Buildings did not know of these 3 animals 21-23u ↔ 231 8-11m/9w changes in animals 13-15m/13w no mice or rats 19w no cats or Hens 23-24u "Hausthieren | Hund", 25-27m/w two races of cows 30w next come Pigs 232 3u "concise"/wt more modern 5-12w The large House swine from wild swine seem to have suppressed the small previous Turf swine. 16-18w After Concise new domestic beasts appear 17u "grosses Hund", 19u ↔ 233 wt since then wild & tame are near 1u "6. Jahrhundert", 7-10w not much change in domestic animals during the whole immense period 11-15m, 11-23u ±, 21-23m 235 20-28w Frontosus race ♣ is absent in older periods - The longiform has endured. The old primigenius race has disappeared; apparently remained until 10th or 12th century. 237 wt oldest period 1-3u ↔/w 2 races of cows 5-6u ↔, 8m, 14-15u ↔, 15a "dieser" those 238 1m, 21u "Torfhundes | Pferdes", 22-24m, 22-27w These probably

from the East for not known fossil in Europe 27-28u ↔ 239 10-14w B. frontosus race seems to have travelled from the North.-

RÜTIMEYER, Ludwig *Die Grenzen der Thierwelt* Basel; Schweigerhaus (Hugo Richter); 1868 [CUL, I]

RÜTIMEYER, Ludwig *Die Rinder der Tertiär-Epoche* part 2; Zürich; Zürcher & Furrer; 1878 [Down]

SABATIER, Armand *Études sur le coeur et la circulation centrale dans la série des vertébrés* Montpellier; C. Coulet; 1873 [CUL] em, he, ig, phy, y

SB p.315 to 322 Embryology of Heart & animal series—
315 13–33m/→/11–12w inheritance at younger age 316 10–12m/11u "précocose | penser" 317 11–13m/w see p319 319 10–12m/w good 24–28m 320 10–17m 322 3–13m, 22–26m

SACHS, Julius *Geschichte der Botanik vom 16. Jahrhundert bis 1860* München; R. Oldenburg; 1875 [Botany School]

SACHS, Julius *Lehrbuch der Botanik 2te Auflage*; Leipzig; W. Engelmann; 1870 [CUL, I]

dic, f, fg, he, hl, ig, oo, phy, sx, tm

NB 633 ♦ ◊ Vegetable Elements; 638 ◊ Separation of sexes in lowest Plants; C. Sprengel on non-sexual fertilisation – was he before Kolreuter?; 641 small Cleistogams imperfect perfect always sterile V◊; 665 & 676 Abstract of Nägeli on intermediate form on inheritance of morphological characters

169 5–6m 170 10–17m, 31–35m, 37–40m, 41–43m 171 8–11m 173 37–41m 175 34–36m 176 8–13m 177 22–24m, 41–43m

633 30u "die | activ", 31u "andere | passiv", wb Even in the vegetable K. Sachs in speaking of S. Elements ◊ he says 638 8m, 16–34m, 41w Monoicous 639 4–7m, 18–22m, 30–34m/31u "auch | Farnprothallien"/w Dichogamy 41–46m (C. Sprengel) 654 36m 656 22m 665 13–42m/24–41w Nägeli struggle 667 43m 676 6–46w about inheritance of morphological characters, worth studying 43–47m 677 3–34m

SACHS, Julius *Lehrbuch der Botanik 3te Auflage*; Leipzig; W. Engelmann; 1873 [CUL, I]

che, mhp, phy, tm, v

NB1 86 Bloom on fruit & leaves

NB2 Drosera

p771 p782 interesting discussion Carbonic acid in atmos

on catch of clasping movt of Tendrils

p785 Movement causes of

801 He Sprengel quotes Contrivances ◊

[The Last section of Book has ◊ discussion on Variation ◊

p134,143 Trichoms

p674 Effect of gravity on movement of Plants

♦ 118 Work on Harz-elongation ◊ Bot Zeitung/

v 24m, 30m 86 32–33m

◊

118 2m, 50–51m (Hanstein)

◊

771 1m, 32–47m/47u "de Vries" 772 19u "Verkürzung der"/18–21m/18w chiefly 23–32m/25–26u "durch | Oberseite"/25–28w by pressure the concave side 39m, 41–44m/42w (a) wb some tendrils can clasp only thick objects 773 6–10m/7w (a) 24–31m/w press more closely on object after clasping 782 14–17m/14–15u "stark | Atmosphäre" 785 16–19m/17–18u ↔ 789 25m 801 4–13m, 40–47m (Sprengel)

SACHS, Julius *Traité de botanique* trans. of 3rd edn; Paris; F. Savy; 1874 [CUL]

cc, che, ct, em, he, mhp, oo, phy, sp, sx, t, ta, tm, v

NB 829 Roots making mark on Marble bears on Chalk in Worm experiments

SB (See other paper)

◊ (By bloom I refer to movements in my experiments by shaking

803; 831; 846; 850 Bloom; 853; 854 Temp.; 855 Bloom 856 do.; 867 Bloom; 868 on refrangibility of rays which act ◊ in chlorophyll, 875 Bloom; 887 (do); 889 do; 890 do; 901 do; 903 do; 908; 919; 924 Bloom; 936 glycerine extracts & water; 953 Bloom; 957; 958; 972 Bloom; 986 Bloom; 988 do

(over) 996 Geotropism depends on growth; Bloom ◊ & 999 ; 1010; 1020 Tendrils; Bloom ◊ 1025 to 1031 Bloom; 1035 transitory rigidity, what I have called paralyzed; Bloom 1039 ◊ to 1051 Mechanism of Movt; 1056 crossing to 1061 Sexuality ◊; 1072 do ◊; 1093 ◊ Struggle for existence between closely allied species; ◊ 1021 Bloom to 1018 & all this last Part

ix wt Dissolution of dextrine by protoplasm Traube on passing of fluids out x 49m xxix

10m, 36m xxxi 42m 26 8–13m 43 20–23m (Nägeli) 49 13–29m 51 12–16m, 15u

"métaplasme" 55 23–28m 63 wt The contents of cells cannot be considered as chlorophyll because not in grains 3–4u ↔ /5u "couleur | homogène"/3–7m/w & entire cells contents green 64 21–26m, 22–23u "masse | chlorophylliens" 65 8–9u "des | rouge" 71 9u "Pisum sativum", 11–14m, 12u "d'aleurone", 13u "légumine", fig.w over 72 5–8m/7u

"albuminoïde" 77 35-40m 101 1-4m 116 fig.w 73/74/75 16-20m, 21-24m/21-22u 117 31-36m, 35-37m (Strasburger) 118 2-7m 119 18-20m/19-20u "bien l'épanouissement" 153 26-28m (J.B. Martinet) 155 1-3m 769 9-15m 771 1-11m, 34-39m, 40-43m (Nägeli) 772 14-19m 774 4-9m, 32-36m 779 6-16m, 17-19m, 18-32m (Traube) 803 23-27m, 25u "absorber l'appréciable", 25w (a) 28-31m, 39-42m (Duchartre), 46m, wb Plants with bloom must be different - their epidermis perhaps not that protective 804 14-23m 820 24-31m 823 41-43m, 45-46m 824 16-21m 827 2-3u "abstraction | transitoire", 11-12m, 12u "inuline", 13u "formatrices | cellulaires" 828 35-40m, 35u "albuminoïdes", 36u "transport | organes", 37u "nombreuses", 41-46m/41u "albumine", 41u "caseine", 42u "gluten", 45-46m 831 6-14m, 23-26m 839 8-15m, 10u "grains d'aleurone", 13u "formation | protoplasma" 844 2-12m, 14-17m/17-18u "les | endosperme", 21-24m, 32-35m, 36-42m 846 5-10m, 8-12m 850 30-32m/w Drosera 851 5-7m/w Leaves 7-39m, 7-11m, 38-41m/39u "rosée | qui" 853 12-15m 854 5-8m 855 wt for I did not know of analogous observations 10-19m, 26u "47°-48°"/25-28m (Nägeli), 28w over 29-30 → 856 11-16m 857 35-46m 867 29-34m, 40-43m 868 6-11m/7u "faible refrangibilité"/8u "rouges | verts"/11u "rayons frangibles", 12-13m/13u "actions mécaniques", 31-37m, 45u "autre | ammoniac", wb I had better try first in dark 875 38-41m, 40-41m 876 1-3m 877 4-5u "dans | intensités" 887 11-17m 889 21-27m/21u "obscurité | lieu", 33-38m/34-36w an error 890 12-15m/9-15w He thinks Mimosa same case as sleep?? 901 38-40m 903 15-20m/w many facts about growing 21-22 →, 33u "déterminées | pesantent" 904 2-5m 908 13-19m/18-19u "pour | accroissement" 919 wt ♦ In Drosera is must be elasticity of under cells 1-3m 924 11-17m, 35-39m 925 6-10m, 13-15m 936 7-12m 953 6-22m, 26-29m 957 25-33m/28-34[...] 858 42-46m (Hofmeister) 972 1-9m, 31-38m, 39-41m (Reinke, Sanio) 973 3-10m, 24-26m/24-25u "allongement | nuit" 986 8-13m, 35-38m/36u "contact | protoplasma" 988 14-27m/7-24w if so, they cannot go back 996 35-37m 997 3-9m 999 23-25m 1003 20-24m/20w leaves 1004 11-18m, 19-22m, 24-43m/29-37w owing to growth!! 1005 14-21m 1010 25-34m 1020 38-43m 1021 5-17m, 21-24m (de Vries), 27-37m 1022 wt ?? Does he apply growth to sensitive Plants? May not elongation on one side favour growth 8-14m, 20-26m/w (a) wb See how quick P. gracilis bends - I think in a few seconds - is it credible that it can grow so quickly? 1023

12-17m (de Vries) 1025 8-12m, 19-20u "parcel influence"/20m/21u "complètement | croître"/16-31w How are movements of leaves of Mimosa & Desmodium with respect to age 20x/wb X may be these more sensitive 1026 15-16u "se | accroissement", 28-32m, 36-39m/36-38w ♦ No Stem of Randonium O 39-43m/w This asserts that tendrils owe only to growth 1027 37-45m/42u "variations | température" 1028 6-11m/3-13w How different from Drosera in which the bending plant is not touched 15-17w Distinct category 30-32m, 41-45m/43u "Starrezustände | 1863", 46m (Meyen) 1029 24-26m, 27u "différente | latérales"/27-29m/w I do not quite understand 36u "Marsilia", 45-46m (J. Sachs) 1030 wt in climbing plants the movement is only required whilst young & growing 21-22u "feuilles | autonomes"/18-22m/w I suppose this is by nutation 23-28m, 35-38m/36u "Phaseolus", 40-45m 1031 26-32m, 33-34m, 35-36m 1034 45u "rigidité transitoire" 1035 1-4m, 6-11m, 17-22m, 23-26m/24u "490-500", 30-32m, 34-39m, 42-46m/42-43u "Bert | Paris" 1036 20-23m/16-23w my test of C. of Amm. is better 22-24m 1037 22-26m (Kabsch), 31-38m, 34-39m 1038 7-12w ● 1039 1-9m/1-2u "endomostique | élasticité"/1-3m, 19-20m, 30-35m, 45-46m (Unger)/46m 1040 19-21m, wt 1st Protoplasm Passes out of cell - Endosmosis & Exosmosis may be supported by - but wb be like in effect 1041 wt ● of cell-wall & not expelled wt must have some different object 5-8m, 6-9m, 9-12m, 15-17m, 35-37m 1042 24-29m 1043 1-5m, 36-42m/36-37x/39-40x 1044 19-25m/x/19-20m, 37-41m 1046 29-36m, 41-44m 1047 6-10m, 24-29m 1048 1-5m (Pfeffer), 7-12m/7-8u "que | cellules", 19-26m, 33-38m (Brücke), 44-46m (Dutrochet) 1049 32u "pétioles | continuel", 34-36m 1050 6-17m 1051 4-12m, zb 1053 wt under same conditions action with the exterior tends to cease & the union of 2 differently exposed differentiated the aggregate 1-4m 1056 7-10m/1-18w may be related to exposing them to different conditions so as to diversify them 1059 2-17m, 31-39m, 44-46m 1061 1-7m/1-5m 1072 40-43m 1093 18-44m

SAGERET, Michel *Mémoire sur les Cucurbitacées* Paris; Huzard; 1826 [CUL] cs, ds, gd, h, he, hy, sp, t, v, wd

SB1 Sageret 7; p8; 10; 12; 17; 18; 20; 23; 25 to 30 to 55
2d Part; 5; 93; 102; 104; Duchesnes Works? ♦ Bailliere or Hort. Soc.; see to

SAGERET, CUCURBITACÉES

Duchesnes

SB2 □β

8 certain melons more true than others

17 A melon from U. States

25 & 27 Melon with seeds of different shapes

28 Hybrid melons more vigour 30 more fertile 36 repeated

I must see Duchesnes' works look in Pritzel Catalogue

Part 1, 6 22-26m 7 7-19w He evidently thinks descended 10-14m/11-13w all cross 14-21m 8 3-5m, 7-12m/7-15m/12-14m 9 5-9m 11 6-7m 12 15-16m/10-16w colour and character 17 21-23m 18 11-12m 20 8-10m 23 1-3m, 8-10m 24 13-16m, 17-25m 25 7-9m/m 26 9-11m 27 2-7m 28 5-9m/1-10w confesses it doubtful whether *Cucumis flexuosus* a species 25-26m 29 9-11m, 10-14m, 15a "le"/w, 15a "dudaim" p30 17-24m/20u "les naïtre"/21m, wb all animals ∴ fertile 30 16-17m/m 31 16-17m 33 9u "Koelreuther", 24-25m/u± 34 18-19m 35 1-5m/3w Tobacco 36 1-2m, 12-13m 37 19-25m 38 22-27m (Duchesnes) 39 20-21m 40 1-3m, 5-6m/?, 7-9m (Vilmorin), 13-15m/14-15u "époque | culture" 41 25-27m 43 1-4m 45 6-8m 46 1m/w a gourd 3u "giromont", 5u "pastisson", 6-9m/3-11w Look in Bot Catalogues 10-12m, 14u "dans | ouvrages"/13-14m (Duchesne)/w He is avitism man 47 15-17m, 18-19m 52 7-10m, 12-13m, 15-18m 53 13w gourds 54 10-11u↔/8-13m/w variation & tendency to hybridise does not go together 55 7-13m/10u "bastisson"/12w V. supra

Part 2, 5 13-17m 93 1-2m, 15-16m/5-15w X Hence I suppose fertile 102 7-12m 104 wt/1-11w all these plants appear cultivable on same system, so constitutions not different. 6-11m/w other cases

SAGERET, Michel *Pomologie physiologique*

Paris; Hizard; 1830 [CUL, on B]

cc, ch, dv, f, fg, gd, he, hy, in, phy, sl, sp,

spo, sx, t, ta, tm, v, wd, y

NB 6 compare grafting & Hybridisation are there any exceptions to plants of same Genera being graffable.-; 9; 13; 14; 16 effects of graft & 44 summing up=; 43; 47; 48; 65 as odd as *Crinum* being more readily impregnated by foreign species; 72; 105; 106; 126; 134; 136; 138; 143; 146; 151; 153 to 158; 161; 168; 217; 218; 222; 228; 231 to 404; 491; 552 to end

SB □β

17 Sterility from grafting Q

43 & 72 seeds from grafting Pear on Quince gives more varieties than on pure stock

47 Contrasts the diminution of size in seeds of fruit-tree, with increase in size of nuts, Almonds & chestnuts by selection

65 222 some vars of pears succeed better on Quince Q than on own stock (like case of *Crinum*) Q

106 The more a plant departs from type the more tends to depart (contrast with opinion of limit)

126 on double fecundation in melon like Thwaites *Inula* case

136 556 on "variantes" or slight direct variation from conditions

155 does not believe in acclimatisation, only in seedlings vegetating at different periods

218 on changes in fruit-trees

262 on some pears & apples being true by seed

321, 346 Peach does not succeed equally well on all plums Q

358, 364, 367, 382 Remarkable vars of cherries - good to quote as more than trifling

398 Work on Gooseberry

561 in characters of parents in Hybrids N.Q.

569 two Fathers

6 23-26m 7 10-12m 9 14-17m 13 10-13m 14 9-10m, 24-26m (Thouin) 15 26-28m 16 19-20m 17 2-8m, 11-24m/11-16m/13-17Q/18-22m 43 24-27m 47 8-10m, 18-23m, 20u↔, 27-28m 65 24-28m, 25-26Q, 25u "choses remarquables", wb Coignassier is quince 66 8-12"...", 20-22m 72 3-6m (Cabanis) 105 1-4m 106 8-12m 107 5-9m/w like hybridisation 126 7-11m/12-13w like *Fuchsia* 14-17m/15-16Q 127 5-6m, 12-13m, 21-25m (Brongniart) 134 2-16m 136 10-14m, 16-19m, 21-28m 137 17-22m, 21-28m 138 11-17m, 21-23m 143 13-17m, 17-19m 146 11-14m 151 24u "datura stramonium"/wb is it N. America? 153 10-13m/13u "crois | plus"/10w acclimatisation 28m 155 3-7m, 9-15m, 22-25m 157 13-16m 158 3-5m (Thouin) 161 19-22m 168 12u "arbres hybrides", 16-18m, 18-19m 217 18-22m (O. de Serres), 22-26m 218 10-21m (Duhamel) 219 20-23m 222 13-21m/16-18Q, 22-27m 228 24-26m/24-25? 231 1-5m/2w p.251 8-13m 233 2-11m, 12-18m 239 10-14m (Knight) 240 13-14m 241 13-16m/5-27w How inexplicable that the improvements should suddenly stop, as soon as fruit gets arbitrarily good.- 244 11-14m 245 1-5m/wt/1-15w By selecting these poor seedlings, the race passes through many changes.- this perhaps explains it; but then we must suppose that

all the good old fruits have been sudden sports!!! or they have been long individually exposed to same conditions 246 1-6m, 7-10m 247 1-3m, 10-13m 248 22m 250 14-20m 252 1"... , *wb* X Perhaps whole case resolves itself into that good fruits do not come in first generation - V. Mons choosing spicy plants has relation, Poiteau says, to their bearing early 253 28..." 257 3-8m 258 11-14m 259 9-11m 260 16-19m 262 7-12m, 27-28m/28u "*leur espèce*" 263 2-3m, 4m, 14-16m 264 3-4m 265 13u "*Belges*", 20-24m 266 7-9m 271 2-4m/*w*/1-5w very true Van Mons all bosh except so far better try successive seeds seedlings than of established pears which may have been produced suddenly C.D. 272 25-28m 273 4m, 5-9m 288 10-13m (*Van Mons*) 289 13-17m 293 11-15w I never knew what the paradise stock was 14-17m 296 22-26m 297 3-8m 299 7-9m ♦ 303 19-22m, 27-28m 306 3-6m 313 6-7m 320 15-17m 321 17u "*pêcher*", 18-21m/18u "*prunier*", 24-25Q♂, 25-28m 325 1-4m 346 5-8m, 9-12m, 13-15m/14w for plums 22-24m, 23-26m/24-25u "*Il abricotiers*", 25-27m/Q♂ 351 2-4m 355 12-20w Before rereading this be sure to look at Loudons Ency of Gardening p.922 358 16-20m/17m 364 16-24m/19-20x♂Q 367 2-4m/x♂/Q 5-7m, 13-15m/14-17w Monter 17-19m, 20-21m 369 4-5m, 21u "*soixante-quinze*" 379 3-5m, 24-26m/24-25x♂/u↔ 380 25-26m/? 381 14-17m 382 3-5x♂/4-6m 393 20-23m 398 23-24m 400 6-11m, 12-16m 404 18-22m 491 22-26m 552 24-28m 554 1-4m 555 16-19m/? 556 20-25m 558 25-28m 559 6-13m 561 25-28m/27u "*non dans une fusion*" 562 1-2m, 3-7m 565 2-3m/3u "*plus étonnante*" 566 17-20m 569 24-28m 571 10-15m (*Vilmorin*)

SAINT BARTHOLOMEW'S *Hospital reports* ed. J. Andrew and T. Smith, vol. 11; London; Smith, Elder & Co.; 1875 [Down, FD]

ST. CLAIR, George *Darwinism and creation* London; Hodder & Stoughton; 1873 [Down, I]

NB1 {*author's address*}
NB2 O/

SAINT-HILAIRE, Auguste de *Leçons de botanique* Paris; P.-J. Loss; 1841 [CUL]
af, ch, ci, cr, ds, em, fg, gd, h, hl, ig, in, mhp, mn, no, oo, or, phy, rd, sp, sx, sy, t, ta, tm, ts, v, y

SB1 □β
57 analogies, *Tillandsia* like Lichen (172)

63 Rudiments of many organs, a so called gland
143 & 153 Q abnormal ♣ organ in class, variable
145 good case of Balancement: 199.-619 Q
183 Q var in individuals analogous to difference in classes
226 species turning into branches
301 Q on passages being general 508 stronger 541 do
407 Rule of colours (same for vars & species)
413 Embryology in plants irregular flowers at first regular
442 rudimentary stamens- 475 of Pistils: 637
♦ 446 var. in individual & differences in species?
448 on anthers of *Asclepias*
516 two kinds of placentation in same genus characterising two sections of genus = passage by jumps possible =
548 do on ovules
572 a multitude of flowers are impregnated in bud. strong case of - in *Goodenia*
617 seems to think multiplication sign of highness
♂ under classification allude to Ch. 7 my discussion showing abnormal parts variable
711 Genus not natural when founded on one character
754 on classificatory value of different parts of seeds; it is in fact embryology
756 On great difference in cotyledon in 3 allied plants, showing no charcater is constant
SB2 □β
761 Ash 500,000 seeds
763 introduced plants into S. America
782 & 784 on value of character, according as it allies itself with others, which is inferred simply from being constant
786 on value of characters good - embryo most important, yet it is a whole
787 direction of embryo in *Helianthemum*, very different
788 good showing that physiological importance no rule, because importance of all characters variable.
789 Remarks on Mirbels views on classification
791 & 793 & 814 on High & Low plants good m.s. remark
793 on series not being lineal
815 good case of impossibility of arrangement
818 Monstrosities are only anomalies of the species Q

SAINT-HILAIRE, A., BOTANIQUE

821 Classification of varieties.

826 no resemblance of embryo in plants as in animals

834 Important organs may vary in early stocks: hypothesis. 836

confirmed by Owen on swim bladder in vol on Fishes

SB3 35; 43; 47; 51 to 57; 63; 66; 127; 138; 143; 145; 152; 154; 159; 170; 171; 172; 183; 195; 199; 226; 297; 301; 312; 332; 352; 355; 356; 358; 364 series in Pappus; 369 in Nectaries; 375; 391; 403; 407; 410; 413; 415; 417; 418; 422; 439; 441; 442; 446; 448; 454; 461; 475; 481; 482; 508; 509; 515; 516 SB4 526; 534; 541; 548; 554; 556; 568; 570; 571; 572; 587; 590; 599; 600; 613; 616; 618; 619; 625; 629; 630; 633; 637; 639; 643; 652; 708; 710; 712; 714; 720; 734; 753; 754; 758; 760; 763; 767; 772; 779; 780; 782; 784; 786; 788; 791; 793; 794; 798; 810; 813; 814; 815; 816; 818; 821; 823; 826; 833; 836; 839

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16-17m 481 12-16m (Guillard, Schleiden, Vogel) 482 24-26m 508 15-19m/Q 509 30-33m/32u "al|tranché" 515 30-33m 516 1m/u "axiles|Puisque", 27m 517 1-10m, 7-12m/7-8u "placentas axiles"/11u "pariétaux|axiles", 13-14m, 21-22m, 23-25m 526 21-25m 534 24-26m, 29-31m/29u "sans exception" 541 19-25m 548 2-11m, 24-26m, 27-30m, 30-31m, 32m, 33m, wb I wonder how if species 549 1-2m 552 4-6m, 20u "M. Schleiden"/19-22m) 554 19-21m 555 zb 557 4-20m (Schleiden) 568 14-18m/w curious 570 26-29m (Salvert) 571 4-7m 572 30-33m/30u "une foule"/w Q!!? 573 1-9m/4-5Q 577 3-5m 587 1-11m 590 30-33m 591 1-3m, 4-6m, 6-8m, 16-19m 599 1-7m, 7-12m, 13-19m, 20-22m 600 31-32m (Jussieu) 613 3-4m/w not so in animals Owen 616 33m/32-33w/wb How made out value of series 617 wt let have no nervous system, no man also○ head 1-2m, 29-30m, wb If most complicated & altered form is to be highest - no for worm forms first - origin might then be highest.- 618 9-13m 619 20-22m, 23-25m, 28-29Q 29-31m 625 2-6m 629 20-22m 630 10-13m 631 13-15m, 17-22m, 23m 633 12-19m (De Candolle, Guillard, Schleiden) 637 wt V.p.643 How know ever existed? 2-6m 639 4-8m (Roepert) 642 28-33m 643 4-12m, 15-16m/u "Commencement|développement", 20-21u "supposition|théorique" 652 17-20m, 21-23m 708 5-7m 710 25-29m 711 18-21m (Kunth), 21-22m 712 4-17m, 7-9m/9-12u "mais|faible"/8-17w good similarity 17-31m/18-22u±, 24u "n'en|pas", 25u "secs", 27-28u "contraire|génériques" 713 5-8m, 16-18m, 21-23m, 26-27m 714 1-5m, 6-8m, 12-18m 720 20-23m 734 25-29m 735 22-24m 753 16-17m 754 1-3m, 12-15m, 30-31m 755 1a "sa"/wt the embryo 1-4m/w like embryonic animals 5-6m, 7-10m, 10-12m, 13-14m, 20-21m, 22-25m, 26u "n'est|caractère", 28-32m 756 1-4m 758 11-27w Means of dispersion of seeds by springing of capsules &c &c 759 14-17m/17-26w it is curious both seeds & envelopes, being thus furnished good argument for final cause. 19u "les fruits", 20u↔, 21u "graines elle", 28-29m 760 9u "corniche|haute"/8-12w What kind of seeds. Gilliflower & Sedum 761 4-5u "cinq|fruits", 6u "trois mille", 21m, 23-24m 762 32-33m 763 1-11m, 17-19m, 21u "aucune|culture", 30-31m/31u "laines" 767 10-11m/10u "cent ans", 14-15m/15u "laissées|vingt", 25-26m/u "vingt|ans", 33u "moins|siècle" 768 16-20m 772 17-20m 779 27-30m 780 4-8m 782 25-30m, 31-33m/31u "s'il|possible", wb We know from experience that any one character is general it will go with others - all organization is correlative 784 8-

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 25m 786 6-7m, 7-8u↔, 8-10m (De Candolle
 (both)), 13-15m/15u "d'ailleurs\moins", 15-
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 787 4-7m, 4-6m, 6-8m/7-8u "nelisolé", 13a
 "caractères" of embryo 12-15m, 14-15m/!
 "leur\constance", 16-17m, 22-25m, 27-30m/!
 30u "de\différente", wb How well worth
 getting good Botanist to explain variation of
 do 788 6-9u±, 14-16m, 16-17-19u±, 20-25m/
 21u "nous\serions", 25-26u "la\Malpighia",
 27-31m 789 1-4m, 5-8u±/7-10w where has
 Mirbel done this?? 8-18u±, 18-24m, wb
 Descent is the key, least variable will then
 be best guide, whatever the part may be 791
 wt Whatever parent form we can trace ♣
 modification wt♦ & so agrees with my theory
 20-24m/25-27m/!!/28-32m/4-33w Schleiden
 Compositae Hooker some parasite So in
 parasite Lerneidae & cirripedes, especially
 males of 33m/u "Renonculacées", wb There is
 no highest, there is most modified but when
 much rudimentary, what we must call
 useless, ∴ not highest & by man's standard
 high & low. The impossibility of saying what
 is highest is conformable to my theory -
 which is highest var of cabbage or dog? -
 most changed will not do - put man on one
 side having any index - except most unlike
 a primary simple form 793 1-3m, 13-15m, 18-
 20m, 23-25m, 25-27!, 27-31m/27-28u "moins\
 Composés", 33m 794 1-2m, 4-6m, 11-14m, 15-
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 1-3m, 4-6w ● type of family 799 6-7m, 7-
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 12-13u "les\complètes", 17-20m, 20-24m, 24-
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 17w What case of impossibility of
 arrangement 816 5-11m 818 10-15m, 16-17m,
 20-22m, 24-27m 821 3-7m, 8-13m 823 7-11m,
 19-20m 826 7-13m/1-33w It does not appear
 that embryo of Dicot, is like at any stage
 embryo of Monocot or Cryptogamic plants
 Even Dicot & Monocot are quite unlike in
 earliest age. as shown by name)- wb N.B
 Reflect on plants not passing through any
 larva-embryonic state (?because they come
 at once to play their part in nature?) good
selection. 827 8-11m, 16-18m, 18m, 18-24m/
 19u "sur\différents" 833 14-15m, 18-21m, 27-
 28m 834 9-12m/wt/1-20w N.B X May
 use account for diversities in important
 characters in families, to their having varied
 in the lower or parent stocks. 835 11-16m,
 25-26m, 29-31m 836 17u "fleurs", 20-24m/20u
 "grandes différences", 25u "bornerai", 26u↔/

26-30w V. Lindley on the rest 837 11u
 "mucilagineuses", 28-32m/28u "mucila-
 gineuses"/29u "morphologiques"/30u "car\ces"/
 w I think there has lately in Linn Trans 839
 1m/u "même\et"

SAINT-HILAIRE, Auguste de Voyage aux
sources du Rio de S. Francisco 2 vols.; Paris;
 A. Bertran; 1847-48 [CUL]
 beh

vol. 1 NB Unreadably Dull

SB □✕

17 ♀ Aboriginal Indians cultivated the
 ground; 70 ♀ a proprietor can sell on 1/10 of
 his stock of cattle yearly
 17 7-10m 70 13-16m 71 1-2m, 9-11m

vol. 2 NB Unreadable

ST. JOHN, Charles Sketches of the wild spots
and natural history of the Highlands London;
 John Murray; 1878 [Down, FD]

ST. JOHN, Charles A tour in Sutherlandshire
 2 vols.; London; John Murray; 1849 [CUL]
 beh, br, cs, hy, no, oo, sx, t, v, wd

vol. 1 NB see end of Vol 2 for Abstract
 x 16m xi 19m/u "Fighting of Stags" xii 10m
 xiii 15m 15 13-16m 74 14-18m 109 21-26m
 134 3-8m

vol. 2 SB1 Vol I; 15; 74; 109; 134

Vol 2; 178; 208

SB2 □✕

Vol I

15 On Herons breeding on ground

74 On cross of common & wild cat - simple
 facts

134 on increase of Grouse when clever
 keeper & trapper kept -

Vol 2

178 More particulars on what Birds have
 increased by destruction of vermin 179.

179- Q on resemblance of the several
 grouses to where they haunt; & importance
 is shown by the great increase in numbers
 when Hawks destroyed.

iii 19m, 22m/u "Fox-chace" iv 16m vi 17m vii
 4m 178 4-5m, 12-17m 179 4-20m/10-11Q 208
 1-3m

SALTER, John The chrysanthemum London;
 Groombridge & Sons; 1865 [CUL]
 sports, t, v

NB Laws of Variation; The first breaking or
 change is the difficulty- →p.3; 41♦ to 43♦
Sports

SALTER

2 21-26m, 26-27m 3 15-18m, 24-27m 6 25-27m 7 27-32m 41 3-6m, 10-12m, 14-17m, 18-20m, 27-28m, 29-31m, 31-32m, wb p.3 primordially yellow 42 3-6m, 8-10m, 16-18m, 19a "Dr. Brock" yellow kind 21-25m/21u "yellow", 31-33m/31u "in suckers" 43 9-15m/10-12m

SALTER, John William and WOODWARD, Henry *A descriptive catalogue of all the genera and species contained in the accompanying chart of fossil crustacea, including an abstract from the Geological Magazine, Oct 2, 1865* London; J. Tennant; 1865 [Down]

SAMOUELLE, George *The entomologist's useful compendium* London; Thomas Boys; 1819 [CUL, pre-B]

t

NB 338 Explanation of terms

SAPORTA, Gaston de *Le Monde des plantes avant l'apparition de l'homme* Paris; G. Masson; 1879 [Botany School, I]

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SARMIENTO DE GAMBÓA, Pedro *Viage al estrecho de Magellanes* Madrid; Imprenta Real de la Gazeta; 1768 [Down, pre-B, S]

SAUSSURE, Henri Louis Frédéric de *La question du lac* Genève; Charles Schuchardt; 1880 (extract from *Journal de Genève*) [Linnean Society of London, I]

SAVAGE, Minot Judson *The religion of evolution* Boston; Lockwood, Brooks & Co.; 1876 [Down]

NB O/

SCHACHT, Hermann *The microscope* London; Samuel Highly; 1855 [Down]

SCHERZER, Karl von *Aus dem Natur- und Völkerleben im tropischen America* Leipzig; Wigand; 1864 [Down, I] ♂

SCHERZER, Karl von *La province de Smyrne* Wien; Alfred Hölder; 1873 [Down, I]

SCHIFF, Maurice *Leçons sur la physiologie de la digestion* 2 vols.; Paris; Germer Baillière; 1868 [CUL]

beh, che, oo, phy, t, tm

vol. 1 NB ⚡

64 vegetable feeders can undergo greater & more prolonged fatigue & thus whole structure is in condition. Curious remarks, explaining this

379; 380 Experiments; 396 Expts; 387 Tests; 396 Tests

◇⇒

p255 p261 p263 266 270 Blushing

◆ 270

16 ◇ogar

63 26-35m 64 1-2m, 13-20m/13u "activité", 24-27w Esquimaux Dogs 69 27-32m 73 3-7m/3-11w so probably C. of Ammonia not digested & is not nutritious 30-32m 255 14-17w I ought to read the previous Chapter 19-25m 256 14-17m 261 12-16m, 17-19m 263 5-10m 266 13-16m 268 2-8m, 18-21m 270 11-15m 376 10-12m/13-15m/2-15w There is this difference that it digests at ordinary temps—so must stomach of Frog 379 1-4m, 15u "substance albuminoide"/w cabbage juice 17-18m/w Extract of Belladonna 29-31m 380 1-13w I ought to add C of soda to a leaf which has dissolved cube of albumen & see if any precipitate 15-17w see p.382 for salt. experiments 382 21-22m/u "Le mercure"/w see p.387 383 19u "acide tannique"/18-19w Try 23-25m 387 27-30m, 33-35m 388 8-10m 390 30-33m, 34m 396 30-35m 411 31-38m/34w Have read 413 13-15m, 45-46m 414 2-4m 19-20m

vol.2 NB1 (not CD)

NB2 ⚡ 150 Exper. with Milk done; 154 Exper. done; 157

Drosera 4◆ to 200◆ 245 299 304; 281; 304 Blushing 527; 539◆

410 Expression 415◆; ◇

SB □β (by Emma)

Schiff

Vol 1. p.73 Digestion modifies food & therefore probably, C of Ammonia is not strictly digested by Drosera.

◆☞ (CD) p.376. On Digestion of higher animals requiring heat
 ◆☞ (CD) p.379. On changes of albumen thro' digestion Do – On certain forms of albumen ✓☞ (CD) not precipitated by boiling 383. Digestion requires an acid.
 390. All albuminous substance acquires same properties thro' digestion
 Vol 2
 p.4 On strength of acid best for digestion
 18 On digestion of cold-blooded animals.
 22 & 25 On dissolution of albumen by weak acids X☞ (CD)
 (over) Vol 2
 ◆☞ (CD) 29 On replacements of acids.
 ◆☞ (CD) 38 Fibres of fibro-elastique cannot be attacked by pepsine.
 ◆☞ (CD) 56 On weakness of acids best for digestion.
 ◆☞ (CD) On replacement by various acids.
 77 It is doubtful whether pepsine is an albuminous substance: Mem– my pepsine not really pure.
 80 There is a relation between quantity of pepsine & digestive matter
 86– The same subject
 114 ◆☞ (CD) Q☞ Demonstrates that pepsine is destroyed during digestion
 126 Same subject
 142 Gastric juice cannot affect amedon
 145 ◆☞ (CD) Excellent description of changes in muscular fibres from digestion of W. I did not know when I described my changes.
 (over) (CD) (☞ u☞)
 p387 Remarks of Millon with a fly
 (over) Schiff Vol 2
 ◆☞ (CD) 149. On angles of cubes of albumen being dissolved.
 ◆☞ (CD) 150 On liquid casein or Milk & its coagulation not due simply to the acid–
 153◆☞ (CD) On solid Casein. His explanation does not apply to my experiments.
 ◆☞ (CD) 154 On Legumin soluble in water & its coagulation by gastric juice.
 ◆☞ (CD) Long boiling turns albumens into peptones.
 104 Gastric juice of carnivorous & herbivorous is the same.
 188 Mechanical irritation of stomach causes acid secretion but not true pepsine – 245 – same subject
 196 After copious digestion the stomach is destitute of pepsine
 200 On peptogenes
 (over) 249 ◆☞ (CD) It appears that if gastric juice does not act characteristically on

gelatine, it at least efficaciously accelerates its modification by acidulated water.

281 The peptic glands seem to be different from the mucous glands. Nevertheless the former present an acid reaction. In Drosera they are combined.

304 ◆☞ (CD) On a layer of mucous preventing the auto-digestion of the stomach.
 157 ||☞ (CD) On digestion of fibro-cartilage & on the solution of bones–

4 25–31m/24–29w shows how little acid required 5 30–32m 17 wtcc, 30–32m/w How about cold-blooded anims 18 12u "liquide"/13u "à froid"/12–15m/14–17m/1–17w The pepsine of Drosera probably differs from that of warm-blooded but how about cold-blooded in water 35u "néanmoins | poissons"/19–35m/24–35w all related to liquid Albumen 19 1–9m/7u "deux | semaines", 19–21m, 33–34m (Spallanzani) 21 10m/u "l'albumine liquide"/w loh 25 12–14m/13u± 29 24–33m 38 26–27m/26u "fibro-élastique" 39 5–6m/u↔ 56 18–24m (Brücke) 57 27–31m 58 13–19m 59 24–30m 71 2–10m 77 13–15m, 18u "un | azoté"/14–26w it causes inflation of ● of Drosera but these seem not to be absolutely pure 80 31–35m 86 22–26m 114 28–35m 126 23–25m (Brücke), wb He has shown that it is impossible to get pepsine ♣ pure without the most laborious operations even if it be possible at all – 127 18u "matières albuminoïdes", 24u "graisses | intestin" 142 4–8m 145 5–28m/[...]/9–18w transverse chain of dots which I saw – there being no more 11–27m, 30–32w X not Page 146 2–12m/[...]/7–12m/8–9u↔ 149 7–12m/8u "angles" 150 29–32m 151 1–2m, 23–29m 153 25–30m, 31–32m/30–33w No not so with Drosera 154 15–20m, 21–22m 156 13–30m (Blondlot) 157 1u "fibro-cartilagineux" 166 wt/1–3w Turn them into peptones 3–6m 184 21–25m 188 13u "sécrétion acide"/16–17u↔/12–17m (Corvisart) 196 12–18m 200 3–6m 202 35m 203 1–4m 245 5–7m, 15–16w Mechanical irritation 25u "liquide acide", 23–26m (Tiedemann, Blondlot) 249 9–13m 281 23–27m/26–27u↔/24–25w Same glands in Drosera 304 9u "l'autodigestion | l'estomac", 10–16m, 17–23m (Kölliker), 24–25u "et | pepsine", 33–35m/34u "alcalin" 410 22–28m/22–24u "très | altéré", 29–33m 411 9–10m, 12–14m, 15–16m, 19–20m, 26–32m◆ 414 30–35m, 31–35m 415 1–3m, 12–16m, wb Perhaps for expression I had better read next Chapter 527 6–8m (Ludwig)/4–12w I have not read this Essay 12–17m, 20–24m 539 6–31m 545 22–23m 553 4–5m, 17–18m, 32–33m 554 10–11m, 26–27m, 30–40m, 49–50m 555 5–6m, 15m, 25–26m,

SCHIFF

40m, 47m 556 15m/u "extrait renfermant" 557
1-3m/2u "influences | acide"/w Drosera 47m/?

SCHLEGEL, Hermann *Essay on the physiognomy of serpents* Edinburgh; Maclachlan, Stewart & Co.; 1843 [CUL]
beh, br, gd, geo, ig, in, is, oo, or, phy, rd, sp, sy, tm, v, ve

NB p.10; p.21; p26,7 to 55; 71; 80; 85; 92; 129; 131; 144; 146; 149; 197 to end

◆ It might be worth looking to great work to see if he argues his local varieties.

Many for Java & Celebes

SB □β

10 Q Many innocuous serpents have grooved teeth 42 on do. important 47 Q

22 Snakes & Lizards a good gap well filled up p24

26 Q Great changes in position of viscera owing to shape of body conclusion Ch 7 & great difference in different forms. External organs more constant

27 Number of vertebrae differing in same species

38 Rudiment of posterior extremities in 3 genera

45 Q Snakes with tips of ribs forming teeth

55 Q Pancreas ◆ spleen differing in species & varies in individuals

80 NQ Crotalus mutus has spine (u) not rattle

146 Coluber canus only species of genus in S. Africa & abnormal species

199 Snakes in Isld of Pacific

203 Section of genus Elaps, trifling distinction in S. America (shows persistence of trifling characters)

206 Corvus cornix & Corone breeding at Dresden (Ch. 4)

207 Sardinia has many vars. (but not many distinct species)

218 Many Mammals of Japan identical

219 Saurians & snakes of Japan all distinct from Europe. Frogs the same!

222 to 226,8 - to 235 The Monkey of Timor a darker var. this looks as if endemic & other Mammals. Much on Zoology of Malay Arch. Philippines & Ceylon allied!

240 N. America in Reptiles seems to have derived from South (do not range far N.

10 7-13m/8-10Q 21 22a "species" approaches to 22 4-8m/3-26w good passage if such organs did not exist now, we shd marvel at the transition. p24 24 6-14m/8u "difficult | impossible", 30u "Pygopus"/30-34m/w Snake or Lizard? 25 36-39m 26 7-13"..."/Q/10u "but | lung", 24-26Q 27-32m, 34u "external"

27 35-39m/37-38u "in | vertebrae" 28 2u 38
24-28m 42 5-10m/5u "salivary", 19u "anterior end", 31u "posterior part", 32-36m/33-35m/Q/
34u "more | saliva" 43 13-15m, 26-30m, 32-36m, 37u "fatal" 44 10c/9u "germs"/w gums
25c/wæ 45 31-34m/Q 36-38m 46 14-18m, 31-32u "developed | venomous", 32-35m, 36-37m
47 1-4m/w Explain origin of teeth 9w Salivary
11-13m, 15m/5u "tendinous", 21u "tendinous",
23u "to | articulation" 48 1u "dangerous", 1a
"consequences"/wt it is painful, at once 55 29-32m/Q
71 1-3m 80 6-10m/Q 85 22-26m, 33-36m/34?/u "local variations", 37m 86 30-33m
92 14-20m 99 36-38m 110 37-39m 129 37w
Plenty of cases afterwards show no. of vertebrae vary
131 37-40m 144 21-27m 146 9-11m/10u "known | Africa", 15u "curious"/19-20u
"This | species"/15-21w a wanderer 149 15-18m ◆
197 16u "most | means", 15-20m, wb Snakes can live without eating 6 & 18 months
198 36-38m/w not volcanic islds 199 6-9m, 12-14m, 19-22m/20u "other species"/21-22u
"often | Antilles", 28a/u "Japan"/w Java 29-31m, 35-38m
205 15-23m 206 17-26m, 26-30m, 38-41m
207 8-9m, 10-12m, 14m, 17-19m, 24-29m
210 32-36m 211 34-40m 212 26-30m/28u "elevation | species" 213 37-41m (Buffon, Lamarck)
216 29a/u "Cameleon"/22-34w Q case, I suspect, of great peculiarity, variable.
31u "Ptytodactylus | nose"/28-32m 217 31-35m
218 17-21m, 27-34m/37-41m (Siebold, Bürger) 219 wt Sea & Land must have been connected between Europe & Japan.- 2-11m/11u
"laudatus"/?, 21-25m (Temminck), 29-33m/30-31u "Saurians | Ophidians", wb what a difficulty introduction of F.W. Eel in Otaheite & some of the Antarctic islds - Do not they breed in Sea.
220 3-17m 221 29-31m 222 3-9m, 26-40m, 30-31m/30u "Timor" 223 wt consult Waterhouse.- 1-5m, 6-40m, 13-15m/14u "Timor", 18u ◆ 224 2-19m/8u "Timor", 20-26m
225 3-5m (Temminck), 9-36m/26u "Marianne Islands"/28u "Timor", 34-36m, 39-40m
226 1-8m/1u "Timor", 8-10m, 10-20m, 21-23m, 24-29m, 32u "Marianne" 227 5-13m, 23-24u "Sumatra | Borneo", 33-38m
228 wt Sumatra & Java very different soils 2-9m, 24u "islands | Timor", 27-34m
229 28-32m, 33-35m 230 3u "and | known", 5-8m, 9-13m/12u "No Antelopes", 14-26m, 26-30m, 34-41m/35u "also | tail" 231 17-19m, 22-25m, 38-41m
232 20-24m, 29-36m, 37-42m 233 18-23m, 24-36m/25u "Canis | Javanicus" 234 20-23m, 23-28m
235 11-16m, 33-40m 237 16-19m 238 21-23m, 29-34m
239 1-2m, 18-25m, 25-34m 240 21-30m 245 5w Cuv | p405 246 ↑7w 1.409 247 12w Edw p375.l./l.p410 248 ↑16w 1.409 ↑15w l.p410 249 4w | p409 250

↑3w 1.411 ↑8w Edw p374 col 2 /1.410 ↑18w Edw p374 /1.406 251 3w Edw p378.2 /1.417 ↑11w Edw:p378 col 2 / 1.416 252 2w 1.419 11w Edw p377.2 /1.413 ↑5w Edw:p377 /1.414 ↑10w Edw p376 /1.412 (cross referencing of Shlegel's arrangement of serpents to other works)

SCHLEICHER, August *Darwinism tested by the science of language* trans. A.V.W. Bikkers; London; John Camden Hotten; 1869 [CUL, I by translator]
beh

NB Languages primevally invented difficulty – p.54
Speculation on grammar
If one admitted "amabo" is formed of 3 words I will love, agglomerating amabis I♦ you will love
title page 9m 54 5–17m

SCHMIDT, Oscar *Descendenzlehre und Darwinismus* Leipzig; F.A. Brockhaus; 1873 [Down, FD] ∅

SCHMIDT, Oscar *The doctrine of descent* London; Henry S. King & Co.; 1875 [CUL]
cc, ch, fo, hl, ir, mg, no, sp, t, tm

NB ♦ 94; 97,8; 152; 174; 214

SB ∞
p.97 gives reference to German Palaeontologists who have shown impossibility of separating Ammonites into species.– Now if the exuberance of forms had occurred in only some one sea or at only one time we might easily have had not record – with occasionally a few forms emigrating & spreading. good resume of Württenberger &c
p152 case of apparent convergence of character in Sponges (higher organism)
p174 causes why no two groups or stems of polyps are exactly alike.
p214 Ammonites (like Hyatt) first changing in external conditions

94 2–32m 95 1–14m (Haeckel), 23–32m (Agassiz) 97 7–16m (Waagen, Zittel, Neumayr, Württenberger, 23–32m 98 7–32m (Württemberg) 152 29–32m 174 1–25m 214 1–19m 215 1–11m, 16–32m

SCHMIDT, Oscar *The doctrine of descent and Darwinism* London; Henry S. King & Co.; n.d. [Down]

SCHMIDT, Rudolf *Die Darwin'schen Theorien und ihre Stellung zur Philosophie, Religion und Moral* Stuttgart; Paul Moser; 1876 [Down]

NB not read

SCHNEIDER *Der thierische Wille* Leipzig; Abel; 1880 [Down, I]

5 8m 10 25m

SCHOUW, J.F. *The earth, plants and man together with*

KOBELL, F. von *Sketches from the animal kingdom* trans. A. Henfrey; London; Henry G. Bohn; 1852 [CUL]

ad, cc, ch, cr, gd, hl, is, mhp, oo, sp, t, ti, tm, v, wd

SB1 □℞ p.4; 6; 12; 17; 18; 23; 27 to 29; 59,60; 64; 81; 95; 102; 138; 140; 172; 210; 218

SB2 □β

12 on great number of naturalised plants on lslds

18 argues for double creation from Alpine Plants (Glacial Chapt)

20 thinks higher animals never are created at 2 places

29 Alpine plants extremely variable

59 Parallelism in Labiatae & Scrophulariaceae

95 Lotus of Hot Springs in Hungary

218 There have been instances of *Convolvulus arvensis* sending papillae into plant, which supports it very interesting in relation to *Cuscuta* (Ch. 4) (marked vars)

4 32–34m, 35–40m 6 1–2m 12 21–31m/21–23!/ 22u "sea | recent", 26–27u "extent | where" 13 7–41m, 10–14m/!!!, 21–23!!!, 33–35!!! 18 1–2m, 22–27m, 33–40m 19 14–16m, 39–40m 20 8–10m, 29–33m/29u "many places", 29u "single" 23 18–19m, 37–40m 24 19–25m/w never has 27 20–30m 28 28–31m, 33–34m 29 1–4m 59 32–40m 60 30–34m 61 19–28m, 28–36m 64 35–41m 66 6–9m 81 32u±, 36–41m 82 18–25m 93 2–3m 95 35–40m 102 35–36m, wb many species are required to confine & modify habits of forming species. 103 5–6m 138 18–32m 139 23–28m, 34–37m, 38–40m 140 1–4m/ wt/1–4w ? by acclimatisation? 141 13–16m 172 26–29m 210 1–6m, 40–41m 218 14–17m, 23–29m catalogue attached ∅

SCHÜBELER, Frederick Christian *Die Pflanzenwelt Norwegens* Christiania; A.W. Brøgger; 1873–75 [Down, I]

NB 381, 82

381 37–41m

SCHUFELDT, R.W. *Osteology of the North American Tetraonidae* 1881 [CUL.1900, I by author]

title page "Osteology".u

SCHULTZE, Fritz *Kant und Darwin* Jena; Hermann Dufft; 1875 [CUL]

NB1 O/

NB2 Hand revisions O

25; 26; 27; 28; 32; 38; 46; 47; 48-50; 55-58; 61 (1775); 65; 76; 84 &c

SCHULTZE, Fritz *Die Sprache des Kindes (Darwinistische Schriften 10)* Leipzig; Ernst Günther; 1880 [CUL]

SCHULZ, Ernst *Nine plates of photographs: facial expression* [later than 1867] [CUL]

wt to most photo-captions

SCHWANN, Theodor *Manifestation en l'honneur du Professor, Liège, 23 juin 1878* Düsseldorf; L. Schwann; 1879 [Down]

[SCIENTIFIC LAYMAN] *The new truth and the old faith* London; C. Kegan Paul & Co.; 1880 [Down, I] ♂

SCORESBY, William Jun. *An account of the arctic regions, with a history and description of the northern whale-fishery* 2 vols; Edinburgh; Archibald Constable & Co.; 1820 [Down, pre-B]
gr, tm

vol. 1 NB p.457 whalebone; 485 Balaenoptera (6-9 miles)
251 14-17m/15u "three|in"/14u "100"/w 480 ft 22-24m/23u "325"/24u "150"/25u "250", wbe 252 3w 2 1/2 miles 13-15m/w V. Forster 255 27-30m 259 17-19m, 23-25m, 26-28m 457 2u "300", 4-6m/4u "Fifteen|greatest", 24-25m 479 14-15m/15u "4 feet" 483 14u "3|long", 16u "fringe|bristly" 484 8-9u "about|length"/6-13w Balaen. p457 p483 p479 485 26m/u "whalebone|inches" 486 12u "9 inches" 490 9-10m/Q 491 8-11m/Q

vol. 2 NB p.416 Whalebone
416 19-22m

SCOTT, John *Annual report on the experimental poppy gardeners at Deegah and Meetapore* Calcutta; Bengal Secretariat Press; 1876 [CUL, I]

NB O/

SCOTT, John *Manual of opium husbandry* Calcutta; Bengal Secretariat Press; 1877 [CUL, I]

ad, beh, cc, che, fg, he, oo, phy, sl, tm, ud, v

NB see to all marks; 46; 36; 70 to 77; 81; 111; 130; 131; 154; 167; Cross-fertilisation

SB ♂

36 Effects of salts in causing seeds to germination

49 acclimatisation of vars. & closer adaptation to climate

77 slight chemical differences in vars.

80. 111 apparently inherited effects of scarification like inherited milking

154. vars. differ in liability to mould

167 gnawing capsule with the opium causes convulsive twitch to Caterpillar

ii 14m, 17m, 20m, 33m iii 3-9m, 33-37m, 39-45m, 47-55m iv 20-28m v 14m vi 7m 36 20-28m 43 1-3m 45 8-11m/9u "a|the" 46 1-3m, 35-40m 48 43-51m 49 12-16m, 41-46m 50 27-36m 51 20-23m, 23-25m 52 8-14m 56 34-39m/36u "80,000|90,000" 70 15-21m 71 24-32m 77 7-17m 78 5-35w He has before said is found in petals & stamens 9-12m (Schleiden), 15-21m, 22-30m, 32-35m/? 80 16-26m/16-35w i.e. not due to selection - I suppose he means inherited effects of Scarification 45-51m 81 8-13m 111 4-11m/9u "early|exercise" 130 27-32m, 37-40m/37u "Bulk|absolute" 131 1-3m, 11-14m 134 32-34z 154 27-31m 167 9-13m

SCOTT, John *Report on the experimental culture of the opium poppy* Calcutta; Bengal Secretariat Press; 1874 [CUL, I]

oo, phy

14 1u ♂ "weighing|capsules", 36-42m/m 20 13-19m/14-20m, 32-37m, 40-42m/m 21 10-39m/22-24m/35-37m 24 20-22m 29 29-34m 30 16m 42 44-53m 47 49-54m 53 32-37m 54 41-47m 58 11-33m/25u ♂ "affecting only" 60 42-47m 61 30-38m, 47-56m 63 42-46m

SCOTT, John *Report on the experimental culture of the opium poppy for the season 1877-78* Calcutta; Bengal Secretariat Press; 1878 [CUL, I]

oo, phy

NB Frank Protection from Insects

p9 Monkey

17 to 21-22, 28 Protection of poppy by Opium

Frank

part 1, 1 39-46m
 part 3, 9 1-15m 17 62-70m 18 4-12m 19 48-64m 20 24-29m 21 58-68m 22 62-66m 25 8-23m, 29-35m

SCOTT, W.R. *The deaf and dumb* 2nd edn; London; Bell & Daldy; 1870 [CUL, I] beh, he, pat, t

NB 8♦; Deaf Mute reason - ?; 10 smelling - Imbeciles; Expression - 10 Proof of laughing sign of pleasure; 12 Continuation of Gesticulation

There is nothing about antagonism of expressive gestures

♦ 53 Savage snarl of Insane Reversion 8 5-12m, 15-16m, 18-23m, 21-23m 10 9-11m/10-13w Maudsley O has similar case 13-14u "the boy", 19-22m/20u "laughing" 12 19-26m/m["..."]

SCROPE, George Julius Poulett *Considerations on volcanos* London; W. Phillips; 1825 [Down, pre-B] geo, se, t

iv 23-29m vii 1-20m xiii 9-16m/10-14w Sir H 30 1-21m, 17-22m 64 37-43m 65 27-38m 107 11-13m 147 21-24m 194 6-14m/11? 199 22-25m/26-29m/22-28w maximum elevation having expended the force *wb* NB none of these theoretical views agrees with the structure of the S. American Andes. 212 8-42m/21-22? 264 3-5m/*wt* The curved stratification of the clay beds is not accounted for. Humboldt gisement.

SCROPE, George Julius Poulett *Volcanos* 2nd edn; London; Longman, Green, Longman & Roberts; 1862 [Down] ♂

SCUDDER, John M. *Specific diagnosis* Cincinnati; Wilstach, Baldwin & Co.; 1874 [Down, I]

SCUDDER, Samuel Hubbard *Butterflies* New York; Henry Holt & Co.; 1881 [Down]

SCUDDER, Samuel Hubbard *Historical sketch of the generic names proposed for butterflies* Salem; Naturalist's Agent; 1875 [Down]

SEDGWICK, Adam *A discourse on the studies of the University of Cambridge* 5th edn; London; John W. Parker; 1850 [CUL, I] ad, af, cc, ch, ds, em, ex, fo, gd, geo, he, hl, ig, ir, no, or, sp, sy, t, ti, tm, v, wd, y

NB1 *cc*

NB2 ♦ xxvi; 33; xlv; xlv

SB1 □*⊗*

The publication of the Vestiges brought out ♣ all that cd be said against the theory excellently if not too vehemently

I am almost sure that Hooker in one letter says that *Salix* is not variable in Himalaya - Is rubus - this very important.-

The constant speaking of a species, as a something known to be definite is source of error.-

216 ⇨ Introduct. Even the insertion of a Genus between any two others, though it cannot be said to break down a family, yet in fact tends to same way, for the two portions of the family might have been formed into two sub-families. Sedgwick speaks as if family or group of any kind fixed & ascertainable thing.- The not filling up of gaps depends ♣ chiefly on ♣ our view of how far Palaeontology represents old inhabitants of world - but it

(*over*) might have been expected that some forms intermediate between ♣ Mammals & Birds, like ornithorhyncus should have been found - such must have existed probably anterior to Silurian system.- As far as evidence goes decidedly opposed.-

294 ⇨ take any species in which there are several varieties - make any one or two races & we are making a species at the present day.- this is the only evidence possible - What domestic varieties are not making!? I do not mean mere seedlings-

SB2 □*⊗*

Introduction; 26; 33; 48; 54,7; 62,4 to 139; 151; 212; 216 ♣ V. next page of this paper; 219; Appendix; 152; 185; 188 to 192 we here see that a Bony fish as a fish may be highest, but as part of the Vertebrata lower; 208; 278; 290; 294 V. Back

SB3 □*β*

lxv Oldest Fish highest (Book written against law of development higher & higher with which I have nothing to do

lxxi X[⊗] good against evidence for any number of supposed fossils xciv

xcvii difficulty of appearance of Cycloids & Ctenoids (Developed in hot ocean)

ci - on separation of Fish & Lizard

cxiii argument for coming in of Mammals, now broken down by Purbeck

cxxv Falconers argument that serial species do not accord in time or space

ccxii nature shows love of order & harmony independent of mere vulgar use - one may say this when one knows one plant or

SEDGWICK

animal so well as to say why its numbers are so many, not that I pretend every character useful – Inheritance & Laws of correlation & direct effects of conditions
 ccxvi On genera & orders always keeping distinct. V. note at Back
 152 Socrates on use of eye-lashes
 186 Good account of why Fishes ♦ Sharks highest to p.193
 188 On Embryological Development p.278
 192 On coexistence of spiral valves in intestine & Bulbus arteriosus in Ganoids & so allied to Batrachians
 208 Oldest Rocks in America

ix zb xxxiii 1–3m, 16–18m xxxiv 11–15m
 xlvi 4–6m, 14–20m/15–17w not put fairly liii
 17u "Cuvier", 24u "Agassiz" liv 7u "Owen"/
 9–14m/1–8w 3 greatest authorities, pointedly,
 even bitterly declared against theory So Horticulturalist about varieties lv ↑5–2m lvii
 19–23w absence of links between classes
 lxii 4–11m lxiii 4–8m, 15–23m lxiv 17–20m
 lxv 28–30m (Owen) lxviii 1–5m lxxi 6–9m/w
 all excellent lxxiv 11–15m lxxxiii 1–3m xci
 20–23m xcii 13–19m xciii 13–15m (Cuvier)
 xciv 14–16m/w very true 30m/a "Classes"
 Kingdoms 30u "Classes"/wb ? not the Fishes
 & Reptiles xcvi 23–26m xcvii 6–9m xcix 10–
 14m c 25–28m/w But take existing fish &
 existing Reptiles ci 5–12m (Agassiz) cii wt/1–
 12w the first appearance alone ought to be
 chronologically in harmony with natural
 affinities 24–27m, 30–31m ciii 5–22m civ 9–
 16m/w shows how imperfect our knowledge
 of aerial productions 19–23m/w Birds a
 capital argument versus. cvii 7w no! cvii 1–
 3m cxii 23–25m cxiii 10–12m, 29–30m
 (Cuvier) cxvii 1–5m/w except change in
 nature of deposits 6–7u "organic interval",
 27–29m/27u "seem" cxix 6u "Ceteosaurus"/w
 Where described? cxxv 13–16m, 17–18m, 19–
 26m/w opposed to Agassiz argument of
 affinities going with space cxxvi 3–6m, 3–
 13m, 14–20m, 22–25m, 5–26w The most
 important case I have yet seen cxxvii 5–10m,
 15–17m cxxviii 1–3m, 17–19m cxxix 25–27m
 cxxxiv 21–27m, wb All facts &c. do not show
 that there is no difference between species
 & varieties, only that no one can often
 distinguish them – cxxxix 3–5m/3u "gradually
 exterminated"/5u "not | transmutation" cli 16m
 (Whewell), 30m cliv 3–6m, 14–16m cxii 2–6m,
 16–23m ccxiii 20–22m/21w Owen ccxvi wt
 True great classes will never run into each
 other – even Lepidosiren does not do that.–
 wt/1–16w what does break-down mean –
 either then true classes run into one, or are

not so distinctly separated 4–5u "there |
 organic", 5–9m, 13–14m/w What does this
 mean 14u "improve | perfect", 14–15u
 "break | down", 15–17m/w yet naturalists often
 do this ccxix 9u "organic | analogy", 14–
 18m, 20–21m 181 13?/u "Neptune" 185 28–
 32m 186 5–9m, 15–19m (Owen, Hugh Miller),
 29–32m, 36u, wb Electrical Fishes 187 15–
 21m/17u "chronological history"/w no 18u
 "stultifies | development"/w yes 188 3–5m, 11–
 19m (H. Miller), 31–36m 190 1–10m (M'Coy),
 19–21m 191 26–36m (Agassiz) 192 35–36m 193
 1–3m 208 16–19m/16w ♦/17u "oldest", 33–36m
 276 1–19m (Vestiges, Owen) 277 22–32m/22u
 "what | prove" 290 13–17m/13–20w quite
 certain no means of telling what is a species
 294 14–15u "appearance finished"/13–16m
 (Vestiges)/w no ♦ – V. note my M.S.

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 district* Kendall; John Hudson; 1853 [Down,
 I]

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 memorial of the trustees of Cowgill Chapel*
 Cambridge; University Press; 1870 [Down, I]

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 remains of Aves, Ornithosauria and Reptiles*
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NB O/

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 Regia Università; 1874–76 [Down, I]

part 1 NB O/

part 2 ♂

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 Theorie* Leipzig; Wilhelm Engelmann; 1876
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title page wt Presented by C. Darwin
 (Duplicate)

SEIDLITZ, Georg *Die Darwin'sche Theorie* Dorpat; C. Mattiesen; 1871 [CUL, I]
beh, ct, em, gd, he, mm, mn, oo, or, phy, sx,
ud, v, y

NB 37 Variability of Embryo

47 Castrated Reindeer does not cast Horns
off

♂

122 Causes of colour of eyes of Birds

127 Protective Colours of Beetles

135 Instinct good – diving of young ducks
whose parents fly away – only like squatting
– for parents do not dive to avoid danger

208 Origin of senses in cells in skin sensitive
to light

144 Reversion in blind insect & has
imperfect eyes

147 Replacement of rats in Europe

176 Carabus in Pyrenees & in N. of Europe

37 21–33m (von Baer) 38 25–29m 47 31–33m

122 8–33m, 34–37m 126 27–32m 127 35–36m

134 21m 135 wt/1–4w Diving of young ducks

whose parents fly away cannot have been
learnt by no by ancestors 16–22m/18w (a)

144 18–21m 147 12–29m 176 8–13m 208 2–
38m (A. Müller) 210 27m

SEIDLITZ, Georg *Die Darwin'sche Theorie*
2nd edn; Leipzig; Wilhelm Engelmann; 1875
[Down, I] ♂

SEMPER, Carl Gottfried *Arbeiten aus den*
Zoologisch-Zootomischen Institut in Würzburg
Hamburg; W. Mauke Söhne; 1876 [Down, I]
♂

SEMPER, Carl Gottfried *The natural*
conditions of existence as they affect animal life
London; C. Kegan Paul & Co.; 1881 [CUL]
gd, is, t

NB 287 298 Geog. Distribution

290 Wagners Theory

287 15–21m, 38m 288 10–13m, 18–21m, 23–
26m 290 1–5m (M. Wagner) 292 11–14m ♦ 298

20–28m 300 10–15m 303 9m 308 6–15m

SEMPER, Carl Gottfried *Die natürlichen*
Existenzbedingungen der Thiere Leipzig;
Brockhaus; 1880 [Linnean Society of
London, I]

SEMPER, Carl Gottfried *Die Palau-Inseln im*
Stillen Ocean Leipzig; F. Brockhaus; 1873
[Down, I] ♂

SETTEGAST, Hermann Gustav *Die Thier-*
zucht Breslau; Wilh. Gottl. Korn; 1868
[Down]

cc, oo, tm, v

NB p39 – Buck-wheat – Affecting animals
differently coloured

♦ p41 graduated skulls

39 36u/wt 41 1–41m

SEWARD, Anna *Memoirs of the life of Dr*
Duncan London; J. Johnson; 1804 [Down,
pre-B, S]

SHAFTESBURY, Anthony, Earl of *Char-*
acteristicks of man, manners, opinions, times 3
vols.; London; 1749 [Down, ED]

SHARPE, William *Man, a special creation, or,*
the preordained evolution of species London;
Robert Hardwicke; 1873 [Down, I]
h, pat

NB p.119 Colour & resists disease
Used

118 22–26m 119 1–6m, 21–24m

SHIREFF, Patrick *Improvements of cereals*
Edinburgh & London; William Blackwood &
Co.; 1873 [CUL]
cs, sl, spo, ta, v

NB 7 several vars. selected out of Fields

SB ∞

7 selected 3 new vars. in one year, from 70
Ears collected out of several fields

p.10 vars. crossing

p.33 & 35 constant & inconstant vars. from
crossed wheat.

p.47 The vars. naturally cross, but seldom

p.94. crossing increases variability, & gives
greater field for selection

7 1–7m 10 12–24m 29 18–25m (Darwin) 33
20–23m/23u "constant variety" 34 11–14m 35
18–19m, 23–24m 47 1–7m/w do not cross
much 11–16m/12w bud-sports 94 12–16m, 15–
24m

SHUCKARD, William Edward *Essay on the*
indigenous fossorial Hymenoptera London; by
the author; 1837 [CUL, I]

ex, f, fg, ig, in, sp, spo, sx, sy, t, tm, v

NB1 Neuration of wings variable in the
species of Fossorial & difference in this
point characterizes the sexes.–

So individual bugs are winged or less & so
sexes.

SHUCKARD

So jaws of *Lucanus* sexual & variable

So horns of *Sheep*.

NB2 =Make stalk of variable parts= also in Coleoptera

5 11 19 23

Variation p40 43 48 62 64 to 70 76 79 & 80 85 98 100,2,5,7 137 139 141,4,8 186 191 204 213 241,2 250

Besides these species which are variable, it must be remembered how very many are rare & therefore may vary, but it is not known-

SB □β

40 Q variation of nervures p.43 do better case in genus *Typhia* Q

39 Neuration differs in sexes Q

48 -Q In *Pompilus* nervures differ in species & in individuals (p.4 Neuration of fundamental importance in classification of these Hymenoptera, as shown by Jurine

241 Excessive variability of shades of colour in *Cerceris*

I see I have note about Bugs being winged according to sex & variable individually

5 7-9m/8u "to vary", 11-13m/13u "marked | constant" 8 18-19m ♦ 11 16-18m/17u "great | genera", 21-23m 19 10-12m 22 15-23m 23 1-2m, 8m, 11-12m/8-18w Important as showing some species are fertile, not owing to any general law, but to the peculiarities of their own propagation.- 39 28-29m/Q 40 20-31m/21m/25m/27u "stigma nearly"/29m 42 31-33m 43 3-5m 48 18m/u "in | individuals"/16-19m/w are different in Fossore in males & females V. p.39 24-25m/u "P. | monstrosity"/20-25w In allied families wings absent in females 62 10m/u "of | posterior" 64 18-20m, 18-19u "which | *Aporus*"/w a diff. genus 65 15-19m/16-17u "and | punctured" 67 14m, 20-23m/20-21u "markings | wings" 70 3-4m, 3u "line | colour", 4u "traversing | not", 21-22m/21u "markings vary", 27-28m 76 33-35m 79 31-32u "third | petiolated" 80 6-8m 85 23-25m/u ± 98 18-19m 100 23u "black ring", 24-25m/24u "sometimes obsolete", 27m/u "interrupted", 27-28u "yellow | margin" 102 12-13u "are | interrupted", 13-14m 103 15-19m/16u "male"/18u "multitude | species" 104 32u "abdomen", 33-34u "first | red", 34u "is | red" 105 1u "or black"/2u "sometimes"/3u "lacteous | of"/4u "segment"/1-4m 107 1-3m/2-3u "characters | mucro" 137 2-3u "yellow | above" 139 14-16m 141 34-35m/u ↔ 144 9-11m, 9-10u "sometimes | only" 148 23u "sometimes", 24-26m, 25u "reduced | spot" 149 8u "variable | abdomen" 152 10-12m 156 11-12m 186 4-6m/w These may be compared to the sports of

Roses & Wheat 191 14m 204 19-21m/21u "frequently entirely" 205 12-14m 213 3-5m 241 14-20m, 27-32m 242 4-6m, 26-29m/!!!, 29-30u "without | fault" 250 7-9m, 22-25m 251 1-2m, 7-8m ♦ 252 8-10m, 15-17m

SIDGWICK, Henry *The methods of ethics* London; Macmillan & Co.; 1874 [Down, I, S]

SIDGWICK, Henry *A supplement to the first edition of The methods of ethics* London; Macmillan & Co.; 1877 [Down]

SIEBOLD, Carl Theodor Ernst von *Beiträge zur Parthenogenesis der Arthropoden* Leipzig; Wilhelm Engelmann; 1871 [Down, I]

SIEBOLD, Carl Theodor Ernst von *On true parthenogenesis in moths and bees* trans. W.S. Dallas; London; John Van Voorst; 1857 [CUL, S]

beh, cc, cs, em, f, fg, hy, oo, phy, rd, sp, sx, v

NB1 Find single seed-bearers & mix pollen of two species or vars

p.70 order F. Smith get good description of Italian Bees

NB2 4; 34; 38; 53; 61; 68 to 75 vars of Bees; Crossing natural; 107; 107 Hooker - Gall-insects male & female in different galls

SB1 □β

p.4 long life of Spermatozoa - p.61

34 Female Psyches in rudimentary condition 53 Dzierzon on unfertilized eggs producing drones

68 Differences of Italian Bees - dark Bees appear amongst the Italian Bees *Apis Ligustica* p71.

69 Golden Bees more industrious & better tempered

70 References to the *Bienenzeitung*

72 fertile when crossed

107 on differences of sexes according to conditions of life of larvae of certain Hymenopter. insects.

106 sexes in Parthenogenesis

(fragment of a letter from B.D. Walsh of 25 February 1867)

4 17-21m 34 17-26m/w rudimentary state 38 10-15m 39 22w why ? 23-33w ♦ They are not fully developed & therefore are in degree in larvae state 53 25-28m (Dzierzon) 56 24-28m (Dzierzon) 61 24-26m 68 4u "variety"/3-6m/w F. Smith calls species 8-19m/9u "rusty | colour", 23-26m, 24u "amongst | yellow", 27u

"*praesentior magis*", *wb* ♦ V. original German to see whether in same hive 69 1-3m, 5u "gold | Bees", 6u "together", 10u "cum | alvo" /w same hive 16u "*rectioribus cruribus*" /w ask F. Smith 20-22m, 25u "1806", 29u "*Lago Maggiore*", 32u "*according | Spinola*", 33u "*also | Piedmont*", 35-39m 70 1-8m, 20-22u "*From | bee*", 21-25m, 40-42m (*Berlepsch*) /w order this book 71 10u "*crossings*" /wt/1-10w I must ascertain whether this refers to pure Italian Mothers. 14-16m/u ↔, 14a "*Italian*" crossed?? 20u "*only*", 21c "*Such*" /21-24m/w I do not understand V. original 72 24-32w clearly much crossing has taken freely place & yet fertile 73 5u "*hybrid hives*", 13-15m/14a "*hybrid*" ized 18a "*hybrid*" ized 19-20m 74 16-19m, 34-36m 75 7-12m, 14c "*otherwise | say*", 20a "*hybrid*" ized 94 25-34m (*Herold*) 106 27-32m 107 19-23m (*L. Dufour*)

SIEBOLD, Carl Theodor Ernst von and STANNIUS, Hermann *Anatomie comparée*, 2 vols in 3 parts; Paris; De Roret; 1850 [CUL] cs, em, fg, phy, sx, sy, tm

vol. 1, 1st part, NB ♦ p.12; p.22; p.34; p.48; p.51; p.70; p.106; p.142; p.170; p.221; p.223 like Land-Crabs; 229 *Hirudo* no metamorphosis-; Annelids Cephalobranches fertilised by means of water 12 26-29m 22 1-3w Larvae ? 4-6m 34 1-4m 48 21-24m, 40-42m 51 34-35m 69 1-2m 70 1-6m 94 15-19m 106 3-5m 107 4-8m 142 2-6m, 8-9m 170 5-8m, 7-11m 221 17-21m 223 6-9m 229 15-17m, 18-20m 230 14-17m 231 19-23m

vol. 1, 2nd part, NB p.282; p.285; p.328; p.330; p.341 & 2; p.348; p.355; 520; 527; 535; 537; 568; 594

SB □β

330 *Ampullaria* Lungs & Branchiae
342 Male & female glands invaginated & yet leading to distinct orifices! p.348
529 Tardigradae, Arachnidae Hermaphrodite
282 20-27m/11-31w Is Herm. so must be able to cross 285 6-7m 328 7-11m 330 37-41m 341 1-7m, 14-17m/16u "*invaginés*", 19m 342 1-14m/wt/1-16w How striking as they arise from invaginated glands: showing bisexuality 343 1-8m 348 5-11m, 10-17m, 30-34m 355 6-10m, *wb* shows animal System not perfect, nowhere to put *Sagitta*, throughout exceptions made 400 6-15m 410 6-7u "*Monografisk | 1842*" /7m (*Kroeyer*) 418 27-30m/! 426 1-6m 433 1-2m 434 27-31m 436 7m/u "*yeux | facettes*" 443 7-8m, 27m/u "*Karsten | 20*" 445 1-5m 465 10-18m 470 1-14w glands for viscid substance 473 20-24m 476 38-41m (*Goodsir*) 477 1-2m 489 32-35m

(*Rathke*)/33u "*Wiegmann*", 36-37u "*Erdl | 1843*" 491 24m (*Rathke*), 28m (*Goodsir*), 33-39m/37-38u "*Kröyer | Homerus*" /w Bell 38w 1 39u "*Erdl | 18*" /w 2 520 17-21m 521 1-4m, 44→ 522 28-31m 526 1-19m/w curious case of poisons so different in two orders 527 6-28m 529 wt/1-3w see p.496 for references 5-9w I cannot find out what 5-7w only genera *Milnesium* *Macrobiotus* *Enydium* 9-12m, 13-14u "*Les Tardigrades*", 14u "*hermaphrodites*" /w What are Tardigradae 535 5u "*des | très*", 8u "*entre | postérieures*", 14u "*prolongement | menton*", 22-23m 536 18-19m, 21-25m 537 12u "*aboutit | abdomen*", 19-21m, 26-29m/w peaking 40-43m (*Menge*) 568 13-16m 594 1-2m 601 22-27m

vol. 2 ∅

SIEGWART, Karl *Das Alter des Menschengeschlechts* Berlin; Denicke; 1873 [Down]

NB O/

SKERTCHLY, Sydney Barber Josiah *The physical system of the universe* London; Daldy, Isbister & Co.; 1878 [CUL, I] geo

NB George p369; p315 References on Denudation; decay of flints; 321 Denudation & Worms
xiii 7m, 13m, 26m xiv 7m 315 27-31m (*Taylor, Geikie*) 321 4-20m 369 19-22m

A SKETCH of a philosophy, part 2: *Matter and molecular morphology* London; Williams & Norgate; 1868 [Down] ∅

SMELLIE, William *The philosophy of natural history* Edinburgh & London; Elliot, Kay, Cadell & Robinson; 1790 [CUL, pre-B, I by J. Wedgwood, S C. Darwin Given me by my uncle J. Wedgwood]
beh, f, fg, he, is, mg, mm, oo, no, sl, sx, ta, y

NB Poor Book; p.139; p.146; p.150; 204; 254; 258; 282; 281; 310; 381; 389; 393; 396; 458; 462; 466; 472; 491; 500; 512; 515; 520
SB □β
p383 Marine Birds few eggs - Orang outang - Lions a good many p284
396 Pair of sparrows destroy 3360 caterpillars weekly
515 age of toad (Ch. 5)
513 age of some Big Birds.- Ravens & Geese lay a good many eggs, yet old livers - So with Carp, which lay so many eggs-

SMELLIE

139 14-19m 146 17-19m 149 22m/u "and|it"
 150 5-11m 151 4-5m, 7-8m 204 19-21m 253
 19u "seeds"/19-31w(not CD) 254 28-31m 258
 6-9m, 29-32m 281 10-11m, 15-16m 310 3-
 14m 381 5w V. p.383 7-10m/7-32w/wb What
 is probable cause of this? - Why should
 many struggling for life ultimately better
 succeed, than a few = Is it that young
 carnivores are protected by fierce parents in
 youth? - are parents long lived? or not
 destroyed by other animals? 383 2a
 "carnivores"/wt marine birds few eggs 4a
 "waters"/wt crocodiles 2a "prolific" Elephant,
 Orang!!! 2a "quadrupeds"/wt pooh. V. p.284
 for Lions & tigers - contrasted with horse -
 sheep &c &c ! 2-4m/4u "who are all
 carnivores", 4-6m, 6-19w Ostrich many eggs
 - Humming birds few eggs?? = does
 defending powers of parent cause few young
 ?♦ by♦ only few being destroyed? 389 5-
 6m, 9-10m, 23-25m 393 20-22m!/22u↔, 24u
 "annihilated|universal", 25-29!, 27u "single|
 permitted", 28-29m 396 1-4m 397 1m/u "and|
 weeks" 454 25-27m, 30m 462 13-14m/u
 "Dogs|generations", 30m 466 16-18m, 24-
 26m/24u "a|mark"/25u "impossible|immense",
 28-30m/w/wb This being habitually con-
 sidered wonderful, shows how closely they
 resemble each other. 472 9-12m 491 7-9m/w
 occasional yet true migrations are of difficult
 explanation 500 1-4m, 20-21m 512 7-8m, 27-
 29m (Buffon) 513 3u "Eagles", 6w 41+? 11-
 12u "The pelican", 13u "eighty", 17u "twenty|
 years", 19-20m, 24u "knew|years", 26u
 "hundred|years" 515 8u "1|years"/w toad 20u
 "old toad", 21u "thirty|years" 520 10-11u
 "annihilation|species", 13-14w islands!! 16u
 "would|this"!!

SMITH, Alexander *The philosophy of morals* 2
 vols.; London; Smith, Elder & Co.; 1835
 [Down, JW]

SMITH, Andrew *Illustrations of the zoology of
 South Africa* 4 vols.; London; Smith, Elder &
 Co.; 1849 [CUL]
 af, beh, ex, gd, geo, ig, is, mg, oo, sp, sx,
 sy, t, tm, v

vol. 1 SB □β

Macleay p6 Says importance of character
 inversely to variability
 8 thinks anomalous groups merely mean
 links lost
 5 6-22m, 23-26m/23u "genus" 6 30-33m 7 1-
 5m, 19u "Natural arrangement"/18-29w It may
 be asked what is meant by natural
 arrangement - first step vague.- if it is said
 affinities of animal - what does affinities

mean? 29-32m/!, wb most resemblances -
 endless disputes, sum of differences |
 conceive object is real relationships 8 15-
 18m, 41-43m

vol. 2 NB ♦ Pl.13 & 17 other vars. & colour;
 Pl.26.

SB □R

Pl 13 & 17 other cases of vars. in colour -
 surprising =
 & Pl 3 bright green good case of local var.
 Pl. 26 good case of Local var of Lizards
 Pl.77♦ pl. 11- 35-39m pl. 11+ 31m pl. 13-
 15m, 21-30m/w see before good case of
 variation 36-37m pl. 18+ 1-3m pl. 27- 15-
 16m pl. 38- 8-9m pl. 38++ 32-33m pl. 39-
 32m pl. 39+ 9-12m pl. 78- 22-26m

vol. 3 SB1 □R Aves

Pl vi; Pl ix; Pl xxii XX; Pl xx 9; Pl. 44; Pl 63;
 Pl 68 species replacing each other; Pl 110
 SB2 □β

Pl ix one swallow taking others place
 periodically during migration of former.

Pl. xxii Variation of Beak - good sentence -
 -44 Variation in size even 1/3 longer -
 -63 many close representative species Cape
 & Senegal -

-110 A lark, which strikes its wings together
 in flying up

Pl. 7- 19-22m Pl. 10- 33-36m pl. 23- 35-39m
 pl. 30++ 13-16m pl. 45- 1-10m, 15-16m pl.
 64- 22-30m pl. 69+ 14-17m pl. 110- 26-27m

vol. 4 SB □R

Pl I

Pl.30 33 Q 38 one Antelope ranging further
 than other feeding together & then
 separating & one ranging further South -
 Thinks some animals as Elephant migrate
 from Will others from impulse.-
 Catoblepas Gorgon

pl. 9- zb pl. 14- ↑7-3m pl. 29+ 26-41m/26u
 "proportion|herds"/28-30u±/w Polygamy 36u
 "male|young"/35-39w killed when expelled &
 not adults of others watching pl. 31- 21-
 23m/w these two species have different
 habits.- vide next species 25-27m, 37-40m,
 wb Every continent must once have been
 islands - hence representative species
 would radiate out & keep to their localities
 pl. 31- 13-20m pl. 32- 30-33m/w This is the
 other pl. 33- 25-27m pl. 39- 1-3m pl. 39-
 36-40m pl. 42+ wt Koodoo

SMITH, Charles Hamilton *Dogs* (vols 9 &
 10 of *The naturalist's library: Mammalia*) ed.
 W. Jardine; Edinburgh; W.H. Lizars; 1839-40
 [CUL]

af, beh, br, cc, cs, dg, ex, f, fg, fo, gd, he, hy, ig, mn, no, oo, phy, rd, sl, sp, sx, t, ti, tm, v, wd, y

vol. 9 NB1 ♦ It would appear that greater the difference as in pigs between parents greater the fertility, as long as difference is not connected with generative system. Infertility is not consequence of difference in size.

Dioecious & hermaphroditic flowers can be crossed.

NB2 What a case of confusion in the canines, what are species & what races especially the diurnal canines

75; 87 to 190; 239

p75 Reference to Pallas Works ♦ Paper on Degeneration See Cuvier Eloge

SB □β

88 Australian Dingo not breeding at Paris Q
89 Capra tharal breeds easily with domestic goat

93 Young ♣ of feral boars striped this is a return of long latent character. as well as Tusks & bristles Q

94 Hair of tail in Indian Boar bristly & sagittated. Mem. W. Indies Q

96 Bos gaveus fertile. see Griffiths Animal Kingdom

101 Posterior branch of lower jaw in Mastiff, altered Q

98 Cuvier says Jackall comes nearest to Dog Q

106 Mastiffs always in temperate countries (Cuba Bloodhound, Aegyptian do N.Q.)

119 Difference in gestation in domestic animals by Tessier

136 The Siberian race of Wolves easily known 148 various vars. of

152 Pallas on crossing of Black & White wolves & Dogs Q

155 says Black & White wolves keep separate from others (see Mauduyt pamphlet) (Ch. 6)

154 Doubts on distinctness of American & European wolves

168 The Red ♦ wild Dogs of India destroy young Felidae

xii 10-13m, 13-15m 75 21m (Pallas) 87 1-6m, 13-17m, 17-20m 88 8-11m, 13-14m, 18-20m/?/14-22w curious if true 89 1-3m 91 3-17m 93 3-10m (Cuvier), 13-23m/Q 94 11-16m, 16-18Q, 19-21m 95 25-28m 96 19-23m (Griffith) 97 27-31m 98 17-19m 100 25-27m, wb quite overlooks selection 101 10-14m 102 20-24m (Cuvier) 104 3-19m, 22-24m/w no! 105 28-31m 106 19-23m 108 8-14m/wt/1-15w I think several allied forms have lately been found

109 6u "foxes", 32-33m 110 7-8m 112 17-21m 117 11-13m 118 3-5m 119 24-27m 124 21-24m, 30-31m 125 15-19m, 24-30m, wb stories not being invented to show revenge in dogs, makes one believe it in monkeys 127 1-5m 129 wb is the Aguarachas related to fossil Hyena of Lund. 133 30-31m 136 20-21u "Siberian race", 22-24m 144 13-21m 148 16-25m 149 2-17m 150 17-19m 152 16-23m, 31m (Pallas) 154 10-19m (J. Richardson) 155 6-10m/w How known?! 26-31w/wb good case, if true, of 3 allied & analogous species in the two continents 159 24-28m (J. Richardson) 168 6-14m, 16-21m/16u "surmise"/18u "keep | increase" 171 11-15m/m ♦ / 190 25-26m/? 239 24-28m 267 8m/1u "End | I."

vol. 10 NB1 The analogy of sheep & Cattle makes me doubt Col. Smith hybrid view of dogs (supported with recent conditions & showing pains taken in old times) – for equal numbers must be used to make an intermediate breed & how many parent sources & these sources with characters more permanent (because since hybridised) than now, more acute greyhound – more ♣ brave bloodhound.– occasionally crossing produces effect merely like ordinary variation in excess & thus I believe in – as all hybrids are intermediate, we must suppose as many types as now varieties. How many does H. Smith make?

NB2 78 to 236 ♦ 302

Think over how many English Breeds how many in Zoolog Gardens & other parts of world & extinct kinds!!

SB □β

7 Q9 Mammae of Dogs 10 to 7

94 Ancient Dogs, few Q

103 Colour attended to in ancient dogs, Xenophon (Selection Ch I

104 no pendent ears in old Dogs except in one Aegyptian Dog p107 do

121 Feral Dogs of St Domingo Q

133 Newfoundland semi-palmated Q

156 Florida Indian Dog like Wolf of country Q

158 American dogs breeding freely with wolves of Country N.Q.

196 Pointers standing 1 1/4 hour Q

207 Bull-terrier a crossed Breed

210 Extinction of Dogs in Pacific

214 Q Patagonian Dogs destroying poultry – Ears erected in all these

215 Fuegians value dogs

217 Mastiffs indifferent to form crosses with other Breeds!

218 Toes of Mastiff very generally a fifth in hind feet Q

SMITH, C.H., DOGS

243 Races of Foxes

Synopsis of Canidae at end.

(over) The Plate of Alco dog shows hair growing round eyes

♂
78 28-30m (Richardson) 79 8u "in|sow"/Q 9-10u "species|intermixed", 10-14m (Daubenton), 15-16u "and|other"/w hence variation 20-22m/w (a) wb (a) I doubt any hybrid having unequal mammae 80 7-9m, 10-13m/10-11u "albinism and melanism", 12-13u "they|generation" 81 15u "all|of", 16-17u "into|variety" 82 1m 89 1-2m, 8-10m, 16-17m, 21-23m 94 1-2m, 6-11m, 15-17m 97 1-15m, 14-19m 99 19-20m, 26-30m (Buffon) 101 17-25m 102 1-3m, 4-9m, 11-14m 103 9-10m, 11u "vulpine character", 16-20m/17u "were originally"/18-20u± 104 1-2m, 3-5m, 30-31m/30±.../31u "exception|instance" 105 2-5m/5±...", 14-22m 106 28-31m 107 1-4m, 6-7?, 16-18m, 20-24m, 28-29m 109 13-15m 110 4-7m 111 18-21m 113 12-17m/14w (a) wb (a) a most unclear rigmarole of old names, all these latter pages 116 12-13m 120 11m, 11-12m 121 14-16u "large|ears"/m/Q 22-23m/u↔, 26u "whitish-grey", 27u "slate coloured" 122 14-16m, 28-31m 123 1-3m/1u "blackish", 15-19m, 25-27m 124 3-8m, 17-19m/18u "webbed|furred" 131 3-4m, 24m 132 7-8m/Q 133 12-14m 134 13-16m/13-14u "Esquimaux|races" 136 22-26m 137 16-18m, 18-19u "till|innate" 139 8u "The|dog", 19u "Molossian|dog" 140 7u "The|dog", 14-16m/15-16u "called|Society" 150 18u "Turkmen|dog" 152 23u "yet|to" 153 1u "the|Domingo" 154 5u "The Drover", 6u "Firma in", 24m, 29-30m 155 28-29m 156 22-23m/Q 157 11u "the|national", 12u "like wolves", 19u "the Caygotte", 22-25m, 29-30u "The|resemble" 158 1-5m, 24-26m 159 6-11m 160 5-6m 162 1!!/u "such|modern", 3-7w how little he knows of Selection 8-11m/9-10u "form|qualities", 23u "instead|smell"/w Bull-dog! 25-26u↔, 29u "individual attachment" 163 12-16m 164 11-13m, 16-17m/17u "black" 165 4u "Russian|Tahtar", 6u "silky", 8u "Southern|Western", 10u "haired|those", 22-26m, 26-28m 167 13-15m/14u "personally attached" 168 1m/w 1 5-6m/w 2 14-15m/w 3 169 12w 4 170 1w 5 172 3-5m (Bacon)/4-5u "idols|kennel", 11u "breeding-in destroys", 12u "after|first", 21-24m/22-23u "which|rough" 174 16-17u "that|many" 175 20u "long|ears" 176 17-18m 180 21-26m/25u "race", 26-31m 181 1u "small Hyaena", 3-4u "Lychaon pictus", 7-10m 182 8u "tigris", 12-13m 184 12-15m, 16-17u↔ 185 1-4m 188 26-28m, 26-30m, wb always

overlooks the necessity of long selection to make a crossed-race 190 14-16m/15u "more crossed" 191 20-22m, 27-28m 194 9-11m, 20m, 23-24m 195 3-4m, 11-15m 196 3-7m, 7-11m, 15-16m, 16-18/Q 197 1-4m 198 3-5m 199 12m 200 16-20m 202 19-22m 203 24-31m 206 26-31m 207 1-4m, 15-18m 209 11-14m, 14-16m 210 15-17m 211 9-26m, 27-29m 213 2-7m 214 2-7m, 15-17m, 18-20m, 22-24m, 28-31m 215 7-13m (FitzRoy) 217 14-16m 218 19-23m/Q 219 2-4m 220 4-5m 221 14-24m 222 17-22m 224 18-20m 226 25-27m 227 10-19m, 19-26m 228 10-12m 236 3-6m 237 28-31m 238 3-4m 239 10-12m 242 12-14m 243 15-16m/16u "smaller" 244 3-5m, 6u "black ring", 7u "more grizzled", 7-8u "Mr Pennant", 8u "cur foxes", 8-9w V. this descript: 11u "without|mark", 12-17m/14u "become|the", 24-26m 246 13-15m 248 23-24m 250 5u "The|Fox" 251 11-13m/11u↔/12u "larger size"/13u↔, 18u↔ 252 5-8m 253 29-31m (Cuvier, Richardson) 265 15-17m/16u "fifth" 267 10-13m (Lalande) 268 22-24m/22u↔ 269 4-6m (Rüppel) 276 7-10m 282 5-8m (Lalande) 284 15-17m 285 18-20m 289 12u± "have small", 27u "odour offensive" 302 6-8m/8u "common|wolf", 10-13u±, 14u "is|south"

SMITH, Charles Hamilton Horses (vol. 12 of "Mammalia" in the Naturalist's Library), ed. W. Jardine; Edinburgh; W.H. Lizars; 1841 [CUL]

hy, or, sp, sx, t, ti, v, wd

NF This work is reviewed in Veterinary for October? & November 1841

NB1 ↔ Mrs Hamilton Gray's Etruria says the figure of the old Etruscan horses are like ♦ those of a Dongola breed

NB2 ix; xi; 63 to 120; 135; 145; 151; 156 to 185; 192; 199; 202; 207; 208; 210; 224; 237 to &c &c 266 to end

ix 1-2m xi 7-9[...]/8u/c/w€/9-12m/Q/11-13[...]/11u±, 26u "curiously spotted" 63 19u "Tahtary|Ireland", 22-23m, 32u "some|Ireland" 64 13-16m, 20-21m/!|21u "other genera" 65 29-30m 66 4u "upwards|surface", 5-8m/w ice period! 67 ± 10-11u "existence|type", 12u±, 13u "Asia, Africa", 14u "Mediterranean", 19m/u "cannot have", 27-30m 68 ± 2-5m/!, 7-10m 69 ± 1-3m, 8-16m, 18-19m, wb it certainly is no greater difficulty in supposing many pairs, than one pair produced.- 70 ± 8-10m, 14-18m, 28-29u↔ 71 ± 17u "1821", 22u "five|after" 72 ±, 5-9m, 16-25m, 22u "plurality"/26-33w point of comparison between varieties & species crossing 73 ± 4-8m, 11u "one|species", 14u

"Equus caballus", 16-31m 75 1-2m/2u "it | noticed", 14-15m, 23-25!!/m 76 27-29m, 29-33m 82 3-9m 85 4-6m (Moses) 87 32-33m 91 2u "feral"/w good word 94 16-18m 95 20-23m (Herodotus, Aristotle, Pliny) 101 17-18m/17u↔, 19u "still | Axia", 20-23m, 21u "Attention | in" 103 22-25m/24u "in | fortieth" 106 1-4m, 7-10m, 12-24m 109 18-20Q 20-22m, 21u "a | colour" 110 31-32m 112 7-10m 116 15-19m, 22-23m 120 7u "poneys" /?, 8-14m/w are these now different??? 121 zb 135 3-4m↔, 4-7m, 11-12m 140 9-12m 141 7-8m 145 12-19m 148 7u "Forster", 10u "Pallas", 11-22m 151 19-26m 156 1-2m/u "Great | highlands", 3-12m/6-10m/7-8u "the | black" 157 24-25m 158 20-23m/20u "Prussia" 159 2-4m/3u "eelback dun" 160 17-20m 163 11-15m, 16a "Tarpans" ie wild horses 16-18m/17u "tan | mouse" 164 12-15m, 15-20m 165 5-7m 168 14-18m (Virgil), 23-27m 169 3-6m 173 21-22m 174 24-25m (Rengger)/25u "1537", wb 3 authors 175 13-16m, 25-26m, 31m 176 8-11m, 13-21m, 14-15m, 30-31m 178 21-25m, 24-25m 179 1-3m, 5-7m/5u "mostly bay" 181 26-31m 182 23-28m 183 1-3m, 6-9m, 29-31m 184 5-15m 192 4-7m 199 12-19m/14u "five great stirpes"/w what? 19u "some | seals", 20u "the | brown", 22-25m 202 21-23m, 25-27m 207 25-31m 208 19-21Q 21-23m/w 5 stocks 210 27-29m 224 14-15m 237 24-28m 243 24-31m 253 5-11m, 18-23m 266 24-29m 268 17-20m 269 13-16m, 23-24m 274 wt chesnut 1-9m, 7-9m, 12-26m, 28-29m 275 2m/2-3u "when | grey", 3-5m, 5-10m, 13u "divergent | chestnut", 14-16m, 15-16m, 18-19w Kutch & Malay Archipel. 21-22x↔, 23-25m/23u↔ "dun | the", 25-26u "without | cause", 26-27m/26u↔ "dappled" 276 28-31m 277 1-4m 280 22-23x↔, 24-29m 281 6-8m, 10-11m, 28-31m 283 10-16m 284 12-16m 285 6-16m, 28-31m 286 14-23m 287 11-13m 288 7-10m, 10-11m 289 3-6m 290 3-7m, 19-24m 292 24-32m 293 1-5m, 13-20m 299 5-6m 304 16m/w Bands on legs 22-27m (Banks), wb Not likely from Zebra Cross 307 1-21w Utter confusion of species 308 3-6m 309 16-20m 313 3-7m, 12-14m/14u, 24-25m 314 4-10m, 13-15m, 16m (Pliny) 316 5-8m 318 8-11m/Q 319 29-31m (Duvaucel) 334 16-18m (F. Cuvier) 337 7-11m 338 13m, 22-25m 339 11u "two | camel", 13u "including | chartreux", 15u "cat | Pennant", 16u "tortoiseshell cat", 17u "originally indigenous", 21u "females | preserve"/w bosch! 340 6-10m 342 2-13m 343 1-6m, 11u "female | ass", 14-15m, 15u "slate-coloured", 30u "mule | indifference" 344 22-26m 345 16-17m/16u "grey | Egypt", 22-23m/22u "race | large", 31u "dun | breed" 346 7-12m/10u "two | female" 348

7-9m/8u "claim | demonstrations" facing 352
1?, wb a Doubtful species-

SMITH, Charles Hamilton *The natural history of the human species* Edinburgh, W.H. Lizars; London, Henry G. Bohn; 1852 [CUL] geo, gr, se, t, ti

NB1 Australian Geologists Boulder O

NB2 p.47 change in river flowing into Caspian of the Euxus

♦ 116; 117; 146

Nothing May 30 1857

47 wt Consider proofs of uprising of Siberia.- Erratus? no I think before Glacial Deposits wt Cd the Caspian have joined the Japan Sea 4-5m, 24-25→ 48 6-10m/2-9w See Murchison 13-27m 49 20-25m/21w Fish 26-27→ 50 22-27m 116 7-12m/Q 117 6-8m/w what an argument 21-22m 146 5-10m

SMITH, James Edward *The English flora* 4 vols.; London; Longman, Hurst, Rees, Orme, Brown & Green; 1824-28 [Down, pre-B, ED] che, fg, gd, oo, sp, tm, v, wd

vol. 1 NB1 Well worth while to plant seeds of common teazel & see if they cd be turned into hooked teazel; Preserve(CD?)

NB2 Verbascum Nineveh

329 first flowers 5-cleft subsequently 4-cleft; Preserve (CD?)

NB3 5

5 22-24m 280 wb Proved by Henslow, see Hooker that they are same species- grow mixed at Down in same field - foliage different 306 36-39m (W. Hooker) 308 44u "3 | high" 309 1u "seldom branched", 3u "decurrent", 4u "covered | sides", 11-15m, 38u "yard high", 39u "panicked | top", 41u "dark | above", 42-43u "not decurrent" 311 wt↔ Dec 4 1862 Rev. W. A. Leighton says he has tried this repeatedly on V. virgatum with like result X 9-17m, 40-43m, wb↔ I suspect end to partial capsule: & blow ants incidentally like chloroform on stamens of Picaberg.- 329 35-36m 333 9-22m, 45m 334 4-9m 339 zb

vol. 2 NB Maple Rare in Scotland; p337 Great variation in seeds of Spergula, but in no other part

38 34u "central | coloured" 39 35-38m/36u "one"/37u "neutral | red" 218 14m, 16-17w V. Down Nov.5 231 2m, 17u "rare | Scotland" 337 33-38m, 40-48m 398 wb Down. Oct. 13/42/ Found a Bramble with 9 or 10 petals.

vol. 3 NB 157 Subularia

93 wb in colour & size of flower - in shape

SMITH, J.E., ENGLISH FLORA

of spots on lower lip in their absence or in their being white or yellow - Down 108 *wb* Found wild Thyme with no stamens. Down Oct.13./42 126 *wb* Down 157 24*u* "always" 252 13-15*u±*, 17*u* "slightly|tips", 21*u↔* 427 1-5*m*, 7*u* "barren florets", 8*u* "reddish Corolla" 433 42-46*m/Q* 434 31-34*m*

vol. 4 NB 149 Acorn out of Pheasant crop grew

23 *wb* July 2d found snow white Conopsea 1843 - Down. 32 32-34*m* 43 24*m* 149 32-36*m*, 38-43*m*, 42*u* "why|error", 43*u* "contrary|botanists"

SMITH, James Edward *A grammar of botany, illustrative of artificial, as well as natural, classification, with an explanation of Jussieu's system* London; Longman, Hurst, Rees, Orme & Brown; 1821 [Down, on B, ED] sy, tm

NF Preserve

20 5-7*m*, 13-14*m*, 18-19*m* 21 9-26*m* 22 1-4*m* 28 1-4*m*, 18-20*m*, 24-28*m* 29 1-4*m*, 7-10*m* 30 2-18*m* 40 *wt* There are figures illustrating each class 42 2-3*w* ♣ Geranium 6*w* Broom 18-19*w* compound flower 22*w* orchis 43 1-12*m/4w* Nettles 14-16*w* Mosses, Ferns 45 11*m*

SMITH, James Edward *An introduction to physiological and systematic botany* 4th edn; London; 1819 [Down, pre-B, ED]

41 4-6*m*, 10-13*m* 62 19-25*m* 63 26-29*m* 64 20-21*m* 69 21-24*m*, 28-29*m* 149 16-19*m* 150 6-7*m*, 27-29*m* 217 16-17*m* 227 5-6*m* 231 2-6*m* 232 14-16*m* 241 20-23*m* 244 17-19*m* 247 15-17*m* 250 1-2*m*, 7-10*m* 253 26-27*m* 256 25-27*m* 257 15-17*m* 385 13-15*m* 387 11-14*m*

SMITH, J. Toulmin *The Ventriculidae of the chalk* London; Richard & John E. Taylor; 1858 [Down] ♂

SNELL, Karl *Die Schöpfung des Menschen* Leipzig; Arnold; 1863 [CUL]

r

NB ↗ p.54 Remarks on me; 103♦; O/ 54 12*m*

SOLE, Francesco *Il Positivismo* Napoli; V. Morano; 1881 [Down] ♂

SOLE, Francesco *Su la sensazione* Napoli; V. Morano; 1882 [Down, I] ♂

SOLIS Y RIVADENEYRA, Antonio de *Historia de la conquista de Mexico* Madrid; Antonio Fernandez; 1790 [Down, pre-B, S]

SOLMS-LAUBACH, Hermann zu *Fauna und Flora des Golfes von Neapel* 4. Corallina Leipzig; Wilhelm Engelmann; 1881 [Botany School] ♂

SOMERVILLE, Mary *On the connexion of the physical sciences* London; John Murray; 1834 [Down, on B, S, ED]

NB z

♂

SOMERVILLE, Mary *On molecular and microscopic science* 2vols.; London; John Murray; 1869 [Down] ♂

SORET, J. Louis François *Pictet, notice biographique* Genève; Ramboz & Schuchardt; 1872 [Down]

SOWERBY, John Edward, JOHNSON, Charles and JOHNSON, C. Pierpoint *British poisonous plants* 2nd edn; London; John Van Voorst; 1861 [Down] ♂

SPENCER, Herbert *The classification of the sciences* 3rd edn; London; Williams & Norgate; 1871 [Down]

SPENCER, Herbert *The data of ethics* London; Williams & Norgate; 1879 [Down, I]

SPENCER, Herbert *Descriptive sociology* London; Williams & Norgate; 1873 [Down]

SPENCER, Herbert *Education: intellectual, moral and physical* London; G. Mainwaring; 1861 [Down]

NB O/

SPENCER, Herbert *Essays, scientific, political and speculative* (2nd series); London; Williams & Norgate; 1863 [Down] beh, phy, t, tm

NB 138 Definition of Emotion & Sensations title page *wb* 1863↔

♂

106 30-31*m*, 33-35*m* 107 20-21*m/21u↔* 109 11-15*x*♂/m/11c "For"/"...", 12*u* "existing force", 14-15*u* "must|somewhere" 110 *wt* after I speak of grinding teeth cont the sensor, give H.S. view that the nerve force is thus

expended instead of exciting ♦ goes to feeling & thought. 1-2m, 15-18m/w the nervous energy is concentrated in the mind 111 wt not in Love or gentle dislike or despair 1-2u±/w why 14u "purposeless"/13-20w so for frantic gestures of rage or intense grief 23-26u±/27u "organs\|speech", 31-34m/w sobbing must be explained 36?/u "extra action" 112 8-10m, 11u "undirected energy", 17u "upper\|are"/8-17w Give this under Man under direct action 27-34m/29-32u±/w why 32-35m 114 wt/1-28w but why does the kid amuse persons even if it causes laughter - a bore might interrupt the train & yet not cause Laughter or enough anger to take off superfluous nervous power 15-18m/15"... / 17x, wb Use of voice goes with pleasure by calling social members to each other - to parents - to other sex. 116 wt [Can any idea or remembrance stimulate or depress the brain - does it not first act on the circulatory system & this excite or depress the brain??] 1-3w [As hurting a nerve does so, probably it can] 22-27m/24u "falling jaw"/20-23w passive wonder 118 28-36m 119 wb He seems to conclude when sensorium excited a certain quantity of nerve force is generated, which must flow off in thought, sention muscular or glandular action.- 135 5-7m 137 11-13m/w & so the idea of snake 138 7u, 13u, 18-19u 139 3u, 5-6u
 Ⓟ

SPENCER, Herbert *First principles* 6 issues; London; G. Mainwaring, Williams & Norgate; 1860-62 [CUL, S in no. 1] Ⓟ

SPENCER, Herbert *First principles* 2nd edn; London; Williams & Norgate; 1867 [Down, S]

(*markings presumed to be by FD*)

SPENCER, Herbert *Grundlagen der Philosophie* trans. B. Vetter; Stuttgart; E. Schweizerbart; 1875 [Down] Ⓟ

SPENCER, Herbert *The principles of biology* vols 1 & 2 bound together; London; Williams & Norgate; 1864-67 [Botany School, S]

ad, af, cc, ch, ct, ds, em, fg, h, he, hl, hy, mn, no, oo, or, phy, sh, sl, sp, sx, t, tm, ud, v, wd

vol. 1 NB1 186♦ nusus formativus; 179 Pangenesis; p.181 Pang.; 186 Use & Nusus; 191 Use
 NB2 p.243♦; 244♦; 240; 248 - 249 Use;

254 Pangenesis Theory of Generation when limb of Newt cut off tadpole - ♦ - limb not proved 259♦; 260♦; 262 - Twins; 264; 269 Man acted on unequally♦ differently by same power; 272♦; 309,10♦; 316♦
 NB3 p.383 Vertebrae number cannot be accounted for by type
 NB4 445 Sp Theory; 451-2 used under Domestication
 455 small jaws in civilized Man

47 21-23m 179 32-35m 180 34-36m 181 1-5m, 10-28m, 24-26m 182 wt/1-5w like my attention on elective affinity 183 19-24m/19u "physiological", 22u "physiological units" 186 19-26m 191 21-29m 243 15-18m (Sedgwick) 244 32-35m (White Cooper) 248 18-20m 249 9-13m 253 22-25m, 29-31m, 30-31m/31-32u "undifferentiated cell" 254 1-3m, 5-8m, 13-16m/w Pan 15-16m/"..."Ⓟ, 18-20m, 24-28m 255 1u "Heredity", 13-21m/"..."Ⓟ, 14-18m/w Pan(u), 16u "on\|large", 21-31m/w shows that he has not got idea 23-34m, 26"...♦Ⓟ, 34..."Ⓟ 256 6-13"...Ⓟ/7-12m 259 3-6m/4w increase 8-10m 260 1-3m, 7-12m 261 20-25m 262 3-14m 264 1-7m 269 19-21m 272 1-6m/w Monsters? 274 4-10m/x/5"... 279 20-26m/x 285 wt Chapt XI 8m/8-10"... 286 6-10m 289 34z 309 25-35m 310 1-3m 316 2-8m 383 5-14m 435 11-17m 445 14-19m, 20m/u "maintained\|produced" 449 29-34m 450 10-14m 451 5-6m, 12-16m 452 5-11m, 13u "The\|skull", 14u "seated\|thickened", 16u "vertebrae\|neck", 17u "ligaments", 18u "muscles", 21u "upper dorsal", 22u "spines", 26u "bones\|legs", 27-35m/34u "blood\|nerves"/w Use wd come in- 455 20-22m 456 4-7m/w feet smaller? 457 1-3m 468 25-31m/"..."

vol. 2 NB1 O/

NB2 Direct action

145 Laws of Variation

147 shape of flowers

151 to 154 do

157-158 Umbelliferae

Hooker disagrees about Umbellifers

NB3 185♦; 188♦; 201 Origin of Vertebrae

Copied 233 - direct action

Explains first cause of change in prototype organisms

NB4 Ⓟ not abstracted

NB5 Ⓟ

326 How animals acquired Lungs in shallow water.-

399 Struggle for existence & Law of Increase

NB6

♦ 428 He does not understand Pangenesis

Ⓟ

SPENCER, PRINCS. BIOL.

♣

437 Bears on Hybridism

♣ 439 Antagonism between growth & Reproduction for Pangenesis

401 Causes which determine degree of fertility

409; 471 to 473

⇒ X470; 416 Male fish guarding nest ask further

SB1 (not CD) □β

Vol 1

383 Good about vertebrae. Why are those of the sacrum anchylosed together?

445 Speaks of the importance of Nat. Select. in maintaining as well as producing structures

Vol. 2

145 on the general relation of form to conditions 147 in relation of obliquity of flowers to their position

151 Do – with respect to Peloric flowers.

157 discusses outer florets of Umbelliferae & Compositae. Hooker disbelieves

185 "the naked Gasteropods in losing their shells have lost that immense one-sided development of the alimentary system which fitted them to their shells, & have acquired that bi-lateral symmetry of external figure which fits them to their habits of locomotion; but the reproductive system remains one-sided, because in respect to it, the relations to external conditions remain one-sided"

188 Discusses one-sided fishes

201 argues well with Amphioxus that the muscles first gave rise to Vertebrae but first of all to the Neural Spines (see quotation of Owens')

233 argues from bulk & cells outside & inside of leaves on the effects of external conditions

(CD) 346 Origin of Nerves

(over) Herbert Spencer Principles of Biology

SB2

That many structures are directly related to differrn of the incident forces, as highly probably as shown by Mr H Spen, but hard to distinguish from selective spontaneous variations. But ♣ p.253 it is difficult to bring proof of such [Direct Action]

p.263 flow of sap – origin of vessels

p.269; p.270 p.273 p.274; p.276; p.278; 280; 287; 294

See note of err. I have marked all

296–97 Thickened epidermis Origin of Horns, Nails, hoofs

301 formation of teeth & Hairs

313; 319; Laws of Variation

H. Spencer No. 16 Vol. 2 (Not abstracted)

(over) ♣, ⇒

I am inclined to attach ♣ much weight to ♣ Mr Spen's ♣ views & inquest; but they do not ♣ harmon with the method followed in this work of giving the variations actually observed under domestication, so that I will ♣ say no more on this head.

SB3 No. 16 H. Spencer

253♣ direct action; 269,58 trunks of trees ♣ by exuding sap Use & Disuse; 263 formation of vessels by elongation of cells; ♣ Sap & vessels 273 274 direct action – ♣ Species; 287 first formation of skin; 297 Origin of thickened epidermis by use♣ & of spurs on Birds wings Sp. Theory; 313 gizzard hardened; ♣ Ch. 3. IV & V SB4 □β ⇒ p399–473 Rate of Increase & Struggle for existenceThe conclusion is that fertility is increased on demand by N. selection, according as wanted too great an increase being an evil to the species – producing more than can take, but that will not injure individuals, but each mother expends more than is necessary. She who produces few eggs will produce better eggs – But there is limit to possible amount of fertility going on by individuation of organism & expenditure in vital actions & growth.– [I think there is error, the individuals who produce much young, wd not be themselves or offspring injured, & them that produce few wd not profit.–](over) ♣⇒ (a fragment of note relating to Westwood, *Insects*, 1840, vol.2, p.541)

37 1–6m 93 8–11m, 16–23m 144 22–24m/c/wæ/ "... 145 1–7m/2"... 146 fig.m 147 19–28m 151 26–30m/1–30w/wb Plantains are on spike by ♣, ↓w May it not be that insects visit indifferently male ♣ an upright ♣ 153 22–36m 154 3–13m 157 11–18m 158 26–30m, 32–36m 185 27–36m/→ 188 18–34m 201 7–19m 233 4–10m, wb Bark cells – outside & inside of leaves 253 8–14m, 16–20m/→ 254 1–30m/4–18w but how distinguish relations 12–17m 258 22–31m 263 5–10m, 17–20m 269 25–29m/ "... ♣ 270 7–25w spiral winder hundreds of feet in length! 273 25–32m 274 11–15m 276 21–27m 277 7–10m(FD?) 278 20–25m 280 23–28m 287 9–24m 289 23–25m/24–30w in man, but in lower anims yes 294 26–33m 296 25–34m/9–32w But then a sort of spur grows to wing of Blackbird & claw of tail of Lion 297 12–15m, 18–19u "nails | horns", 27–29m, 33–36m 299 2–8m 301 1–11m 313 26–36m (J. Hunter) 319 22–34m 326 1–12m 338 16–27m 345 17–24m/18–19w Rickets children 354 17–24m 368 27–31m 369 6–9m 375 23–27m/26u

"interdependence | parts" 398 22-28m, 30-35m
 399 21-30m 400 29x 401 1-3m, 14-17m/16-
 17u "major | mortality", 22-26m 402 25-30m/x
 403 23-26m 407 19-22m 409 1-2m, 31-35m
 416 34-36m 428 7-9m/8u "or | part" 437 14-
 24m 439 11-31m (Carpenter) 470 wt I must
 confine my remarks to beings equally highly
 organised wt (1867) Chapt II to XI 1-10m
 471 9-21m/x 472 14-27m/x 473 15-28m

SPENCER, Herbert *The principles of psychology* London; Longman, Brown, Green & Longman; 1855 [CUL, I]
 beh, hl, ig, t

NB1 178 swimming; 330-332 essential unity of intellect & instincts; 400♦; 410 High & Low; 539 Instinct
 Trick, in studying sense & habit - if inherited are comparable to ♣ or rather identical with 2 ways in which instincts are acquired; & 2 ways in which corporeal structures acquired.-
 573 Man 596 Expression
 <other w not CD>
 NB2 <not CD>

viii 30m/wb Here he explains how gradation necessarily comes into play 21 14-15m 117 zt 400 21-23m, 25u "ability | decompose", 26u "Water" 401 1-14m (Schultze), 36m 402 15-22m 410 7-11m/8-9w Well put 411 26-32m 415 20c "heron", 20w hawk 21c "fish", 21w heron 539 3-7m 540 5-10m, 16-23m (Carpenter) 542 33-35m 573 16-21m 596 9-15w also alludes to in Essays 10-32m/11-18"..." 599 31-36m

SPENCER, Herbert *The principles of psychology* 2nd edn, 2 vols.; London; Williams & Norgate; 1870-72 [CUL, S]

vol. 1 NB <by FD>
 <most markings probably by FD>
 <CD> 131 ↑4-2, 138 12-18m 140 15-17m 141 11-15m 323 ↑13-11m 324 ↑15-13m/14u "organism | duration" 377 11-13m 390 ↑10-1m/? 391 ↑15-10m 515 7-11m 614 ↑4-1m 615 14-19m

vol. 2 543 11-13w fingers! 546 ↑5-1m/w quite other○ Gratiolet 552 6-15m/"..."/w Slyness - checking the turning of the head to look to one side 556 2u "every feeling"/wb love 5u "degree | strength"/w No 1-4m, ↑11-7m/↑10u "conceal | primary"

SPENCER, Herbert *The principles of sociology* London; Williams & Norgate; 1874-77 [Down] §

SPENCER, Herbert *The study of sociology* 6th edn; London; Henry S. King & Co.; 1877 [Down]

SPENGLER, Johann Wilhelm *Die Fortschritte des Darwinismus* Köln; E.H. Maner; 1874 [CUL, I]

h, ig, mm, phy, sh, sp, sx, t, tm, v

NB protective colours of shells
 Nakedness of Man

Put note ◊

on Physiological cause why has Hand escaped I may be quite wrong
 <words torn away at top of cover>

5 18u "Planulaten", 1-23m/w Chains of species connected 21-24u± 6 4-9m/w Surely I give this view 12-14m 8 1-3m 10 23-26m 19 wt whether I could show that the long Hand in Chimpanzee are touching organs 12-15m 27 27-28? 71 1-6m/3u "adaptive", 7u "Strahlen | Flecken", 12u "dunkelbraune Schale", 16-17u↔ 73 16m 77 11m 80 16-10m/18-19u "aus | werden"/18-25w Universally rejected - Nakedness is a sexual character 82 4u "Adern"/w veins 7-10m

SPIX, Johann Baptist von and MARTIUS, Carl Friedrich Philipp von *Travels in Brazil* 2 vols.; London; Longman, Hurst, Rees, Orme, Brown & Green; 1824 [CUL, pre-B, on B, S Chas. Darwin Buenos Aires]
 beh, cc, geo, gr, mi, t

vol. 1, 108 8w & Slavery 110 16-17? 164 7-8?, 9-11? 214 19c "a mile"/w 8 miles 216 wt/1-27w when I visited this spot in 1832 this retired cottage was uninhabited 220 8c "granite"/w gneiss 19-21?, 22-23?, wb on this coast there is no shelter for their growth 221 wt Insecta Arachnida Zoophytes Testacea! 247 wt/1-16w All this appears to me much exaggerated 273 2-6m 289 9-19m 290 1-7m, 17-30m 291 7-22m 301 8-19m

vol. 2, 51 3-30m 117 24-30m/26-28!/28u "from | N.E." 136 24-30m 137 1-29m 138 17-31m 147 18-27m 152 18-30m 154 12-20m 156 1-30m 158 1-28m 164 1-30m/8u "incumbent", 26-27u "decomposed" 168 16w p164 172 wb The Lithomarge cannot be decomposed Gneiss - if it contains Topazes & the solid <w>-<w> difficult 173 27-36m/w Germany wb The altered mica is here also incumbent 185 8-28m 187 3-9m 189 23-28m 211 zb 270 1-17m 273 14-22m♦ 281 11-26m

SPRENGEL, Christian Konrad *Das entdeckte Geheimnis der Natur im Bau und in der*

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Befruchtung der Blumen Berlin; F. Vieweg; 1793 [CUL, pre-B, S]

ad, beh, cr, cs, dic, f, fg, gd, hy, mhp, mm, mn, no, oo, phy, rd, sx, sy, t, ta, tm, ud, v, wd, y

NF He treats of forms of seeds with reference to means of distribution

NB1 It would be worth while to cross Vinca to see if it would then produce seeds—

◆ x[♂] Strong case of Dichogamy in Paridaceae in Gaertner Bastard p.65

Gaertner Bastard p.537 a most weak argument against final cause of Honey to attract insects

586◆ speaks of it as general law that male & female organs are ready at same time — at p. 659 contradicted

◆ Gaertners Beiträge must be studied all about Honey p.75–92

p.242 attributes all C.C. Sprengel facts to praecosity of pistil.—

◆ Kolreuter 3d Fort p127 on movement of pistil to anthers in Compositae & on other cases of movement: this latter subject largely described by Gaertner in Beitrage —

March 19. 59. Lathraea squamaria visited by Bombus — right at top pistil bends slightly over towards passages, projecting & apparently ready, but pollen not shed Yet pollen on stigma for Bee — In lower (& earlier) flower pollen shedding, so that here female organs apparently ready first.

p.415 on Spiders haunting plants with nectar: mem Willy's remark on Listera

NB2 260 on the red Lychnis flowering at different period from the whites ask Henslow or Babington or Watson

◆ p.367 Seeds diff shape from disk & 374 Margin of Picris Composite flower —

♂ Flower of males larger than of Females

March 30 — 46 — Read straight through from 1 to 223◆ 299. Read all

Only subjects not on crossing X[♂]

Good case of mechanical action comparable to action of pollen on head — for no use in seeds being different →

☞ 369 Differences in shape of seed in Disc & centre of Composit.

374 do — (this must be a correlation of structure, & perhaps owing to insects) Figures of 3 kinds from same flower

371 On stigma in Compositae bringing out Pollen — Rudimentary organ useful

383 do — otherwise rudimentary — very curious case

Watch Acacia — Put pollen of own & other var. of Cabbage & shut up flowers

◆ X[♂] Lobelia — Crucianella; Examine next spring; Arnica to see how far passage closed X[♂]; Aristolochia whether insects can escape; Honey in night in Orchis morio; Impregnation of Ophys & seeding of try crossing & see whether some seed; Heartease — whether night insects do the work; Castrate common Pea, several & impregnate several & see if Bees go for pollen or Honey, as perhaps they wd not visit pollen-less Peas.—; Arum about filament about insects escaping; Fraxinella if my account accurate

SB1 □β

2 Iris only by Bees

8 Violets

3 Fls impregnate Orchis 21 & 23 do

4 Epilobium impregnated from younger flowers — same in Euphorbia

16 marks on Corolla to guide insects none on right flower

18 was not aware of use of crossing Bees boring holes dispose necessity of his marks.

42 pollen generally ready first

43 quite as many dichogamous, as dioecious & monoecious

61 case of Salvia

106 Butterflies — Phlox — Dichog:

111 On Campanula read

117 Phyteuma = does not get dusted in room X[♂] (one of Campanulaceae) ♣

Solanaceae ♣ p126 & 167 Passiflora, stigma not ready during the second day whilst another moving up. (Mention after Barberry)

probably night flower

186 Allium in same case with Parnassia

212 Horse chesnuts, probably Dichogam.

240 Kalmia like Barberry, moves on being touched

244 Saxifraga saw fly impregnated

SB2 □β

249 Dianthus dichogam, & yet stated to be impregnated in close flowers

296 saw ants carry pollen (Nothing to show Dichogamy in this class

346 Hollyock Dichogam.

354 does not understand impregnation of Pea.

358 on depression of wings in Bean-flowers & other Legum. causing exsertion of Pistil & anthers so Bees impregnate — whole

structure of flower with rectangular pistils fitted for this end — Keel springs up slowly to

old position

359 Phaseolus, does not know about one side — hairs of pistil brush out pollen; thinks a dichogamit.

390 violet — cavity full of pollen stopped by

pistil from being shaken out; curved point of stigma moved by bees

394 can know when no Bee has visited by no shed pollen -

395 proved it by putting gauze over

397. does not know much about Heartease

SB3 □β Kurr

<over> <List of plants supposed to be fertilised by the wind>

<over> In one of the Ray Soc. Report Bot. Paper a long description on position of nectars in Veg K.

SB4 □β

403 Orchis latifolia - thinks this impregnate - never saw Bees.- has never seen nectar in. calls them sham-nectar producers - nectary within hairy - look at night -

405 Butterfly orchis has nectar - smells at night - probably a moth impregnation

406 Listera ovata has nectar & visited by Ichneumon (p407) with 2 pairs on head. 409 Next year other cases & Beetles. Saw the act of impregnation effected.

414 often see Flies in Epipactis, cd not be impregnated without insects

415 saw fly remove the pollen-masses & has figured it sticking on back.-

419 Aristolochia from structure cannot be impreg. without insects - 421 f, many flies on with pollen on 423 thinks flies cannot escape owing to smoothness of bottom of trap & from number, but Mem Arum may be here introduced to show how then little insects can carry pollen.-

over

<over> 426. No, flies cannot escape on account of hair in passage - 428 Fabricius has made same remark - (Does not say has f. many dead flies)

<over> <List of dichogamous species>

SB5 □β

♁ Tussilago or Petasites vulgaris type if grows disc hermaphrodite say female (some plants all female & so Senecio vulgaris); Pistil acts in brushing out pollen but has no stigma.; Antennaria always dioicous.-; Pimpinella magna - tends to have some exclusively male; Anthriscus sylvestris say floret with imperfect stigma & no stamens. thinks never sets seeds.-

▶ see Babington for seeds on orchids & Viola○; Picris = Helminthia

♁ Tabulate how many Dichogamous & species

Henslow. Aug 13/1857

1 wb Hairs protect nectar from Rain 2 22-25w Corolla coloured to attract bees♦

insects 29-30m, wb Iris can be impregnated only by Bees 3 8-12w see p. 5 26-29w hairs of pistil to keep pollen 30-32m/w (a) wb (a) Flies impregnate Orchis morio & latifolia & Aristolochia in former attracted by colour, as if there was nectar of wh. there is none 4 37w/wb N.B. Epilob. august & Nigella pistil always impreg. by Bees from pollen of younger flowers - Reverse in Euphorbia 5 wb In this page upsets at other uses of Nectar 7 5-10w♦ Most perhaps all Nectar plants require (W) insects for impreg. 12-13w P wb P. Bees carry pollen as well, wh. Nectar, as when pollen-hunting 8 17u "Märzveilchen"/w 1 30w 2 wb 1. Violets require Bees for impregnat (2) Most hermaph. flowers require insects for their impregnat. 12 36m, wb Suppose all these contrivances only to protect nectar wh he imagines protected even at expense of anthers! 14 wb C.D. The permanence of standard of Kidney-Beans, when lower petals are decayed, shows that the petals serve other protecting ends besides nectar 15 6u "haaricht"/3-9w I do not think explains use of hairs on lower lip of foxglove 16-18m/w stel. Vp.29X 18-21w♦ all nectar-flowers have corolla.- 22-28w He says p.19 Euphorbia has nectar!!! 29-34w Euphorbia has no true corolla R. Brown○ 16 wt Marks on corolla guide insects 10m, 39a "ihnen"/35u "Nachtblumen"/"...", 38u "Saftmaal", 39u "ihnen | Statt" 17 34-36m/36u "kürzer | Dichogamie" 18 1-25w Seems to think fact of insects being required at all does not deserve any explanation & how poor a one of Dichogamy for convenience of insects - !! 14-16m/14u "jeder | gewählt"/15-16u "nicht | kann", 22-23u "halbgetrennten | ähnlich", 25-33m/w How poor! 30w (a) 37a "Schirmblumen"/u "ganzen Familien"/36-37w dichogam wb (a) Has no notion of advantage of intermarriage 19 4u "Euphorbia", 5u Blume", 13→, 14u "Saftblume ist", 20-22m/w How poor! as in p.18 23m, 32-40m/w First & last flowers in the true kind Dichogam must remain unimpregnat wb This kind of Dichogamy requires secretion of nectar for long time, as both old & young flowers must be visited; final cause? 20 wt (a) some plants as Euphorbia & Umbellifera visited by insects /all kinds & visited irregular in manner; not so other flowers 3-5m/4w (a) 13-22u±, Says Bees guided to Antirrhinum by the saft-maal; but has the Purple Linaria a saft-maal.- No whole flower slightly veined but ♁ not there more than elsewhere 21 9u "Fliegen", 10u "Asclepias", 14u↔, 37-39m, wb

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X abortive florets of Golden Rose & Centenary ♣ act for this end V. Viburnum 23 3-4u "kleine Fliege"/4u "Serapias longifolia"/5u "Staubkölbchen"/4-5w Serapias ophidious 24 5-9m/7w z 34-35u "aus|Saft", 38-41m, wb z Directions for finding nectary 25 2u "Blasensüsse|Blumen" 27 7-15m, 9-10m/9u "Gewächse|Treibhause", 15u "Jasione", 19-20u "Coronilla Emerus", 30-31m/30u "wenigstens|Art"/w (a) 33-36m, wb (a) I saw one in Allen's garden a Campanula 28 5-6u↔, 38-41m/w (a) wb (a) Bees attracted by their beauty to some flowers without nectar, for pollen &c &c fructify them 29 wt So then he disbelieves pistil bending down & touching anthers. 7w Elder 8-12m, 14-16m, 14-20m/16w P 21-25m, 23-24m/23w L. 31-37m, 38w These are Hermaph flowers impregnated by wind wb P Hostile to my theory.- are many mono or dioecious plants saft-leer, if so less so - Carex? 30 3-8w Quantity of pollen in Poplar & Pinus sylv. 15-18m/w male catkins larger than females 31 23u♣/24u♣/20-23m/w Horse willows impreg by insects 27u♣/31u "den|werden"/27-34w Hence flowers without nectar are impreg by insects [but have pollen] 37-41m, 43a "liegen"/m/w allow to intermingle this being so & being large or pollen plentiful, with wb XX Important to discover what hermaph flowers, are impregnat by wind 32 24a/u/wt, 32w secretion, but serving for no other end?? wb Q flowers before leaves not to prevent impreg. by wind & before leaves of other trees 33 wt M. case of false final cause very poor 17w M 34 19-22m/w no, not in wheat 35 34-38w 18 days longest duration of flowers! 34-35u "achtzehn", 41-45w flowers fade after fruct. 36 11m, wb X in Scrophularia, stamens move to pistils one after other but S says they are dichogamous - female first 37 wt P. hidden flowers exhale much odour 11-13m/w P 40 wt (a) Anthers & stigma in same place that Bees may touch both 7m, 29-31m/w (a) wb * & yet Bees bore holes in the Salvia & Stachys! 42 21-23m/w (a) 26-28m/26-31w Hairs on underside of Foxglove to keep off rain! 31-32u "dass|herabhängende", 33-34m/34u "regulär|müssen", wb (a) how generally he seems to think pollen is mature first 43 1u♣, 6u "Linde", 7u♣, 8u "Bienen nicht", 9u♣, 14-17m, 17-20m/17-24w no! I saw small ones at holes & reverse 27u "irgend"/24w P 27-28m/"...", 34-36m, 42u "Schirmblumen|Euphorbien", 43-44m, wb P. If this had been 'always' instead of 'ever' it would have been correct perhaps 45 wt compares nectar of fresh seeds 15-18m/w m 28w P 32-34m/w o

wb Hence relation of plants to mammals wb o Seeds which are eaten are conspicuous like nectar-flowers 46 37-44m/w considers the vast numbers of seeds necessary for some to be preserved 47 1w X means Read 4X, 30w requires insects 49 1X 50 1X, 24-26m, 25u "Dichogamist", 26u "männlich weiblicher", 27u "Antheren" 52 8u "dass|findet", 10u "von|um" 55 wb insect impregnation 58 12x 61 5-10m, 15-18m 63 7-9m/7u "männlich weiblicher" 64 25x 65 12-13u "dass|ist", 29x/u♣ 66 5u♣/4-6m/4-14w male flowers larger than female in order that insects may visit male first 25u♣/26u "größer sind"/17-41w So in Strawberries Gardners Chronicle Aug 1861 & so in Wild Thyme- 67 8x 68 2x 69 3u↔, 6a/u "keinesweges|mechanische"/w gives good reasons 19-20m, 39x, 41x 70 43x 72 wt X analogous to Hive Bees at Humble Apertures. 4-5m 74 24-30w Iris impregnated by pollen of distinct flowers 75 31-35m, 40-41m/u↔, wb iris must be impregnated by Bee which has come from another flower 79 32x/w Rye 38u "Saftdrüse", 39-41m, ↓w (a) I observed in every spike of a Rye-grass anthers hanging & pistils feathering, projecting on one (or both?) sides of scales so as to be easy of impreg - observed this in one other grass. wb In Introduction confesses he knows no use for nectar in grasses & this upsets his theory of its sole use.- I kept wheat in glass & was astonished at one night how many long stamens were produced - hence fruct effected by wind, as he remarks; but the Pistil in the wheat, though very healthy, seemed quite concealed. One day in (a) 81 8x 82 3x, 4-5w large marginal florets, that insects may see flower from side, as well as from above - 14m, 20-22m, 24-36m/29-31w Candy tuft wb The variation in marginal florets of Viburnum good instance of structure being acquired - CD 83 40-42m/40-41u↔/w (a) wb (a) pollen first ready 84 20x, 39x 85 1-3m, 1u "Ameisen", 1-2u "in|hineinsteckten", 8x 91 1-25[...] 94 2-6m/w cannot be impregnated by wind but by insects 21x 97 33-37m/35w (a) wb ♦ ● wb Dichogam, males first ready 98 1-6m, 20-25m, 32x 100 44-45u "Dichogamisten|Art" 101 39x 102 13-15m/13u "Kultur"/14-15u "Saftmaal|können", 28w♦ Nothing 28x, 30x 103 7x 104 25x, 28u "Saftlich", 29u "Saftblume ist" 105 18x, 20x, 42-43m/43u "Dichogamist", wb Manlich dichogam 106 1-3m, 4-7m, 12m/u "Schmetterlingen"/x 108 13u "sondern|Insekten", 15u "Krone zukehren" 109 28m 110 32-34m/33u "älteren", 43-44m 111 8-

10m/u "können|ist", 22-24m, 36-37m/w (a) 40-44m/w no real explanat wb Perhaps it is so in Manganthes, but impregnation does not necessarily follow 113 11x 115 5-13w dichogam manlich 117 25u "dieselben|jüngeren", 26-27u "das|oder", 28u "Erfahrung|überzeugen", 32m, wb in some stigma got no pollen, field covered with it 120 15x 121 11x 122 2-26w knows nothing whatever in whole Genus No Honey discernable 129 5-6u "Sie|besucht" 130 41w not Solenaceae 131 11-16m/w stigma turned from anthers 135 12m 137 17-18m, 20-22m, 31-35m, 35-37m, 41-42u↔/42x 139 17x 141 8-11m 142 43-45m/44u▲ 143 7-9m, 11-12m, 13-15m, 19-20m 145 16-20m, 28-30m/29u "Bemühung vergebens", 31u "kleine Wespe", 33u "nachging" 146 27-28m 149 38-39u "welche|Füssen" 150 4x, 19x/18-19u "bloss|wegen" 152 17-19m/17-18u "dass|Art", 44m 154 21-23m/22-23u "für|bestimmt" 156 wt it is evident that many genera are dichogamous 1u "diese Blumen", 3u "zwar| männlich", 6-7u "Noch|IV", 7m 157 25x/w plenty? 29-37m/33w (a) wb Last umbells planted or plant had imperfect pistil; became dichogamous & therefore useless & no pollen or other flowers 158 2-3u "Schirmblumen|Griffel", 40u "von|Dichogamie" 159 19-20m, 23-24m, 23u "geschlechtslose" 160 5-6u "Saft|Blumenkäfer", 8x 164 31u "3|auf", 31-33m/33u "nicht|kurz", 34-35u↔ 166 10x, wb♦ Next page Pollen ready on stamen one after other other move stigma not formed - so dichogamous 167 4-7m/5-6u "nicht|geblieben", 8u "von|Insekt", 14-18m/16u "verlängern"/17u "das|hinlegt", 33-34u "fünf|sieben", 34-36m/35u "und|verwelkt", 42-45m/42-45u± 168 33-36m/33u "drey verschiedenen"/35u "Ein Umstand"/37u "Kennzeichen|Dichogamie" 169 wt (a) How is Loaca in these respects). 5-6m, 7w (a) 35-39m, wb On mechanical theory successive rising of stamens useless 170 23-26m/w this should be not is 35-39m/35-38u↔ 171 1-2m/1u "Stigma|ist", 33-36!/35-36m 172 22-23m/w (a) wb Cover some plants day & night - some by day - some by night 173 20-23m/w B 25-26u "Ob|Geheimniss", 26u "nicht entdeckt", 28u "als|kann", 41x 182 11-17w this & snowdrop can have not be impreg. except by insects 184 22u "ein|Dichogamist" 186 5-7u±, 9u "männlich|Dichogamist" 187 26X, 27x 188 wb Martagon enclosed seeded - hence Spr. cannot see thinks exception use of Nectar & 6 stamens - ! | can, occasional intermarriage 189 29m/x 190 32-37m/32-24w nectar impreg. not easy 199 29-

34w a feather hyacinth 200 31-32u↔ 201 wt feather-hyacinth 203 7-12m/7u "Dass|befruchtet"/10-11u "und|Krone" 204 39-45m 205 wb Berberis more than anthers might on stigma 207 23u "also wahrscheinlich", 24u "Insekten", 25u "staubvolle" 209 4x, 6-8m/6-7u "die|Geschlechts", wb↔ 2 May 61 210 1u "Schein|männlichen", 22-23u "Wind|Stigma", wb♦ associated plants must be in same predicament wb/1-7w Dioecious plants are produced where self-impregnat. too easy??? Hence is it that so many trees each having so many flowers all dioecious?? See to this for my theory 211 25-32m, 41-44m/43-44u▲ 212 2u "immer|Dichogamie", 21w (a) 25u▲, 27-28u "Trauben|viel", 28u "Strauchs", 31-32m, 35-36u "eine|Krone", wb (a) Horsechesnuts probably dichogam ▲ 213 3-6m/4u "mehr|Zwitterblumen", 5w (a) 14w (a) Veratum nigrum has many male flowers 214 14x 216 23u "männlich-weiblicher", 45X 219 1-2m 220 33u "die|weibliche", 45X 221 4u "Nachtinsekt" 223 10x/w from p.1 to here 225 wb stamens ready first saw Bees impregnating 226 25w (a) 25-26u▲, wb same 229 40-41m/41u "mechanische geschehe", 42u▲, 43u "angezeigt" 230 25x 231 2x 232 14u "Befruchtung durch" 233 28-42[...] 234 32-34m/33u "Dichogamie|findet" 238 11x, 15u "von|berührt" 240 5-7m/w (a) 25x, wb (a) This, as I thought, appears like case of self-impregnation.- 243 26-27w Dichog. 244 16u "Fliege", 16-17u "habe|angesehen", 22u "jungen", 23u "hineingekrochen", 26u "eine|Blume", 44X 245 16-18m, 19u "Dichogamie", 45X 247 15x, wb | found this Dichogam. June 2d 1861 249 24w (a) 24-25u "das|Stigma", 32u▲, wb & yet Editor of Annales des Sc. says impreg. before opening 252 zb 255 31-32m/u "ihrer Einrichtung", 41x 258 17u↔/?, 24-27m, 33-35m/?!/w no 37-38u "Nachtinsekten|nicht" 259 38-40m/38u "als Nachtblumen", 43u "sondern|Loch"/42-45w Humble Bees bite holes 260 5-9m/5u "weiblichen"/6u "weiter", 6u "männlichen"/7u "zwanzig", 34-38m/36-37Q 44x 261 37x 262 15-17m/16-17u "Spergula|Dichogamie" 263 6u "männlich|Dichogamist" 264 5-6m, 8u "dichogamischer Einrichtung" 266 4x, 7-8m, 15-16m, 16u "Käser|andere", 24-26m, 25u "zuerst|Dichogamie", 35-37m, 35u "denn|Pistill" 268 18x 269 35x 270 6m, 7x 272 29x, 31-32m/u "denn|können" 273 5-7m, 6u "Bienen befruchtet", 6u "wahrscheinlich", 9u "leicht weglassen", 18x 277 17x 278 13-15m/14-15u "sie|sind", 31x 279 22-23u "Blumen|Artheren", 23-25m, 39x, 41x 280 3u↔, 4m, 6-9m, 21-22m, 28x, 30x, wb Bees biting holes

SPRENGEL

287 6-8m 289 12-13m, 20-23m, 32x 295 wt/1-19w Repeatedly shows that impregnation is not by mechanical act; such movements appear chiefly to favour insects 15u "mechanischer Befruchtungsart" 296 26u "Ameise", 30w saw ants impregnate 305 7u "Auch|Dichogamist" 307 29x 308 5-6m 309 6X 315 23x, 31-32m, wb hole cut. 316 5m/u "häufig besucht", 12x, 28x 317 25-29m, 3x, 32x 319 42-45m/43-44u "Staub|abstreifen" 320 1u↔, 13u "Bienen", 14-16m/16u "sondern|Horn", 24-26m, wb Bites holes 321 32x 323 36-37m/36u "weiblich|Statt" 324 23-26m 325 1-2m, 12x, 44m 326 22-24m/23u "sie ein" 327 3x 329 wt Nothing in class to show Dichogamy 335 4x 336 20m/20-21u↔, wb Lindley thinks in Pelargoniums this is effect of culture 341 26-28m 342 3-4m/u↔ 343 24-28w Skimmed 344 40x 345 6x 346 26-29m/29u "zwischen|sind", 43-45m/45u "älterer Blume" 347 14u "Um|vermuthlich", 23x 349 23x 350 16u "scheint", 17u "Dichogamie", 30x, 32x, 33u "Saftblume" 351 31x, 33x 352 15-17m/16u "keinen|gefunden", 29-30m/w (B) 36-36m/w (a) 40u ↔, wb (a) In Gardeners Chronicle humbles were said to bite base of Bean-flowers 353 4x, 6a "tinctoria" saw Humble at Shrewsbury sucking flower 9u "keinen", 11x, 12u "keinen Saft", 16u↔, 21x, 23x 354 7-8m, 8x, 31x, 37-38u↔/38x 355 42u "vermuthlich|Befruchtung" 356 wb He knows of Honey on the stipulae 357 13x, 29-31m, 29u "oberen", 30u "Loch", wb Holes 358 5-6u "dass|waren", 6-11m, 13-20m/13u▲, 29-31m 359 26-44m/32-40w Kidney Bean 42w (a) wb (a) Does not mention Bees always going on one side 360 3-6m, 8-9u↔, 27m, 28w K 27x, 29x, wb K bites holes 361 42x 363 2x 364 14x 365 14-28[...]/15u "Saftblumen", 30x 366 23x, 24w = Helminthia 25x 367 17-27m/17u "des|Scheibe", 21w seeds 21-23u "Die|besetzt"/Q 24-25u "Seite|besetzt", 27x 368 15x, 24u "den|besucht" 369 14x, 19u "Bienen ungemain", 38x 370 26-31m/28u "wenn|Befruchtung"/30-31u "sondern|sind", 36x, 47x 371 17-18m, 28-29m 373 7x 374 10x, 27m/Q 30m, 41-43m 377 3x, 5-37[...] 379 27u "von|Insekt", 33-35m, 42u "Insekten", 43u "nützlich", 44u "schädlich" 380 13x 381 3-6m/3-4u "geschlechts|saftleeren", 15-17m, 36x, 38x 382 28u "Insekten geschieht", 29-33m 383 12-16m/12-13u "Sie|Zwitterblumen", 32-36m/w (a) 39-41m, wb (Q) a most curious case of abortive organ being made useful, like marsupial bone in some male marsupial animals 384 1u "Blume hineinschieben", 11u▲, 19x 385 27x 386 3u "männlich-weiblicher", 4], 6] 388 29m, 37-38m, 45X 389 34u

"vollkommen trocken"/w (a) wb (a) like that of Kalmia - I have no doubt this is case with Allen Wedg plant wh does not seed 390 11-20m 391 10-12m/11u "bestaubt", 11u "nothwendig|Theil", 21-22m 394 6-9m 395 3-9m, 39x, 40x 397 6-8u±, 16-17m, 35-37m/w (a) 40-42m, wb (a) as I have seen 44-45m/w wb no 400 5-8m/w (a) 13x, wb (a) From Henslows account is common to genus. But I believe at different periods 402 4x, 34X/u "Bewegung machte" 403 10-11m/11u "es|wollen", 19-21m, 23-25m/23u "niemals"/24u "Saft|angetroffen", 38-39m/u "inwendig|ist", 44-45m, 44u "Scheinsaftblume", wb I am nearly sure nectary of Butterfly covered with growths 404 wt Cannot be deceptive for insect has at once to fly to catch florets 1-6m, 7-21w p.418 Aristolochia clematitis 14u "Osterluzen", 32a "Morio" fresh winged 35-36m/35u "Scheinsaft", 41u "beweist Orchis", 44-45m/45u "nur|Samen", wb Little flies often on stigma can stigma secrete sweet better 405 1-8m/1u "26"/2u "42"/2-5u±, 9u "wohlriechendes"/w Habenaria, Butterfly orchis certainly 26u "der Saft", 27w nectar 35u "das|vortrefflich", 36u "Nachtblume ist" 406 5-7m/6u "mit|versehenen", 12-14m/14x/u "Serapias|verdeckt", 16x/w Listera 24X/u "trockner", 28-30m, 41X 407 8-11m/10-11u "denselben|vergebens", 12-14m/12u "ähnliches|Insekt"/13u "zwey Staubkölbchenpaare", 18m/a/u "ähnliches"/w 3d 19-22m/20u "ablecken konnte", 29u "jeder|Zeit", 36-38m, 37u "abzulecken", 40m, 43-45u±, 45m, wb Would succeed only by stickiness of stigma 408 20u "oder|ankleben", 27-28u↔, 38u "Absicht", 38-40u±/40m, wb X otherwise he would have caught a third hair 409 6u "wieder", 7u "an|Kopf", 8u "einen|Käser", 10u "Kopfschmuck", 17-21m, wb X saw act of impregnation by Hymenopt 411 25w One of the Ophrydiae) Lind Epipactis 26X, wb = Ep palustris - I think this - certainly this No or Cephalanthus ensifolia - this latter I now believe 413 31-34m, 42-45m, wb He does not really understand this flower 414 10-11u/w with Insekts 12-21m/14-15u↔/18-19u "weil|habe", 22-45w He probably examined only flowers which had gone off wb he forgot to look whether any sticky contrivance to anther He overlooked the spherical rosetta 415 21-27m/w Saw fly with pollen mass on Back 30-45m, wb Remarks about spiders making nets on plants which afford nectar 418 7x 419 17-18u "Alsdenn|seiner", 20-21u "Alsdenn|geöffnet", 28-29m, 42-45m 420 12-16m, 45X 421 32-34m/33u "zuweilen|zehn", 38u "vor|kleinsten", 44-45u "dass|ansetzen" 422 28u "Muth-

massung", 34-35u "dergleichen | habe"/35-36u "dass | bestimmt"/34-40w so let flies escape or go to other flowers? 423 2-36w All this passage a priori reasoning V. vulpa 41u "schliess | theils", 42-45m/45u "vielleicht | glatt", wb If the flies were really imprisoned - this would be strongest case except perhaps Zostera of self impregnat. remember Figs 424 wt Nothing, for he could not found nectar in Beans 1-4m, 23-24u "dass | ansetzen" 425 wt ♦ X Why do so few flowers, then, produce seed which he has insisted on as explained? 17m/u "jedemal", 38-40m/40u "sondern | Art" 426 5-8m, 8-10m, 38-39m 427 12u "muss | leicht", 23-27m/23a "Zustand" of ripe pollen stigma 46-48m 428 26u "nicht | verwelkt", 37-39m 429 9-11u ↔, 12x, 14x, 21x, 34-35m 430 17x, 24u ▲, 25u ▲, 27u "kleinen Fruchtknoten" 431 wt ♦ According to my notions all associated plants ought to be essentially dioecious (as single trees are) 4-6m, 15-16u "so | finden", 24-26u "Die | an", 28x, 30x, 36u ↔, 38x, 40x, wb The ● is perpetuated like insects-plants Most plants - seeds are perpetuated like wind - dioecious plant 432 1u "keinen Saft", 12u "Stigmatel | gross", 14x, 16x, 27-28u "unansehnlich | Krone" 433 2x, 4-12[...], 14x, 40-42m/41u "die | voller" 434 17-18m/18u "so | Stielen", 44x 435 2-22x/14-15u "Die | grösser", 24x, 34-35u "die | weiblichen" 436 34x, 39-41m/40-41u "vielen | weiblichen", 42x 437 4x, 17u "Irrthum", 18u "die | männlichen", 30-31u ± 438 24x 439 25-26u ↔, 42-45m/43-44u "sehr | wird" 440 18u "Lütschen", 20-21u "ganzen | Körper", 22u "aber | Theile", 26u "keine Blätter", 29u "weit | Stiel", 43x 441 2x, 4u "männlichen", 5u "weiblichen", 10x, 12u "weiblichen", 26x, 28x 442 24-25u ↔, 27u "längeren | sitzen", 33u "aber | vorhanden", 38u "einmal | weise", 39u "welche | hervorgebracht", 44x 443 3x 444 11x tab.i z tab.xx w Speak of it as seed (acherium) It is calyx which differs Tussilago is superflua Picris aequalis

STAINTON, Henry Tibbats *A manual of British butterflies and moths* 2 vols.; London; John Van Voorst; 1857 [CUL, GD]

(markings presumed to be by GD)

STEBBING, Thomas Roscoe *Rede Essays on Darwinism* London; Longman, Green & Co.; 1871 [Down, I]

NB O/

STEENSTRUP, Johann Japetus *On the alternation of generations* trans. G. Busk;

London; The Ray Society; 1845 [CUL] beh, ct, em, fg, gd, in, mn, oo, sx, t, ta, tm, y

NB1 It is clear in each successive stage of development, that the young are formed from what he calls germs, little aggregations of cells, & that these go through regular gradations, in each stage; I do not know how they can be distinguished from ova-Jun. 63/so my notion on ♣ difference of true generations & buds destroyed.-

NB2 Abstracted March 1857

p.1; p.2; p.3; p.6; p.13; p.23; p.25; p.31; p.43; p.45; p.71; p.96

F.W. Fish almost normally have Trematoda within eyes

112; 113; 114

1 20-23m 2 31-35m 3 23-27m, 32-33m 4 19-22? 6 32-37m 13 20-23m, 30-31?, 32-33? 23 27-29m, wb so Medusa does not pass through state of Polype ♂ Owen 24 wt/1-27w This comparison of polyp-formed nurses 1-7w ♦ with neuter Bees very loose indeed! [The nurse is a compound body & larvae are not formed by simple section - wt/1-7w ♦ (which I imagine are more like Medusae than the Medusae larvae) 7a "or" a 31-35m/w This shows power of division at all periods wb I do not think propagation at any time of life by division odd 25 4-6m/5-6u "belongs | other" 31 30u "perfect | Medusae", 34-38m/35u "their" 43 1-3m 45 11-14m 46 17-20m, 38-40m, wb I cannot anywhere see that the foster generation is seminal 71 6-8m/7u "originally from" 92 16m 96 29-32! 113 1-3m, 16-18x/!, 17m/u ↔, 18u "also | sex", wb X Because males with aborted organs wd not have the proper instincts → 114 5-6m, 7-10w ♦ (CD?) connected with end 10-13m, 13-37w - analogous to common metamorphosis & hence the bud-like system of generation returned 16-38w ♦ The generative system supervening later in life ought 115 14-25m, wb Termes are Neuropterous insects

STEENSTRUP, Johann Japetus *Hectocotyldannebsen* Kjöbenhavn; Bianco Luno; 1856 [Down, I]

STEENSTRUP, Johann Japetus and LÜTKEN, Christian Frederick *Bichagtil Kundskab om det aabne Hans Snyltekrebs og Lernaer samt om ... parasitike Coprepoder* Kjöbenhavn; 1861 [Down, I by Steenstrup] ø

STEPHENS, James Francis *Illustrations of British entomology* 2 vols.; London; Baldwin & Cradock; 1828-29 [CUL, on B]

STEPHENS, ENTOMOLOGY

vol. 1, 5 22w p27 24w p74 6 33-35m, 40-41m
7 1-30m, 30m/u↔, 31-42m 8 1m, 26u↔, 27m/
w Brinston Butterfly 10 18w clouded sulphur
24 41w Wood-white 27 2w Black-veined
White 28 20m/u "12 Cynthias" 30 10w Heath
fritillary 32 23w Small fritillary 33 21w Plantain
fritillary 37 3w Lesser silver spotted fritillary
39 22m/w Great fritillary 40 17w The Great
Fritillary 42 4w The dale common 37w The
great Tortoise shell 43 32w The lesser
tortoise shell 44 15w Peacock 45 4w
Camberwell beauty 46 7w The admiral 47
23w Painted lady 50 11w The purple emperor
52 4w White admiral or admirilla 54 23w
Speckled wood 55 6-7w The Gt. Argus or
Wall B. 56 14w The Grayling B. 57 26w The
martial White 58 27w The Gatekeeper 59
18w The meadow Brown 60 8w The Ringlet
64 38w Scarce Heath 75 29w The Brown
Hair Streak 76 18w Purple Hair Streak 78
17w The Green Butter. 79 22w The Copper
81 8w Large Copper 85 5w The Azure Blue
86 4w Bedford Blue 87 14w Argus Blue 88
26w Chalk Hill Blue 89 36w The Chifden Blue
91 29w The Blue B. 93 26w Silver studded
Blue 94 27w Edged Brown Argus 95 13w
White-spot Brown 97 19w Grizzle B 98 12w
Dingy skipper 100 7w Chequered skipper 101
15w Small skipper 32w Large Skipper 102
19w Pearl skipper

vol. 2, 2 wb L. nocturne p86 Semidiurne
p140 35 25-27m

STEPHENS, James Francis *Illustrations of
British entomology* vols. 3 and 4; London;
Baldwin & Cradock; 1829 [Down, on B]

STEPHENS, James Francis *A manual of
British Coleoptera* London; Longman, Orme,
Brown, Green & Longman; 1839 [Down, I to
FD]

(*markings presumed to be by FD*)

STEPHENS, James Francis *A systematic
catalogue of British insects* 2 vols; London;
Baldwin & Cradock; 1829 [CUL, pre-B]
gd, v

(*untranscribed w: names of places where CD has
seen the species listed*)

(*some w not CD*)

vol. 1, 2 7w, 12w, 18-20m, 31w Hope 39-40w
3 7m, 13w, 25w, 38w 4 1-2w, 8w, 25w, 29-
30m, wb 5 26m 6 11-12w 7 8m, 16-17w 8
15w, 32w 9 14w, 23m, 34w 10 8-9w, 12m, 19-
20w, 30m 11 15-17w Hope and Thompson
27w, 32w 12 2-3w, 12m, 22w Hope 32w 13 1-

3w, 8m, 16w, 18w, 20w, 29m, 35w, 38-39w 14
5w Waterhouse 8m 15 10-11w, 14w, 21-24w,
31-32w 16 13m, 21m, 32-33m, 40-41w 17 11-
12w, 20-21w, 26w, 31-32w, 36w, 41m 18 6w,
7-22m, 14w Waterhouse 24w, 40-42m/40w A.
Cooper 43w Mr Waterhouse 19 14-16m/w,
37-39m 20 7-9w, 15w, 21m, 26m, 34w, 37-
38w, 42w 21 1w, 4w, 11w, 23w, 27w, 32w,
41w 22 3w, 6w, 10w, 25-26w, 39-40w, 23 5w,
11w, 16w, 19m, 24w, 34w, 37w, 39w, 40w,
41w, 44w 24 15w Mr Waterhouse 9m, 16w,
21m, 26-27w, 32-34w, 38w 25 6-8w, 32w, 41m
26 9m, 16w, 19w, 22w, 31w, 33w 27 1w, 7w,
19w, 22w, 26w, 32w, 38w 28 1w, 5w, 8w, 9-
11m/9w, 16w, 18w var. 20w, 26w, 29w, 36w,
38w, 41w 29 5w, 21w, 23w Hope 26w, 41w 30
10w, 18w Hope 30w, 31w, 33-34w, wb
Waterhouse 31 13-14m/13w 32 14w, 34w,
37w, 43w 33 34-36w 34 1w, 6w, 15w, 18w,
23w♦, 29-30w, 36-37w, 40m 35 18w, 27-28w,
30w, 34w Waterhouse 40-42m 36 18-19w 37
19w, 21w, 23w, 28w, 32w, 34w, 37m 38 1w,
13w, 15w, 18w, 29w 39 11-12w, 27m, 34w 40
31-32w 41f w 42f w 43f w 44f w 45 9-10w,
22w, 35w 46 25w 48 32-34w 48f w 49 4w,
12w, 15m, 19w, 23w, 30m, 35w, 39w, 44m 50
5w Hope 7m, 10-11w, 13m/w, 18w, 24w, 28w,
34m, 39w, 43w 51 6m, 19-20w, 21w, 24m/w,
28m, 30-31w, 34-36w 52 11w, 18w, 21m, 29m,
36w 53 14m, 26-28w 54 32w, 37w 55 5-6w 56
41m 57 27w, 30w 58 30m/w Hope 59 11w,
20w 60 4w 211 ↑20m 221 ↑19m, ↑14m, ↑6m
222 3m 223 1m, 6m, 15m, 24m, 27m, 31m,
34m 224 16m, 25m, 33m 225 4m, 26m, 32m

vol. 2, 28 11-14z, 27m 28f w 37 wt Moths

STERNE, Carus (i.e. Ernst KRAUSE)
Werden und Vergehen Berlin; Gebrüder
Borntraeger; 1876 [CUL] ♂

STERNE, Carus *Werden und Vergehen* 2nd
edn; Berlin; Gebrüder Borntraeger; 1880
[Down]

STEUDEL, Ernst Gottlieb *Nomeclator bot-
anicus* Stuttgart & Tübingen; J.G. Cottae;
1841 [CUL]

sx, sy, wd

NB p.112

Poinsettia Cyanophyllum Hot House Plants

Azalea anaena

Hibiscus (Abutilon) allied to Viscus (Hooker)

Rudgea Rubiaceae dimorphic

part 1, 5b 48m 95b 10m, 18m, 20m, 26m,
32m, 37m, 41m, 46m, 48m, 52m, 54m, 58m,
59m, 63m, 65m, 68m, 72m, 77m, 78m, 83m 96a
2m, 5m, 12m, 18m, 22m, 25m, 26m, 28m, 31m,

37m, 47m, 50m, 53m, 58m, 64m, 66m, 72m, 80m 96b 5m, 7m, 12m, 13m, 15m, 22m, 33m, 37m, 39m, 42m, 47m, 49m, 50m, 53m 112a 50m 118a 35-37m/35u "hypogaea" 256 zt 450b 73m, 74m 451a 1m, 32m, 33m 494a 14-15m/14u "uncinatum" 494b 82m 495b 43m, 64m 496a 3m, 6m, 59m 496b 45m 507a 29-32m, 34-37m, 45-50m, 53-58m 507b 7-12m 559a 61m 601b 6m 677b 67m^s/u "cinereum" 678a 35-37m^s/35u "Endressii" 678b 10m 679b 20m/u "Richardsons", 66m 681b 50m/u⁺ 766b 80-84m
part 2, 51a 74m, 75m 51b 8m, 14m, 26m, 63m, 83m 52a 4m, 54m 52b 26m, 27m, 43m, 62m, 71m, 74m, wb 14 94b 75m 106a 30m, 32m, 57m, 60m 325b 39m, 63m, 75m 326a 75m 326b 18m 386a 58m 391b wbc 395a 64m 590a 26m, 45m 748b 13m

STEWART, Dugald *Philosophical essays* 3rd edn; Edinburgh; 1818 [ED, CUL.1900]

<probably CD> 415 ↑10-6m 416 ↑12-10m, ↑2-1x

STONEHENGE (i.e. John Henry WALSH) *The dog* London; Longman, Green, Reader & Dyer; 1867 [CUL]
br, cs, he, sl, ta, tm, v, y

NB ♦ Reversion in 3 & 5 generations - 173 Reversion

175 Breeding in & in

♦ Shows how soon Bull-dog form is eliminated-

179 & 183 good on crossing Bull-dog & Greyhound

Period of adulthood in dogs - 187 - Periods of adulthood

188 Breeding in & in; 196

223 form of young animal- cannot be selected

Reversion Close interbreeding Crossing, elimination of character Period of adulthood

Q₂ Form of young ♦ Dogs

118 6-15m/7-9"... 173 18-27m 174 1-13m 175 13-17m 177 1-4m 179 7-17m/10u⁺ 181 4w child, 1st yr 182 1w grandchild 2d 183 1w grgrchild 3d 2-4m, 5m, 6-8m 184 1w grgrchild 187 16-19m 188 10-14m, 17-20m 189 1-5m, 15-22m 190 2-4m 223 2-5m, 14-16m

STRASBURGER, Eduard *Sur la formation et la division des cellules* revised edn; Jena; Herman Dabis; 1876 [CUL, I] ♂

STRASBURGER, Eduard *Über Zellbildung und Zelltheilung* 2nd edn; Jena; Hermann Dabis; 1876 [Down]

STRASBURGER, Eduard *Zellbildung und Zelltheilung* 3rd edn; Jena; Gustav Fischer; 1880 [Down, I]

STRAUSS, David Friedrich *Der Alte und der neue Glaube* 2nd edn; Leipzig; G. Hirzel; 1872 [Down]

104 11m

STRICKER, Salomon *Handbuch der Lehre von dem Geweben des Menschen und der Thiere* 5 parts; Leipzig; Wilhelm Engelmann; 1868-72 [Down] ♂

STRZELECKI, Paul Edward de *Physical description of New South Wales and Van Diemen's Land* London; Longman, Brown, Green & Longman; 1845 [CUL, I]

f, fo, gd, h, is, mg, no, se, sp, ta, ti

NB Abstract March 57; 143 Van Diemens long an isld for coast elevated 100ft 143 so that animals cannot have passed from one isld to another, recently

56 ♦

254 Proteaceous leaf Bulinus & Helix

296 Van Diemen Carbonifer series Morris

302 Diprotodon Marsupial. Pachyderma Fossil to 312 (not important)

314 List of Animals & birds common to Australia & Van Diemens Land

347 Sterility of one race of Mankind with another.

352 number of natives Van Diemens Land

143 23-26m 254 2-16m (Darwin, R. Brown, G.B. Sowerby) 270 8w 1 271 6w 2 272 1w 2 7w 3 14w 4 21w 5 273 5w 6 17w 7 274 5w 8 275 20w 9 New genus 276 13w 9 25w 10 277 7w 11 17w 12 25w 13 278 5w 14 12w 15 25w one same 279 7w 16 28w 17 280 10w 18 281 6w 19 282 7w 20 26w 21 283 18w 22 284 4w 23 20w 24 285 5w 25 28w 26 286 5w 27 23w 28 287 9w 29 288 2w 30 28w 31 289 8w not new 22w 32 290 4w 33 291 10w or 34 296 1-3m 301 34-37m 302 9-12m 303 26-28m 305 3-4m, 31-33m, 34-37m 306 31-32m/31u "marsupial" 309 32-35m 310 32-35m 311 22-30m 312 9-14m 314 wt x means common 23m 315 9x, 18x 316 1x, 7x, 25x, 29x 317 1x, 6x, 8x, 12x, 14x, 16x, 18x, 27x, 30x, 33x 318 4x, 15x, 18x, 20x 319 9x, 14x/?, 16x, 32x 320 10x, 23x, 33x 321 3x, 5x, 7x, 12x, 14x, 22x, 28x 322 2x, 14x 323 8x, 23x, 25x, 27x, 32x 324 15x, 20x, 28x 325 5x, 8x, 13x, 17x, 19x, 21x, 23x, 25x, 27x, 29x, 31x, 33x 326 3x, 5x, 8w not 16x, 21x, 27x, 30x, 32x, 34x 327 2x, 8x, 10x, 13x, 15x, 17x, 20x, 22x, 25x, 29x, 31x 328

STRZELECKI

1x, 4x, 10x, 12x, 17x, 20x, 23x 24x, 28x, 30x, 32x, 34x, 36x 329 1x, 3x, 5x, 7x, 9x, 11x, 13x, 15x, 17x 347 1-8m

STURM, Carl Christoph Gottlieb *Über Racen der landwirthschaftlichen Hausthiere* Ebberfeld; Büscher; 1825 [CUL]

beh, cc, ch, cs, dg, h, he, hy, in, or, phy, rd, sl, sx, t, ta, tm, ud, v, wd, y

NF This book shows that any laws can be made out, in accordance with authors own observations on such ill defined points as resemblance to parents &c- The only way & that poor is to take indifferent peoples statements & from such statements build facts. Reason for quoting & for authorities

NB p15 to

SB □ 9x

16 Rule of ant. part taking after father NQ

82 On weakening of cows maternal instincts Q

85 Q In districts where cattle worked, it is well known young are more easily broken in - so in Pampas Horses) Compulsory instinct.

104 NQ Horns always after Merino Ram: one cross from Horned Bull gave Horns to Hornless Herds, (because a part previously lost, so tendency to return.- (N.Q. in Ch. 9)

107 Attention quicker or slower according as we take male or female of H & cross it with B.

67 drawn back neck in alpine sheep like Alpine kinds

120 Selection

ii 1-9m/w does not always quote his authorities 5 4-12w longer a variety exposed to any condition greater the change & then harder this change to vary 7 8-15w Head most important ♦ sure race-character amongst intellectual animals 15 3-6m/wt/1-14w general forms of heads of domestic races especially differ from each other, even in horses, & even in cows 16 14-17m/13-26w Father gives heads, & mother hinder parts is general rule. Some exceptions do not destroy the rule! 23-24m, 26u "Daubenton", 29m/a "Landschaf"/wb Sheep crossed with Merino ram head & fine wool on anterior part of body take after father - case given in p18 & in p19 with Birds anything can be proved! 17 1-30w His laws hold to hybrids as well as Mongrels 18 7-8m, 13m 19 wt Hofacker ○ gives many cases of changes in colour in Foals as they grow 2-18w Muscovy ♣ drake crossed with common duck follows same law 2u "türkischen", 7-8u "Jungeähnlich", 10-14m/11-12u ↔, 15-16u "Kopfes von", 25-27w

& crossed geese & crossed pheasant 20 1-7w foals from old stallions have old looking heads!! Bosh. not in men = 10u "Im | Bande", 11u "Maulthier", 13u "Maulesel", 27-28m/27u "Alle | haben"/28u "Mutter | dem" 21 1-2m, 3u "Kopfes | Glieder", 21-22u ± 22 2-8w Size of head varies much in bulls compared with size of body 23 9-19w Eyes & ears vary much in races of cows & horses 24 8-10w Horns vary in individuals of same race 17-25m, 21-26w ! Quoted more curled the wool the more the horns wb introduce in relation to teeth & pairs 25 8-12w The hair on head often characteristic 15-19w one race of sheep with woolless head another with head covered with wool 26 wt X Can convert one race into another most preferably by crossing of the male 1x/w ♦ Can 30 wt N.B These enumerations of differences merely show that all parts differ - 31 1-2m 32 wt Fig. wrong 42 30-33m/28-33w/wb No authority for sheep in S. Sea loosing wool 47 8-12w Cabbages change forms 48 wt White Cabbage seed planted in Naples gave Black-Kohl but generally cauliflower?? 2-13m/8u/w ≠ 15-22m/16u "mir"/20w xa wb x (a) Says from own observation clearly made out that the naked huskless barley especially in wet year of 1823 always degenerates into common 49 1-13m/5w (a) wb One ought not to infer that climate causes these variations, but only that they cease being persistent under new climates 50 19-20m/? 53 19-24m/w Says Cattle taken to E Indies decrease in size in few generations 54 26m 55 26u "brasilianischen"/26-30m/w Brazilian (Rio Plata) proverbially best 57 16m, 24-28m/w Portuguese cows transported to Brazil give better milk 58 12-26m/12-21w quantity & character of milk varies in diff. countries 28-30m/w milk varies in different years 59 15m, 16-22w candle manufacturers prefer Russian tallow 60 wt X he attributes this to the effects of climate but Youatt shows it is in breed & can be got by selection 3-9w Much more tallow in Holland races, than in Tyrolese 9x 61 18m 28-29u "dass | hat"/w of Men what wd Malthus say? 67 wb Remarks that true sheep have drawn back neck like all Alpine animals, wh is quite lost in lowland sheep - Mem Levington Sheep - 68 3m 74 3-14m/w says all animals living in mountains as sheep, goats & pigs are less fruitful than in low countries 79 14-15m/u "Consuetudo | natura" 81 23-29m, wb instinct of period of propagation has varied in all ruminants 82 14-25m/w says cows from long generations habit do not care for their calves being taken

away directly here. 27-28w/wb have lost maternal instinct 83 1-7m/w says he has observed great differences in cows himself 19-20u "während | duldet"/9-27w The Merinos will let about any strange lamb suck them, because Spaniards kill weak lambs & put strong one to them; hence individual Maternal instinct is destroyed. 84 13-27w says the acquired instincts of dogs are easily lost, so are natural ones, as burrowing & wildness in Rabbits 85 18-21m/18-26w it is well known, in districts where oxen are used for draft they are easier broken in - 27-30m/27u↔, wb good case of compulsory instinct 99 28u "Kartoffeln", wb many races of fruit & Potatoes have risen from crossing! 100 11-16m/w Merinos originally a crossed breed 101 10-13m/w Father chief, especially in mind 13u "nur | beträgt", 22u "neue Mittelrafe", 23u "Typus | Vaters" 103 1-6m/w Father chief?? 21-24m/21-30w Hair, horns & c are most easily altered by crossing - other parts more difficult 104 5-13w curly hair from alpine bulls transmitted to first cross 16-26m/w/wb so with Merino rams, even in parts of body which have no hair in the mother: in one case length of tail not increased, but covered with wool 105 5-10m/w always has horn of Merino Ram 11-18m/14-21w A I think this is because lost part; or rudimentary 21-29m/w Hoof takes after father in Oxen & Horse wb (A) In herd of invariably hornless cattle for many generations, one year of war the hornless bulls were lost & horned ones were used, & first year 9 out of 10 calves had horns 106 15-16u 107 3-7m/w alterations slower according as sexes of different breeds are crossed 6u↔ "friessischen Ochsen", 12-16m/Q↔ 109 wt Memory 3-8m, 5-6u "Kunst fertigkeiten", 6-7u "Raphael's, Mozart's, Dante's" 110 11m, 29-31u↔/21-31w/wb as many years as teeth require so many generations for new race!! 111 18u "dem 6ten", 19u "oft"/w variation 112 wt in crossing head after father & in succeeding generations the change travels down the Back! 4-6m 113 1-8m/4-5w instance of above! 16-19m/17w A wb A Has already shown that attention through father is so much quicker, as this does not depart much from original race 115 wt/1-8w A says to produce new race (viz to make a Merino breed come out of country sheep) it is very disadvantageous to commence crossing very unlike breeds, better begin with a half-bred & so go on step by step. A 1-20m 117 26u "gemeine Veredlung"/25-28w selection with crossing 30u "individuelle Veredlung", wb

what we call selection without crossing 119 6-10m/w good milking tendency goes by father: curious - 18-21m/w instance 120 15-26m/w Quote English selection best means least requires great knowledge & a fixed forelook on stocks of cattle 27u "Ductilität" 121 10-14m, wb says particularly necessary to know influence of Father & Mother in this kind of selection - this I doubt

SULLY, James *Sensation and intuition* London; Henry S. King & Co.; 1874 [CUL] beh, r, t

NB Expressions; 29 to 36 goodish 17 16-21m/w What can I have said 29 7-39m 30 38-41m 34 24-32m 36 14-24m/6-23w This wd apply only to social animals

SULLY, James *Sensation and intuition* London; Henry S. King & Co.; 1874 [Down, I; 2 copies] ø

THE SUPERNATURAL in nature London; C. Kegan Paul & Co.; 1878 [Down]

THE SURVIVAL London; Remington & Co.; 1877 [Down, I by publisher]

SWAINSON, William *The cabinet cyclopaedia, natural history: A treatise on the geography and classification of animals* London; Longman, Rees, Brown, Green & Longman; 1835 [CUL, S]

ad, beh, cc, ex, gd, is, mg, oo, no, sp, sy, t, ti, tm, wd

NF1 Read Kirby on Geograph Distribution of Insects

N.B. European Plants on Himalaya agrees with idea of great zone

∞ Swainson has written in the Geographical Dictionary

There is a great deal of nonsense talked about perfection of groups & c as far as I can discover; some families have mingled characters & varied habits, others confined characters & peculiar structure.-

NF2 ↪ Chas Darwin

p.8. Each country is said to have an original breed of own domesticated quadrupeds.-

p12 General aspect of forms from different countries

p.17 No large animals in Madagascar

p.21 waders peculiar to Europe

p.22 Parrots confined to particular Isls -

p.24 soft billed birds best characters taken from-

p.26 Many genera in Europe

SWAINSON, GEOG. AND CLASS.

49 2 Lions
50 Malacca birds peculiar
55 European birds go to Asia not v versa
58 North Australia like Africa
69 Mexican Ornithology
106 Australi genus in S. Africa
110 Madagascar
115 Australia & 118
NB I see grallatores greatest range among birds

Antelopes in North America

p107 Barn Owl S. Africa

SB □β

8 says neither temp – food, foes &c account for local distribution – good to quote him as an example of ignorance – something must check – See about nightingale in Bechstein.
12 show how climate is given up. What a contrast between Java & Madagascar N. Guinea. New Zealand & N. Caledonia as far as is size of Mammals.

21 Waders greatest ranging Birds

50 Analogy of S. Asia & Africa (Probably much extinction in Tropics series before glacial period)

111 on relation of Mammals of Madagascar & India

3 34–38m/w Motacilla – nightingale 7 19–31m
8 7–18m, 35–39m 12 1–6m 17 wt New Zealand Caledonia New Guinea contrasted with Sumatra &c &c & England 4–9m/5m/u "absence | Madagascar", 11–16m 21 15–29m 22 27–35m/32–35m 24 22–25m 26 11–16m, 21–39m 27 1–13m, 30–35m/w because better known? 29 7–20m/10–11o 31 35o/u "perfectly naturalized" 35 zb 39 29–30o 48 5–6o, 12–13o, 23–38m 49 22–39m 50 24–30m 51 1–10m/w like Elephants driven down 55 41–43m 58 2–7m, 9–11m/?/w Brown 69 28–36m 72 8–9o 81 8–10o 87 20–24o 92 7–9o 103 35–38o 104 wt Monkeys even in Cape 35°! 1–2w N. America 5–11m 105 30–38m 106 21–31m, 38–40m 107 31–39m 110 31–39m 111 2–18m, 31–39m 114 29–33m 115 1–21m/20–24w Mem Brown on Birds 116 1–13m/8–11!/4–8w Opossums make nests 118 2–28m 119 18–26m, 35–37o 243 wt/1–3w Every word in this page will serve for the Caracara – an aberrant Eagle 1–36m 245 wt/1–3w It would appear that some circles unite many characters & varied adaptations others more confined 4–7m 357 29–36m (F. Cuvier)

SWAINSON, William *The cabinet cyclopaedia, natural history: The natural history and classification of birds* 2 vols.; London; Longman, Rees, Orme, Brown, Green &

Longman; 1836–37 [CUL]

beh, ch, ds, gd, ig, no, sp, sy, t, tm, v, wd

vol. 1 NB 166 Monkey noise a call note

31 Expressions p.31 ♦ Crests ♦

♦ 29 Head ornate

I do not allude to call notes *

167 on singing of Birds to

185 Nests

29 26–39m, 37u "Guinea-fowl", 38u "have | horns" 31 10–11m/11u "danger | anger" 72 fig.w angle too ac little too sharp too coarsely shaded 166 4–15m, 27–32m (Buffon) 167 8–9u "autumnal | robin", 13–14u "exerted | where", 18–25m 168 7w cranes 10–13m, 15–20m, 112u "of perchers"/wb swallow 169 5–7m, 9–13m 170 21–26m/21u "swallow", 30–36m/w cawing a tone song 174 35–38m/35u "Insessorial" 177 23–30m 185 31–37m

vol. 2 NF 11 Is Falcunculus cristatus a shrike? Vanga a crow?

SB □β

11 Falcunculus. Australian Shrike tears off Bark & hunts for insects; do well to insert in Ch 8 on Transition, when I treat Bird becoming like Woodpecker

112 Vidua, widow Bird of Cape wd suffice for Ch. 6

5 13–18m 6 8–15m/w This should be considered in the Fissirostrial type 10 wb It is like Echidna & Histris having spines 11 30–39m/31–33w Examine this Bird wb N.B. XX It is not difficult to see how all types would be repeated. because all spring from one stock & same circumstances. which makes order, would make same number of representative wild forms 14 4–8w what difference 6–10m 15 1–20m/4–8w thoroughly unphilosophical 307 10–15m 308 11–15m

SWAMMERDAM, Jan *The book of nature* London; C.G. Seyffert; 1758 [CUL, pre-B, S Charles Darwin 1827]

title page ⇨ Josiah Wedgwood to Erasmus Darwin, to R.W. Darwin to Charles R. Darwin to William Erasmus Darwin 1858

A present from my ingenious friend Josiah Wedgwood to Erasmus Darwin F.R.S.

⇨ (CD) This book I wish to be given to George

part 1, 125b 35–41m 132a 3–8m 217b 14–22m

SWANK, James Moore *Statistics of the iron and steel production of the United States* Washington, Government printing office; 1881 [Down]

SWINHOE, Robert *Narrative of the north China campaign of 1860* London; Smith, Elder & Co.; 1861 [Down, I]

SWINHOE, Robert *Notes on the island of Formosa* London; F. Bell; 1863 [CUL, I]
beh, cc, gd, gr, ig, is, sx, t, ta, tm, v

NB Introduction p.29

Ibis p.12; p.47; 57; 75; 86; 103

p.2 to 5 Zoolog Proc

Formosa Ornith Ibis P 44 Female assuming late Plumage of Male; 50♦ Petrocinala; 68 Oriolus do do – but rarely; 131 & 132 Squacco Herons

SB □β ⚡

Introduce Ibis p.29 general character of Fauna of Formosa – distance from China p.12 Ibis – grades of differences & variation in Birds of Formosa

p.47 example well-worked out in Lanius

57 do in Garrulus

75 Drymoeca – less marked vars

86 Wagtail more complicated vars like British – conditions of life

103 Centropus do.–

Zoolog. Proc.

p.2 to p.5 general characters of mammals, also to slightly differ in characters of colour slight vars, some distinct

Good for Variation – Geograph. Distrib.– and effect of Conditions of life.–

Introduction, 29 34–56m

Ornithology of Formosa, 12 11–25m, 26–28m

13 11–13m 44 ⚡ 23–28u±, 27–35m, wb Ibis Jul

1863 p.22 47 1–11m, 13–20m 50 11–16m 57

17–27m 68 23–28m/26u "green | spotted"/29u

"This | much" 75 16–19m 86 5–30m 103 2–6m

131 10–13w sexes alike same places 24–

32m/27–28u "splashed | very" 132 16–20m

Mammals of Formosa, 2 1–4m, 44–47m/46u

"generally darker" 3 5–9m, 14–15m, 17–22m,

27–33m, 43–46m, 48–50m 4 1–6m, 10–19m 5

29–31m

SYME, Patrick *Werner's nomenclature of colours* 2nd edn; Edinburgh; 1821 [CUL]

sx, tm, v

NF ♦

Beak of female; ash grey males nearly black

Legs & c exact ● orange – few

●

Soles of feet yellow, skin of beak with very

faint ● legs partly ● shape of feathers

becomes same – lower mandible & part of

upper ● grey

TASSO, Torquato *Gerusalemme liberata* 2 vols; Firenze; 1821 [CUL.1900]

3 "vi".m, "viii".m 4 "x".m 8 "xxiii".m 10 "xviii".wτ 21 "lxi".X

TAYLER, John James *Christianity* London; Williams & Norgate; 1868 [Down]

TAYLOR, John Ellor *Flowers* London; Hardwicke & Bogue; 1878 [Down]

NB O/

TAYLOR, Richard (ed.) *Scientific memoirs* vol. 1; London; 1837 [CUL]
che, mhp, t

NB Nothing October /56/

vii 25m (Ehrenberg) 224 6–10m♦/7–8"...", 9–

10z, 22–26m, 27–45m 225 5–9m, 11–15m, 15–

21m, 33–38m/33–34u "the | multiplicity" 227 wb

The whole Universe a life, the plant a

crystal, a life – i.e. his definition, but what

commonly called life, a unity producing a

different class of complexity than other

unities.– Good idea – to show life only laws

like universe 234 35–42m/37–39?, wb Is there

more unity in zoophytes 236 15–16u "utterly

incapable" /?/9–17m/w Mem. plants gain habits

25–28m/? 240 16–19m/18w Zoophytes

411 14–38m

TEALE, Thomas Pridgin *Dangers of health* London; J. & A. Churchill; 1878 [Down]

TEGETMEIER, William Bernhard *The poultry book* 11 parts; London; Orr & Co.; 1856–57 [CUL]

cs, he, v, wd, y

part 1 NB O/

part 2 NB O/

part 3 NB p.47, p.48

47 26–27m, 27–28m/Q 48 10–12m, 10u

"the | quill"

part 4 NB Cuckoo Cochin⚡; 53; 56

52 31–33m/33u "Cuckoo" 53 26–28m

part 5 65; 66; 72 ⚡ Correlation of Eggs and

plumage; ⇔ 76

65 3–5m, 32–37m 66 35–37m/w like wild 72

8–10Q, 10–14m, 36–37m 76 25–28m/Q

part 6 NB 86; 87

86 1–6m, 38–40m 87 6–11m, 12–15m

part 7 NB 89; 95 good Reverses

⚡ 2 [Q?] non ♣ sitters producing sitters not

so with me

98; 99; 100 spur often on Hens; 93 related

Characters of Spanish not shown early

TEGETMEIER, POULTRY BOOK 1856

It would be good to cross 2 distinct hen-tailed breeds & see if tails wd not come – Cross 2 breeds of which chicks are not barred & see if not come barred.

89 7-11m, 36-39m 90 11-14m 93 1-5m 95 17-21m, w Reverse Q 20-21m/21u "sits|steadiness" 97 24-25m/w Andalusians 25-29m/27u "them|weeks" 98 5-7m 99 1-3m/Q, 41m/u "is|sharp", ↑1→ 100 1-2m/1u "set|leg", 2u "that|softer", 37-41m/39u "markings|reason"

part 8 NF Plates of Ptarmigan NB 102; 111; Comb if not clipped fearful vantage ● fighting

101 ↑9-8m/u↔/w in same sub-breed 102 13-15m/w very different from other breeds 17u "hens|former", 19-20m, 30m 103 14-16m/25-27m/w a relation between Hens & Cocks ↑11-10m/m/→/wb I think a Cochins Cuckoo yes p.53 & Dorkins (I think I have seen a Cuckoo Spanish at Anerly ↑9-5m/w loss of character 106 ↑16-10m/w Boldness 111 ↑16-15m

part 9 NB 115 to end; 123; 133; Comb 123. Sexual selection.

SB ↔

p.123 Pheasant attached to single Hen.

124 Hybrid Pheasant & Fowls

– 133 crossed Hamburg good motherings.

115 ↑13-11m 116 13-15m, ↑9-7m 119 9-11m, 26-29m 122 ↑17-13m, ↑14-13m Comb 123 2-5w It is an ambiguous variation 21-22m, ↑12-11m/↑11u "some|favourite"/w – Selecting Bird ↑3Q Comb 124 3-6m, 7-9m, 10-11m, 14u "extraordinary wildness", 14Q Comb, 15u "tails very", 16u "and|was", 17-20m, 19-20u "whilst|pheasant", 19-21m/w Prepotency Q Comb 21u "entirely black", ↑14u "colour|dark", ↑14-4w Different race of Fowls unduly O affects hybrid with Pheasant shows Pheasant not preponder in colour Q Comb 125 ↑8-5m/↑7-6u "that|nest"/w Q Comb ag death of embryo ↑4-3m 126 8-12m, 9-13m 129 13-14m 130 ↑7-4m 131 5-7m, ↑12-10m, ↑6u "three|varieties" 133 ↑7-4m/Q Comb 135 5-6m, 6-7Q Comb 136 8-11m, 14-15m, ↑18-14m, ↑8-7m, ↑7-4m/↑7u "Cuckoos", ↑6-5m, wb Spangling runs through several breeds

part 10 NB several pages marked

Comb 154. relation of sterility & Hen-tailed Sebright Bantams.

142 9-12m 148 ↑5-2m 150 10-13m, ↑13-10m, ↑9-4m 153 ↑6-1m 154 5-9m, 13-15m, 16-18m Comb, 25-28m 156 9u "assume|tinge", 11-12m, 18u "two|here", 19-22m, Comb 23-26m/24u "for|years"/Q

part 11 NB Comb 162 Chicks of silky Fowls

Q-

⇒ 163 Silkiness not transmitted to offspring plate "White Aylesbury Ducks".w Lemon Beak 158 18-21m, ↑6-3m 159 18-20m/19u "Spangled Bantams" 161 wt Comb 161 11-15m/13-15m, ↑9u "its|hue" 162 1-3m, 12-14m, ↑17-13m 163 11-14m 164 12u "Some|like", 13u±, ↑10-5m 165 12-18m/Q 172 ↑5-3m

TEGETMEIER, William Bernhard *The poultry book* 15 parts; London; Routledge; 1866-67 [CUL]

beh, br, cs, f, fg, gd, he, hy, in, or, phy, sl, ss, sx, ta, ti, tm, v, wd, y

part 1 NB O/

part 2 NB Marked & referred to old Pages

40 ↑4m 41 ↑3-2m 42 19-20m 46 1-2m, ↑13-11m/↑12u "consume|grass"

part 3 NB ♦

Cochins produce many O Cocks

p.49. New

p55 & p.58 Q Brahmas crossed Breeds now true for Cochins & Chiltern greys a large var. of Malays.– Himalayan Rabbits

p72 Q Crossed birds after moulting not true.–

Reversion in individual Birds

49 14m/u "pectoral", ↑2-1m 55 11-16m 58 ↑6-1m 72 ↑3-1m plate "Silver Polish".w

Black Poland with white white-Poland with black Silver Poland Golden Spangled Poland

part 4 NB strong shells 78

Malays very small comb & wattles 76 new

♦ 79 Interbreeding Q

73 1-2Q, 9-11m/Q 76 ↑13-10m 78 15-17m 79 1-6m/w Hens →/25-30m, 17-21u±, 23Q/a "fact" says 24a "necessarily" cause 24c "the|who", 25-26"...", 25c "breeding|in", 28-30"...", 81 7-13m

part 5 NB Copied

♦ 97 Old Cocks getting yellow Hackles Reverse in individuals

p102 Q in ch. 24 Spanish Fowls originally ♦ Mediterranean origin

97 4-7m, ↑1-13m/↑17-16u↔ 102 8-12m, ↑10-8m/w Tender ↑3-1m/→ 103 2-5m, ↑19-18m/↑18u "immense|face", ↑5-1m 105 ↑6-2m 106 ↑3-1m ♦ 107 14-16m, 16m 119 17-20m

part 6 NB 123 new. form of sexual selection

♦ 128 Black & white Games not breeding Q.

♦ Comb 135 Interbreeding Game

Comb spurs extra on Game breeds.

121 11-12m, ↑10-8m/↑18u "early|precocious"

123 17-23m/Q Comb, 25-26m 124 6u "neck|stray", 8u "whole|and", 9-10u "wings|powerful", 10u

"thighs|muscular", 18u "plumage|like", 24u

"beak|massive", 26u "The spur", 27u "dense|leg", 28-29m 125 ↑3-1m/↑2u "are|savage" 128 23-25m 131 ↑12-9m 135 1-6m, ↑14-12m/Q 137 3-6m 139 ↑8-4m, ↑7c/a "an" An ↑7"...", ↑7a "bird" as ♣ Mr T's poultry works
part 7 NB p.165 Pheasant male; p.155; 157; 165,167 Hybrids

150 ↑18-12m 155 4-7m, 8u "pairs|hens", 8-9w Hens selected 11u "Golden Mooneys", 14-16m, 19u "hens", ↑4u "the|small", ↑1→ 156 20-22m, 29* 157 ↑17-14m, ↑13u "year|feathers", ↑12-9m 158 13-18w As also produced by crossing probably reversion - 17u "they|pencilled", 17c/a "8" 2 & 8 17-20m 163 ↑13-7m 165 ↑18-1m, ↑18u "the|single", ↑17u "affection|common", ↑13"...", ↑13-11u↔, ↑10u "entertain|to", ↑8u "artifice|anything", ↑6u "sooner|takes", ↑2-1u "Extra-ordinary wildness" 166 ↑9u "Silver|Hamburgh", ↑9-8w Pheasant male ↑7-5m/↑6u "close|pencilling" 167 19-22m, ↑14-12m, ↑9-7m

part 8, 172 38-40m 173 20-25m/w no too young 30-32m, 35-37m 175 2-5m, 7-10m, 22-23m, 23-28m 181 26-27m 184 18m 185 24-26m, 37-41m 191 9-12m

part 9 NB 204 Houdans

209 33-36m/36u "and|horned", ↑1→ 210 1-5m, 26-29m

part 10, 219 26-29m, 32-33m, 40-41m, 43u "are non-sitters" 222 9-10m/9u "bright blue" 224 3-7m/4u "produced|had", 14-17m 231 33-40m 234 40-42m 236 1-4m

part 11, 248 1-5m, 11-13m 250 19-25m

part 12 NB 269 Turkey 271 277

Fertility 280, 282 eggs Peacocks Q

285♦

269 14-23m (Baird) 271 20-23m (Baird) 277 28-30m, 36-38m 280 18-20m 282 3-5m 285 12u "five|eggs"

part 13 NB O/

part 14 NB O/

part 15 SB □β 1

The Poultry Book

p.47 & 48 Cochins - O middle-toe very long.- ⇒ p.41 & 42 tail very short - primaries very short.

p.46 Cuckoo Cochins p.46 Cochins graze much- 57♣ 49. Pectoral muscles little developed

65 Sykes on Fowls imported from Deccan Pigeons from Aegypt breeding at first (as did my African Fowls)

72♣ Malays 81 eggs variable in size & colour (u) Q♣ 78- chicken Q feathers slowly

p.76♦ 97. Cuckoo Dorking Cock, remarkable for having nearly same coloured

feathers in both sexes.

86♦ 102. & 107 Spanish- tender - p103. immense comb in both sexes. 87♣ 103. Shape of Skull, affected by Comb 88♦ 89♦ 105 Two strains of Spanish; one from Holland.- Q 106 get white patch at different periods (u)

♦ 90 p107. About Spanish Fowls not sitting p97. R

93 in Spanish Fowls great uncertainty in getting the corded white face

♦ 95 p.119 Two non-sitters produce sitting chickens. p.133 do R

X 97 Spanish Audubons p121. get secondary male characters very early: crow at 6 weeks Q

99♦ 123 Pedigrees of Game Fowls extend ♣ 100 years

X 100. 124 Spur often present in Hens of Game.- (& savage)

100 Colours differ in cocks of several sub-breeds of Game; more than Hens. X but p.131 Hens (p.102) also differ much

193 131 Cuckoo Game

X 103 131 A Game sub-breed with Cocks & Hens alike

111. 139. Comb a fearful vantage to foe. curious like injury for Beauty sake!

116 Pencilled Hamburgs ♣ described by Aldovrandi - X Cocks not pencilled. 119♦ 150 non-sitters

123 Spangled Hamburg - ⇒ p155 2 sub-breeds underg to Pheasants

123♦ 124♦ 165 Pheasants selecting particular Hens to pair with

⇒ 165 & 167 stronger - like Hyaenas

♦ 124 Young Hybrid Pheasants "Extraordinary wildness" Reversion.- R

126 167 First crosses of breeds of Fowls & Hybrid Pheasants very large size

129 2 ♣ p.155 sub-breeds of Spangled Hamburgs

X 130 Hen-tailed Cocks p154 do strong generally not very fertile; [but Hen-tailed game are said to be so p.102]

135 172 Polish Fowls at least 200 years old

136 172 Difference in top-knot of Cock & Hen Polish.- Hackles in Cocks correlation comb only rudimentary - wattle & Beard congenitive - Nostril ● 175 not so open; inter-maxillary bones absent.- ♣

⇒ 173 Blumenbach on the Skull - good

⇒ 181 in some breeds wattles, in some beard.-

⇒ 175 Correlation of Skull & Plume

⇒ do form of comb

p.136 Cuckoo 185 Polish: Silver & Golden

TEGETMEIER, POULTRY BOOK 1866

Spangled.

⇒ p.188 Sultans – p.191 Ghoudkas–
p.158 Bantams, length of feathers on leg –
Breed nearly extinct 159 Spangled Bantams
p161. ♣⇒ Breeds of Silk fowls p.162
Degenerate in this country: Chickens Q very
pretty canary-yellow – 163 224⇒ Silkness
not transmitted, but colour of skin & bone is
transmitted.

165. Ringless Fowls producing tail-feathers –
never true to colour.–

over

(over)

172♦ 209 Creve-coeurs. large toothed
2-horned comb.

150♦ 241 Origin of Sebright Bantams –
complex cross.

◆⇒ 156♦ 248. White Bantams, when
mature tend to assume yellow colour & Q⇒
this very hereditary – Reversion.– – so with
Black-Bantams when 2 or 3 years old.
Reversion.– R⇒

⇒ ♦ New Geol 204 Houdans described

⇒

210 Advantages of crossing Fowls

219 Guelders, Comb mainly a rudiment; Cuckoo Guelder – a sub-breed of polish. no
top knot

224 Crossed Silky Fowls

231 good case of Reversion, without a cross

♦ 234 ♣ combs Immense Comb

236 Weight of Poultry & Ducks

250 Bantams with feathers on legs & 2 outer
toes longer than wing feather Ch. 25
Correlation of Growth

TEGETMEIER, William Bernhard *Profitable
poultry* London; Darton & Co.; 1854 [CUL, I]
beh, cs, sl, v

NB 17; 18; 24; 27; 28; 32; 37; 40

SB □β

27 Black Cockins produced from Buff &
White – Cochins never fly

36 White lappet very uncertain in Spanish
Fowl – (Selection)

17 28–30m 18 13–18m, 20–22m, 29–32m 19
28–31m 20 16–31m/16–21m/21u "crumbly
paste" 21 1–2m, 14–18m 22 14–19m 24 1–11m,
26–32m 25 29–33m 27 1–4m/1u "small
rudimentary", 31–32m 28 11–13m 29 5–7m,
17–19m, 27–28m 30 12–14m, 16–19m, 28–32m
31 2–3m 32 27–30m 33 5–7m, 8–10m, 14–17m
34 24–30m 35 4–7m 36 5–8m, 12–16m, 19–20u
"long comb" 37 10–12m, 30–33m 39 2–3m 40
wt golden Hamburgh 2–6m, 17–20m 41 6–
8m, 12u "Creoles | grays" 42 3–6m

TEGETMEIER, William Bernhard *Pheasants
for coverts and aviaries* London; Horace Cox;
1873 [CUL, I]

cs

SB See to; p47♦ scent; 112–114♦
crossing♦; ♣

24 9–13m 47 5–12m 92 37–40m 93 18–23m,
24–27m 113 26–34m 114 2–11m

THOMAS, Cyrus *Acrididae of North America*
Washington; Government printing office;
1873 [Down]

NB 25♦

25 11–14m

♂

THOMPSON, J. *New, correct and complete
ready reckoner* Gainsborough; H. Mozley;
1805 [Down, pre-B]

NB *et*

THOMPSON, William *The natural history of
Ireland* 3 vols.; London; Reeve, Benham &
Reeve; 1849–51 [CUL]

beh, br, cs, ex, gd, hy, ig, is, mg, oo, or, no,
pat, sp, sx, t, ta, tm, v, wd, y

SB1 ix; xix; 122; 136; 138; 208; 307; 309;
311; 329; 339; 341; 366; 373; 407 good
cases of occasional migrations; Dixon's
Poultry first part merely amusing; Index
Corvidae Rare birds dull

SB2 □β

ix Disease of Birds in England compared to
continent & Ireland comp. to England. Odd
against migration p22 Sea Eagle preferring
Black Fowl– p39 Peregrine Falcons getting a
mate when one killed – Eyries well known –
Ch. 5

xix on increase of Missel Thrush Ch 5
(p.122)

136 Q Thrush odd variations in place of nest
& materials of

307 Carrion crow races in Ireland 208
different variety of Tomtits in Ireland &
England

309 Cross with Hooded

330 Q On Magpie changing place of nest
from persecution – tame in Norway Q

366 On American Cuckoo in Ireland–

373 Kingfisher American do 407 Swallow &
Bittern

(over)

⇒ viz by leading the Bird to be constant in
one or the other Method.–

Ducks

ix 16–23m xix 17–27m 22 14–19m (Edmonston)
39 13–19m

⚧
122 1-5m 136 18-20m, 25-27m 138 1-4m 208
1-6m 209 12-15m (Macgillivray, Jardine) 307
17-18m 309 27-30m 311 3-5m 329 27u
"reward", 29-32m/31u "persecution", 36m 330
1-8m (Hewitson)/1u "collection\notice", 28-
33m (Selby) 339 28-30m 340 23-27m (Jardine)
341 1-3m 366 5-14m (Temminck) 373 16-20m
(Thompson) 407 20-24m (Yarrell) 434a 37-38c/
wε

vol. 2 SB1 □R

p12; p19; 27; 42,4; 47,9; 60; 65; 69; 70;
85,8; 98; 103; 122; 133; 146; 164; 172; 228;
247; 256; 272; p314; p328

SB2 □β

11 In Islay half Rock Doves chequered
15 Flight of Carrier Pigeon
49 Cases of grouse breeding in confinement
61 Decrease of Partridges, even to local
extinctions, cause very obscure 314 Rails at
same time

65 Q Different Habits of Partridge of
Scotland & Ireland in rising quietly or scream
69 Q increase of Quails & of those staying
to breed 70 do Q

122 NQ our shore birds know Equestrian
less dangerous than footman 133 Q Heron
not afraid of Train

146 Q Herons breeding on the ground

172 Q American Herons in Ireland at time of
Migration in America, which was case with
Cuckoo

247 Q Breeding of Woodcocks in Ireland-

256 Q Case inexplicable Probably would not
cross 254 thought to be lighter natural colour

Q

272 Crested Snipes var. several shot.

328 Q Waterhen not covering eggs in a safe
Place.

♦ 327 Waterhens fighting violently for
females

11 17u "in Islay"/16-20m/w ♦ Ireland 32-35m
(Andrews), 36u "Col. macularia" 12 5-9m
(Blyth) 15 1-5m 19 16-19m 25 29-37m 27 25-
33m 42 9-11m (G. White) 44 21-23m (Sabine,
Eyton) 47 17-20m, 28m 49 12-16m 60 4-6m,
8-11m 61 2-3u↔, 10-15m 65 15-19m/19u
"more\of", 31-35m 69 1-7m 70 5-8m 85 2-7m
88 wt singular so small a habit 1-2m, 15-
21m/17-19w different genus 98 32-35m
(Selby) 103 11-14m (Yarrell), 13-14u "ringed\
feathers", 14-18Q 16-18m/16u "several\ringed"
122 14-15m 133 31-35m/w game 146 30-35m
(Jardine) 147 8-10m 164 11-12m, 16-18m
(Selby) 172 27-33m (Temminck, Keyserling,
Blasius, Schlegel) 173 1-2m 228 5-8m 229 21-
23m 247 2-6m (Thompson) 254 10-16m 256

19-27m (Selby) 257 1-4m 272 9-12m, 30m 314
9-16m 327 28-33m 328 13-22m

vol. 3 SB1 p17; p31; 39; p.44; 63; 68; 70;
102; 110; 323; 441; 457,8; 461,2,5; I have
read only 1st vol. of Yarrell

SB2 □β

31 Origin of Domestic goose - variable
(good) p.44 Domestication of Grey Lag: or
Parents

63 Q Migratory instinct wearing off in 12
years in wounded geese

102 Division of flocks of Wigeons &c into
distinct flocks (Ch. 6)

441 Extension of frequency of Starling of
late years, after loss.

457 Hybrid Blackbird & Thrush (intermediate
young)

458 Various Hybrid Swans to 462

465 Ages of Birds Ch. 5

♦ 39 & 70 Hybrids Ducks & Geese

17 1-5m, 33-35m 31 8-16m/11-12Q 39 1-
7m (Yarrell) 44 26-28m 63 20-26m 68 1-5m
(St John) 70 31-34m 102 9-13m, 18-28m/23-
27m 110 12-16m 323 31-33m, 35-36m 441 1-
4m 456 36-37m 457 6-8m, 30m, 30-37m 458
1m, 13-15m, 25-26m 460 26-27m 461 4-15m,
22-27m (Yarrell), 29-32m (Selys-Longchamps)
462 6-10m (Westwood, S. Moreton) 465 33-
35m 467 12-14m, 16-17m, 19-21m, 24-25m,
27-28m, 37u "fifty-one years"

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garden* 2nd edn; London; William Blackwood
& Sons; 1871 [Down]

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Milan; J. Bernardoni; 1877 [Down, I] ⚧

THORELL, Tamerlan *On European spiders*
Upsala; Ed. Berling; 1869-70 [CUL, I]
ad, af, sp, sx, sy

NB a generalised group of spiders with
radiating affinities & small genera, very
distinct - p41

135 Blind Spiders in caves

♦ 205 Sexes

41 2-9m 135 13-15m (Keiserling) 205 16-21m

THORELL, Tamerlan *Remarks on synonyms
of European spiders* Upsala; J. Lundström;
1870-73 [Down, I] ⚧

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tration of the sexual system of Linnaeus* vol. 1
[Down]

THOUGHTS on the mental functions Edinburgh; Oliver & Boyd; n.d. [Down, I] beh

NB 115 to end
On Expressions
116 recognises Expressions instinctively
O/

iv 6-7m, 10u, wb <not CD> v 8m, 9m, wb <not CD> vi 20m, 29m vii 9m, 17m, 28m, 31m, 33m, 49m

∅
116 23-35m

TIEGHEM, Philippe Van *Traité de botanique* 4 fasc.; Paris; F. Savy; n.d. [CUL, S] che, ct, fg, phy, tm

fasc. 1 NB p61,2 Bloom; p155; -85 Fluids for absorbing Light; 91 Constituents; 96; 98; 122 Frank Bicarbonate; 138 read to 60 fig.m 61 11-22m 62 1-5m 86 1-8z 91 24-30m 96 23-29m, 40-47m 98 40-46m 99 16-23m, 48-51m (Sachs) 103 23-25m, 26-28m, 40m 123 35-48m (Sachs, Guillemin), 41-44m/43u "cupro-ammoniacale" 126 14-17m 138 3m 147 2m 155 1-5m, 7-8m, 42m (Sachs)

fasc. 2 NB 202 & 208 & 209 Frank. Loss of weight of grains; 209 Bears on my experiments with drops of water; 225 Root-Hairs.-; 248 Effect on Haricot crest of Ammonia in humid air; 255 Hairs 202 16-23m, 38-40m 203 5m, 40-46m/46u "Barthélemy | Dispacées" 208 6-7m, 8-30m, 39-46m 209 4-12m, 34-36m, 38-43m 225 1-4m/3u "Rapa", 41-43m 248 31-34m 253 12-1m 255 20-26m 309 15-12m 315 9-11m 318 15-19m

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fasc. 4, 490 4-5m/5u "leucite"/w or Aleuron! 492 11-19m, 28u "condense | protoplasma", 43-46m 493 8-14m 494 9-12m 498 fig A.m, fig B.m, 18-19u "partagent | protoplasma" 500 40-45m 505 20-21m/21u "latex | Euphorbia" 524 35-37m/35-36u "paraissent | réserve" 526 27-29m 528 41-44m 529 29-34m 532 18-22m 574 34-46m 596 5-10m, 13-18m 598 28-32m, 41-45m 622 1-6m 624 7-10m, 19-25m/19-20u ↔ 627 8-12m

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NB O/

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TRIMEN, Henry and THISELTON-DYER, William Turner *Flora of Middlesex* London; Robert Hardwicke; 1869 [Down] ex, gd, no

NB 345 large number of rarest plants, compared with common in Middlesex 345 15-23m

∅

TSCHUDI, Friedrich von *Sketches of nature in the Alps* London; Longman, Brown, Green & Longman; 1856 [CUL] beh, cc, gd, mhp, oo, ta, v, wd, y

NB1 p16♦

NB2 p16

SB1 p.18; p.89; p.151; p.152; p.160; 170; 178; 236

SB2 □β

16 3 weeks between blossoming of highest & lowest Cherry-tree

89 case of Fox carried by Eagle & escaped alive Goat 90 children

151 3 vars of Bears - Black feeds more on vegetable. 152 Brown attacks Goats

160 Cattle in Spring know the Bell for turning out for Summer Q

178 Wild sheep in Alps - Bergamesque peculiar Breed N.Q.

236 Ibex or Steinbock very different on Alps & Pyrenees

96 Chamois common to Pyrenees, Caucasus, Carpathian

16 3-7m 89 16-28m, 35-38m 90 27-36m 91 3-6m 151 20-23m, 26-27m 152 8-12m/9u "while | brown" 160 31-37m/33-34Q 170 22-26m 178 5-9m, 29u "Bergamesque" 179 1-9m 236 23-27m

TUCKER, Abraham *The light of nature pursued* 4 vols; London; 1831 [CUL.1900]

vol. 2, 269 ↑14a "implying" no

TUKE, Daniel Hack *Illustrations of the influence of the mind upon the body in health and disease* London; 1872 [CUL.1900]
beh, em, phy, t

SB All on Expression, except p.282 on imagination of Mother

remarks sensation via the epigastric region from many emotions long ago observed.

p.29 30 75 88 98 135 136 141 154 159 223 244 261 263 269 271 273

282 - Effect of imagination of mother on foetus

340 345

29 6-7m/w He experimented on himself 8-10m/Q 30 3-5m/4u "sensory ganglia", 11-16m 75 4-5m 88 ↓w | err when | speak of retching from Habit or resulting tone - imagination is cause. 89 15-22m 98 ↑5-1m 135 3-7m, ↑12-6m 136 ↑19-16m, ↑12u "burning shame", ↑9-7m 141 8-18m 154 ↑10-3m 159 16u "Pride", 18u "elevation | head", 17-20m, wb Does a man making himself tall - account for position of Head - He is ready for action - 223 5-12m 244 ↑4-1m 261 2-12m/? 262 ↑18-9m, ↑8-1m 263 2-6m, 13-17m 269 8-18m 271 ↑19-16m, ↑15u↔ 273 ↑12-9m 282 ↑16-3m 340 18-24m/w shows how different emotion is from will - like reflex action 345 ↑14-10m 347 17-23m, ↑14-10m, ↑4-2m 350 5-12m

TURTON, William *British fauna* vol. 1; Swansea; J. Evans; 1807 [CUL, pre-B, S Charles Darwin 1826]
sh, tm

87 ↑4w↔ 118 ↑10-9w↔ B> 129 16w↔ Horse Luck 136 4m 138 32m 140 39m 141 32m 142 47m 143 31m, 36-45m 144 5-9m 145 47m 146 24m, 31m 147 55m 148 13m 149 27m 150 4m 154 3m, 27m, 40m 156 2m 157 21m 159 1m 161 3m, 16m, 39m 162 9m, 32m, 51m 163 7m, 26m 165 15m 167 36m 171 37m, 52m 173 33m 174 17m 177 2m 178 5m, 40m 179 41m 184 ↔ 30m/w *Odostomia* 32w 1 41w 2 46w 3 53w 4 wb * Shell spiral produced, mouth contracted subangular generally distinct from, in body short & furnished with teeth 185 ↔ 7w 5 22w Sym: 30w 9 39w do 186 ↔ 8w 6 16w 7 23m↔/w 8 30w 9 39w 10 46w 11 187 ↔ 1m/w * *Planorbis* 22m↔/w 1* 29m↔/w 2 36w 3 45m↔/w 4 52w 5 wb Shell simple, spiral, depressed, spines lateral mouth oblique 188 ↔ 3w 6 10w 7 16w 8 191

18w↔ Sym: 26m, 42m 192 ↔ 4w Sym: 11w do 17w do 24w do 36w Sym 43w do 50w do 193 ↔ 1w do 8w *Symnaea* 33m/w *Symnaea* 34w 1* 41w 2 47w 3 wb * Shell ornate conical mouth entire longitudinally oblong the rt lip joined to the left at the base & folding back on the pillar 194 ↔ 1w 4 7w 5 15w 6 21m/w 7 28w 8 41w 10 195 ↔ 1w 11 196 6m, 21m, 40m 197 1m, 35m, 42m 198 6m 201 4m, 50m 207 ↑11w↔ 208 22m, 24w Fecal orifices turned one way 29m 209 23m, 28m, 52m 210 12m 211 39m 212 ↑29-28m, ↑23-22m, ↑18-17m, ↑13-12m, ↑7-6m 213 36m, 52m 214 11m 215 26m, 33m, 38m, 43m, 45m 216 15m, 31m/w of Lamarck 37m, 41m 217 14m, 30w Chelata of Lamarck

TUTTLE, Hudson *The origin and antiquity of physical man* Boston; W. White & Co.; 1866 [CUL]

h, no, v

NB 35 Number of races of man made by various Authors

35 7-16m (*Buffon, Kant, Hunter, Virey, Blumenbach, Desmoulins, Bory de St Vincent, Morton, Pickering, Burke, Jacquinet*), 7u, 9u, 10u, 12u, 13u, 14u, 15u (numbers)

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beh, t, tm

vol. 1 NB Expression

p.150 153 voice tones of; 167 do; 169 pleasure only in air Greenlanders turn up nose in contempt or horror; 27

16 15-21m, 28-31m 150 29u "accompanied"/w (a) wb | shd say the sounds cause the form of face 151 6-9m 153 21-34m 166 21-30m/28u "whine of" 167 24-37m 169 15-19m

TYLOR, Edward Burnett *Researches into the early history of mankind* London; John Murray; 1865 [CUL]

beh

NB Expression

41 opposition in signs p38 - Opposition p51

TYLOR, MANKIND 1ST EDN

& 53 – Gestures Kissing rubbing noses &c 62 ♦; 54 foreigners talk by gesture
Nodding do gestures
6 15–18m 35 21–25m 38 4–18m 41 26–30m 45
12–17m 51 18–27m 52 26–31m 53 2–8m 54 3–
21m 62 1–4m

TYLOR, Edward Burnett *Researches into the early history of mankind* 2nd edn; London; John Murray; 1870 [CUL]
beh, h, t

NB1 p45 snapping fingers; p52
Expression; 38; 41; 44 Book; 47; 48; 52; 69
p272 Excellent on Progress with Mankind –
& similarly of mind – Referred

NB2 ●
38 5–9m, 14–22m 41 23–35m 44 29–31m, 38m
45 15–17m, 16–25["..."], 24–28m, 34u
"smelling" 47 10–15m 48 20–23m, 33–34m 51
23–29m/23u "pleasure\greeting"/24u "rubbing\
other's"/29u "pattings\Fuegians" 52 16–21m 53
13–15m, 19–22m/19u "back with" 69 1–5m/2u
"with fingers", 36m (Lieber) 275 31–32m (G.J.
French) 276 16–23m 372 3–38m, 19–20z 373 1–
20m

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cc, cs, dic, f, fg, hy, ig, mhp, phy, sp, sx, t, tm, v, wd

NB1 Not abstracted nor is Lecoq

NB2 160 Williams vessels of Cruciferae

SB Vol I ⊗

Everything without red cross is about cross-fecundation

p4 D; 17 – wind D; ♦ Look over Marks; 21.D; 24.D

♦ to 58 (from now I shall skip largely)

⊗ All used about Crossing
74D.

143–151 Fumaria D

156 Cruciferae

Law of Variation 159 X⊗ 160 D 163 200 D

Dimorphism 308 X⊗ Violets

do – 316 X⊗ Reseda

x 322 X⊗ Drosophyllum allied to Drosera

D 329 Polygala D 388; D 347; D 350; D 355; D 364

Sagina 377 X⊗ dimorphic?

D 383

Used ♦ 400,403 Linum

407 Malva D

♦⊗ 408 Do

493 Acer D

518 521 Pelargonium D

523 528 D

542 X⊗ Noli me tangere Dimorph

Dimorph

544 X⊗ Oxalis

563 – Dictamnus D

572 587

⊗ very poor Book

⟨over⟩ 24D

⟨D indicates "dimorphism"⟩

vi 25–28m (Cassini) 4 17–21m 8 21–37m/w C.

Calycina 10 23–27!/25–28m 11 1–6m 17 33–
36m 20 30–37w opening of anthers 31–40m

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vol. 2 NB p371 Lythrum

SB □β ⇔

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21 & 22 Rhamnus - dimorphic or polygamous

42 Leguminosae Dichogamy &c

64 Spartium Dic.

82 Ononis dimorphic

90 Nat. Hybrids

188 Nectar-glands Vicia - Dimorphic Vicia

194 Lathyrus. Dimorphic & good gradation

204 Phaseolus - Dic.

213 Lupinus 2 sorts of anthers

225 Arachis dimorphic

225-299 Dioicous Legum. Dic

327 330 333 Epilobium &c Dic

339 allied genus D. Moth caught by proboscis

370 Lythrum Dimorphic

535 Saxifraga Dic.

558 563 565 to 571 Umbellifera Dic

610 611 624 627 Flowers of Ray & centre in Umbellifera. Law of Relations; in relation to Daucus - central flowers at 613, 614

644 Adoxa central flower, form from position

682, 693 Crucianella. Dic.

702 Galium sexes separate

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11 18-28m, 21u "dioiques", 33-36m, 33u

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∅

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300 Compositae. Dichogamy

307 Lobelia fertilization a dioicous form D

309 Goodenia References good D

387 Asclepius does not believe is D.

396 Apocynum D.

399 Vinca D

402 Menyantes Dimorphic

413 Dic.

454 Dimorphic

461 Echium dimorphic

461 Pulmonaria do

466 Myosotis palustris do

518 Digitalis Dic

576 Mentha dioicous

578 Lycopus do

584 Salvia manner of fert (subsid) Dic.

596 Origanum 599 Thymus 603 Satureya

611 Melissa 687 General Remarks on d.

723 Hottonia dimorphic 724 ♦ Lysimachia ♦

738 Primula dimorphic 741 Soldanella dimorphic?

☞ In former Volume about Lupins with 2 coloured Stamens?

3 3-4w Not read to p.299 300 12-16m, 34-38m 301 4-7m, 9-13m 307 3-8m, 27-31!! 309 5-7m, 28-32m 387 22-27m 399 6-8m, 13-15!!/m, 30-33m 402 6-11m 413 27-32m 461 21-

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35 Atriplex

complex sexual case gradation

521 ♦

very imperfectly skimmed, but as much as it deserves

521, 522 on relation of fertilization to position of nectar Dichogamy

35 12-27m 434 15-17m 521 2-11m, 15-18m 522 30-34m

VEITH, Johann E. *Die Naturgeschichte der nutzbaren Haussäugethiere* Wien; W. Braumüller; 1856 [CUL]

cs, dg, gd, geo, or, sl, sp, tm, v, wd

NF Veith

title page wt Reith ♦ Veith 11 29-36m/31w (a) wb (a) races produced by selection deteriorate when neglected 15 24-25m/u "weil theilt" 24 24-29m/w wild horses of central Asia 28u "ohngefähr gewöhnlichen"/w small 33u "Ihre kraus" 25 1u "lohbraun", 2u "isabellgelb mäusegrau", 9u "weissliche", 10u "behaarte Pamer", 12u "Kumurah Bergpferd", 13u "das Sardiniens", 14-16m/w doubtful whether really wild 17m, 27u "dunkelbrauner silbergrauer" 29 wt How little we can trust geological evidence shown by the 2 Americas 1u "werden Hauptstämme", 11u "dunkelbraune Pferd", 3-17m/w I daresay from Smith 20-25w Remarks cannot be traced 31 11-13m/12u "lange Mähnen" 33 wt I remember lately seeing that English horses had beaten Aegyptian 10u "Sie Stammältern" 34 12u "noch gemeine"/w Dray Horses 20-21w India Pony still different 22-25w But new Forest Shetland & Welsh Ponys have different appearance 26-28m/w English Pony 35 20u "Neapolitaner", 21u "schweren Kopf", 22u "Höhe gerichteten", 27m, 33u "sardinischen klein" 36 7-15w nothing particular 37 13u "abstehend hängend"/12-19w Great heavy horses 38 16-22w Germany nothing particular- 25w Northern horses tow.- 39 4u

"russische", 7u "lange Mähnen", 8u/wt, 11-14w These crossed by Eastern Horse 15u "liefländischen", 21u "Ukraine", 25u "domische Kosakenpferd", 26u "Ganaschen"/w lower jaw 31u "polnische"/w very distinct 35u/wbt 40 7u "Bachmatten Podolien", 16-17m/16u "sehr haut" 41 6u "edle ungarische", 28u↔, 34-35m/34a "Paarung"/wb i.e. Neapolitan-Spanish 42 11m/u↔, 12u "in Slavonien", 16u "böhmischen Pferde", 18u "fleischigen Augen", 19-20u↔, 27u "Steiermarks", 31u "Salzburgs", 33u/wt 44 10-11m/10-14w never have white spot on forehead 48 32-33m/u↔ 52 30-32m 55 13-15m, 18u "Die race", 19u "spitzigem Kopfe", 21u "hohen Beinen", 32u "Das Würzthaler" 56 1-3m/1u "das Vieh"/w 3 30-35m/33w 6 57 3u "England"/3-5w England not counted 20m, 26u "Holländer", 33u "friesischer" 58 3u "Tütische", 8cæ, 10-11w Short Horn 17u "Alderney", 18u "aus stammend", 20u "fette Milch", 25u "grosse scheckige", 30-31u "Hintertheil Schwein-wurzel" 59 wt could these all arise from few crosses? 1u "Simmenthaler Saanervieh", 5u "Tiroler", 18u "eine Maul", 19u "Ohren", 22u "Schweizer" 60 1u "Vorarlberger", 7-10w sub-vars 17-27m/22-25w sub-vars 29m/29-35w So above does not include crossed races in his opinion.- 64 26-27u "Alpenketten Nordasien", 27-28u↔, 33-34u "Früher heimisch"/? 65 1u "Sardinien getroffen", 2u "jung zähmbar", 4u "Gebirge Nordafrika", 6-7u "im Armenien" 67 10-12m 68 31m/w Felt 33u "gemeine Landschaft" 69 5-7m, 14u "Lüneburger Niederungen", 16-19m/16w 3 25u "ungehört hochen", 30-33m 70 5u▲, 11u▲, 12u "abstammend", 34-35m 71 22-24m 72 5m, 11-12m, 31u "hängenden Ohren" 73 3-4m 78 9-10u "hat Zitzen", 22u/wt 80 21u "grosse kleine" 81 2-4m, 9u▲, 10u "konstant", 11-12u "Das Ähnlichkeit", 18u "durch Kreuzung", 21-22u "China vor", 27u↔, 31u "Russland" 85 25-27m, 27-28u↔ 86 5-7m, 19u▲/w setter 25u "selten Haare"/w spaniel 26u±, 32w Newfoundland 87 1-2!/2u "kegelförmiger Ohren", 4-5w Greyhound 14-15w Cattle Dog 22-23w short snout hanging ears & jaws 25w Terriers 28w Pointer 88 5-6w Danish Dog 14-15w Pug 17w Bull-dog 27w Mastiff 32-33w St. Bernard 91 10-12m/11u "maniculata Rüppel", 19-21m/19w Tortoise shell

VERITY, Robert *Changes produced in the nervous system by civilization* London; S. Highly; 1839 [Down]

33 21-25m 34 1-3m 134 3-12m

VERLOT, Jean-Baptiste *Sur la production et la fixation des variétés dans les plantes d'ornement* Paris; J.B. Baillière; 1865 [CUL, I, FD]

cs, dic, f, fg, gd, he, hy, in, mhp, mn, or, phy, sl, sp, spo, sx, t, ta, tm, v

NB 4 & 5 Sports; Hybrids; 14 *Cytisus adami*; 22; 28; 31; 46 Hybrids; 54; 56 Colour of flowers; 59; 63 panachure; 61; 71,2; 80 & 88; 84 very good; 90; 92

SB1 □β ↷ (not CD but dictated by him and with corrections in pencil by him)

Verlot ↷

p.4 & 5 Bud variations – good ↷

11 Hybridization, ↷ facts on *Bryanthium* Genera

14 case of *Datura* illustrating *Cytisus Adami*

20 ✓ ↷ *Leptosiphon Polemoniaceae* ↷ case of crossing naturally

28 & 31 Vilmorin on selecting greatest duration

30 causes of variation – age of see ♦ ↷ & time when gathered

32 ✓ ↷ Individual plants of same variety alone having power of transmission

34 individual dwarf *Ageratum* sterile

38 ✓ ↷ case of dwarf *Saponaria* with no power of transmission

39 another dwarf with strongest power

42 Macnab on different effect on offspring of pollen from diff't anthers ↷ of different size ↷ in *Rhododendron*

46 on crossing Tropical & temperate *Amaryllis* case like *Rhod. Arboreum*.

54 inheritance of purple beech & of purple barbary. ↷ Used in Ch xi

56 principle of the 3 colours in flowers.

59 white flowers very rarely vary into other colours

63 & 66 Vilmorin on ↷ origins of ↷ stripe of striped flowers being case of partial reversion. Good. I shew also from crossing. ↷ I think partly used

SB2 (as SB1)

↷ Copy of Dichog Next

66 ✓ ↷ Vars of *Convolvulus*, *Antirrhinum* & *Nemophila* naturally crossing good as I know the 2 former are self-fertile

71 Do on dianthus

72 | ↷ some plants *Tomatos Pimentos* & c said never to cross naturally

72 Cases of corellation of colour of flower & seed Q ↷

74 White spotted leaves inherited ↷ partly Q

80 Hose & hose primrose sterile

84 Stocks producing mostly double plants quite sterile & a few single-flowered plants

by which race is propagated, illustrating production of neutral ants. ↷ Used

85 Old seeds positively said to produce most double flowers ↷ not since disputed

↷ (CD) Bears also on selection, knowledge of vars

86 case of gardener who cd distinguish 150 vars of *Camellia* when not in flower

88 4 cases of monstrous flowers which can be inherited & therefore are not sterile

SB3 (simile)

89 & 90 On Peloria of *Linaria*

92 Var. *horrida* of common Hawthorn ↷ (used)

93 on inheritance of weeping trees

94 Exaggeration of fastigate habits in seedling Irish yew

♦ ↷

4 22-27m/23-25w sport 27u "une famille" 5 15-22m/17-18w sport 11 27-33m 14 14-22m (Naudin) 22 19-25m/w crossed naturally 28 19-33m 30 24-28m/25u "moins récemment"/ 26u "recueillies sur"/28u "plus tardives" 31 12-18m 32 7u "Vilmorin", 8u "plantes semblables", 9u "même même", 11-24m/16u "semence nombre", 18u "tandis autres", 20u "dans descendance", 22-24m/1-24w individual plants transmitting colour vars 34 8-11m 38 17-24m/w non-inheritance 39 6-10m 41 5-7?/ 7u 42 12-18m (Macnab) 46 8-14m, 21-24m 54 13-35w Purple Beech degree of inheritance 55 17-19m (Bertin)/Q/18u "et variété" 56 6-12m 59 11-18w white flowers rarely vary vary into coloured 23u "rose Robinia" 61 3-37m 62 wt The striping is by seminal generation in Vilmorins case by bud-var with tulips & ● in carnations wb Gallesio & Lecoq & self with sweet peas show it can come by crossing 63 wt I suppose care was rather to prevent the white flowers from being crossed – p.66 care was taken with flowers when one striped wt Simple Reversion with crossing 1-6m, 2-6m, 7-30w ♦ Perhaps I ought to allude to Vilmorin under Tulips done 7-12m/9-12m, 12u "qui par"/10-15w see p66 15-17m/ u↔, 27-32m (Vilmorin)/27w read 29u "manière graines", 36-37u "par blanche" 66 1-3m, 10u "cultivé distance"/11u "Nemophila insignis"/8-14m/w yet self-impregnated 21-25m, 25-28m 69 24-27m 71 4-7m 72 3a/u "Piments", wt ↷ I suppose Pimenta on Jamaica true of the Hills 3-4u "Aubergines mélangent"/4-5m/3w ↷ Both *Solanum* 27-36m/ 15-34w correlation of colour of flower & seed. 74 28-35m/28-29m/14-30w inheritance of spotted leaves 75 1-5m, 6-10m, 15-22m/w inheritance 76 8-12m, 32-34m/Q ↷ 80 21-

VERLOT

24m/w Monster sterile 84 10u "Quarantaine", 11-13m, 16-22m, 16-18u "se|simples", 20-21u "par|simples", 23-24u "sil doubles", 1-25w excellently good case illustrating selection of neuter ants 33u "Cheiranthus|quarantaine" 85 10-24m/w old seeds produce double flowers 86 22-26m/22u "Camellia"/24u "150|inspection" 88 8-15m/8u♦/10-13w Monster inherited Calendula 17-19w Monster do 25-26w Monster do 29-31m, 32-34m 89 2-4m/3w neuter 24-26m 90 14-16m, 25-28m/25w Linaria 92 28-30m/Q 93 19-20w weeping trees 22u "Fogus pendula", 23-26m/24u▲/25u "à|forme", 34m 94 2-6m (Macnab), 32m/u▲/25-34w Exaggeration of character

VIARDOT, Louis *Libre examen* Paris; A. Le Chevalier; 1871 [CUL, I]

VIARDOT, Louis *Libre examen* new edn; Paris; A. Le Chevalier; 1872 [Down, I] §

VIARDOT, Louis *Libre examen* 5th edn; Paris; C. Reinwald; 1877 [Down, I] §

VIARDOT, Louis *Libre examen* 6th edn; Paris; C. Reinwald; 1881 [Down, I]

VIARDOT, Louis *Libre examen* (a fragment starting p. 97) [Down] §

VINCENT, Charles W. *The year-book of facts in science and the arts for 1875* London; Ward, Lock & Tyler; 1876 [Down]

VIRCHOW, Rudolf *Cellular pathology* trans. from 2nd edn by F. Chance; London; John Churchill; 1860 [CUL, I]
af, ch, che, ct, em, fg, he, in, pat, phy, sp, sx, t, tm, v

NB O/♦

♦ How can 2 widely separated ends of tendon be rejoined by ♣ proliferation of cells from either end – or does connective tissue between tendings then change – No doubt he wd say yes

♣ Sp Theory p334 Mammary glands & sebaceous glands, identical in nature

♣ 442 give up Nisus formativus

SB1 ♣

14 a body represents a social arrangement of parts every element having its own special action

18 an enormous mass everywhere of minute centres of action

27 plastic matter given up – no structure starts de novo

39 everything formed by proliferation.

important m.s. note

50 cellular view not established for all structures

60 no morbid growth really new

66 Hairs found in Brain

83 early single bone-corpuscle really possesses conditions of nutrition peculiar to itself

123 affinities between definite tissues & definite substances 126 example of do – organic poison & disease

129 great importance shd be given to specific action of the elements of the tissues

155 a pus corpuscle cannot be distinguished from colourless blood-cells

162 Fibrine not excretion, but local formation

187 & 219 cancer spreads by absorbence to ♣ near glands but actual cells not absorbed – Smallpox can be given by volatile matter & does not require a pus corpuscle.

233 speaks indirectly of all the tissues of body including blood cells building themselves up directly from the Embryonic formative cells of the ovum.*♦

245 on single cells in single skin papilla being diseased & growing into a condyloma

284 whole body consisting of vast number of centres of action –

SB2

294 Woorara poison special action on nerves, & in Bernard, some other book, but such cases are not specialized from single cells

390 & 392 Filmous exudations do not occur in all parts, not in Brain or liver, formed by adjoining parts, with exudations from blood

396 Rejects Blastoma; believes in continuous development of tissues from tissues

398 & 406 connective tissues as germs of the body

399 ovum a cell

400 Two principles, proliferation & division of cells (& endogamous growth within cells less important than latter)

402 subordinate differences in proliferation of cells in morbid structures.

404 Formative cells of embryo exactly alike whether a muscular or nervous element will proceed from them – so they change. & must be impregnated with gemmules

410 In cancer in Bone, the cancer-cells are the indirect descendants of the cells of the Bone.–

SB3

412 cartilage-cells may be converted in medullary or osseous, or back again – changes all ♣

412 fat-globules can pass into cells
 414 with cartilage & bone we can always trace direct descendance of cells from cells, but with changed nature
 421 Pus can be traced back to the elements of preexisting tissues, generation by generation.
 422 Cartilage into bone, into marrow, into granulation tissues & into pus – (NB ♣ these latter changes depend on conditions, & not on gemmules, why not former changes? see MS notes on broken bones
 426 In formation of Bone a series of permutations & substitutions
 431 Cartilage can only calcify, when it becomes bone it is transformed, the chondrine changing into gelatine
 439 In repair of bones connective tissues become changed into bony tissues
 441 every new formation has its origin in preexisting cells – no new acceptions to body – Give up Nisus
 445 Pus young tissue with dissolution of intervening matter
 450 indifferent formative cells, which might become pus, mucus, or epithelial cells.
 SB4
 453 granulations in every case arise out of tissues
 454 galls & morbid growth show that gemmules not reproduced for change – so change colours of parrots' feathers
 Muller about Polypoid growth peculiar to each part
 460 every single epithelial cell & c leads a sort of parasitical existence in relation to rest of body – so distinct in each cell
 463 All new formations are at first of similar ♦ same nature
 484 allude to dermoid growths in the orang which produce hairs, teeth & sebaceous glands
 SB5
 Virchow
 function of nucleus
 14 an individual consists of cells
 18, 27, 38 The eye only epidermis for Origin
 99 do
 39 important M.S. notes
 50; 53; 62; 64; 66; 68; 83; 101; 123; 126; 128; 155; 162; 164; 187; 219; 223; 245; 284; 294; 334 Sp. theory; 441 Species Theory; 442 Sp Theory; 445 to 463; 484; 487 All references to Pangenesis except two
 SB6 ♦ The independent life according to V. ♣ of each cell or cell-territory ♣ accords well with each cell procreating its own gemmule – making its own offset

xxiii 24m/u "The|continuous" 11 1-6m 14 6-14m 18 13-16m, 15-16m 27 9-12m, 15-21m, 34-35m 38 19-22m 39 wt/↓w/wb But remember action of pollen on Mother plant: here we have proof that male element can affect cells during proliferation 14-16m (Remak)/15u "proliferation", 20-26w yet many produce gemmules at each age, but of what use? 20u "proliferation", 23u "exception|lymphatic", 24u "belonging|organs", 27-30m/27-28u "when|divide", wb the question is whether a new cell formed from gemmule in opposition with another might not be confounded with division or proliferation 50 7-11m/1-21w♦ & Paget says muscles, nerves & Blood-vessels are not formed in ♣ effused lymph. – 8a "the" internal 53 1-5m 60 6c "physiological"/w natural 20a "every" newly formed 21-24m 62 1-4m, 22-26m 63 35u "of|structures" 64 2-3u "consists|business", 3-8m/6-7u "Heterotopia|loci"/w see p.66 66 23-32m, 30-32m 67 9-12m, 15-18m, 25u "epidermic", 26u "tumour", 27-28u "structure|epidermis", 31u "sometimes|parts", 32u "epidermis", 33u "of lymphatic" 68 17-20m 83 17-18m/17u "single|corpuscle" 99 24-27m 101 34-35m, wb Elastic tissues 123 15-18m/16-18u "certain|constitution" 126 17-23m, 21a "substances", 20-27w no doubt organic substances poison of Hydrophobic for salivary glands. – 28-20m/w Blister-Beetle 31-35w Poisonous Fishes wb Small-pox on skin 128 23-26m 129 17-20m, 24-26m 155 25-31m 162 12-18m 164 21-25m 165 2-5m, 33-35m 187 7-15m 219 10u "corpuscular"/w or cancer-cells 12-17m, 19-22m/w of cancer 30-33m 223 18-22m 245 1-5m, 6-11m/7a "papilla" though so minute 11-12m/11u "acuminate|condyloma" 284 4-10m 294 32-36m/w special affinity of organs pulsates○ 334 17-22m 335 17-19m 338 28-33m, 33-35m 339 10-15m 390 22-23m, 28-31m 391 4-7m, 35m 392 8m, 10-11m/11u "p.162", 14-18m, 31-35m 393 4-9m 396 2-6m, 21-23m 397 21-25m, 27-35m 398 7-11m, 14-17m/14-16u "substitute|germs", 26-28m, 33-35m, 35u "connective" 399 3u "connected framework", 10-15m (J. Müller, Schwann) 400 1-4m, 7-9m 401 17-18u "endogenous|cells" 402 18-20m, 30-35m 403 8-19m, 21-25m 404 12-17m 405 11-14m 406 1-6m, 19-23m, 29-32m 407 1-6m 410 33-35m 412 8-10m/8"... 413 1-5m/5...", 17-29m, 18c "in"/u "nuclei|them", 21-33w i.e. do not generate fat 32-35m/33u "may|fat", wb if this be so many gemmules may pass into cells – it certainly appeared in intestines & liver that fat passes into & out of cells 414 15-19m, 16-19m/16u "proliferation" 421 28-

VIRCHOW

34m 422 2-26m, 18-21m, 23-26m/23-25w/wb what a change of nature must have included gemmules; or it is rather chemical, can hardly be chemical as at any age such changes supervene in broken bones.- 425 13-17m/16-17u "intercellular substance"/17u "artilaginous", 19u "calcification|ensues", 24-27m 426 12u "permutations|substitutions", 25-31m 431 31-35m 439 2-4m, 16-19m, 20-23m 441 30-34m 442 wt/1-2w I must give up Nisus formativus 1-8m 445 9-12m 446 12-14m 447 11-14m 448 18-23m 449 29-34m 450 12-17m 453 16-19m, 25-27m, 30-32m 454 5-8m/wt/1-21w Galls & morbid growths shows that cells may be modified, without new gemmules by morbid nutrition or stimulus ♣ 455 15-17m, 25-27m 457 8-11m, 29-31m 458 25-27m/17-27w this looks like gemmules 459 1-5m 460 26-35m, 26-28m 462 29-30m 463 1-9m 484 19-24m/22-24u "produce|ovary" 487 4-8m, 19-26m 488 2-6m

VIRCHOW, Rudolf *Über einige Merkmale niederer Menschenrassen am Schädel* Berlin; K. Akademie der Wissenschaften; 1875 [Down, I]

h, r

5 1-3m/1u/3u, 15-18m, 16-19m

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VÖCHTING, Hermann *Beiträge zur Morphologie und Anatomie der Rhipsalideen* Leipzig; 1873 [Down, I] ♀

VÖCHTING, Hermann *Botanische Abhandlungen aus dem Gebiet der Morphologie und Physiologie*. 3. *Der Bau und die Entwicklung des Stammes der Melastomeen* ed. Johannes Harnstein; Bonn; 1875 [Down, I] ♀

VÖCHTING, Hermann *Über Organbildung im Pflanzenreich* part 1; Bonn; M. Cohen & Sohn; 1878 [CUL]

26 14-16m 27 26-30m 28 9-12m 34 13-16m 57 15-17m 67 4u "krautige", 26-28m 79 19-21m 86 19-22m 91 36-37m 99 36-37m 107 12-22m 169 4-8m 172 13-17m 175 7-10m, 32-33m 180 10-12m 189 15-17m 199 26-28m 200 19-20m 201 19u "Stachel|Weiden" 202 24u "Hollunder", 25-27m 203 2-5m/3u "irrig", 27-28m 209 23-24m 211 1-5m, 21-26m 213 4-7m, 12-15m 215 15-21m 233 20-29m 242 14-19m 244 11-15m/12u "Anstösse" 247 27-30m

VOGT, Carl *Lectures on man* ed. J. Hunt; London; Longman, Green, Longman & Roberts; 1864 [CUL]

he, ig, sp, t, ts, v

NB ♦ p.45; 395 Turf-swine; 397,8 Cattle; 399 Sheep good; 400 Barley; 355 Herr on do; Used p.452-453 Transitions 454 457; 458 good 468

SB □β

♣ 452 on intermediate forms between the classes & between species.

♣ 454 Do

♣ 455 gives Agassiz blunders on first coming in of various classes

411 Even purely bred black Cats whose pedigree is known for some generations have kittens fairly striped at birth

♣ See back of Page on Transmission of Characters

♣, ♦ 121 Negro pelvis

♣ (not CD) p.45

(Species Theory)

C. Vogt

81 23u "head|rounder", 24u "jaws|skell", 25-38m, 29u "type|skull", 37-38m, wb over 82 18-24m 88 table.m to lines 1, 5, 23, 27, 29, 31, 33 90 22-29m, 30-38m 91 15-19m, 32-36m 121 33-36m/36u "cuneiform, lengthened" 127 9-11m, 12-15m 129 12-14m, 20-22m 133 14u "self-consciousness" 137 15-16m, 18-22m ♦ 150 6-9m, 6u "gap|diastema", 9-10u "tooth|chimpanzee" 151 5-8m 189 5-9m/5w Child 222 27-32m 290 36-38m (Lund) 355 10-28m (Rütimeyer, De Candolle, Alphonse) 356 26-32m 395 28-32m 396 1-3m, 7-10m, 34-39m 397 4-6m, 17-19m (Rütimeyer) 398 2-7m, 11-12m (Owen), 18-22m, 27-30m, 37-38m 399 2-5m/4u ♣, 8-11m, 12-15m/m/m/w Sheep 15m, 23-24m, 28-31m 400 30-31m 411 7-13m 421 19-21m/? (Rengger) 431 34-37m 452 16-38m 453 6-31m (Andreas Wagner) 454 26-34m (Gaudry) 455 26-39m (Agassiz) 457 27-33m 458 19-26m (Lovén) 459 8-12m 464 21-31w Orang developed Gibbon 465 2-3w developed Macacus 12u "mandril", 17-21m (Gratiolet) 467 1-2m 468 7-20m

VOGT, Carl *Lettres physiologiques* Paris; C. Reinwald & Co.; 1875 [Down]

NB read to p. 83. May 3d

VOGT, Carl *Mémoire sur les microcéphales ou hommes-singes* Paris; 1862; including

QUATREFAGES DE BRÉAU, J. *Comptes rendus des séances de l'Académie des Sciences*

64 (1867): 1-5 [review of Vogt] [CUL, I]
af, beh, dg, ds, dv, geo, h, he, hl, ig, pat, r,
ta, ti, tm, v

Quatrefages, NB 2; 4

title page \hookrightarrow Quatrefages on Vogt on Man
(important) \Leftrightarrow All used

2 22-27m, 29-33m 3 3-6m 4 6-13m (Gratiolet),
17-20m, 27-30m, 35-38m (Vogt) 5 8-11m, 22-
24m, 28-31m

Vogt, SB1 $\square\beta \Leftrightarrow$

This will come under Arrest

Vogt on Microceph; & Quatrefages on Vogt

Add Vogt to names of those who have
declared descent of man

50 on Prognathism pithecoïd of Microceph -
in Anthropomorphic apes the intermaxillary
bone disappears very early

54 curious correlations of frontal sinus &
muscular force & degraded state & age in
man & apes

56 crests for jaw muscles in Microceph & old
apes

59 Skulls simian, faces human

73 ages at which last molar or dens
sapientiae appears

79 Apes born with relative larger skulls or
brain than Man

125 126 idiots case like endowed with less
surface \Leftrightarrow of brain than simiae \Leftrightarrow but more in
mass

168 good. Desor no dom. animals imitate;
notorious that monkeys do - so do savages
so do grt. microcephalic idiots - Imitation no
doubt plays a most important part in
education

176 idiot, when Brain excited near death,
recalled old recollections so do animals,
remember without thinking of them.

184 are very fond of climbing: one does not
doubt the Theory of lambs, & kids frisking on
a tiny hillock as alpine animals, but every
one wd laugh at passion in Boys for climbing
trees being remnant of arboreal Habits.-

SB2 $\square\beta$

197 summary on Skulls & brains of
Microcephalous

199 on parentage of man - from a form
lower even than Ouistitis

Quatrefages

p.3 argues that man not descended from
Anthropomorphous but I think Vogt expressly
admits this.

p.4 admits Gratiolets view of no real affinity
between Anthropomorphous apes - Blyth
admits also.- says man not descended from
one ape. but that all apes & man descended
from a common unknown type - quote

Quatrefages - but this implies so much
convergence I cannot admit - probably the
split was taken way back

SB3 Vogt p.169 Micro tendency to imitation
to extraordinary dgree

171 Micro dumb

Small skulls - yet development of frontal
sinus - prognath going dumb - good \blacklozenge
strong tendency to imitation, eg fond of
climbing

p.197 convolutions of brain simpler

198 Prognathus effrayant

184 strong, very active, jumping &
gambolling - grimaces - go up stairs on all
4s

185 Versatile - attention never long to
anything - intelligence below that of animals

20 30u "docteur Behn", 31-32m/31u "treize
ans"/32u "en rougissant" 21 4-6m/5u "oeil
une" 26 30-32m 27 1-2m/1u "en tête"/2u
"d'une suivants"/3u "accentuer fortement" 50
8-10m, 16-18m 54 20-21m, 22-23w
correlation 25-27m, 27-28m 56 1-6m 57 21m
59 1-3m 73 10-12m 78 6m 79 6-11m 124 13-
17m (Rudolf Wagner) 125 11-13m 126 4-9m
127 3-4m 156 25-31m/27w correlation 160 3-
6m 168 27-31m 169 1-3m, 6-8m, 20-24m, 26-
27m/26w Savages 176 3-10m 184 25-28m 185
13u "versatilité", 22-24m 191 17-22m 194 17-
29m (Rüttimeyer) 197 2-11m/9u "requius", 27-
30m, 32m 198 2-4m, 20u "prognathisme
effrayant" 199 30-32m 200 1-3m, 15-17m
(Lartet), 19-23m

VOGT, Carl Über die Aufgänge der
Organismen Hadelborn; Ferdinand
Schöningh; 1870 [Down]

VOLZ, Wilhelm Beiträge zur Kulturgeschichte
Leipzig; G. Teubner; 1852 [CUL]

beh, br, ch, cs, ex, gd, h, hy, is, mg, oo, or,
no, sl, sp, t, ta, v, wd

NB \hookrightarrow

77 Goose 78 Duck Antiquity

NB2 Many important marks; marked from
here p137; p226; p230; p232; p264; p371;
380; 400; 455

NB3 p.99; \Leftrightarrow Dates of Authors; p392 \blacklozenge

SB $\square\mathfrak{R}$

7 Bischof \clubsuit see beginning says seeds stick
to water Birds

47 X \Leftrightarrow Mixing of races forbidden - 3 Moses
19.19 shows was attended to & done

76 x \Leftrightarrow Polycrates of Samos had done much
to improve cattle (which cd only be
selection)

VOLZ

78 age of Fowls well made out – Duck not known tame in Aristotles
 80 X^o Alexander chose best Indian cattle to send home
 91 Sheep & Goat in Ctesias time larger than in Europe
 99 X^o increase in number of varieties of Plants & Dates
 115 History of Dog – sheep dogs shd be white
 114 x^o Sheep in Columellas time improved by cross
 137 Ducks introduced in Germany from Rome. Anas Enten
 226 increase of animals in S. America
 229 2 breeds of cattle in Brazil
 231 Newfoundland not fd in N. England when discovered
 400 Alpine cattle generally small Q

5 39–40m (Brown)/39–45w 13 plants in W. Africa from W. Indies are there any American genera? 6 16–20m/w Siebold says Mays washed ashore in Japan 1200 years ago 43m (Link), 44m (Siebold) 7 wt No precise facts in regards to distant migration 3–8w Bischoff seeds hang to water-Birds. Look to this 4–6m, 9–13w Have any water-Plants hooked seeds – 16–21w cases of distribution of plants in own country by animals 29–30m/w so first Rose transported No precise facts 8 15m, 23u▲/22–29m/w It might be questioned whether these species not created during period of agriculture 10 27m 12 wt/1–10m/w Flowers of potatoes same on Ms of Chile, as in plains of Siberia 10–16w Cereals same in Aegypt old & new 16–22w onion from mummy hand grew!!! like present 32u "Blumenkohl", 32–35m/w Cauliflower ? introduced 16 13 13–20m/w Citron changed since time of Palladius 35–42w 1500–1600 only wild Tulips now 5000 kinds of Tulips 17 wb N.B as many, even most Camels? Sheep cd not run wild, or all domestic animals have run wild, whereas many vegetables in their present recognisable forms as wheat, probably wd become extinct with man: it shows plants most altered. To some extent it may be that plants more diffused & everywhere better stocked.– C.D. 19 23w Barley 25–26w Origins not known of these 25w Rye 25w Wheat 25u/wt, 26u/wt, 27u/wt, 41–44?/m (Dureau) 21 34–36w Sheep never run wild 22 19–23m/w Camels run wild in S. Siberia 23 11–15m/w Places where wild Horses said to exist formerly 24 wt/1–17w Reichenbach has an astonishing theory that races of Dog get like

the animals they pursue. Quote perhaps for folly 1–20m, 29u "wussten"/28–32m/w The Greeks had not dogs with hanging ears? 25 7u "948"/7–10w Cats previous in this year 41u "Truthühner"/w Turkey 26 wt Hens known in oldest times of Aegypt 1m, 2–4m/2u "Hesiod | Testament", 3–4w Hens not mentioned 19–20m/17–22w old Aegyptians distinguished wild & tame geese 29 30m 35 31m 46 20–27w Moses speaks of Cinnamon so common very old 30m, 33–35w Peacock "Kings" 43m 47 1–5w Horses brought by Soliman from Aegypt 10u "Abraham"/11u "Tauben"/10–13m/w Abraham Pigeons 26–27m, 39m, 42m/w Pigeons 46m, wb Mixing of races forbidden: this shows formerly done or by other nations 48 wt The antiquity of races is very important in showing how very slow variation is – Horses have varied since 2–6m/w 2 races of donkeys in Abrahams time Hence have varied since 11–13m/w Pigeon let out of ark 14–16m/14–19w In old Testament hens not mentioned 32–33w wheat barley spelt 49 11u↔/w Leek Onion 18–23w Wine olive figs pomegranate 50 24w almond 51 2–7w Plums Pears Quince Trees 56 8u "Schafe | Kameele"/7–9w Sheep Camels Ass Cattle 13–14w In old Aegypt no Buffalo 14–18w horses like Dongola 16–25w horses in Moses time but their cultivation not that ancient apparently 57 wt Terrier 1–5m/3u "Windhunden | Arten"/w Greyhound 16–17w Geese Pigeons 58 1–2w 2 kinds of Barley 69 10m 70 29–31m/w Grafting attributed by Athenians to Eumolpus 73 6m 75 16u "Theophrast"/18u "Kopfsalat"/16–17m/16–22w 2 kinds of cabbages cabbage lettuce vars of Lettuce in time of Athenians 76 wt/3–6m/1–7w Polycrates of Samos had done much to improve breed of Oxen 17m, 25–30w Horses of Phidias, fiery, simple but noble 32–38w mules in Homers time Swine do 77 8–17w Great Molossus dog from Albania in Alexanders time 26–27w Hunting dogs & Grey-hounds X 37w Goose 38u "Homer", 42u "noch | bekannt"/41–42w/wb Fowls not known to Homer or Hesiod, but later wb X certainly strong argument that so little done in last few 1000 years, compared to what must have been done before 78 wt/1–8w Athenaus says imported from Persia. Hence not Europe – age well made out of Fowls 1–3m/m (Homer), 4–6m/w Duck not tame in Aristotles times in Greece 16u "Perlhühner"/21u "Pfauen"/14–26w Peacocks & Guinea-fowls in Aristotles times – (Perhaps extinct again in Dark Ages. C.D.) 79 wb Aelian 222 after Christ 80 5–10m/w Alexander chose the

best of the Indian cattle to send to Macedonia to improve the Breed 7u/wt 81 18-25w Elephants tamed long before Alexanders times in india 84 6u/wt 85 17-23w North China native Land of Silk Worm 88 38-43w Peach not common in Theophrastes times 89 1-5w in Lucullus times sweet cherries in Europe 26u▲/26-28w mentioned by Strabo & Aelian 38m, wb All these facts impress on me that at one period there is limit of amount of variation. 91 5-13w Times of Ctesias sheep & Goats larger in India than Europe 98 20-33w Spread of Fruit Trees 99 tab.w Increase of varieties 30-33m, wb p.79 Aelian 222 after Chr. Dates 100 5-7w Roman Pears 107 5m 109 38w Savoy 110 1u "Krauskohl"/w Cabbage 1-4w Broccoli 5 kinds 7-13m/7-8u▲/8u▲/w Romans 9u▲ 113 3m/u "Plinius | Rosen"/w Roses 114 wt/1-15w Spanish sheep celebrated for wool in Columellas time improved by cross of N. African 25u "man"/w Ferretts 33a "nicht"/29-30w un??? 30-33m/w arose in time of Roman Emperors 32m/w (a) 34w Nictures wb (a) Our present beloved races of Dogs not known to Graecians & Romans, as clear from Monuments 115 wt A.D. 79 Herculaneum & Pompei buried in Pliny's time 1u "Herculaneum | Stabiä", 1-4w all belong to rough spitz-Dogs 2a "Pudel" Spaniel & Poodle 2-3w first in time of Augustus 3u "Schoos", 5-7w Lap-Dogs as large as squirrels 9u "Schäferhund"/w Sheep-dogs 38-43w Sheep dogs white not to mistake for wolf Q 117 30m 128 17-27w Caesars time English great Dogs & Horses taken to Rome 26-29m 137 28-31m/w Ducks introduced from Rome 226 6-11m, 18-21m 229 33-37m, 35u "sehr verschiedener", 36u "unterscheidet | wenig", 45m 230 39m, 40u "allein | geblieben"/39-40m/w sheep have not run wild 231 37-45m/w Newfoundland not f in New England when discovered 232 42-45?, wb Das Ausland a Periodical 264 14-21w not received from almond 22-26m/w new maize 371 23-25m/w S. Sea isld 26-29m 380 17-22m 400 26-30m, 41-45m/42u "Berg vied"/45u "Simmenthaler | Freiburger" 455 38-39m

VRIES, Hugo de *Over de Bewegingen der Ranken van Sicyos* Amsterdam; 1880 [Down] ♂

VULPIAN, Alfred and CARVILLE, Henri *Canille Leçons sur l'appareil vaso-moteur* 2 vols.; Paris; Germer Baillière; 1875 [Down] ♂

WAGNER, Moritz *The Darwinian theory and the law of migration of organisms* trans. James L. Laird; London; Edward Stanford; 1873 [Down] ♂

WAGNER, Rudolf *Elements of the comparative anatomy of the vertebrate animals* ed. Alfred Tulk; London; Longman, Brown, Green & Longman; 1845 [CUL] em, phy, rd, sp, sx, sy, tm, v

NB March 27 - 46

Read as far as p.130 & marked thus far - & I do not think worth reading further-

SB ☐✕

4. Hairs even in Ant-eater & Ornithorhynchus (good remarks on Skeleton & bones)

43 gall-bladder

36 Narwhal 1 large tooth, the other small

60 on great diversity of foetal envelopes

70 Skull of Birds

73 Cervical vertebrae so constant in mammals variable in Birds

78 Rudimental bones in Birds

98 Tongue ↻ rudimental

109 On Trachea differing much in allied species & between 2 sexes of same species

124 on stages in rudimentary state of right ovaria in Birds

217. On Electric fishes.

4 8-14m/w any relation to absence of teeth?

5 6-11m/w what a different order from true

relations ↑11-8m 6 ↑11-9m, ↑1u↔ 7 ↑11-

10m 10 3-4m, ↑7-4m 14 8-10m, 14-16m, ↑3x

15 3-8m 16 15-19m, 20-22m, 23-24m/24u

"to | wanting", 27-30m 17 11-13m, 18-20m 18

10-13m 19 ↑8-6m 21 ↑10-9m 25 ↑14-13m,

↑12-11m 26 ↑15m/u "but | of" 32 7-9m 35

↑14-13m 36 14-16m, 18x, ↑10-8m, ↑7u

"molar | fall" 43 ↑11m 44 ↑2-1x 45 8-9m 46

10-11m 48 ↑21-21m 49 4-5m 50 2-3m 55 4-

6m 58 3-7m 59 15-18m 60 8-10m, ↑12-6m/m/

w strange! 68 14m, ↑5-2m 69 ↑10-9m 73

↑10-8m, ↑8u "the Swan", ↑7u "also 24"/x/w

(a) wb Yet very constant in Mammalia? 75

↑19-11m 76 12-15m 77 6u "Trochilus,

Cypselus" 78 16-18m/16u "rudiment", ↑19-

16m, ↑14-13m, ↑8m/u "wanting | Emeu" 79

16-18m, 20-22m, 27-29m 92 ↑20-15m 98 16-

20m 109 ↑13-9m, ↑5-1m 110 ↓m, ↑13u

"convolution | the", ↑11-7m 114 15u "Anas

semipalmata", 19u "both | Grus", 23u "in |

extremity", 24u "the sexes" 117 2u "male

Mergansers", 10-12m 124 ↑21m/u "right |

rudimentary", ↑19-18m, ↑17-9m 125 1-2m

127 6-8m 132 ↑18u/c/w 217 ↑21-20u "order |

Fishes", ↑18-17u↔, ↑8u "Narcine | Torpedo",

↑6u "Form | Eels", ↑5u▲, ↑1u▲

WAGNER, Rudolf *Zoologisch-anthropologische Untersuchungen I* Göttingen; Dietrichschen Buchhandlung; 1861 [CUL, S, I] ds, gd, sp, ts

NB 51 (Quote Baer as believer in change) 34 1-4m 44 13-17m 50 ↑9m/*, wb I believe in X Vol of St Petersburg Memoirs see p.44 apparently 1859 Memoirs of the Imp Acad of Sci in St Petersburg. 51 ↑3-1m, wb V. B to whom all zoologists feel so profound a respect in M.. about yr 1859 expresses his conviction, wholly grounded on the facts of geoph distribution, that forms, now perfectly distinct, have proceeded from a single parent-form

WAITZ, Theodor *Introduction to anthropology* vol. 1; ed. J.F. Collingwood; London; Longman, Green, Longman & Roberts; 1863 [CUL] beh, h, pat, sl, sp, ss, sx, t, ti, v, y

NB ♦ Too dull to read; 135 Blushing SB1 p287 When I speak of antiquity of Man, I might add as shown by the branching off of languages & by their very formation ♦ p305 sexual selection good man. ♦♦ When I speak of evidence of theory of N. selection – add ♦ "the progressive advance in organization – & diversifications of structure & host of other such points–" SB2 ⟨over; some gone over in ink⟩ Waitz Anthropology 208 Virey makes 2 species of Man viz Negro & all others 198 Agassiz changed from 11 or 12 to 8 species 209 Differences of Negros – very variable race of man. 224 on variability of skulls in same race 227 on different classifications of men no two authors agree in manner of grouping ♦ 96 Beard 99 Colour of Children, when young ✓✎ ♦ 105 Negros fat Buttock beautiful; 107 foreheads of Peruvians 113 Excessive Mortality in children young in Australia 124 ✓✎ Yellow-fever of Negros – doubts on 238 ♦ Feet of Chinese small 266 Capacity of crania in relation to intellect. When speaking of what races have in common, I ought to insist on all having the art of articulate Language 275 All races adorn themselves – quote ✓✎ 291 Belief in an invisible power I might quote York Minster. No Devil in his country

iv 18-26m/18-19w I ought to read v 21m/w I have read vii 25-31m, 31-37m viii 3-5m 90 18w I have read whole section 96 16-20m 99 20-32m (Camper) 105 26-30m 107 13-17m (Morton) 113 5-10m 124 6-32m 135 3-13m/7-9u "shame", 14-22m (Roth, d'Orbigny, Spix, Martius), 21-22m 198 7u "distribute | twelve", 8u "eight" 208 14-17m 227 1-22m 238 4-8m 266 5-8m 275 1-3m 278 21u "invisible", 24-25u "invisible | which" 305 1-3m, 10-11m, 12-14m, 19-20m, 24-25m, 26u² "rosy | flowers", 34m, 35m, 37m, 39m

WAKE, Charles Staniland *Chapters on man* London; Trübner & Co.; 1868 [CUL] beh, h, v

NB1 It would be useless to discuss – the possession of general ideas, abstraction, & the various forms of consciousness, as hardly two writers ♦ use those words ♦ in exactly the same sense; or, ♦ have come to any general agreement on difference between Mind of Man & Animals– Nor do we know what a wise old animal fully awake & not occupied thinks about.– These points ♦ must be left under our present state of knowledge. Apparently we shall come only to a definite conclusion, when it is admitted from other evidence that the mind of Man has been developed from ♦ mental powers possessed by a quadrumanous animal – All too abstruse for me.–

NB2 ♦ Man Used; Carpenter Man differs in degree 79; Self-consciousness 81; Spiritual perception criteria of 97 Man; On high art in languages of –101 Savages; Hottentots most distinct 172 from Negros; 199 Frizzled Hair in Americans 205

79 11-29m (Carpenter, Brougham) 81 17-21m (Mansel) 97 16-17u "spiritual | ideas" 101 24u "on | acquaintanceship" /24-27m (F. von Schlegel), 30m 102 7-10m (Du Ponceau), 23-25w Monkeys use stones 172 6-12m 199 3-16m 205 9-10m, 16-18m, 20-23m

WAKE, Charles Staniland *Chapters on man* London; Trübner & Co.; 1868 [Down]

NB O/

WALDNER, Heinrich *Deutschlands Faune* 2 parts; Heidelberg, C. Winter; 1879-80 [Down, I]

WALKER, Alexander *Intermarriage* London; Churchill; 1838 [CUL]

af, beh, br, cs, dg, em, f, fg, h, he, hy, in, mn, or, phy, sp, sx, t, ta, ti, tm, ud, v, y

NB1

◆ Put the case to Sir J. Sebright of two half breed mongrels exactly like each other being interbred – will offspring not be then constant – Ask his opinion of Walkers Book –

◆ Ask Mr Ford whether he has ever matched two half bred animals which were closely alike & yet the offspring varied –

◆ Progeny of hybrid plants stable

◆ In all crosses of varieties, according to Mr W offspring ought to take in form after male What has Mr Blaine written p.271 Mr Hunt p.290 & Mr Thacker 291

NB2 It is singular twins being so like, & yet between two litter in Man, or in litters so unlike

◆ Experiments.– To cross some very artificial male with old female – according to Mr Walker, the former ought to preponderate in body – according to Mr Yarrells theory ♣ the father ought either in first breed or permanently.– Cross half breed with some other breeds – to see whether grandfather will appear – Cross two 1/2 breeds exactly similar.

NB3 24; 61; 107; 112; 118; 120; 124; From 139 to 144; 152; 163; 175; 177; 182; 202; 205; 209; 210; 214 to 243; 258; 266; 270; 244; 275; 276; 281; 282; 290; 299; 301; 303; 309; 312; 322; 361; 362; 377; 379; 396 – on Hermaphroditism

SB1 Argument against Mr Walkers law – The intellect & instinct in a cross-breed comes from both parents, as in shepherd dog &c &c – now one would have thought if one parent gave one part & one another, nothing would be so little divisible as the thinking faculty–

SB2 □β

24 Capons are female castrated

140 Hereditary fingers & toes

205 Knight on cross of Drayhorse & pony

161 Knight says long faces go with long limbs – Hard to get head of Greyhound on Bull-Dog

206 do says the male in Hybrids overrules female in giving form

209 A well-bred animal will give preponderance 216 do

223 Wilkinson says he has seen breed between long & short horned permanently made

228 Knight believes in breeding in & in ♣ – Walker sums up authors Ch 3

243 do – put pollen of 2 colours on female & both kinds when produced not mixed

244 Bitches more inclined to pair with one

Dog than another p.276

275 effects of imagination on offspring

299 Knight thinks keeping cattle under different circumstances prevent it of in & in 362 on advantages of crossed races of Man 377 Accoucheurs state hands of labourers infants larger (disuse)

SB3 (4 pages) ♣

I reject Mr Walker's theory of one parent giving (see p.150) one series of organs & ♣ the other a different set.– because

(1) the propagation of plants. as we see in their crossing &c &c. is closely similar to that animals, now, in plants we cannot ♣ separate the organs into any two analogous divisions – ♣ In plants, according to Mr K either father or mother can give "excitability" (& I daresay other similar case could be gathered) now excitability or constitutional peculiarities would scarcely be given in one system of organs.–

2d The kind of argument in favour of it, are such as Phrenologists advance. (one series affecting muscle & another their supports, ie only in the face) – does not hold good in my experience. or rather a double answer might be given

When different variations cross, the offspring take ♣ the locomotive system from the male, because, the male has greatest desire for the female being very

(over) different – according to this, this law, would be quite interfered with in ♣ a case where the ♣ ova were impregnated by the semen of the male, as in fishes & frogs, & yet we know that mule fishes occur, & that it is not necessary in insects or fish that male should see female.– Moreover, how in cross of black & white man. & different varieties of dogs come there to be litters ♣ of puppies some taking after mother & some father.– Again, there seems to be as much law (& as doubtful) in crosses of plants, the greater desire of the male is absurd – Again in some cases, the cross-bred offspring vary much. (as in passion flowers described by Sabine) here then no certain law appears to prevail. Again Mr. W. admits the offspring of cross breeds. p.220 revert, & explains it by. one having the system of

(over) one parent, & another a different one – yet by his "law of crossing" all will have locomotive system of male, & hence the possibility of this Heterogeneity depends on ♣ male being less vigorous than female.– (& this is next thing to assumption. for if other wise would have been recognized in human race)

WALKER, A., INTERMARRIAGE

How will Mr. Walker laws explain plants which show traces of 3 parents as in plants i& -? animals as ass & Zebra & horse ♣ & c of gardens - This will overthrow his system: no because he allows. (p.301) that one series modifies another! here is cause of error!

He bases some of his view on axiom that "organization is ♣ indestructible" (p.224) how have our varieties been formed?!!

Law of Breeding in & in

Female always giving locomotive series.- probably invented to explain the loss of secondary character in the male, but is not this more probably effect of infertility. which likewise affects the female.-

(over) I must think there is no difference in laws of resemblance to parents in species, varieties, & individuals -

24 4-8m 107 8-19m 112 25-28m 118 11-23m
120 4-8m 124 24-28m 125 1-10m 139 14-28m
(Réaumur, Carlisle) 140 11-28m/22a "this"
great Q 143 5-13m/6-9w This must be case
of jumping one 144 19-27m 152 24-29m/w ♣
Colour f. has form of father - 160 26-28m
(Knight) 161 1-14m/2-4w Law of symmetry
163 19-23m 164 4-14w Analogous to
Renngers descriptions of dogs in Paraguay
& Horses & Cows 18-23m/w do not go back
- yet not fixed, like species 165 17-19?? 175
10-22m (Clarke, Lewis) 177 9-26m (Knight)
182 5-11m/8-9w See p.191 191 12-19m 202
13-22m/w How will this apply to Plants &
cases where impregnation is external 205 wt
He would thus doubtless explain the effects
of Arabian 1-5m, 6-10m, 11-15m/w this is
absolutely different from some other authors
206 9-18m, 11-13m 207 1-11m 209 1-28m,
20-28m 210 5-8m, 24-25m 211 1-2m, 4-5m
212 1-3m, 17-21m 213 7-13m/w according to
Mr W. theory, whole bird ought to resemble
19-20m/20m/u "the|vital"/20-22w I do not
see proof of this 214 2-29m 215 1-6m, 19-
20m/!!, wb As yet no notice whatever is
taken of litters, where one puppy is of one
kind & another of another,-! 216 8-14m, 11-
14m, 15-26m/18-21w I do not understand 217
11-21m, 21-28m (Sebright) 218 26-28m 219 1-
8m 220 wt Surely not if C exactly resemble
D, yet these will vary I presume, according
to views of Knight & Co. 3-5m, 5-7u "for|
occur"/6-8m, 7-15w so that on this depends
the possibility of heterogeneous offspring
accounting for reversion wb But yet in these
crosses I thought the male always
prevailed.- The offspring of very wide
crosses, when male certainly does

preponderate, ought to be uniform 221 wt If
halfbred animal is crossed with some distinct
breed, the character of grandfather will
reappear, now here breed age surely must
be an element ♣ is case true?? 15-20m/w
but here I may assert that time comes in as
element 222 wt Now this is question in point
1-6m, 10-12m/w (a) wb Is this not explicable
on the idea of breeds ♣ time asserting the
permanency in future generations. the cross-
bred animal its characters perfectly, the mule
not at all 223 19-28w between breeds of
equal antiquity the tendency to vary would
be less - 224 3-11m (Knight), 27-28!/u
"Organization|indestructible", wb What is
origin of all our varieties!! 226 7-14m 227 5-
25m (Sebright)/6-14w is not vice versâ. They
degenerate because they lose productive
powers 228 5-6m/?, 25-28m 229 wt The
converse of the law ♣ ill effects of breeding
in & in holds in Plants.- namely crosses
being more fertile - therefore effects of
desire of male nonsense 6-8m/!!!, 9m, zb, wb
Plants & Fish &c!! 230 1a "female" young or
female 231 13-20m, 20-28m/24-26u↔ 232
24-26!!/25u "excitement", wb plants & Fish
233 27-29!/29u "excitment|power" 234 20-
29m, wb I would rather trust the Practical
Sense of Sir J.S.! 236 22-26m 237 22-27m
(Sebright) 243 15-21m 244 5-6m 258 8-12m
266 8-15m/9-10w Dr Holland 270 6-13m (De
Candolle, A.P.), 6-28m (Pritchard, Good) 271
5-27m, 4-5??/5u "Blaine", 13-15m, 18-28w
This is the opposite of the case I want - I
want new variety 275 12-23m 276 6-8m,
17u⊕ "pug|spaniel"/w Blaine 18-28m, 24-
26m 277 9u⊕ "female setter", 11u⊕
"mongrel", 17u⊕ "refused intimacy"/17-26m
280 27-28m 281 23-26m/"..." 282 3-9m 290 6-
8?/7u "Mr Hunt" 291 15u "Mr Thacker" 299
1-14m 301 6-13m (Wilkinson)/!!! 303 4-6m,
11-22m 309 1-13m/w 3 solutions may be
here given 312 wt surely same law to
ordinary births, not to crosses 1-5m/w dogs
in litter 9-10m/? 322 14-16m 328 1-4m/w
Kangaroo!!! 361 3-21m (Prichard, Pallas) 362
4-17m (Moodie) 363 1-23m (Hancock) 377 12-
17m 379 4-7m/4-13w about Stallion broken
leg see Mr Knights facts on this head I think
it is in part where ♣ discussed 396 8-28m
397 6-14m 398 13-17m

WALKER, Francis *Monographia Chalciditum*
London; Hyppolitus Bailliére; 1839 [Down,
I] ♂

WALKER, John and Charles *Atlas of the
British Isles* London; 1837 [Down]

WALLACE, Alfred Russel *Contributions to the theory of natural selection* London; Macmillan & Co.; 1870 [CUL]

beh, fo, h, he, hl, pat, ss, sx, t, ti, v

NB1 350; intelligent power 356 & 359

NB2 113 a female mocking Diademas Butterflies

205 Instincts of nidification

♦ 225 Man

229 mistaken instinct

221 Song of Birds acquired confirmed by Hon Herbert, I suppose in his edition of White – see L. Jenyns

♦ 353 Santals wd not break their parole

204 *wt* Female Ants leave the nest & cannot have seen but very little of the Work done by the Workers & yet have offspring It is wonderf. 205 *wt* Cuckoo – Tanagrella 4–8w The last female Bee which is hatched 14–15w cocoons of Butterflies *wb* Solitary Wasps Spiders 214 8–29w Think of influence of Language Antiquity of Man Brazil & California 219 9–11m/10–11u "simple | hereditary" 221 14–19m (Herbert) 225 1–28w A Man does not make a canoe or arrow-head without practice – so differs from Birds – all a fallacy 229 5–13w mistaken instinct 292 15–30m/17–21"... "17c/19–22m 293 7–19m, 22–30m 294 7–15m 336 19–21m/4–30w Yet it must be added that some extremely ancient skulls were fairly well developed 29–30m (Lubbock, Huxley) 338 23–25m 340 3–5m 342 1–23w There is all the difference in the World between an instinct (ie not hereditary habit) & intellectual act 343 *wt* It is brain here & not use of hands 3–6m, 9–11m/10–11u "his | disproportionate" 344 20–26m/16–29w If we look to detail to usage of hair above the lips, over whole body 346 21–29m/6–29w Under sexual selection – like injury for Horns of Stags 350 6–11m 351 24–28m/w incitable/ incidental *wb* Perhaps specify thus *wb* He who can count & reason & do the rest *wb* No new faculty 353 11–15m 356 12–15m/! 359 7–8u 371 *wb* I admit the possibility but I do not see the necessity or evidence in interference for the production of man as distinct from the production of lower animals.

WALLACE, Alfred Russel *Contributions to the theory of natural selection* 2nd edn; London; Macmillan & Co.; 1871 [Down, I]

WALLACE, Alfred Russel *The geographical distribution of animals* 2 vols; London; Macmillan & Co.; 1876 [CUL, I]

cc, ex, fo, gd, geo, hl, is, mg, oo, no, sp, t, tm, v, ve

vol. 1 NB ♦

463 poverty of insects & inconspicuous flowers

Frogs ice – salt-water; Galaxias – without further evidence your view on which provides complications; Bates – T. del Fuego; Poverty of insect life; Aromatic leaves as a protection like thorns

NB2 p.9.

I can hardly believe in connection between Africa & Ceylon see p.328 Blandford?

Capital remark on head of Argus How plain a char is when once explained!

Explanation of Java admirable

426 Mammoth in Timor

References

I am very glad of your somewhat changed views of the wonderful Celebes

SB Δ

Geograph. Distrib.

p.9 to 34 Means of dispersal.

p.20 Migration

p.36 Whole book on Distribution, so I will not give Pages.–

p.346 Argus Pheasant – Head not ornamented

p.463 Poverty of bright flowers corelated with Poverty of insects

9 32–35m 18 15w Tortoises 20 34–38m (Serres) 21 9u "moderate widths"/w Berents 24 30–37m 36 9–11m, 12–15m 37 12–18m 43 10–14m/w Canaries C de Verde?? Volcanic Etna? 32–37m/32w Axell Blytt 52 1–5m, 5–8m 53 19–26m 56 17–22m/w no they must have 57 21–26m 59 5–6u "Madagascar"/?, 11–12?, 16–20m (Günther) 76 *wt* No look at depth 118 6–13m/11u "animals"/13u "Miocene" 150 4–23m, 25–32m 151 1–5m 157 9–12m, 25–28m 158 24–29w cd Man have destroyed the largest 31–37m/w yet higher animals change quicker than low 162 28–32m 163 15–18m 167 33–37m 168 12–17m 174 14–19m/w Antarctic Land 175 33–36m 206 28–30m 207 1–11m, 14–21m 208 1–7m, 9–18m, 17–25m 209 1–12m, 15–27m, 29–36m 210 10–13m 211 22–28m 212 16–21m, 25–28m 218 34–37m (Wallace) 263 27–30m 265 29–37m 268 26–28m 269 22–26m 273 12–15m 274 4–11m 277 8–14m, 16–19m 278 11–14w Madagascar 1000 miles long 15u "lost continent"/? 279 11–14m 280 7–9m 281 9–13m, 14–16m, 24m, 34–36m 282 8–20m, 28–30m, 33–36m 283 1–9m, 23–24m 284 7–12m, 16–25m, 29–33m 285 1–5m 286 1–13m, 22–26m, 33–37m 287 1–3m/?, 11–15m/?, 28–34m, 34–37m 288 34–36? 289 20–26m, 28–35m 291

WALLACE, GEOG. DISTRIB.

11-14m, 18-19m, 31-36m 327 1-4m, 18-24m 328 1-7m, 8-14m, 18-27m/w A continent since Permian times 340 9-14m 341 14-34m 345 7-11m 346 1-4m, 32-36m 352 25-37m 357 29-36m 358 12-24m 359 17-22m/w ? during Miocene more tropical & this cd have made a larger tropical Land 30-35m 362 22-31m 391 33-37m 395 10-19m (Wallace) 400 12-26m, 19-29m, 30-34m 401 11-23m, 30-37m (Günther) 402 13-19m 403 7-28m/w The one fish may have kept long to same species 406 6-14m 413 4-12m, 19-26m 416 19-28m, 33-37m 417 23-25m 419 27-36m 421 28-31m 424 7-16m 425 1-4m, 27-37m 426 24-28m/w Mammoth 436 16-20m 438 4-15m, 35-36m/w Flora! 440 15-19m 442 1-2m 446 3-7m, 24-29m 447 6-11m, 12-23m, 26-34m 448 27-39m (Günther) 449 10-14m, 16-19m 452 31-41m 453 23-33m/w ♦ May they not have in 454 27-34m 460 27-37m 461 1-11m, 25-37m 462 25-34m 463 1-18m, 35-37m (Hooker) 464 8-13m

vol. 2 NB1 (draft of letter sent 26 June 1876)
References Forel - Hooker Great care with which you have worked the Southern part of S. America - I suspect you argue too strongly on the necessity of a large area for the development of many forms.- So many species of same genera on many volcanic islands in inviolated valleys seems sufficient 122 Error??

252 I doubt, though I agree with Principle 265

359 Error

I like much the discussion on the distribution of Land-shells

Axell Blytt paper

NB2 All marked on Geographical Distribution.-

p.205 N. seals in Baikal

465 Distribution of F.W. Fishes

7 25-31m 20 22-37m 21 2-17m (Günther) 23 26-31m, 34m 26 34-37m 35 6-10m 38 27-37m 42 6-26m, 29-31m/30-31u "not forms", 34-37m 44 21-33m, 34-37m 45 1-5m, 26-37m 47 22-26m 48 8-12m, 17-19m, 30-32m 51 4-10m 57 26-34m 59 4-10m, 22u "100 fathom", 32-37m 61 26-31m 62 25-30m 65 4-9m 66 27-32m 76 3-9m 79 10-15m/14u "of Anguilla" 80 2-9m 81 31-33m 82 1-5m 83 1-8m 121 35-37m 122 1-6m, 11-17w ! Edentata Mastodon Horse Tapir Tertiary! 123 12-16m 154 11-16m 155 10-15w ♦ why not separately described then 162 4-9m 205 28-35m 252 6-13m/? 265 10-11m 321 32-33m 323 26-31m 341 26-30m 359 6-7m 370 22-29m, 27-30m 371 2-5m 386 17-21m, 23-27m 387 25-30m 392 18-23m 423

1-6m 430 9-11m 432 8-13m (Günther) 465 2-8m, 11-13m, 25-28m 466 1-12m, 28-32m 467 1-7m 484 3-18m, 34-37m 487 16-25m 496 12-16m/wt/1-17w several other such cases of semi-tropical or warm Eocene Antarctic found 500 6-14m 503 1-5m, 9-11m 523 26-30m/w ♦ by 524 33-37m 525 1-8m, 12-17m, 23-35m 526 1-8m 537 12-28m 546 5-15m, 16-31m 548 19-26m 549 11-16m 550 31-36m

WALLACE, Alfred Russel *Island life* London; Macmillan & Co.; 1880 [CUL] gd, geo

NB ♦ p46; 88 ● Percentage of C. of Lime in Chalk; 68 have long thought so & so other to Günther

166 great amt of Denudation 207 Tylor on Denudation; 251 Means of Distribution; 262 do; 294 do

46 2-5m/w Viti New Caledonia New Hebrides 68 9-15m 72 15-19m/? 88 7-12m 89 21-41m 166 29-33m 172 29-33m/29u "the water" 199 26-38m 207 1-5m (Tylor), 35-36m 208 19-22m 250 28-40m 251 21-41m 262 12-24m 294 3-9m, 24-28m 295 5-12m 345 2-13m 403 19-22m

WALLACE, Alfred Russel *The Malay archipelago* 2 vols.; London; Macmillan & Co.; 1869 [CUL, I]

beh, fo, gd, geo, h, mhp, oo, or, sl, sp, sx, tm, v, wd, y

vol. 1 SB1 □β

Vol I Wallace

19 23 to 24 Origin Geographical Distribution

♦♦ 29 Mem Institution

49 Pitcher-Plants insects

♦ 87 Orang throwing missiles

183 & 184 Alpine Vegetation

222 Distribution

225 do♦♦

245 -248 453 Birds -transportation of seeds

318 Distribution to 327

418 Megapodius instinct

427 Distribution to end of Chapt

♦♦ 428 Pigeons with racket tail

441 ♦♦ Vars. in Outline of wings of Butterflies in Celebes.-

♦♦ 468 Kingfisher do do

♦ 433 Barbirusa Defence 435

♦ Penny Encyclop p246 Vol 23

SB2 over ♦♦

splendid Eulogia on Rajah

How interesting plants of Borneo ○ wd be

Timor splendid case

On Subsidence directly due to pouring out of Lava - Reports Habits

✓ Sonodiacus

Caterpillars Hairy – Jenner O Hair

⇒ Style very good

Celebes splendid

Babyrusa organ of defence I presume lower canine not developed

Sevalik miocene fossils –

18 1-2?, 20-22m 19 11-21m 21 18-25m 23 3-10m/12w Origin 14-18m 24 21-25m 26 24-26m, zb 29 13-20m 49 11-15m 60 1-2w/fig.w
 Gunther do not believe story 87 11-17m/13-16".../12w/14a 183 22-26m 184 11-16m, 19-25m 185 1-3m 222 20-26m 225 15-20m 226 12-21m 245 1-3m 248 1-6m 318 18-26m 319 16-26m 320 2-12m 321 11-25m 322 14-23m 323 18-21m, 23-24m 325 10-16m 327 5-8m 329 17-23m 418 14-21m/w may it not be argued that large egg necessary to develop young Bird so perfectly? 419 11-15m 427 17-24m 428 20-22m 429 13-14m, 19-20m 431 22-26m 432 9-11m, 12-18m 433 24-26m 434 2a "eyes"/1-4w with the tips in-curved so that they cd not possibly be used as weapons 7-9m 435 7m/wt probably originally weapons 11-13m/"...", 14-16m/m/w How about the lower 437 13-18m 438 16-17m 439 19-22m 441 fig.m 443 7-9m, 19-22m 444 7-15m 445 wt More probably round – reflects on connection with Africa of Sevalik fossils. 9-15m (Sclater) 453 9-11m/10u "crimson mace", 12-14m

vol. 2 NB cc

SB1 □β

◆ p.43 Man – a small colony lose its language and yet impresses its character to certain extent & may increase into large nation.– 49 do

103 Tropical fruits have all been improved by Selection

141-142 Distribution – Pigs swimming

◆ 150 Casuarus females sitting alternately ??

◆ 178 & 207 Man

◆ 203 Birds of Paradise seasonal

◆ 252 do Dance

◆ 255 Man 445-453

276 failure of instincts in Insects boring trees or sticking in holes

◆ male fighting Beetles

290 Distribution

295 Flowers not fine in Tropics

◆ 306 Man beauty

◆ 314 Sexual characters Diptera

◆ 388 Paradise – skim through Chapt.– 399

431 Distrib, 435, 436

SB2 (over)

◆ you make sometimes feel young again as

if I was once again collecting specimens

p150 ask Casuarus

I am astonished you ever returned alive

◆ 236 ✓ for Western read Eastern

255 Savages males self-ornament – do they care for admiration of women? or of other men, for presumably not exclusively self-admiration ?

◆ Distribution

◆ 295 number of insects no need to be conspicuous.

◆ 315 ✓ like Elk – do you not mean Moor or fallow Deer 399 ask

43 14-16m, 19-21m, 22u "Malay|language", wb if a small colony ● native language ● 48 18-20u± 49 16u "Orang Sirani", 21-23m/u "with|stocks" 103 16-24m 141 9-15m 142 1-9m 145 12-16m 146 3-13m 150 4-6m 153 3-11m 178 13-17m, 25-26m 179 4-5m, 8u "twisted beard", 13-15m 203 16-20m 207 11-15m 236 15c/w 252 17u "dancing-parties", 21-26m 253 8u "are|lover", 11u "striped|the", 13u "then overshadowed", 14-15u "emerald|throat" 255 16-17m/w self-variety 276 3-13m, 23-26m 277 1-6m, 8-11m 290 7-23m 291 20-23m 295 9-15m/7-23w so many insects no need to be conspicuous 296 6-14m/7-25w I think Humboldt remarks Tropical plants not so social 297 26m 298 5-15m 306 1-3m 314 12-14u↔ 315 1-3m, 4u "elk"/?, 13-16m/14u "None|any" 390 11-12m/12u "feathers|colour", 14u "across|forehead" 391 1-2m, 17-18m, 18-19u "effect|moultings", 23-26m/24-25u "assumed|season" 393 4-9m 394 24-25m 395 1-2m 398 5-8m, 9-12m 399 1-19w ◆ variety of colour 9-22m, 21-22w I do not see & I wish I did see it the connection between variation having been first a long ago selected & ♣ then appearing at an earlier age than more recently selected variations. I can see, why an increase in the length of feathers, which has to be fully formed & then added to in length by variation & then further modified, shd appear later in life 405 8u♣, 17-20m/19-20u↔ 406 5m, 6u "black|colour", 11-12m 407 7-12m 408 9-12m 409 2-4m 420 9u "eighteen" 431 19-26m 435 7-10m 436 18-22m 445 15-16m 453 1-6m/3w 456 455 8-13m ◆ 456 15-18m 460 7-10m/w like a herd of animals

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WALLACE, TROPICAL NATURE

NB 59 Mimosa

59 31-32m (Pfeffer) 60 4-8m 61 6-11m (Bates)

WALLICH, George Charles *Eminent man of the day* London; John Van Voorst; 1870 [CUL]

WALTERSHAUSEN, W. Sartorius von *Untersuchungen über die Klimate der Gegenwart und der Vorwelt* Haarlem; De Herven Loosjes; 1865 [Down] ♂

WALTHER, Alfred and MOLENDON, Ludwig *Die Laubmoose Oberfrankens* Leipzig; Wilhelm Engelmann; 1868 [CUL]
gd, is, oo, sp, t

NB1 218 Intermingling in range of mosses
224 Even close species of mosses do not live close together; the Struggle for Life, being severest between nearest forms - good!

263 translated to end

265 gives cases against M. Wagner's Isolation

218 22m 224 4-10m/w close species do not live together 264 21m, 30-35m 265 9-25w
Argues against M Wagner Not result of isolation

WALTHER, Friedrich L. *Der Hund* Giessen; G.F. Heker; n.d. [CUL, pre-B]
beh, br, cs, ds, gd, h, tm, v, wd

NB ♀ This only useful for ancient History of Dogs Q

March 29 1857

Find out what classics translated

Athenaeum London Library

Aristotle; Pliny; Xenophon ♂; Varro

Columella; Oppianus; Treviranus

I doubt whether any use

40 Greyhounds do not bark

48 Dogs of ancients ♂

31 Bechstein first remarked about skin between toes

39 Animals of Corsica speckled

I doubt whether any use

4 31-35m 5 6u "Varro"/6-9w In Athenaeum

"Rei Rusticae Scriptora" 7-8m/8u "Columella"

6 31-35m 9 13m (Linnaeus), 17u "22", 19m

(Linnaeus) 12 10-12w ears very variable 21-

22m/w Lungs of swift dogs very ♣ large 33-

35m/w 10-8 nipples latter more rare 16 7-

13w Crossed with these 20 37m (Azara) 21

33-34m 23 7-11m, 14m, 15-17w 2 dogs in

New Zealand 26m, 31m 26 23-26m/24u 28

18m, 19-20w Spaniel 33-35w Carrying Dog

29 9w Poodle 17u "Herrmann" 30 27m 31 2-5w always slavering mouth 11u↔/9-11w webbed feet 14u/wr 34 ↑10w our Bull Dog 35 30-32w Claw on hinder feet 37 15-16w Pointer 39 36-38w Animals of Corsica oddly speckled 40 1u "Hühner | Hunde"/wt/1-5w Men, hounds, hens black on coasts of Guinea! 18-21w Danish carriage dog 25-28w Greyhounds do not bark 41 16-18m/w Persian greyhound 28u/wr, 29u "Hasen"/w like Hare 42 5-6w naked dogs 28-30w terriers 43 24-30w Carver says only 1 dog amongst Americans 32u↔ 44 3-7m/4u "1622"/2-10w Newfoundland dog not found there in 1622 46 30-32w 2 dogs Chile 48 2-9m/wt/1-11w talks of impossibility of recognising dogs of ancients 14-19m/12-20w doubts whether they could have been kept pure. 22u "400 Jahre", 27-33m/w 2 kinds of dogs described 28-34m, 34-36m/34u "350"/35u "3-4" 49 24u "Melitäischen"/23-25m/w Pliny mentions quite a little dog 34-35w & Indian Dog 50 21u "ex | cane"/25-26?/14-29w I see that Aristotle ♣ attributed Dogs to crosses with wild animals! whether correctly may be doubted? 51 17-19m/17u "ersten Jahrhundert", 19-22u♣/w 12 Dogs 30m/w 2d century 33-36m/w many breeds 52 7m, 9-11m/w which variety in Dogs 21m, 30-31w 1 36w 2 53 1w 3 4w 4 6w 5 8w 6 8w aids in Hawking 10w 7 12w 8 13w 9 55 10w 10 17w 11 58 19w Charlemagne 23u "Molossus"/w Bloodhound 60 16-22m/w only few hounds in Germany at this period 69 10-14m 70 4-5m, 11-13m, 20-26m/13-27w long legged & long snouted thin haired dogs in hot countries, short legged thick haired in cold countries

WALTHER, Friedrich L. *Das Rindvieh* Giessen; G.F. Heker; 1817 [CUL, pre-B]
br, cs, f, gd, geo, rd, sx, t, tm, v, wd

NB p.17 p.113 Book; Nothing after p.150; (Very little) ♦

SB □β

30 Humped cattle with hump much larger in Bull than Cow

31 Horns in Iceland

Bring fruitful offspring with common cattle

3 16-17m/w wild nothing known 25-26m, wb

same as Aurock 6 31-33m/w Grt humped Ox

in Alexanders time 12 25-27m (Buffon), 31-

39m, wb thinks the Aurocks may have

crossed with our cattle. By Buffon they have

crossed 15 29-34m, wb I presume all these

breeds are different but are not here

described 16 18u "Hochbeinig"/17-20w long-

legged with outstanding horns 17 8-10m, 11-

12m, 29m, 31-32m/u↔/w See Next Page 18
 18-22m/19-20w♦, 21-22u "ungemein sind" 19
 24-25m 20 21w 32 26 †w White aurochs or
 Ladrones three wild Cattle of Scotland
 mistaken for 29 wt (a) Pallas theory that N.
 America & Europe one united island &
 wrecks of old land 5-16m/9w (a) 30 1u/3u/4u
 (place-names), 11-13m/5-16w Oxen a hump,
 cows very little Breeds with common
 subherds with a Bump 17-18m/17u "Beiträgen
 IV", 30u "fruchtbare Junge"/27-32w lose
 hump in other climates!! Breed with common
 cattle 30u±, 33m 31 14-16m/w Hornless in
 Iceland commoner than Horned 17u±, 20-
 24w Mem how different from sheep of
 Iceland 26-31w Aelian remarked on herd of
 hornless cattle 31-32m, wb in S. America
 when crossed with hornless, calves no horns
 wb very odd considering rudimentary when
 contrasted with sheep 54 25-38m/w 2 Indian
 Oxen described one with long mane 55 4-
 5m/w 3d kind 57 19u "Aegypten"/19-23m/21u
 "Cameelen" 61 3u "50"/4u "Vierzig"/1-6w
 Varro 50 Books on Agriculture 66 4-9m/w
 Italy several Breeds in Columellas time.- 73
 14-20w Romish cattle very different from
 those of N. Land 22m 83 1-6m/w cattle
 curious Thuringia 90 23m 113 8m, 9m

WANDERINGS through the conservatories at
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 Christian knowledge; n.d. [Down]

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 investments London; E. Wilson; 1852 [Down]

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 London, 1870 [CUL.1900, I]

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 history of the Mammalia London; H. Baillièrre;
 1845-48 [CUL, I, S]

af, beh, cc, ds, fo, gd, he, hl, ig, in, is, oo,
 rd, sp, sx, sy, tm, v, wd, y

SB1 □✕ (at end of part 22)

p.32 p.52 p.54 p.66 p.68 p.106 p.111 p.144
 p.161 p.187 p.188 p.190 p.202 p.452 XX
 p.467 463 469

SB2 □✕ (at end of part 22, several sheets)

p.2 All Marsup. out of Australia & N. Guinea
 belong to sub-genus of Phalangista Cuscus,
 which is not fd in Australia, but is in New
 Guines. In N. Guines 7 species in 6 genera
 p.3 Talks of ranges,- 1 species ranges from
 Ambyona to New Ireland! introduced I shd
 think about 1400 miles from Ambyona to N.
 Ireland, about same as to Timor

p.3 species nearly allied generally do not
 inhabit same district

13 Stonesfield marsup. cannot be arranged
 in any known group of recent marsups.

18 on greater amount of difference in low
 orders

23 28 31 on relations of Montremata

47 var. or species of Echidna in Tasmania.-

53 slight rumination in Kangaroos

56 Eye-lashes only in diurnal Kangaroos

61 Rodents with Marsupials ♣

87 Kangaroos on Barrow Isd 30 miles off
 Mainland-

109 Echymis, hairs varying to species in
 same genus Gradation₂

(over)

131 var. of Kangaroo in Tasmania

183 Macropus Brunii of N. Guinea
 approaches in many respects anatomical
 to the N. guinea genus Dendrologus, a new
 Guinea genus - cd only be accounted for by
 descent

194 var. in molar teeth.

204 local vars. from W. Coast

232 Gigantic Diprotodon & Nototherium of
 Owen between Rat Kangaroo & Wombat

244 Fossil Wombat very close to recent

256♦ 265 certain small teeth varying in
 species & individuals

277 Cuscus purchased from natives by
 Lesson

293 302 vars Tasmania

310 Phalangista with skin some way
 between legs giving character of Petauruses,
 no habit to explain use

318 Curious analogy to flying squirrels even
 to form of tail in different realms○

(over)

343,4 Rudimental teeth in Tarsipes variable

424 Doubtful Tasmanian Species How much
 more distant N. Guinea than Tasmania; not
 then climate comes into play

537 Cuscus chrysorrhos in N. Guinea - list
 of Marsup. of N. Guinea

538 East & W. Australian districts have only
 8/60 in common (compare with N. Guinea &
 Timor) - S. Australia hardly only few peculiar
 9/20 peculiar to Tasmania Thylacinus & a
 sub-genus peculiar to Tasmania, but both
 fossil in Australia

(over)

Rodents beginning at Part xii

32 Fossil Lagomys Northern genus in
 Corsica & Sardinia

52 Lepus variabilis in N. of Alps, almost in
 Middle Europe

54 Thinks same species with Irish ♣: It does
 not appear that L. glacialis

WATERHOUSE

106 p111 marked variations in populations of Hares (161 in Cavy)
 141 Brazilian Hare approaches most nearly to N. American Hare – inhabits Bolivia as well as Brazil – & p144 very close to Cave Hare of Brazil, identical except size – Came during glacial period & so the Antelope
 452 When a species has ♦ is characterized by maximum development that part is most subject to variation. Q
 463 Nepal Porcupine breeds domesticated
 467 vars of Java Porcupine, there & in Sumatra & Borneo
 477 Porcupine Fernando Po & Sierra Leone

vol. 1, 2 19–23m 3 wt All caught & solidly native p277 wt do. p283 esteemed a great delicacy 5???, 6m/w Temminck 9a/c "Cavifrons"/w Orientalis V.p.279 Some make this a distinct section of Genus 12u "seven species", 14u "six distinct", 20–23m, 27–30m (Müller)/28w when? 4 6m, 25–31m 5 6–8m! 6 24–25m 10 28–30m, 31–32m 11 1–6m 12 8–11w (wait for explanation) 13 3–5m, 18–22m 17 4–7m, 12–14m, 18–21 18 1–3m, 4–5?, 12–19m/14–15?, 16–19m 20 1–2m 21 25–28m (Owen) 23 1–2m 28 4–6m 31 9–11m 32 26–28m 40 13–14m 42 17–18m 47 20–21m, 28–30m 48 19–23m 50 16–17m 51 6–8m 52 5–7m 53 12–13m 54 22–23m 55 9–13m, 13–17 56 3–5m 61 5–7m 64 23–24m/w (a) wb I thought Gould said there were different varieties at the two places 69 8w 1 8w 2 22u/22u/25u/25u (numbers)/23–28w proportional variation in breadth of teeth 35–37m 70 9–11m, 18–20m 72 11–14m (Gould) 74 30–32m 77 1m 87 3–5m 90 13–15m ♦ 93 32–33m 109 9–12m/w case of series in same genus 28–31m 110 6–9m 113 1–2m 125 29m/u↔, 32–33m 126 32–34m 131 8–12m 135 30–31m ♦ 138 28c "ear"/w tail 32m, wb same total length but parts vary 148 9m, 10m, 12m, 13m/10–16w smaller, yet longer tail, & longer from nose to ear 17m 150 11–14m, 22–23m 155 20–22m 158 3–5m, 6–8m 159 25–26m 160 29m/29–32w specimen longer yet tail shorter 162 30–31m 163 36m, wb ear less in larger specimens 166 6–8m, 25–28m/23–31w yet a former species was described as inhabiting rocks 170 6–7m, 16m/m, 19–27w similar variations; age may have something to do 172 30–32m/w representative? wb NW Coast 180 30m 181 9–11x, wb X Gould has this work in Dutch– will there be any tables of the Mammifers 182 21–22m 183 3–5m, 7–9m, 19–20m, 22–23m 185 1–4m, 5–9m, 10–15m, 16–19m 186 22–25m 194 33–35m 202 25–27m 214 13–14m, 16–19m 215 tab.m 216 1–3m, 7–10m 218 18–22m 226 24–26m (Ogilby) 232

30–34m (Owen) 256 20–23m 262 11m/u "protected|eyelashes" 265 11–15m 267 8m 275 4m, 6–8m (Temminck) 277 4–6m 279 17m/u "Timor" 286 33m 287 8–17w I have often observed all parts do correspond in X size, when a specimen is extra large 290 32–33m 291 4–5m 293 6m, 7u "specifically" 295 26–27m, 32–33m 302 14–15m 308 25–27m 310 13–15m 312 3–18w there seems no habit to account for skin from sides of body to legs 313 4m/u "of|the", 8–10m 318 15–19m 323 9–10m, 30–31m, 35m 332 26–27m 343 13–18m 344 24m 347 14u (numbers), 16–18m/m ♦ 355 2m, 22–23m 356 15m, 19–20m 387 12m 403 1–2w generic character 3m ♦/3–4u "The pouch" 417 26–28m 418 15–19m 424 10–13m 429 28m/28–29w/wb species appear nearly all distinct here. V. how many genera 432 10–14m, 30–32m 438 7–9m, 10m/?, 12m 443 5–6m (Gould) 444 1–2m 451 1–4m 482 4–6m, 5m, 7m 484 2–7m, 3m, 4m 493 1–2m 518 4–7m 529 25–27m 534 30–32m 537 13–15m, 15–21m, 25–27m 538 3–7m,, 8–9m, 13–16m, 18–22m

vol. 2, 3 9–10m 10 19m 12 31u "supra-orbital process" 13 1m 32 4–6m/4u "Corsica", 15–16m/15u "Sardinia" 34 19–38m 35 14u "supra-orbital", 27–32m 36 5u "square|middle", 7–11m 39 16–17u "ears|point" 41 22–23m/23u "black|above", 25u "brownish colour" 43 11–12m ♦ 45 10u "with|externally", 13u "The|along" 46 6–7u "with|apex", 12u "tail|above" 48 26u "with|apex", 34–35u "black|margin" 49 27–28u "apical|black" 51 34u "Winter fur", 35–36u "upper|yellow" 52 4–6m, 10–11u "tail|surface", 30u↔ 53 1u "and|ears", 4u "with|ears" 54 4u "and|above", 16–29m/22u "surface|greyish" 55 zt, tab.m 57 8u "with|black", 10u "tinted|surface" 58 6–8m 60 11u "dense fur", 12u "surface|colour", 24u "upper|black" 64 14u "tail|above" 66 wt/1–6m/w The argument against variation must be extended to all these cases 5–6m, 10–12m 67 12–13u "which|black", 32–34m 68 4–9m, 11–12m 70 23–24u "externally|extended" 72 20u "ears|externally", 23u "pencilled|above" 74 30–31u "with|externally", 32u "tail|above" 82 1–2u↔ 83 10m, 25–27u± 84 20–21u "tail|black" 86 7–8u "marginated|black" 87 35u "externally|patch" 93 11–13m 96 34u "are|and" 97 7u "on|colour" 104 20–25m 105 7u "soles|ears" 106 3u/5u/5u/9u/9u (numbers) 110 13–17m 111 21u/25m/u (numbers) 116 18–22m 144 21–26m 177 10u "3"/w In fig. 12 187 tab.w proportions different 188 10–20m (Rengger), 17–18m 189 11–19m, 26–28m, 29–33m (Rengger) 190 31–34m 191 9–12m, 14u "previously domesticated" 192 15–18m, 27–33m

(Rengger) 202 4-10m 203 8-10m ♦ 217 10m, 18u "10" 296 25w ♦ where is it found. 452 9-11Q 17-19m, 19-24m/Q 453 5w ● 463 30-32m 467 8-17m 469 3-7m (Gray) 477 5m

WATERHOUSE, George Robert *The naturalist's library; Mammalia, vol. 11: Marsupialia* Edinburgh; W.H. Lizards; 1841 [CUL, I] af, sp, tm, v

NB 67,8; 81; 84; 86 to 105 from 200 to 251 only skimmed nothing 253; 263; 266; 284; 306; 313

SB □β

68 Owen on marsupial Bones in Reptiles & arteries in Marsupials like them
84 Analogous var in stripe in other species of Opossum Q

49 6-8m, 14w New Ireland 27m 50 8-10m 67 23-26m 68 16-18m (Owen) 81 15-22m 84 11-15m/13-14Q 28w see 86 29-30m/Q 86 3-5m/Q 89 29m 96 1-3m 105 15-17m 135 26-27m (Gould) 253 3-4m 263 19-20m 266 23-25m 267 19-21m 284 wt l see some squirrels in Zoolog. Gardens have flattened tails like the flying squirrels 8m 306 6-7m 313 19-32m 314 13-14m, 28-30m 323 6-8m

WATERTON, Charles *Essays on natural history* London; Longman, Orme, Brown, Green & Longman; 1838 [Down, S of Matthews]

WATSON, Hewett Cottrell *Cybele britannica* 4 vols. and part 1 of supplement; London; Longman & Co.; 1847-60 [CUL, I] cr, gd, geo, no, phy, sh, sp, t, tm

vol. 4 NB 397 misprint; 123 introduced Plants

SB ♦

Forbes I quite agree Alpine & recent of glacial sea-shells only good parts - You always write with such vigour & spirit that I am carried along with you over dryest points. - i.e. thanks O

Reconnectibility ♦

Value of Groups very good; I was so glad to see you praise Bentham's paper.-

62 curious coincidence in idea with what I have written

I am glad you praise Alp. D.C.

SB2 p16

175 It would be easy by this Table to calculate distribution by the 112 countries of census in larger & smaller genera. Take one

of old lists with names. In order to see whether the most diffused species are the species of larger genera (see p.438)

Pages marked not abstracted

¢¢

16 12-17m, 20-21m 19 13-19m 20 19-21m 25 5-11m, 19-24m 31 30-34m 32 18-20m/? 33 1-7m 40 29-32m 42 3-13m 44 12-14m 45 1-3m 46 8-13m, 13-15m 47 6-10m, 16-18m 49 1-2m, 7m 62 2-11m 78 2-12m/4-7w American plants 80 11-19m 105 26-32m 123 3-7m, 7-9m 156 18-22m 159 11-13m 160 22-25m 171 2-4m 175 2w p.231 42w 1 9w 4 10w 131 12w 2 13w 100 14w 1 16w 1 234 2u "38 sub-provinces"/w counties 278 20-30m (Bentham, Babington), 29u "to 320" 279 23-27m, 24-30m, 28-29m 280 32-38m/36u "partly fallacious" 285 zb 357 1-8m 359 1w No of species 2w World 368 27-39m 387 18-34m (Bentham) 388 4-22m, 20-25m 389 5-7w Doubtful British species 397 1? 399 13-18m, 27-32m/31-32u "relative decreases" 401 30-34m 403 29-34m/31-32u ↔ /34u "The orders" 404 10-13m (Lindley), 21-27m, 28-30m 405 4-6m, 14-20m 412 21-24m, 25-30m 413 25-33m 415 20-22w & rate of growth 25-31m 417 6m, 30-32m 423 7-20m, 28-29m 424 5-10m 426 21-28m 435 17-23m 436 1-6m, 28-34m 437 19-25m 438 24-28m 440 7-10m 461 21-25m, 30-33m 462 1-4m, 5-8m 463 21-25m/21-23m/"...", 27-29"..." 464 21-31m 465 12-17m, 18-23m, 24-27m, 27-30m 466 5-8m 468 15w ● 470 30-32m 474 9-20m, 22-26m 475 5-11m, 13-15m, 19-21m, 27-34m 476 16-19m 486 2m → 487 3w 1 4w 2 5w 8 7w 3 8w 13 9w 19 10w 4 11w 6 12w 26 21z 519 15-31m 525 30-34m (Lyell) 526 8-9m (Lyell), 22-23m

supplement NB1 p32 On infinite multiplication of species

p118 Definition of species & groups & Babingtons Remark that species cannot be defined

NB2 The 2 lists, which have the same species repeated from N. & S. Britain, must be worked when I consider commonness & size of genera - But there will be difficulties, as I believe the universal ranges are omitted, & some of new species inserted. I must well consider what to do-

116 19-27m (Babington) 117 5-10m (Babington) 118 10-13m, 20-23m (Linnaeus)

WATSON, Hewett Cottrell *Compendium of the Cybele britannica* 3 parts; London; Thames Ditton; 1868-70 [CUL]

ex, gd, no, oo, or, r, sl, sp, t

WATSON, COMPENDIUM

Part 1 NB 13 22 37 38 42 50 52 54 57 60
75 (p65 Formulas explained)

p69 Littoral plants

♦ 1836 Pamphlet wonderfully ♣ striking excellent sketch of my views

♦ 54 Misnomer Origin of species in same way that a pug dog owes its origin to man

♦ 54 I quite agree no evidence except no explan^o shown

♦ I have discussed indefinite increase in number of specific forms in 3d Edit p.141

SB □β ∞

p.13 on manner in which each species dies out in horizontal range.

p.22 - trespassers are more usual downwards than upwards on Heights.

37-41 Terms for aggregates of super sp.

57 On convergence of forms

60. Definition of Naturalised Plants.

75 on Flora of Greenland v. Hooker.-

2 ↑15-10m 13 ↑14-6m 22 ↑13-8m 37 10-12m,
↑1→ 38 6-18m, ↑14-1m/w 1st Edit of
Handbook *wb* see p.41 41 1-5m, ↑1→ 42
↑11-5m 43 1-3m 49 ↑15-12m ♦ 50 ↑4-1m 52
↑10-5m 54 1-4m, ↑8-4m 55 ↑18-9m/w I have
discussed this 3d Edit p141 57 6-15m 60
↑14-6m 65 ↑8-1m 69 ↑12-1m 75 7-17m, ↑12-
6m, ↑1→ 76 1-8m 92 "55"- "Zones".m, "56"-
"Zones".m 96 "72"- "Zones".m, "Littoral".m,
"72*"- "Zones".m 103 "110".m, "111".m,
"113".m 105 "124".m 107 "131".m 111
"142".m 120 "174".m 128 "210".m 132
"228*".m 142 "274".m 154 "311".m 167
"361".m 185 "444".m 186 "448".m 187
"450".m 192 "471*".m 193 "476".m 194
"478".m

Part 2 NB 225

225 "624".m 229 "641".m 233 "657".m 235
"664*".m 248 "724*".m (all three) 250 "731".m
266 "794".m 281 "858".m 288 "894".m 289
"897".m, "898".m, "899".m 290 "900".m 291
"905".m 292 "911".m 294 "918".m, "919".m
295 "920".m, "921".m 296 "924".m, "925".m,
"926".m 297 "927".m, "928".m, "929".m,
"930".m 300 "940".m, "940*".m 304 "954".m
306 "961".m 307 "969".m, "970".m 335
"1096".m 340 "1115".m 346 "1135".m,
"1137".m, "1137*".m 351 "1153".m 352
"1154".m, "1155".m 353 "1160b".m 359
"1183".m, "1184b".m 360 "1188".m 361
"1190".m 365 "1208".m 368 "1218".m,
"1217".m 372 "1235".m 380 "1263".m,
"1264".m 385 "1285".m 387 "1293".m 394
"1323".m/w all but 1 of "1324".m, "1324*".m
395 "1325".m, "1327".m 399 "1340".m 404
"1362".m 405 "1365".m 406 "1369".m,
"1371".m, *wb* End 413 "1397".m

Part 3 NB O/

⊗

WATSON, Hewett Cottrell *The geographical distribution of British plants* 3rd edn, part 1; London; printed for the author; 1843 [Down]

⊗

WATSON, Thomas *Lectures on the principles and practice of physic* 2 vols.; London; John B. Parker & Son; 1857 [Botany School]

WEBB, Henry *Dogs* London; Dean & Co.; 1876 [Down]

WEBER, D.A. *Der Taubenfreund* 2. Auflage; Leipzig; G. Basse; 1850 [CUL]

beh, br, cs, f, fg, hy, oo, v, wd, y

SB □β

41 Fancy Pigeons must be taught to field

42 The more noble pigeons keep separate from others

43 Some crosses Q

6 17-20w 12 feathers in tail normal 22w (a) *wb* do not tread on sole 13 5-6w Fantail 26-27w Turbits or Owls 32-34w seldom more than one young 36w Caporetin 14 5w Powter 22-23w Turkish with curved Beak 26-33m/28m/29u "Pagadette", 30-34w will breed together Carrier 39-41w Runt Spanish 15 1-5w Romish Runt, like Spanish 9-15w Barb (allied to Turbits) can cross with own & Fan-tails 13-16m/14u "aber|unbrauchbar"/w (a) 19w Tumbler 26w Trumpeter 31-38w Moon Pigeons so called for great fertility 34w (b) *wb* (a) Barb & Fantail have useless eggs *wb* (b) This new kind to me 16 wt/1-7w M Brent says a high bred swallow.- is mostly meant by this But the description is applicable to short-footed Tumbler - Riedel gives same account. copied from Bechstein Brent calls it a Magpie Tumbler but possibly not pure.- 4w (a) 12-15w shell-tuft behind head 19-21w Swallow Pigeon 27-32w ● Turn like Tumblers 36-41w Stripe from head along body *wb* a Carmelite apparently most like almond Tumbler in shape, so low as to walk nearly on Belly. 17 14-17m, 32m 28 12-18w Snuff to destroy insects Powdered quicklime 20u/wt, 36m 30 26m, 35-37m/w (a) *wb* some think Pigeons pair after colour & I think White Trumpeter took first to White Fan-tail 32 wt House pigeons lay oftener than Field Pigeons 35 7m, 7-9w 4 to 6 months for the pairing 27m 36 5-7m, 5-11w choose for purpose - thin, reared in spring 22-24m/w Fertility of field Pigeons lasts longer 41 wt

(a) must not be hybrids, as their eggs are infertile though Birds themselves Bigger 10w (a) 32-34m, wb The house or fancy Pigeons (with few exceptions) will not go to field to feed. Much truth to learn there 42 34-38m, wb the more noble pigeons keep separate from others.- 43 7-15w Fantail & Turbit Turbit & Caporetin Carrier & Runt Runt & Carrier

WEDDELL, H.A. *Voyage dans le nord de la Bolivie* Paris; P. Bertrand; 1853 [CUL]

WEDGWOOD, Hensleigh *On the origin of language* London; N. Trübner & Co.; 1866 [CUL, S]

beh, h, hl, pat, t, v

NB 2♦; 14♦; 61 CD fear like cold; 63 astonishment open mouth; 75 disgust spitting good; 76 pride - good on hard breathing in anger; 79 to pout; 91 Origin of no. Who is Charma; 139 Lubbock; ♦ No Explanation of abbrev: Chapter on top of Page.-

2 17u "a generation"/w generations & c 7 wt N.B. Savages of T. del Fuego power of imitation & repeating words & so Australians wt/1-26w/wb or like lowest savage. But is it not possible that Man's intellectual power was lower before improved by use of language 16-17u "to ourselves" 10 7-26w/wb would you call senseless gabble of Idiot instinctive?? Instinctive scream, when attacked would blend into shout for assistance 7?/u "instinctively" 14 6?/u "instinctively" 41 6-8m/w p.45 45 16-17m 61 5-7m 63 18-20m 75 11-14m 76 9-17m/14-15u "swelling|pride" 78 25-26m 79 1-3m 83 13-17m/? 139 1-12m 154 12m/u "there"

WEDGWOOD, Hensleigh *On the development of the understanding* London; Taylor & Walton; 1848 [CUL]

beh, h, t, v

NB p126-133.-

126 22-27m, wb The dog is social & man is the leader of the troupe 127 19-24m, wb will not apply to savages, comes in, but not the ♦ original cause 128 25-27m 131 8-11m 133 12-18m

WEDGWOOD, Hensleigh *A dictionary of English etymology - On the origin of language* 2nd edn; London; Trübner & Co.; 1872 [CUL, S]

beh

NB1 37 Shudder, cold, disgust♦ Horror; xlv disgust, spitting

Mr W Hensleigh ♦

Ugly Rage; from state mind

NB2 xlv♦; Smacking♦

xxxvii 10-27m, 17-19m xlv 37-43m

WEINLAND, David F. *Über die in Meteoriten entdeckter Thierreste* Esslingen; G. Fröhner; 1882 [Down, I]

WEISBACH, A. *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859: Anthropologischer Theil, 2. Abtheilung, "Körpermessungen"* by K. Scherzer and Eduard Schwarz; Wien; K.K. Hof und Staatsdruckerei; 1867 [CUL]

af, h, ss, sx, tm, v

NB 265 Feet of Chinese women

270 Negro does not approach Orang

SB p.218; 231 width of mouth an Orang character; 232; 234; 236; 239; 243 -245 265; 269 sexual selection; 270

title page author.u, title.u

ø

216 11-15m, 17u "Unterschied|beiden", 18u "65 Millim", 20-23m/20u "218|grösste" 218 fig.wt, 3-5m/3-14w♦ Height of men more variable than women & before shown that the difference between sexes differs in different races. 231 7-11m/w width of mouth Orang character 232 15-17m/15u "Weibern|nicht" 233 28m 234 4m/w Back-bone 236 27-29u "dem Orang"/w circumference size♦ of thorax 36-39u± 237 1m 239 23-25m/23u "ändert|Völkern"/24u "viel|Weibern"/36-41w In many points proportions of men & women different. 243 19-22m 245 3m, 39-44m 247 12-14m 252 11-16m 265 14-16m/w slenderest feet round instep 34-37m/35u "unter|kleinsten" 267 12-14m 269 6u "wovon|Jochbreite"/4-7m/4-12w Bears ♦ on sexual selection on greater variability of male. 270 wt/1-4m/w no one race in all parts nearer Orang 23-26m/24w Translate wb It seems that negros do not approach to Orangs in length of Arms, - ♦ for his legs are likewise long.

WEISMANN, August *Beiträge zur Naturgeschichte der Daphnoiden* 2 vols.; Leipzig; W. Engelmann; 1879 [CUL, I, S]

em, fg, phy, sh

vol. 1 NB p149 in Part III - he shows that summer eggs are nourished by a fluid secreted from the shell-cavity & are not in more water

WEISMANN, DAPHNOIDEN

69 19-34m 70 1-3m

♂

149 20-27m 151 11-17m, 24m

WEISMANN, August *Studien zur Descendenz-Theorie*. I. Leipzig; Engelmann; 1875 [CUL]

cc, ds, em, fo, he, phy, sl, sp, ta, tm, v, y

2 \uparrow 10-5m/w slight season difference \clubsuit more common 4 1-15w The caterpillars differ but feed on same food & are all mingled together \uparrow 7-4m/ \uparrow 15-1w The differently coloured caterpillars produce the same form of Butterfly 5 1-5w 2 colours not adaptation to conditions 6 \uparrow 20-12w under sides of wings differ very little- \uparrow 7u "direkten", \uparrow 3-2u "Temperatur | Entwicklungsdauer", \uparrow 6-1w Dimorphism due to direct effect of conditions 7 7m 8 wt Temp. during pupation affects colour of Butterflies. by experiments 9 1-15w Temperature did not make a complete transformation 12 6-7m/u \leftrightarrow 14 1-8w Summer form is a newly acquired form, & cold causes avitism & return to pristine winter forms 15 \uparrow 12m 16 10-15m/1-15w effects of climate cumulative like a poison \uparrow 15-10w bears on climatal variations, which are slow. 23 1-15m/w Explains Marcellus & Papilio on same principles but reversion easier \uparrow 7m 27 \downarrow w Thinks great heat will cause atavism of the Porima-Vanessa as well as cold *wb* \leftrightarrow over 28 \downarrow w Thinks shaking causes reversion - It comes to what I said, anything which disturbs the organisation. 29 13m 30 11m, \uparrow 15-5w The so called alpine & arctic var. is the parent form. 31 \uparrow 10-5w Winter-form much less variable than summer form 33 11-20m/w if the same species thus split we must expect it in distinct forms \uparrow 6-1m/w distinguishes climate & local variations *wb* These cases may be compared with the Polar-Bear always white & Ermine white only in winter- 34 15-20w Thinks this a new definition of Climatal variations (applies to Birds in U. States.) 35 8-10m, 9u "var. Bryoniae"/w a climatal var. & season dimorphic \uparrow 15-13u \pm 37 \uparrow 9-3m \clubsuit 38 5-10m/3-15w 1st question to decide whether change of climate acts by accelerating or delaying period of \clubsuit development. Birds in U. States answer this.- 39 15-17m/w the result he concludes of higher temp 40 1-4m, wt The change of colour & males depends on Nature of organism & not on the warmth 42 19m 43 2-15m/w argues that nature of organism far more important than the exciting cause 11u \leftrightarrow , 17-23m/w quotes me

to above effect \uparrow 8u "im | schwarz", \uparrow 7u "im | schwärzer", \uparrow 5-1m/ \uparrow 8-1w But in Birds the nature of change seems more alike in many species- 44 \uparrow 12-8m/m/w Warmth has affected one sex more than the other, so with Birds in U. States. see last Edit. of Descent. 45 1-4m/x, \uparrow 10-7m 46 \uparrow 6-1m/w Caterpillars of season - dimorphic alike 47 \uparrow 4-2m/w inheritance of corresponding sexual generation 48 6-12m/w New law of inheritance, well-known in asexual generation \uparrow 20u "cyclische Vererbung", \uparrow 16m, \uparrow 12-11m/u \leftrightarrow 49 \uparrow 20-14m/w climatal vars., but no season dimorphic vars: exist 56 \uparrow 6-1m 59 1-3m/wt I think he means that sexual generation has been lost & is parthenogenetic for intermediate generations 69 wt A Crust. \circ with summer & winter eggs the latter alone undergo a regular metamorphosis 1-10m, \uparrow 14-10m/w We see here a passage from metamorph to none \uparrow 8-3m/w think it direct result of climate??? 70 4m, \uparrow 10-3m/w Divides cases, as I mentioned, into whether or not, the embryology is different 71 3m 73 \uparrow 17-14m/ \uparrow 6-4m/w as 74 \uparrow 12-8m 75 1-4m 77 12m 78 7-9m/8-9u "die | Variabilität", 10-11m, 16-17u \leftrightarrow /w applies to this particular case \uparrow 12-9m 79 \uparrow 13-8m/w This is same in Jaeger \uparrow 7-3m/w allows doubts about Hilgendorf 80 3-15m/w His theory of isolation referred to \clubsuit Because variation not quite identical in 2 stations in relative number. 81 \uparrow 8-1m/w All variation due to changed conditions, but does not directly depend on nature of conditions. 82 13-16m/w each species has different history & so is differently acted on by conditions differently from other sp. \uparrow 4m 83 1m, \uparrow 10-9u "gerichteten | Askenasy's" 84 3-14m, 14-20m, \uparrow 11-10u "sie | Reize" Plates figs 1, 5, 10, 11, 12, 13, 16, 17: w \clubsuit (and whether summer or winter form)

WEISMANN, August *Studien zur Descendenz-Theorie*. II. Über die letzten Ursachen der Transmutationen Leipzig; W. Engelmann; 1876 [CUL, I]

ad, ds, em, he, tm, v

NB1 All book marked

p.55 56

In first part shows use of coloured stripes & ocelli of caterpillars.- In 2d & very important part - shows that that caterpillars, pupas & imagos all vary independently - & that when one stage varies more or differently in 2 groups the difference always stands in relation to conditions to which stage

subjected - Flies - & 2 groups of Hymenoptera best cases.-

good evidence of Axotl being reversion

NB2 68; ♦ 72 for Letter

all marked wonderful book 277 last mark

xiv 5m 55 24-27m 56 10-16m 68 14-15m, 28-32m/23-32w I have said do not appear in young 69 12-17w stages of ammonite like stages of same caterpillar 33-38w thinks not selection He & I inheritance 72 wt/1-18w Does not allude to rule of inheritance at corresponding ages, but after earlier But why I know not 27m/u "Bildungsgesetze" 73 1-3m 79 2-13m, 25-29m 80 12-14m 81 13m 85 29-34m 86 wt very unsatisfactory on some ancestor 2? 87 32m 89 14m, 28-32m 92 1-4m 94 3m 98 5m 101 10-19m/11-13w Effects of eye-spots 29m 103 16-29m 106 3m 116 6m 120 18m 142 18-22m/14-21w If developed according to phyletic instinct Kräft 149 5-9m, 15-17m 150 34-37m/34u "drei|einen" 151 1-4m, 6-8m, 10-12m, 21-24m, 29-30m 152 1-4m 153 13m, 14-23m/23-37u± 154 14-16m/11-19w i.e. caterpillar or XX imagos of allied species constant or variable 155 14-15m, 28-30m 157 5m 159 4-10m, 37-38m 160 1-4m, 9-11m 161 30-32m 165 20m 167 13-23m, 25-28m, 29-32m 170 18-20m/17-22w no characters in common of larvae of Butterflies 171 5-7m 173 32m 176 3-8m/5-6u "in|stehen" 177 22m 182 9-11m/10u↔, 14-15u↔ 183 29-30u "diel nicht" 184 7m, 17-20m, 17u "blos", 18u "Raupen varietäten", 21-25m 185 9-14m, 34-38m 187 12m 188 wt/1-6m/w which determines greater variability of one stage than other 24-28m 191 21-37m/22-27w All this deserves full consideration 36-38m 192 33-38m 198 20m 200 22-30m 201 26-28m 203 4-15m, 20m, 22-30m 209 6m 210 11-15m, 12-26m, 15-26m, 28-38m 212 12-18m 214 6-13m 216 8-24m 219 11-20m, 36m 220 1-5m, 18-20u "so|aufgeben" 221 26-30m 223 32-38m 224 7-24m 225 3-9m 227 wt I have read this essay before except the appendix p.273 273 22-26m, 34-36m, 37u "verwerthbar| muss" 274 17-20m, 21-24m 277 26-30m 280 15m

WEISMANN, August *Studies in the theory of descent* trans. R. Meldola; London; Sampson Low, Marston, Searle & Rivington; 1880-82 [Down]

part 1 NB 101-107

106 12-30m 107 1-30m 109 14-25m

WEISMANN, August *Über den Einfluss der Isolirung auf die Artbildung* Leipzig; W. Engelmann; 1872 [CUL, I]

beh, cc, cs, ds, em, fg, fo, gd, geo, ig, in, is, mg, oo, phy, sl, sp, ss, sx, tm, v

SB1 □✕

Weismann Einfluss der Isolirung

p8 p12 p41 on the Hilgendorf case of Planorbis - periods of variability succeeded by constancy - (Mem. Forbes case in Purbeck Birds) p.137 good arguments against M. Wagner

p.20♦ 42 on manner in which these forms of Planorbis become constant.

p.45 In a variable colonist to remain constant many individuals must immigrate

47 about drying of eggs of Apus & revival

48 Isolation by itself does nothing

51 Periods of variability long, yet shorter than those of constancy

52 My argument M.S. against periods of variability

p.54 Lays greatest stress on difference in results when a variable or constant species is a Colonist

p.55 Protective resemblance of butterflies 65 case of constant butterflies in separated areas during Glacial period.-

(over) p.67 p.74 He calls it amixie the non-crossing & accounts for very local forms by the same proportion of variation not occurring in one stocked by very few individuals - I shd think slightly different conditions wd likewise influence the propagation of varieties.- The difference these gained wd never exceed the amt of individual differences in species in question

p.76 cases of extremely slight differences in different countries of Lepidoptera - many♦ most species do not present any local vars.

p.85 Effects of crossing slight & slow except in locomotive organisms

95 97 102 Does he not ignore effects of conditions long continued - p102 good argument against.

107 local form of butterflies have never spread from Corsica to mainland of Italy

106 Cause of richness of endemic forms on islands in part due to fact when once formed not spreading to other areas

8 5-17m 12 21-26m/19-20w see to Forbes case 14 18m 15 6-30w argues wonderfully well about these species & their distinctness 16 17-19m (Hilgendorf) 18 23m 20 11-21w differently coloured vars of Caterpillars 21 14-15m 22 12m (CD) 26 31m 32 3m 40 28-31m 41 1-6m/w slowness of change 28-31m/26-30w most important 31-33m 42 wt/1-19w different individuals vary in different ways & all lead to the same end - like what I have

WEISMANN, ISOLIRUNG

said of Giraffe in the Descent. 1-2m, 13-19m, 20m, 22-23u "vollzieht|werden", 32-34u "sondern|aus" 43 2-3u "sondern|oxystomus", 5-7u "Verschmelzung|kommen", 10-11u "durch|Individuen", 26-28m/27w (a) wb constancy lost when all individuals fail to cross 45 12u "sehr|Individuen"/10-16w thinks cause of constancy lies in colonies consisting of several individuals 28-32m/30w (a) wb (a) Thinks individual differences overstated (?) 47 30-32m (Siebold)/30w (a) 33u↔, wb about the drying of eggs of Apus 48 18-28w Islands where some forms changed & some identical shows isolation by itself does nothing 27-28u↔ 49 18m, 29-31m 51 wt a species remains constant till some cause induces variation- 3-8m/5w (a) 18-27m/w Evidence of Periods of variation long, yet shorter than those of constancy 31-34m (Hilgerdorf) 52 wt A difference in result whether a variable or constant form in the colonist is new 24m/4-26w The species which remain for long periods & in many countries (& whole genera) variable are opposed to periods of variability 54 wt/1-3w i.e. without selection or any new tendency to variation, supposing the new arriver to be already variable- 1-8m, 32-34m, wb says very difficult to prove what are purely morphological characters 55 26-28m, 27-32m, wb cases like Kallima 56 31m 58 wt/1-9w asserts the dark colour of wings of female Blue Butterflies is certainly a protection 1-9m, 9z, 9-10u↔, 11m, 11-12m, 11-24w I think because his wings have been coloured blue the female has not this habit because her wings are brown 60 16-19m/19u "Satyriden", 27m 62 wt/1-30w He considers Secondary Sexual characters as morphological or indifferent, but I doubt, for so would be primary sexual characters 34m 63 2u "Vanessa|Sardinien"/2-5w case not due to his scheme 5-15m, 13-22m 64 26u♠/29-35m/w trace of mark in V. ichnusa 65 9-14m, 15-17m 67 11-15m, 30u "Amixie", 31-32u↔ 70 5-9m/9m/10-12m/4-17w he assumes taste of female wd remain constant.wd be affected by momentary colour - We have cases of local vars of Birds in which males alone differ. 20-27m/24-33w have I not case of male Moths like female in Shetland islands 72 8-14m/w 2 Sulphur-Butterflies with female alike 74 wt/1-25w on his peculiar view isolation cannot make a greater amount of difference than the extreme varieties of parent species - but may be aided by S. Selection 1m, 5-7m 75 12-17m, 13w conclusive 76 17-26m, 6-25w very slight

differences in different countries 77 1-12w Cases of absolute identity ever since glacial period 11-16m, 12-30w/wb the greater no of species of Butterflies do not present local vars. 82 1-2m 85 4-26w On effect of crossing very slow, in slowly moving organism - true - he ignores greater vigour of crossed offspring 91 24m 95 16-22m/wt/1-21w But how does he know that the black female not due to directly external agencies 96 21-29m 97 wt I think so if cause of variation preponderant 5-7m, 8u↔/w (a) 9m 100 8m 102 wt/1-28w important that the many local vars of V. cardui in America due to S. Selection because such are not found in other parts of world & the same argument applicable to direct action of conditions. 103 11-13m/12-13u "als|Stammart" 104 2-7m 105 25m 106 26-29m/w in islds 107 19u "Corsical Sardinien", 24-29m/25u "italienischen"

WEISMANN, August *Über die Berechtigung der Darwin'schen Theorie* Leipzig; W. Engelmann; 1868 [CUL, I]

cc, ch, cs, dg, gd, he, is, mm, oo, sl, sx, t, tm, v

NB ♦ Causes & Law of Variation most important

All marked

p26 Nägeli to 30

11 21m 12 5-9m/wt/1-9w Caterpillars coloured alike Moths different 13 10m 16 15-22m, 32-33m 17 21m, 32-34m 18 6u "Eil Larvenhaut", 26-28m/29-31m/u↔/23-31w Why on doctrine of Plan do the shoulder girdle & pelvis fail in snakes 32-33m (Dohrn) 22 20m 24 19m 26 8-12m, 8m, 14-16m/w degraded organisms 23-33w trifling characters constant - External influences kept constant by crossing 24-29m, 30m 27 3-4m/19-29m/1-33w I think this means that "morphological" characters are the results of what I call the definite action of conditions - I do not feel quite satisfied with this - free intercrossing cd perhaps keep ♣ the characters, which are not in use, free from fluctuations.- 28 21-22m/19-23w a cat will vary differently from a dog. 23-26m/wb So the Laws of variation (as well as inheritance) will prevent the same form being produced by two distinct forms- 29 wt/1-5w In Variation under Dom. I have been strong on N of species ● 6-8m/7u "Variationsqualität"/w good 16-20m ♦ 30 wt/1-17m/w This is justly directed against what I have vaguely said of indefinite variability - in all cases the variability, within a large circuit, is definite & thus certainly

overrides the power of selection 32 23-26m/1-26w my objection that an isolated form could cross at first 33 wt (a) Truly remarks that of offspring, crossed with parents, some wd inherit the new variation & some wd not, but the latter by natural selection wd be the less favoured 3-7m/5w (a) 28-34m (M. Wagner), wb Thinks much of Sexual Selection 34 28-31m (Hilgendorf) 36 3-6m/5-7u "Jedem | grün"/3-11w 2 or 3 forms of Caterpillars I shd have thought more variability 10u♣, 11-12u↔, 18-22m/w isolation by itself does not cause change 39 8-16m/w Plants & insects later developed on Mountains & so do not cross with same species on the plains 18u♣, 19-20u "die | Styngē"

WELLS, William Charles *Two essays* London and Edinburgh; Archibald Constable; 1818 [Down, pre-B, ED]

WESTWOOD, John Obadiah *An introduction to the modern classification of insects* 2 vols; London; Longman, Orme, Brown, Green & Longmans; 1839-40 [CUL, S] ad, af, beh, ci, em, f, fg, gd, ig, in, mm, mn, no, oo, or, rd, sl, sp, sx, sy, ta, tm, v

vol. 1 NB Change of Habits in House Crickets

SB1

◆ 427 Mantis fight
437 Saltatoria 3 Families
439 Crickets
440-442 males chirping noise
445 fight◆ & attract females
450 Gryllidae
◆ 452 Both se
453 both sexes
457 Locust act by Femora
- Pneumora anoth case
◆ The use of Limb perhaps stated
?? (p447. Male of one cricket veil. use not stated)

SWestwood Vol. 2 Secondary sexual Ch. Orthoptera

SB2 □β

104 Variation in Females of Dyticus - Also case of analogous var.?
144 Case of analogous variation
167 Violent Battles in Lucanus Males
164 Definition of Typical form
343 5 species of Cionus taken on one plant of Verbascum
396 Coccinellae uniting, but producing sterile eggs

408 Forficula few species, wide ranges

447 So Male Crickett

413 wings not developed in certain species of orthoptera & Homoptera

SB3 □β

447, 445 after p.456 I will look out for peculiarities to see if variable in single species

75 22-23Q 104 12-15m (Bonelli)/Q 25-28m
144 4-10m/Q 8-15w difference in sexes hardly a variation. 164 1-5m, 5m 172 29-33m, 37z 184 6-13w of the few cases of differ known two being same group some are splendidly coloured 15-17m/16u "Linnaeus | Fabricius" 187 6-11m, 18u♣ 212 24-27m/25u♣ 217 21-25m 236 27-30m, 36-41m (Latreille) 340 30-35m 343 22-25m/w Hard to see how selection cd make them 396 9-14m 397 37-39m (Dufour) 405 13-16m/15u "rudimental"/w wrong 406 15-18m 408 34m (Audouin, Brullé) 37m (Serres) 410 22-24m (Serres) 411 16-17m/16u "rudimental | wings" 413 10-15m 416 16-22m 421 12-13m (Hummel) 427 32-36m/36u "resemble | fighting" 437 1u♣, 13-19m/18u "crepitaculum", 20u "foramina" 439 6-10m, 24w Crickets 442 9-13m/9u "fig. 54.7"/w ●, 15u "underside", 20-24m, 30-32m 443 37-38m 445 3-6m 447 25-28m, 36m, 37-39m/w does this vary? 450 21-24m, 26-27w Grasshoppers? 452 9u "side | like", 10-11u "which | stridulation", 22-24m, 27u "two | 14", 35u "Linnaean Transactions", 37u "fifteenth volume", 38u "been | Donovan", 40u "as | mile"/37-40m (Guilding) 453 1-5m, 6u "exists | covers", 7-9m/8-9u "of | which", 11-13m, 15u "Lehmann | Sensibus" 455 30-37m 456 10-11w Locusts 457 25-29m 458 1-6m, 8-12m/9u "large cavity"/11w probably 13-15m (Latreille, Linnaeus, Burmeister) 460 30-34m/32u "known grasshoppers" 461 13u "gayest | insect", 14-17m, 15-16u "posterior | being", 30u "Pneumora", 33-35m/34-35u↔, 38-39u↔ 462 1-5m (Charpentier)

vol. 2 NB1 ◆ 313; 402

NB2 These marks refer to many abnormal parts, which, if required, might be hunted up to see whether variable - I have put X to them

12; 15; 24; 37; 67; 80; 82; 88; 98; 109; 119; 147; 150; 154; 158; 160; 172; 224; 232; 237; 252; 254; 261; 279; 281; 311; 312; 319; 321; 324; 326; 329; 333; 342; 344; 340; 352; 354; 358X; 356 to 389X; 406; 422; 431X; 432X; 444; 454; 469 & 478; 481; 483X; 499; 502; 508; 514; 524; 526; 541; 557; 559; 567; 578; 574; 575; 473 Reduvius stridulating; 213 & 214 Mutillidae; 465 Homoptera

WESTWOOD

SB1 □β

40 Suppl Phryganea do Palpi differ in different species?

213 Mutillidae female destitue of ocelli

SB2 □β

12 Affinities of Termites

14 on their habits

15 doubts about pupae walking

24 Nemoura species in same genus with or without branchiae

67 do in Phyganea

88 Classification by habits alone fails 262 do
88 Ichneumons use ovipositor as organ of defence & secretes fluid 150 do

89 antennae very variable differs in number and form of joint, in various species & in sexes of same species

98 varieties in imago from differences in food (Ch. 7)

109 20 parasites on a saw-fly

119 All wood-feeders vary in size. Allude to Wollastons cases of molluscs of 2 sizes & Birds in note

147 Ichneumons avoiding vital parts of caterpillars

224 Strange diversity of neuters amongst Ants

232 Slaves ♣ only neuter pupae taken

228 Curious variation see F. Smith Pamphlet 155 on - ch 4.

237 On minute characters very constant through whole order - good sentence

261 On resemblance of some Flies parasites on Bees to Bees.

279 Important on diversity of workers in Hive bees. occasional workers Q

311 In Butterfly 34,650 facets on eyes

321 Allied insects generally fed on allied plants (showing how same character goes in genera

324 on single species not having some very abnormal character not sufficient to render character unavailing

342 Definition of typical

344 Cases of Butterfly with many relations

346 & 348 On Caterpillars of same genus differing greatly 352 & 386 & 294 do

◆ 406 & in Habits

524 in Diptera

356 Nymphalidae are polymorphous

359 Caterpillar attaching fruit to tree by silk-thread. (Difficulty) 381 do Q

380 Males of Bombyx flying swiftly

382 two crysalises in one cocoon in relation to something about silk worms

384 Parthenogenesis - males alone in 3d generation

SB3 □β

422 Musical instrument of male Cicada hard to understand by Selection

37 good on Libellula noticing bright colours -
428 Projection varies in the different species in Fulgoridae

431 Development of wings in Homoptera

454-469 & 481 Important Ch. 7

444 Retrograde development in Cocci: females lose artic. of body & limbs

526 Males of Tipulae fight Ch. 6

541 In Tabanidae only females blood-suckers - Males on Flowers

6 16-23m 8 11u "Isoptera", 11u "single| Termes", 11x 12 5-7m/6u "economy", fig.w Pupa fig.w Neut fig.w Neuter ◆ larvae Neut 13 21-23m/w wide rangers 14 16-18m/16u "closely|each"/18u "called|Latreille", 24-28m/u "under|head"/w Neuters 25u "from|Po", 32-34m/33u "very|resembling" 15 13w Analogy 14-16m/16u "lose|off", 31-36m/33x 16 9-10x, 18x, 40x 21 28-30m (Curtis, Lucas) 24 4-11m (Pictet) 25 5-10m 26 27-33m 35 14-17m (Ashton) 37 9-10m, 21-25m (Newman), 25-27m/25u "In|males", 27-29m 39 29-31m (Réaumur) 44 11-12m (Dufour) 67 30-33m (Pictet) 77 17u "of|valves", 19-20m, 23-27m/z/ 26u "retroserrated spiculae", 28c "latter"/w sheath 29-30m/30u "articulated|internal", 34u "spiculae", 34-35u "serving|internal" 78 8a "some" male 9x 79 35x 80 17-20m 82 12-14m, 14-17m 83 35-36m, 36-39m 88 wt Some evidence that formed, like corporeal structures, by selection.- ◆ not particular 1-3m, 2-8w These agree with corporeal structures 38-40m (E.W. Lewis)/Q 89 1-2m/Q 98 20u "Dahlbom"/19-21m/w first rate authority 109 18-20m 117 10-17m 119 19-20m 147 17-19m/18u "feeding|matter" 150 27-32m/30u "painful irritation" 154 26-28w variable 28-29m 158 33-37m 160 4-10w like cirripedes 8-11m 172 4-7m/w variable 181 14-16m, 24m/24-25u "compels|abortive" 182 20-23m (St. Fargeau) 183 25-27m/26x/u "bee|makers" 205 8u "jaws|burrowing" 206 8-14m 209 10-17m 212 22-28m (Strickland, Bakewell) 213 4-6m/Q/5u "latter|wings" 214 12-17m (Goureau) 217 11-12u "whence|abortive", 13-14x, 14-15u "which|wings" 218 4m, 5-6u "but|middle"/w workers 19-20x/u "the|eyes", 23x 219 34-35u "especially|habits", 38-39m/x 220 2x 223 29-30m/x, 33-35w transition to Hive Bee 36-37x 224 7x, 8-9m/9x, 16-19m/19x, 25x/u/22-26w Different genera 2 workers 28u, 31-46m/34u/w 4th genus 38-40m (Huber) 225 32-41m (Wesmael), 32-38m/33u/w 3d gen 35-36x, 35u "immense|sphere", 38u "almost inactive", 39-40m/39u "only|honey" 228 16m,

29m 229 5x/u "tribes|species" 230 19-20m/u "in|species" 231 1x 232 21-22x/21u±/18-29m (Huber), 34u "neuter pupae"/35x 233 22x, 25x, 27-29m (Lund), 28x 234 11x, 32x, 33x 235 6x, 10x 237 28-30w folding of wings 238 7x, 30-36m♦, 37-40m (Jurine) 246 22m/20-22w Kirby says clear nest 247 1x 252 25-28m 253 4w Hive do 6u "constructing|nest"/w♦ How then had neuter & lost them? 254 7x/u "females|alone", 10-16m/10-11u↔/15u "cuckoo"/14-15w How arise 255 27x 260 38-39x 261 36-38m 262 2-7w Is there any case of Bee occasionally parasitic. 15-21m 264 10-11m/10u "These|all"/11u "and females" 268 8x/u "solitary working", 9u "great|this" 269 4x/u "Bees|Trigonis"/w See Dict Class 271 21z 272 28-34m, 30-34w Ch. 8. like webbed geese Q 278 38m/u "50,000|queen" 279 3u "distinguished|secreting", 23-24u "their|pockets"/w see Kirby 32-40m (Huber), 34-41u±, 34x, 36x, 39x, 40x 281 8x/u "Unlike|hive", 10u "two|organs", 13u "pollen|posterior", 14u "the|joint", 15-16u "presencel|nest", 28-32m, 29x, 36-39m, wb Disappearance of these pollen plates interesting 285 22x 286 27x/28x/w vide this 287 3x/u "neuters|being" 311 37-39m (Geoffroy) 312 19-25m 313 7-9m, 13-16m 317 34-35m/34u "Zygaenae|wings" 319 6-8m, 13-15m 321 28-32m (Loudon), 33-38m 324 29-34m 326 7-8m (Boisduval) 329 15u "seven"/14-16m (Newman), 31-36m 333 11-13m/13u, 38u♦ 335 4-5m 342 34-37m (Boisduval) 344 29-35m 346 32-37m/34a "Papilio" p.348 348 24-31m 352 9-17m 354 7-12m/2m 356 8-10m/w Nimphalidae 358 10w (variable) 11-13m/x 359 5-8m/6u "the|of", 15-19m (Westwood), 15-17z 368 21-25m, 27-33m 376 37-39m/38u "twilight|considerably" 380 1-5m/w which family with rudimental mouth 23-31w It does not appear wingless 26-30m (Stephens), 29-31m/m 381 23-24m, 26-29m 382 35-36m/34-39w happens with silk Worms. 383 8u "Memoir|Trans."/w Read 384 4-12m/12u "pocket|collector"/12-13w Bombycidae 16u "Davis|4", 24-26m, 35-36m 386 15u "prominent"/7-16m/8-13w larvae differ more than Moth 30-32m, 32-33m/33u "species|wings", zb 387 17-19m, 29-30m, 32m/a "genera" wonderfully zb 389 25-26m/w wings variable?? 390 18-21m 391 17-18z 392 36-37m/37u "which|fly" 393 1-2u↔, 2u♦, 3u "pluvial|patches" 394 22-27m/w Mem.-Crustacea metamorphosis of 396 8-11m/9u "occasionally|vertically" 397 19-24m, 32-34m 400 15-19m 402 25-27m 406 2-6m 416 15x, zb 419 6w bristle-like 8x/w 4321 10w 444 11w Coccidae 12w Aphidae. Physillidae &

Aleyrodidae 421 7u "the|three", 10u "antennae", 11u "seven joints", 12u "6"/w or 422 15u "legs|not"/w for jumping 17u "males", 19u "the base", 20u "abdomen", 21u "insertion|legs", 23-28w How arrived at by selection 26-28m/25-31m/Q (Réaumur, Goreau, Solier), 35-39m 423 12-13m 427 5c/u↔, fig.x, 7u "legs", 8u "general|leaping" 428 3-5m, 5-7Q 10u "varying|species" 430 10-12m (Merian) 431 10a/u "species"/w of Delphax 13u♦/12-14w are some species winged & some not 14-21m, 24u "antennae|jointed" 432 2u "last|seta", 5u "ocelli|number", 5c "in number", 17-22m/w ? variable in individuals 435 11u "antennae", 12u "ten joints" 438 5u "antennae|jointed" 442 29-30u "broad|wings", 34u "antennae|jointed" 444 5-9m 454 16-22m, 23-29m 469 4-7m, 10-11m, 14-16m, 18a "condition" ie with rudiments 20u "destitute|rudimental", 22-25w like some plants with 2 sorts of Flowers 37m (Westwood) 473 17-18m, 23-25m, 31-34m 481 32-36m (Curtis, Linnaeus) 483 9-10m/x/w variable 499 2-5m/3u "proportionate" 502 10-13m 503 16-21m/w a discussion of several pages on this. 508 7-19m (Latreille) 514 7-9m, 17-20m 524 fig.w all these larvae one family 526 7-8m, 20-22m 541 3-5m 555 33-35m (Linnaeus) 557 36-38m (St Fargeau) 567 20-23m, 24-25u "thus|Ichneumonidae" 571 3-12m (Jenyns), 35:40m (Owen, Hope) 588 w (list of orders of insects and number of subvenient species) Synopsis of the genera of British insects, 1 8w p.30 10w p.8 11w Stirps 2 p.4 5 zt 8 23-24m 21 26-27m 22 27-28m, 30m 45 1w Antenna long 20w Antennae short 49 23-25m 51 21-23w p79 Aculeata

WHEWELL, William *History of the inductive sciences* 3 vols.; London; John W. Parker; 1837 [CUL, S]

beh, cc, ch, cr, ds, geo, h, he, ig, mn, oo, no, pat, rd, sy, t, tm, ud

vol. 1 NB 17; 54; 80; 119 curious; 136 good sentence; 169; 238; O Feb/58

xix 18w R 17 18-21m/w Herschel's craving - How acquired? 51 11-14m/w one does♦ can conceive such ignorance 54 1-3m/1-5w curious with respect to origin of language 80 3-14m/9-10? 119 8-10m 122 13u "1461"/13-15w How was this calculated 135 11-12m/w V. p.122 136 18-21m 138 14-16m/15u "ready|times" 169 13-18m 238 8-25m

vol. 2 NB 127; 177; 287 good; 438; 482; Feb/58 O/

116 11-17m 127 13-22m/w/wb May conclude from this body of Man requisite. Hence

WHEWELL

political state of country Great influence of science hence dark ages as in Spain 177 11-17m 180 7[...], 18-19[...], 25[...], 30[...], 181 1[...], 13[...], 14[...], 183 m 244 1-10m 287 25-31m 438 11-15[...]/m 441 11-22m 482 30m 483 1-6m

vol. 3 NB 188; 265; 321; 322; 324; 342; 352; 354; 369; 374; 379; 390; 397; 415; 419; 436; 448; 452; 456; 458 et sequitur; 466; 471; 472; 574; 576; 578 read whole Chapter; 582; 620

SB □β

Vol 3

189 374 Definition of classification p374
321 on natural Classification Linnaeus rules
324 very good
342 do. very good.- 352 do
459 Eyes of Cephalopoda discussed by Geoffroy in his Principes de Phil. Zoolog. p.55 1830
468 Maintains that every organ has some use

188 24-31m 189 1-2m 255 12-19m 263 30wε
321 8-23m/10-22w This is strictly applicable to family likeness - though rules may be estab to guide observer as ∞ vary least or most 25-26uε "latent | instinct", 28-29m, wbε when such expressions are used, it is certain there must be some great hiatus in our knowledge 322 2-7m, 15-20m/w what is this but to say, that every character is variable ● Linnaeus 22w V. p.324 24m, wb when Published? 324 13u "but | impossible"/ 11-14w surely not always - Elephant? Man? 325 3c "organization of life"/w descent 342 wt Systematic naturalists are the heralds of Nature 7-8u "study | only", 7-12w What organs abortive? What least subject to change? use of each part 13-17w The relations consequent on one part, or organ changing 18-24w Trifling resemblances independent of external causes of slight weight wb importance of organ is not the rule in species, or even genera. : only the red band on the Furnarii and Synallaxis of S. America. Consider the Trogons of world, whether ∞ there is not more 352 17-28m 354 18-23m 369 5-22m 374 9-26m 379 15-22m/ 17-18u "Philosophy | Life" 390 1-4m/3-4w see p.400 5-7m 397 8-12m 400 26-27m (Harvey) 401 1-3m (Harvey) 415 11-25m (Grew and Malpighi)/15-18! 419 9-12m/9-22w why not as well as the skin of the hand know how to grow properly, all live fresh again? or tree produces same buds 436 15*/u "five sepals"/ 16u "five"/wb * Preponderates in all Dichotiledons - & in Radiata - (?) Mem.

Agassiz - Quinarian arrangement - 3 - in Monocotyledons 441 21-30m (De Candolle, A.P.) 448 12-15m, 29m 452 18-31m, 30-31m (Jenyns, Clark) 456 5-14m/6-8w Mammae in Man 7-14m/8-12?/9-10?/12-14m 457 11-15m (Geoffroy St Hilaire)/w Clearly wrong 458 wt rather, the function gives rise to the structure 459 15-21m/w How singular that so different a series should have arrived at same end. 461 3-7m 462 3a "play"/wt thus qualified is correct. Owing to external contingencies, & numbers of other allied species & not owing to mandate of God 463 1z 466 1-8m, 30-31m/? (Cuvier) 467 4a "made"/2-4m/w born & altered 4a "offices"/4-5m/w under changing circumstances 30-31m (Cabanis) 468 3m/wt Shrivelled wings of those non-flying Coleoptera?! wt In every science, one may trust that every fact has some relation, ♣ to whole world 3u "use"/w relation wb In every animal, final cause or adaptation is applicable to far greatest proportion of structure. For otherwise it would be pressed 470 1-3m, wt/1-19w All this reasoning is vitiated; when we look at animals, on my view. 4-18m (Kant), 18-20m 471 wt/1-2w When a man inherits a harelip, or a diseased liver is this adaptation as much as Bullfinch to linseed.- doubtless it is in one sense, but not that in which these philosophers mean. 472 13-15m/w appears to me rather far-fetched 473 1a/u "possible"/ wt/1-3w with innumerable other animals striving to increase 4-5u "those | it" 543 1-5m 574 1-25m 576 1-12m 577 1-31m 578 25-32m/ 27?/28u "constantly" 579 15-17m/16u "additional assumptions", wb These are not assumptions, but consequences of my theory, & not all are necessary 580 27m (Cuvier) 582 22-25m/23u "his | beauty" 610 7-15m/10-12? 620 1-5m

WHITE, Gilbert *The natural history of Selborne* 2 vols.; London; C.& J. Rivington; 1825 [CUL, S]
af, beh, cc, ch, fg, h, he, mg, oo, or, sp, sx, t, ta, ud, v

NB1 Modifications & migrations of species of same genus shows great diversity in habits See end of 2nd vol for Classified Index
♦ p169 ●; p277 Furnarius boring holes
NB2 p126; 139 Many birds do not pair; 169 allied species similar habits; p246; p255; p256X; p272X; p278; p292

126 17-23m, wb Good instance of punctual migration wb D'Orbigny case of memory of time 139 2-19m/8-9Q/11u "cock | hen", 23-24Q

169 2-10m/3-6w In S America same fact 246
15-24m/15-19m 255 1-5m 256 6-17m/7-8w
Lin 14 272 1-7m/w like my bird boring holes
278 6-26m/7w p.773 292 12-17m 320 1w
Swallows

vol. 2 NB comparison with man good
comparison with old animals gnashing their
front fangs

p6; p8; p9; 10; p54; p56; p92; p110; 117;
p119; p120; p124; p207; p296; p310

SB Letter 29 - On Partridges

139 On Birds when one shot, getting soon
mated Q

246 on singing of Birds, due to rivalry

256 on wren hiding mouth of nest

272 Martins nests continually washed down

vol 2

8 on capons hovering or brooding over
chickens

110 some notes of own on instincts

117 Barley in Hawks stomach from W.
Pigeons

119 Chinese dogs not relishing meat Q

120 sporting Dogs refusing Partridges &
N.Q.

6 1-18m 7 6-20m 8 1-4m/2-3u "hover|hens"/
1-9w dormant instincts in every male,
account for a difficulty in origin 7-9m/?/9u
"Mr. Lisle" 9 9-12m 10 wt This must be
reason, instinct would have led hog to have
waited for boar 1-5m 54 1-10m 55 15-16z 56
wt cause of straight lines easy to keep
direction recollect FitzRoy idea of sounding-
noises to hear the line when not see it 1-2m
57 15-22m 92 15-19m/15?/u "miscellanies" 110
wt Habitual action, like instinct does not
vary, indeed difficult to vary much bitter
experience to cure tricks yet curable. so
instincts can be altered.- wt habitual desires
& actions go together in Man.- eating dinner
Instinctive desires *wb* Habitual desires -
appetite at certain times *wb* Instinctive action
Habitual action - in sucking both must be
brought into play *wb* Instinctive when origin
cannot be traced in life of individual 111 wt
in an habitual action, consciousness of
desire which must be preparatory, obliterated
wt/1-11w It is not more wonderful that a
desire should be hereditary - than that
memory itself should be hereditary. or that
taste, mental thought should be so 7-24w In
Man an habitual desire may become
instinctive or hereditary. ambitious man
ambitious children - civilized man. civilized
children 13-16w It is transmission of thought
through egg 15-19m, 17-21w X- that
cuckoos should know so much the

impregnated ovum should be mathematical
20-25w the mind has only cause to sleep
20-25w because circumstances do not vary
wb Man scarcely any instinctive actions.
Many desires, & therefore many habitual *wb*
animals having ♣ many instinctive few
habitual actions? 117 14-18m 118 12-19m 119
15-20m, 20-25m 120 20-25m/21w good 121
wt If effect of being beaten as seems most
probable a most curious instance if not yet
an acquired instinct!- 1-4m, 3-6"...", 7-11m,
14-21m 124 1-3m 207 8-13m/11w reason *wb*
nothing short of it would make them run out
of doors 259 15-17z 265 zb 296 2-16m, 18-
21m 310 16-19m/17u "Montagu|xxx"

WHITE, Gilbert *The natural history of
Selborne* new edn by L. Jenyns; London;
John Van Voorst; 1843 [CUL, I by Jenyns]
beh, mg, phy, sx, tm, y

NB p47 on chaffinches sexes in flocks
p53; p69; p91; p112; p130; p137; p143;
p173; p214; p236; p348; p204

SB □β

Mice using tail slightly as prehensile Brehm
Thierleben says same of monkeys

69 Snakes using Dung Heap to incubate in
NQ

112 on a cat habitually taking to water

137 Differences in migration within England
NQ

140 Both male & female swallows have
forked tails - but males the longest

143 Grey or Hooded Crow very rarely builds
in England

214 On tough envelope to Dung of young
Birds, due to inaction Q

215♦

348 On Birds near cotton-mills using cotton
for nest. N.Q.

354 Dogs lose taste for flesh. Q

Letter 16 Martens building in exposed
situations Q

47 21-32m (Thompson) 53 21-27m 69 18-23m/
18u "of|heap" 82 28-29m 91 17-21m/19u
"protract" 130 30-34m 137 28-30m 143 28-
32m 173 24-30m (J.E. Gray, Yarrell) 204 23-
32m/29u "Mr. Blackwall" 205 30m 206 27-33m
215 23-26m 216 6-8z, 22-29m 217 9-13z 236
21-30m (Robert) 348 24-32m (Thompson) 354
9-14m

WHITNEY, John Dwight *The auriferous
gravels of Sierra Nevada of California*
Cambridge, Mass.; University Press; 1879
[Down] φ

WHITNEY, William Dwight *The life and growth of language* London; Henry S. King & Co.; 1875 [Down, I]

NB 139
139 2-6m

WHITNEY, William Dwight *Oriental and linguistic studies* New York; Scribner, Armstrong & Co.; 1873 [CUL, I]
beh, t

NB All on language
285; 287

No sound argument that Man cannot think without the use of words – 296– Quoted

353

354 Uses of unforeseen Used Δ

How far Language consciously invented
Used Δ

(many markings presumed not to be by CD)

246 26-27w chesnut 285 15-28m 287 22-27m
296 31-35m 297 1-8m, 1-24"..."/12-17m/12-
22m (Max Müller), 20-24m 353 11-25m, 32-
33m 354 20-25m, 33-35m 355 6-8m

WICHURA, Max *Die Bastardbefruchtung im Pflanzenreich* Breslau; E. Margenstern; 1865 [CUL, I]

ad, br, cc, ch, cs, f, fg, gd, he, hy, ig, in, mn, no, pat, sp, sx, tm, v, wd, y

NB1 ♦ the most striking case given of constitutional weakness of Hybrids

NB2 ♦ p22; p43 Variation under Domestication; 89 do – Look over – allude to theory of non-accommodation – will not do if *Primula* & *Linum* are sterile.–

SB1 □β Δ *(mostly dictated by CD)*

Full Abstract Max Wichura

24 Willows have great power of combining into complex hybrids; he has united 6 species into one hybrid.

28 Thinks Gärtner's reversions due to parent pollen: Naudin's results point to opposite extreme. Does not Gärtner say that cultivated vars. revert more than wild species? Does this not account for difference between Naudin & Wichura?

see Book p. 2

29 The 6 fold hybrids cd not live –

31 Says generally that Hybrids are not so strong & healthy.–

30 Gradation in sterility of Hybrid willows which in extreme point of scale ends in death of young plants

35 Gradation in potency of pollen.

38 pollen gets worse & worse in offspring of Hybrids inter se & in (p.39) the more

complex hybrid.

41 Luxuriance in hybrid willows is by no means the rule rather than reverse.

SB2 *(as 1)*

42 Cases of weakly hybrid willows

43 Believes in Kohlreuters view that luxuriance of hybrids results from sterility, false from mongrels –

43 & 44 Number of individuals of either sexes modified in hybrid willow. There are more females & see p.63.

50 Never saw a prepotent type & therefore doubts Gärtner.

56 variability in hybrid willows when hybrid pollen used; uniformity when pure pollen used.

58 & 66 difft kind of hybrid willow found wild

64 Gives proportion of hybrids to pure species in different districts – in some places more hybrids than pure plants –

65 Ingeniously explains how they abound on certain spots from rapid Germination ϕ of seed –

80 gives case of species very like each other yet do not unite easily.–

SB3 *(over, CD)*

Gärtner p.474 & 582 on Reversion occurring chiefly in cultivated Plants – Naudin who used cultivated plants goes to one extreme & \clubsuit Wichura who experiments on wild willows goes to other extreme

SB4 *(as 1)*

83 Explains sterility of hybrids by combined organization being ill-fitted for conditions. I give this view p.288/3rd ed. of *Origin*; but contradicted if offspring from homomorphic unions are sterile.

85 Explains increasing sterility of successive generations of hybrids inter se by interbreeding like I do.

85 The crossed *Triticum* & *Aegilops* which increased in fertility had 3/4 of *Triticum* blood.

89 cultivated plants which vary most often have irregular pollen and seems to think there is some analogy between variability & hybridism

92 Cultivated plants like hybrids, are in a state of dis-accommodation & he gives Kohlreuters view on this point

10 13-14u \leftrightarrow 11 14-18m 22 *fig.m/w* 6 species compound into one. 24 14-17m/11-17w In Willows great power & tendency for production of complicated Hybrids 27 9-10m (*Gärtner*)/w 4 generations implied for Reversion 16u "*individuelle*", 13-17w Propagation of individual peculiarity in a

Hybrid 28 wt/1-5w Thinks reversion of Hybrids due with Gaertner's experiments to pollen of either parent - I daresay Naudin's reversions are largely due to his plants being cultivated 3-6m, 27-28m 29 17-18m/17u "sechsfachen"/18u "die|Grunde" 30 9-13w Gradation of sterility 16u "aber|in" 31 5-11m/10u "aber meist"/6-8w gradation in number of seeds 15-16u↔/?! 35 24-26m 38 6-11w pollen gets worse & worse from hybrids inter se 39 12-14m/12u "Zahl"/13w mingled 41 8-9m/u "doch|Regel", 21-23m/21-22u↔, 25-26m, 30-31w dwarfs from weakness 42 wt/1-21m/w cases of weakly Hybrid willows did not produce flowers 43 1-9w believes in Kohlreuters view that luxuriousness of Hybrids results from compensation for sterility 20-22w Relation of sexes modified in Hybrid Willows 17[♂], 20u[♂] "Zahlverhältniss", 21u[♂] "als|Arten", 29-30u[♂] "Differenz|bedeutende" 44 3-4u "mehr|weiden", 8-13w more females! under nature Hybrid females very abundant 9u↔, 12-13w 1/10 males females 16-17u "unter|befand" 50 8-16w never saw a prepotent type in willows & doubts of Gärtners statement 52 9m 56 17-22m/17-18u± 58 14-17m/16-17u "66|ihren" 63 10-12m 64 6-7m/u↔, 9-13m, 34u "einzelne" 65 1-3m/1u "zusammenwachsen", 2-6m/w more Hybrids than pure parents!! 9-28m/10-20w Explains how these numbers come from willows vegetating only in bare places 80 10-12m 82 21-25w common mule 24u "eine|Bastarde"/24-25m/? 83 9x/wt X I give this view distinctly p.288 3d edit of Origin 10-12m/10w Clever 15-25w no Hybrid exactly fitted for place in nature - contradicted by species from different climates forming Hybrids 84 wt/1-5m/w More different the parent species the more imperfect the Hybrids 85 2-11w This is my view of interbreeding causing sterility in successive generation, but too rapid 28-29m/29u "Die|begreift" 89 8-19m/w Plants which vary have often irregular pollen - I think some connexion between sterility & variability 92 8-29w Cultivated Plants like Hybrids are in a state of disaccommodation.- 33u "Die|wird" 93 1-3m (Koelreuter), 21u "dass|Accommodation", 22u "Fähigkeit|Varietätenbildung"

WIESNER, Julius von *Das Bewegungsvermögen der Pflanzen: eine kritische Studie über das gleichmässige Werk von Charles Darwin* Wien; Alfred Hölder; 1881 [CUL, I] cc, mhp, phy, t, y

NB ♦ 60 I think ♦

8 I do not understand; 11 no; 34 no; 80 no; 78 Georges translation; 158♦ George; 122; 126; 162; 211

(by GD) What you say p.485 almost justifies Wiesner

SB ∞ Pots 2, 4, 8, 12, 16, 20 ft (for 4 hr) in 2d 1/4 3d 1/16 4th 1/36 5th 1/64 6th 1/100 of the light received by the seedlings in the 1st Pot

3 23-27m 8 12-22m/1-21w do not understand whilst struggling itself accommodation wd stop 9 4u "beschränkten Masse" 11 19u "alle", 19u "Circumnutation", 19w no 20u "Reizphänomene" 24 1m, 17-20m/18u "nicht|Zusammenhang"/w no 30 13m 60 23u "Krümmungsfähig"/w no 66 32-34m/32u "nicht heliotropisch" 68 17-20m/17w Weight can 69 8m 71 1-5w loading very good 73 2m 78 zt, 23-30m/17-29w I do not understand 81 1m 122 10-31w But will not Cotyledons place themselves horizontally in the dark 123 8-10m, 18-21m! 124 8-10m 125 7m 126 wt/1-17w It ought to be tried again. Whether Cots. (with hypocotyl fixed) bend in proper measure to bright light. 33-35m/18-35w In my study, when hypocotyl. bend itself Cots. were horizontal, but when with same light Cot fixed the Cots bent in proper measure 127 3-14m/w I cannot quite follow 20-31w Do all Cots rise if kept in dark? 162 wt It does not explain lateral mvmt. 5-11m/1-11w This does not apply to 2 triangles 205 ♂ 22u "Fast alle", 23u "sind|bewegungen" 211 23-27m/?|26u "verkümmern|sterben"/w no

WIESNER, Julius von *Elemente der wissenschaftlichen Botanik: 1. Elemente der Anatomie und Physiologie der Pflanzen* Wien; Alfred Hölder; 1881-89 [Linnean Society of London, I]

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WIGAND, Albert *Der Darwinismus und die Naturforschung Newtons und Cuviers* 3 vols.; Braunschweig; F. Vieweg & Sohn; 1874-77 [Down] ♂

WILCKENS, Martin *Form und Leben der landwirtschaftlichen Hausthiere* Wien; Wilhelm Braumüller; 1878 [Down, I] ♂

WILCKENS, Martin *Grundzüge der Naturgeschichte der Hausthiere* Dresden; G. Schönfeld; 1880 [Down, I]

WILCKENS, Martin *Die Rinderassen Mittel-Europas* Wien; Wilhelm Braumüller; 1876 [Down, I]

NB Skimmed too difficult O

WILLIAMSON, William Crawford *On the recent Foraminifera of Great Britain* London; The Ray Society; 1857 [Down]

NB xi
xi 2-11m
♂

WILLIAMSON, William Crawford *On some of the microscopical objects found in the mud of the Levant and other deposits* Manchester; Gillett & Moore; 1847 [Down, I]

WILSON, John *British farming* Edinburgh; Adam & Charles Black; 1862 [Down]

NB Colling, Ellman, Bakewell

WILSON, Owen S. *The larvae of the British Lepidoptera and their food plants* London; L. Reeve & Co.; 1877 [Down, S] ♂

WINKLER, Tiberius Cornelius *Descriptions de quelques nouvelles espèces de poissons fossiles des calcaires d'eau douce d'Oeningen* [Down, I]

NB O/

WINKLER, Tiberius Cornelius *Des tortues fossiles* Haarlem; Les Héritiers Loosjes; 1869 [Down, I] ♂

WOLLASTON, Thomas Vernon *Insecta Maderensia* London; John Van Voorst; 1854 [CUL, I]
gd, oo, no, sp, tm, v

SB1 Cossyphodes a Blind Insect in Ants-Nest common to the Canaries lsd with wings obsolete & Bates says Prelaphidae are blind but some have yet wings & fly & are f. in Ants-Nests.

SB2 □β Genera marked Woll. & so I presumed endemic
(list of genera and number of their species; totals calculated)

(untranscribed words are numbers of varieties listed under each species) xxxva 11w, 15w, 22w, 34m, 37m, 40w xxxvb 7w, 11w, 16w, 21w, 25w, 29w, 39w, 45w xxxvia 4w, 10c "var β", 17w, 18m, 33w, 42w, 45w xxxvib 4m, 16w, 25w, 34w, 42w, 47w xxxviiia 2w, 10w, 19c "109 spinipes, Woll.", 19w var a 30w, 33m, 35m, 42m, 44m, 54w xxxviib 4w, 8w, 15w,

27w, 31w, 32m/?, 33w, 36w, 37m, 38w, 40w, 42w, 45w, 47w, 49w xxxviii 6w, 9w, 12w, 17w, 20w, 28w, 31w, 34w, 37w, 40w, 44w, 45-46m, 47w, 50w xxxviii b 3w, 6w, 7m, 9c "var β", 12w, 14w, 15m, 17w, 20w, 34c "206 | Woll"/w e var 35w, 37w, 42w, 47w, 49w, 51w xxxixa 2w, 7w, 8m, 9w, 10m, 15w, 16-17m, 18w, 21w, 24w, 29w, 31w, 32m, 43w, 45m, 46w, 47m, 48w, 53w xxxix b 4w, 7w, 13w, 15w, 30w, 35w, 37w, 43w, 46m, 47w, 49w, 50m, 55c "281 | Woll"/w var α 56c/w var. β xla 7w, 12w, 14m, 17w, 18m, 20w, 21m, 23w, 25w, 27m, 28w, 33w, 36w, 43w, 53w xlb 3w, 7m, 8w, 13w, 17w, 19w, 21w, 22w, 23m, 24w, 26w, 27m, 28w, 32w, 35w, 39w, 43w xlia 4w, 13m, 15w, 17w, 19w, 21w, 30w, 43w, 45w, 49w, 50m, 51w xlib 2w, 4w, 5m, 6w, 8m, 11c "370 | Woll"/w var α 12m, 14w, 15c "var β", 17w, 20w, 22w/?, 24w, 26w, 29w, 31w, 35w, 36m, 39w, 40m, 42w, 46w xliia 3w, 21w, 25w, 30w, 33w, 36w, 43w, 46w, 50w xliib 4w, 6w, 7m, 10w, 27w, 35w, 37w, 39m, 40w, 45w, 48w, 50w, 52w, 54w, 57w xliiia 4w, 7w, 9w, 17w, 20w, 22w, 26w, 28w, 31w lxiiib 1m, 2w, 8w, 9c "var β", 13w, 19w, 21w, 28w, 29m, 30w 21 1-2Q

WOLLASTON, Thomas Vernon *On the variation of species* London; John Van Voorst; 1856 [CUL, I]

ad, af, beh, br, cc, ch, co, cr, cs, ds, dv, em, ex, gd, geo, ig, is, mg, mn, oo, rd, sh, sl, sp, sy, t, ta, ti, tm, ud, v, wd

NB How are Birds? in size measure wings of Swallow

4 11-14m, 12-19m, 22u "namely | creation" 5 11-12Q/u "a | stability", 14m/Q 15-16m, 25-27m 16 12-15m 24 13-14m/13u "240", 20-23m 27 25-29m 29 15-18m/Q 30 25-29m/Q 31 2-9m/Q 20-25m/Q 22u "Europe | Madeira", 26u "Sweden | Canaries", 27u "insect | cosmopolitan" 32 11u "the thesis", 12-16m 33 1-9m/7-8w why not a true species 12-19m 34 7-12m (Westwood, Kirby), 23-27m 35 20u "small", 21-23m/22u "of itself", 29!/u "legitimate variation" 36 2-4m, 17-22m, 23u↔ 37 11-17m 38 1-2m, 6-8Q 9-14m, 26-29m/w Glacial Inst 39 10-15m/Q 18-23m/Q 40 10-14m/11-12Q 16-20m 41 4m, 5-6Q 6-9m, 15-18m, wb Do not forget changes in larval condition.- as causing change in Mature 43 26-29m/Q 44 1-3m/Q 45 1Q 4-6m/w How odd 15-16Q 23-25m, 28-29m (Westwood) 50 21-24m 54 25-26w Great webs, action on the larvae? So in plants, according to Decandolle) 26-28m 55 2-7m 57 14-16m/Q 26-29m/Q 58 2-8m 59 1-5m/3u "so | colour", 10-12m/Q 23-25m (Hardy,

Bold) 60 wt Q 2u "the change", 12-14m/12u "southern shores", 22-26m 61 wt Q 4-6m, 13-19m, 27-28m 62 7u "ornamented typically"/6-9m/w variation analogous Q 63 3-6m, 8Q 9-12m (M. de la Ferté) 64 wt/1-4m/3-4u±/1-6w Q How curious the impossibility of creation & variation producing same end. Capacity in one case & not in other to adapt itself or be acted on.- 8-17w You have a vera causa, but you invent another.- 65 3-4w do not understand 11-20w It is begging question to attribute these to soil. 14-18m, 18-29m/22-29w/wb May be the result of something of use, or indirectly connected. 66 21-29m 67 1-5m (Curtis)/w This common & important 68 6-14m, 21-23m 69 1m, 3-7m, 12-18m, wb Here the forest seems the active cause 70 1Q 13-18m/16-18"... 71 1Q 22-23m, 25u "constant |atmosphere", 29u "diminution |area", wb reduces isolation to these - & interbreeding 72 11-13m/u±/7-12w Java Sumatra America? 73 15-20m 74 1-4m, 10-12m, 19-20m 75 wt It is very important that the linking forms are often rarer; by Mr Wollastons account, these the extremes: hence easily exterminated. wt How far are intermediate links produced by crossing? If so they wd cease when species made 5-8m, 19m 79 13-15m 81 20-21m/w (a) wb (a) Thinks decrease of wings increases size in some instances & It makes up for isolation which tends to reduce size 82 8-9Q 10-13wcc, 19-20m/w why 25-30m/Q/u/w 17 83 6-10m/w & p85 8-10u±, 14m/Q 84 5-6w Balancement 6-10m, 23-26m, wb But how cd it have gone over low lands, certainly hotter, than present Madeira. Applies to Balea pencosa, & ! 85 wt With this I can hardly believe, that intermarrying can decrease size.- May not greater powers of locomotion be regained for apterous insects 13-14m, 15-18m/15u±/w (2) Q 20w (3) Q 24-26m 86 3-5Q 27-29Q 87 12-16w Can this account for absence of thalerophaga lamellicornes 14-16u "if|certain"/Q wb♦ Why not allude to greater propor 88 5-8m, 16-20m/20u "are|elsewhere", 20w opposed to 89 1-2m, 2u "external|form", wt This cannot be interbreeding ∴ probably in all cases some other relation.- 90 wt/1-15w It wd be well to put the case of 2 isld were united, there wd be largely intermediate forms: or indeed ♦ the variation prevented. Just as varying exceptionally slow, so a few crosses wd help to check it. 96 6-8m, 10-13m 97 24-28m 98 19-29w/wb Wings, I suppose last developed organs, can that bear on their variability? 99 wt Insects may seldom be able to fly so

decrease like ducks or silk moths come into play, aided by selection. Analogy of wingless Birds, cd lead to former belief. 101 18-23m (Westwood, Spinola), 29m 102 1-5m, 20-26m 103 1-6m, 16-17m, 22-24m 104 25-26u "size|colour", 26-27m 105 12-13u "two|states", 23-28m/w so in Birds 106 17-19m/w so in Ploceus & Icterus 109 4-6m 115 12-14m/? 116 9-15m/? 117 6-8m/?/u "with|powers" 119 13-15m, 14u "once continuous", 15u "slowness"/w hypothesis 120 13-16m/? 122 19-20m 124 6-9m, 10[...], 16-20m 125 10-14m, 11-13m/w think of confined mammals & Birds 25-27m/25u "Its|rarity" 126 23-24u "the|regions"/w Lyell 128 10-14m, 12-16m 129 3u "Sir Charles"/w No 5-9m, 14-16m, 18-20m, 23u "occur|state", 20-25m/w (not differently associated with other organic beings. 130 11-12u "extreme|progress", 14-15m 131 5-6w & some appeared 8-10m, 11-31m/11w variation 13-15m/w (a) 17w♦, wb (a) We shd not expect much change in sea-shells within such a period. 132 1-12m/8-9Q 13-21m, 27-29m/Q 133 9-12m, 14-18m, 18-22m, 18-20m, 21-22Q 134 wt/2-9m/1-11w Both these wider spreading & varying species: must do so to have local vars. wb All amount of differences, simply called species, when great (and formed by selection) & called vars, when small & intermediate not found 135 wt Did a creative spirit blow from S. to N.?! 9-11w unintelligible to me, except a mutation 12-18m/13u "that|tract"/?/16u "identical", 22-23m/23u "aborigines" 136 15-16m, 25-27m 137 22-29w i.e. that some ♦ Madeiran insects have got into S. Europe 138 wt Yes when it was cold, there wd have come a different set, even if current always the same 4u "distinct epochs"/? 139 12u "genera"/12-14w What have they to do with land 141 9-11m/!, 12u "generic areas"/12-14w but not points 14-15u "on|planned"/wb no explanation it is mere assertion of fact 143 26-28m 144 14-17m/w sure & certain witnesses 147 10-19m (Kirby), 27-31m 148 2-5m (Lyell) 153 10-14m, 15-17Q 26-29m/w/wb Probably often renewed like Alpine Plants wb These cases opposed to struggle for existence 155 9-10m, 26-28m♦ 158 14-15?/u "first|instincts" 163 19w hypothetical 165 17-22m 166 wt/1-9w Breaks influence greatly as shown in groups by enchainement 9-24w ie branching whether or not extinction 13-16m, 19-22m 168 wt/1-25w Probably a species ought to be described animal-Vertebrate-Mammal-Carnivore-Canidae-Canis familiaris 170 19-24m♦ 171 9-26w All much too Metaphysical

WOLLASTON

Nothing to me - 27u♦, 22a "position"/wb in affinity or geograph position 172 9a "cannot"/wt He means always have been!! 11-23w Shows the effect of studying insects in comparison with Mammals 14u "accident", 15-19m 173 20-23m 174 9-16m 175 6-12m, 20-24m 177 wt/1-9w How good to make genera when new rising comes on.- 13w new 14-25m/w most genera in isld he attributes to extinctions but does not apply to cases like coral islds.- 20-25m/wb so A. de Candolle in Plants, but he applied it to very distinct plants - so in Birds 178 29-31m 179 24-26!, 25-27m, 25-26u "convinced|demarcation" 185 6-7Q 10-12w same as A. Decandolle 186 5u "most mischievous", 28u "monstrous", wb you may doubt when I doubt, but if you go one step further you will be eternally d—d, quoth the Priest. 187 19w Canary Birds 22u "cultivated plants/21-23w flowers! Rices 188 6-9m, 14u "absurdity", 17u "unsound", 20-23m, 20-29w/wb why then created? Do you know these conditions well enough to say why one is rarer than another. Yet quite ignorant of the Life of larvae. 193 3u "traces|design"/3-6w Flowers Canary Birds Fancy Pigeons 8m

WOLSTEIN, Johan Gottlieb *Über das Paaren und das Verpaaren der Menschen und der Thiere* Altoma; Hammerich; 1836 [Down]

118 wb O/ Rubbish.

WOODWARD, Samuel Pickworth *A rudimentary treatise of recent and fossil shells* 2 parts and supplement; London; J. Weale; 1851-56 [CUL]

ad, af, ch, ci, ex, fo, gd, geo, hl, is, mg, oo, no, sh, sp, sx, t, ti, v, wd

part 1, 61 9-11m

part 2 NB p.271 good

↪ Relation of Extinct & living genera S. America

167 26m/u "Phosphorax, Webb", 28u "Sandwich Ids" 168 30u "Cryptella, Webb", 31u "Canary Ids." 169 11u "Canary Ids." 170 19u "Philippines" 271 10u "Miocene|Patagonia"

Supplement, NB ♦ All; p.336 Sexes of Tunicata

p.439; p.454; p.486

336 19-21m 348a 3-7m, 13m, 20m 348b 9m 349 21-23m, 38-40m 350 38-40m, 44-45m (Forbes), wb Read 351 wt X In sense of typical representing structure of whole group, it comes to commonest form have widest

ranges - aberrant form extinction, is quite applicable to this view 8-10m/1-21w as aberrant probably here means widely different, must have been produced by extinction 9-10x/20-32m 352 16-20m, 21-27m (Swainson) 353 3w In Tropics? 26-30m 354 wt/1-9w are these not also Cape? 4a "sea" about 30. p.363 3-5m, 8-9w Never mind 21-22u "Red Sea", 24u "Cape" 355 15-17m (Forbes)/16u "subject|form" 358 wt If Boreal inhabited arctic region, there wd have been more continuous coast land, in fact quite continuous land. 3-5m, 6-8m, 43-51m (Richardson) 359 23-29c/25w↪ N. Zealand Chile 26m/u "Mesodesma", 27u↪ "Boreal", 26u "Crepidula"/w is f only wild in Tropics 361 43-46m 362 27-28u↔/27-37w What endemic. None 37u "83|the" 363 1-3m, 9u "about 30"/40u "74", 20u "200|extinct", 22u "The|Sea", 38u "common|Indies", 39-44w 44 being common to Atlantic & Red Sea 364 6u♦, 8-9c/w↪, 9w S.P.W. 28u "part|Caspian" 365 18a "shells" living I suppose 367 12-13m, 23u "200", 24u "11|common", 25u "whilst|the" 368 wt Strange so few * wt/1-15w are these found in Tropics with cross seem good case wt/1-12m/w All doubtful according to Woodward 18-22m, 39m (Cuming) 368a 8x, 9u "Red Sea", 13x, 14x, 15x 368b 7u "Red Sea", 8x, 11x, 13x, 15x↪ 369 18-22m, 26u "74", 32-34m 370 42-44m 371 16x/u "Solonella"/w↪ & nowhere else America & Medit. 17u "Panopaea"/w↪ Confined to & Australia W. Africa♦ 18u "Monoceros", 19m, 20w no- 26w Falklands p378 27a/u "Modiolaria trapezina" Falklands p378 28w book in Index 372 19w During glacial 21-23m/21-22u "same|found" 373 4-8m, 33-34m, 37-39m 375 10-13m, 29m (Cuming), 34m/u "Litoral|common" 381 14-18m, 23-24m 382 3-6m, 15-19m, 19-22m/w in Land & F. W. Mollusca 383 10-11m, 33u "74", 34u "water|4", 38-39m (Deshayes) 385 29u "Spain|Syria", 33-37m/34u "mountain"/36u "has|46"/37u↔ 386 5u "peculiar|snails", 14u "and|Limaces"/9-18w ? p.383 only 74 British 19u "132", 20a "The". 3 20u "section|limax", 22-25m/w Saline, Marine, very little water 28-29u "11|Santo", 34-35m, 36-41m, 40-41m (Wollaston), wb♦↪↪ 387 wt↪↪, wt Vide p486 Suppl Fossil Landshells 1-6m, 2m/u "(132) 111", 3-4u "5|11", 6-19w as Sicily has 3 peculiar Limaces, these are probably introduced 13u "Ancyclus fluviatilis"/11-13w introduction & only 2 F.W. Shells 16-17u±, 22w living 64/132 fossil 22-34w Santo 42-43m (Wollaston) 388 1-5w Looks so.- 8u "Only 13"/10u "and|viz"/8-11w more modern group 1-17u "80|Limax"/

w 60/80 perhaps 18u "these|peculiar", 19u "and|Indies", 20u "Physal|", 21-22m, 43u "trunks of", wb Canaries 389 10u "Limax Ascensionis", 18-22m/19u "The|species", 26-27m, 27m, 36m, 45-46m (Sowerby) 390 wt/8-12m/1-15w Hooker says Ferns at Ascension are W. Indian 28u "similar"/w not identical 391 21-22m/21u "section|Madagascar", 38-40m/38u "The|peculiar" 392 24m, 34-35m 393 25-28m, 30-32m 394 16-19m 395 2-5m (Mousson), 38-40m 396 29-32m, 30u "peculiar", 33-34u "two|bitentaculata", 36-40m/37u "Melanopsis|type", 40u "Vitrina zebra"/wb 2 Vitrine ♣ in fact naked 397 15-17m/16u "those|islands", 31-34m/31-32u↔, 35-37m, 40-42m 398 4-6m, 13-17m/15u "one Limax", 18-26m/18-19u "the|multispiral", 21u "Helices|glabrous", 34-38m, 41-44m (Humboldt) 399 33-38m 400 41-42m (Waterhouse) 401 42-43m 402 5-7m/6u "4", 12-14m 403 1-4m, 30-32m!/u↔, 40-41m 404 4-6m 405 19-38w See range of these Genera &c 27-28m/w↔ N. Bolivia & J Fernando 30u "least|shells", 30u♦, 35u♦, 36u "Spiraxis"/wb↔ sub. gen W. Indies. Mexico 407b 31m 408 28u "close"/26-29m/w so successions of Life 30-31m 410 26-31m/29z 411 wt on questioning how many forms are this kind 1-4m/w evidence? 11-14m/w ? compare to sea shells? 14w This is contradicted by changes in islds 15-16m, 16-19m (Forbes), 20?, 22-25m, 26w Where means of distribution are Mundane 39-40m (Lyell)/wb but not these sea-shells - that is not known 412 8-11m (Forbes), 14-16m, 18-21m, 31u "some|larger", 36-38m 414 wt ↗ Capital Table But only some of the genera 1a "of" some large 4u "Litnites" why italics †w There ought to be a line for each genus 34-36w why both given 25-36w♦ How few began in Tertiary per 415 wt See my Table 1a "of" all? for he speaks of 85 in next Page 9-16w Begin in Tertiary wb♦ 62 It wd be curious to arrange these like last table †w↔ (each line numbered) 416 1-25w Other Tribes Cirripedes now must replace other animals. 13-15m, 16-19m, 20-25m/?, 26-30m, 34-36m 417 wt/fig.w/ 1-12w Hence reduced organisms now flourish, & so it is with Fish: take place of lower animals from some advantage 4-6m, 5u "classes|testacea", 9-10m, 10a "typical", wb Most evenly balanced. 12-15m 418 23-24m, 31-32m 419 wt I shd say an ideal archetype was that form from which in imagination all others cd be made with parts changed 1-3m/ 3u "their|archetypes", 4-5m, 26-27?, 30-32m, 33m/w end 37-41m 420 1a "extent" compared to Land Mammals 2w ∴ if not changed, they

will be widest rangers 26-28m, 29u↔ 421 5-9m/9u "White|rusticum"/wt/1-10w a very long Journey for them by Mediterranean 21u/u♦/22u/23u♠/19-21m/18-25w Are these American. wb↔ Monoceros America ♦ except M. Zebra ⊕ No ↔ Pseudo olive W. America (but fossil in Europe) only in Eocene.- Solenella America 422 15-17m 439 40-42m 454 11-15m/m, fig.m 486 28-32m

WRIGHT, Chauncey *Darwinism: an examination of Mr. St. George Mivart's 'Genesis of species'* London; John Murray; 1871 [Down] ∅

WRIGHT, Chauncey *Philosophical discussions* New York; H. Holt & Co.; 1877 [CUL, I by editor Charles Eliot Norton]

NB Excellent book

v 5m (Spencer), 9m, 15m (Lewes), 16m (McCosh, Tyndall), 19m

WUNDT, Wilhelm *Grundzüge der physiologischen Psychologie* 2 vols.; Leipzig; Wilhelm Engelmann; 1880 [Down] ∅

WUNDT, Wilhelm *Nouveaux éléments de physiologie humaine* Paris; F. Savy; 1872 [CUL, FD]

(markings presumed to be by FD)

WÜRTEMBERGER, Leopold *Studien über die Stammesgeschichte der Ammoniten* Leipzig; Ernst Günther; 1880 [Down] ∅

WÜRTEMBERGER, Leopold *Studien über die Stammesgeschichte der Ammoniten* Leipzig; E. Günther; 1880 [CUL, I] ∅

YARRELL, William *A history of British fishes*
2 vols.; London; John Van Voorst; 1836
[Down]
beh, he, sx, tm, v

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vol. 2 NB Raia p.415; 416; 424

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says only has the thorn.

YARRELL, William *A history of British birds*
vol. 1; London; John Van Voorst; 1839 [CUL,
I 14 June 1839]

beh, br, cc, ch, ex, f, gd, mg, oo, no, sp, ss,
sx, ta, tm, v, y

SB1 □β

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YOUATT, William *Cattle: their breeds, management, and diseases* London; Baldwin & Cradock; 1834 [CUL, S]

ad, beh, br, cc, ch, cs, ds, em, f, fo, he, is, or, phy, rd, sl, sp, spo, sx, t, ti, tm, v, wd, y

NF 84 & 184 - duplicate pages

NB 9; 10; 28; 31; 33 to 270; 283; 311; 522 to 525; 529

174 & 283 important Rudiments calling

191 grain of the meat; 227

SB □β

48 Q↔ Old Welsh cattle white red-ears Q↔ Even in our Parks selection is required to prevent accidental Variation of each crossing 51 S↔ Curious case of quick deterioration by neglect in Glamorgan. Cattle showing some selection always going on

62 Q Welch Cattle cannot be improved by crossing 69 Scotch do.-; 78♦ do; 88-163♦ 75 Great improvement by crossing in 10 years in Arran

116 S↔ English Cattle have strongly altered since Henry VII time & doubled their size (insensible selection)

116 S↔ Selection governed by soil Each District has prejudice for own Breed

128 Ayrshire Breed has originated within century - how not known - probably crosses Azara states appeared in old age

155 Galloway with rudimentary Horns 174 at early age

116 Fifeshire same case shows origin not known till well formed Breed

190 The great progenitor of Long-Horn when yearling very unpromising.

193 Shakespeare bull. A sport in shape

197 In Long-Horns, when castrated Bulls get shape of cows horns

199 S↔ Q Capital sentence about one improved Breed expelling others good for Ch 6.

202 Q↔ Cross between Long & short-Horned 1/3 fail of being in calf

230 S↔ On crossing with Selection in Short-Horn Breeds.

242 Q↔ In Short-Horns whenever White appears always red about ears

248 Q On replacement of Breeds in same district

283 Frontal Bones narrower in polled Cattle & 174 Rudiments

310 Calfs eating poisonous Herbs, when turned out without their mothers Ch.10

524 Explains how in well-bred animals, the influence of male may be greatest, from having been truer bred

527 ↔ On gestation of cattle Q↔

17 Devonshire Ox larger than Bull & much larger than Q

SB2 Dr Pritchard by showing that the different races of Man when transported to different countries obtain certain peculiarities does not disprove there are constitutional differences - it is begging the question if it be assumed they cannot be acquired.

I presume the udder of the Chillingham cattle is not the least like that of a good milker

Many subjects must be selected from this Book = A history of the varieties of each district & fossil oxen = How obscure the genealogical descent:= ill effects of interbreeding = - Minutiae hereditary = Length of time to form true race =

viii 12-19m/14-15w read 9 13-18m, 16-31m
 10 33-42m 11 39-43m/w yet so many breeds!
 47-51m (Somerville), wb not true with respect to Sheep V Phil. Transact. 14 29-33m 17 7-9m/Q/9u "the aware" 28 wt This is a kind of instance of law of equivalent development mentioned by French writers 1-5m/w Fleece & fat in sheep 4-9m, 8-9m 31 3-9m, 44-47m/45u "speedily|age", 50-53m 32 14-19m/15-16u "defect|pugnacious" 33 24-32m, wb These are results of experiments 36 24-30m 37 3-5m/4u "best|chosen" 41 33-36m/34-35u "There|places", 40-43m/41u "much|some", wb even colour uniform 42 3-7m/5u "once" 44 17-20m 45 13-17m/15u "indicates|temper", 26-29m 46 20-22m, 23-25m, 31-33m/33u "they|

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exceedingly", 45-46u "dairy|counties" 48 wt This is really like bars on Pigeons - considering that Falklands were Spanish & Tinian 1-5m, 8-16m, 10-16m 49 5-8m, 27-31m/29u "steer|appearance" 51 17-55m/w very curious History 52 21-26m 53 1-4m, 7-10m, 13-27m/fig.m 54 1-6m 58 22-26m 60 11-12m/11u "steers|be" 62 48-49m/Q 66 wt/1-17w In wild countries where a good many are killed out & conditions uniform it certainly appears XX scarcely possible to cross the aborigines - they so far become like species 20-25m/x, 22-38m/38x, 52-55m, wb Dr. Fleming says fossil oxen of Ireland ♦ Scotland larger than present 67 wt/1-7w XX It shows that these races have a considerable degree not only of similarity one to another/of perseverance of characters & this is one chief character of species 69 35-41m/Q 75 27u "1822", 33-34m/33u↔, 42-44m/43u "1832", 49-52m 78 43-44m/Q/u "farmer|properly" 80 1-4m 88 12-18m/16-18Q 105 18-20m, 23-26m 115 4-8m, 51-55m 116 3-8m, 9-12m, 16-18m, 17-22m, wb In Parks aided by selection.- wb (a) These facts explain curious statement of Mr Anderson of fine-fleeced sheep of some northern isld being little affected by imported 122 51-54m, wb again deer eat different food 125 18-23m 128 fig.c, 25-30m 129 fig.m, 31-33m 149 28u "1798", 35-44m/39m♦/x, 42u "which|Ayrshire", 45-51m 154 32-38m 155 2-5m, 6-10m 162 1-5m 163 1-11m/4-6Q 164 2-5m 166 29-37m 167 wt/1-15w the adaptation of coat to climate Curious case of vis medicatrix.- 15-25m/x, 29-32m 171 17-20m, 40-56m (Boswell) 174 35-39m/37-38u "even|age", 38-40m, 39-42m (John Kirby) 181 2-6m, 21-28m 183 50-55m 184 5u "early maturity", 6-7m, 7u "do", 9-11m, 25-29m, 26u "introduced|improved" 188 17-22m 189 9-17m, 17-20m 190 24-54m/36u "when|unpromising" 191 27-29m, 35-36Q 36-37m, 38-41m/41u "breed", 44-46m, 47-49m 192 3-7m, 8-13m, 57-59m 193 25u "Shakespeare", 31-32Q 33-37m, 56m (Marshall) 194 1-2m, 24-28m, 32-35m, 32-33m, 40-43m/40u "1791" 197 25-28m/Q 199 1-5m/2u "early maturity"/3u "gained|in", 24-28m, 33-37m, 34u "Westmorland", 40-43m, 48-54m/Q/54u "It|nature", wb less ♦ than ♦ 100 ♦ years ♦ get dates of introduction highest prices given 40 years before 200 1-2m, 21-25m, 30-34m/32u "the|preferred" 201 53-54m 202 1-4m, 30-35m, 31-32m, 41-44m/Q 45-51m, wb Does this occur in crosses between Short-Horn & Welch 203 9-12m, 43-48m 204 23-29m 205 1-4m 208 23-26m 217 21-23m 220 12-14m 222 13-18m/14u↔/16u "bred|certain" 223 41-46m,

48-53m, 55m 226 33-34m/33u "be|invite"/34u "taken|breed" 227 6-9m, 15u "eighty years"/15-18m, 25-28m, 28-30m/30u "of|fat" 229 5-8m, 56-61m/59u "with|horns" 230 33-47w This makes cases very like selection from small varieties naturally produced 38-46m 231 wt, 19-59w/wb at the rate of 157 gns each divide & give sums as proof of reality of value 232 25m/w, 38m/w, 49m/w, 233 14-17m/15w recapitulates 26-34m/27-28w do. 234 18-21m, 37-42m/38u "early maturity"/39u "characteristic" 239 4-8m, 30-34m 242 11-17m/Q, 17u "are|named" 243 11-16m/11u "improved"/14u "combination", 18-19u "general impression", 24u "but|time" 245 46-55m 246 31-36m, 32u "different|doubted" 248 21a "countries"/wt Elsewhere (p.199) speaking of ♦ extension of the Red one near Dishley he says "it wd seem ↓w one variety replacing another each sometimes varying - analogy with species 14-17m/16-17".../17u "the|the", 19-21".../19u "To|long", 20-26Q, 27-29".../w, 27-28u "Holderness|breed", 29w ♦ ●, ↑25-18m, ↑19-17m/14-12m/!, ↑15-13Q, ↑9-6m, wb Mrs T had two cross-births Mrs C. her daughter has had two - is this frequent → This variation of birth are checked; I believe 3 out of every 100 women die in childbirth - ♦ in long run those with such tendency, would be killed out.- 267 15-18m 268 12-13m 269 8-12m, 29-32m 277 44-52u±, 46-47u/w ● 282 41-50m 283 10-13m/10-11w ♦ 310 52-55m, wb shows not quite instinct 311 1-6m

♀

522 wt/1-51w as this simple principle only lately discovered even in most reliable practice, no wonder not discovered, as theory of species 37-41m, 44-51m (Berry) 523 wt When did Favourite live? 1-3m, 4u "present day"/w 1833 33-39m, 47-55m/55u "Quarterly|Agriculture", wb not owing to sex from fact of Arabian Mares 524 wt Bruce explains mares most esteemed by Arabs because don't neigh on robbing excursions 1-11m, 48-56m 525 17-23m 527 54-56m/56u "difference|days" 529 1-13m, 17-33m ♦ 590a 32-36m 600 wt colour & pure race 242

YOUATT, William *The dog* London; C. Knight & Co.; 1845 [CUL, S]
beh, ch, cs, dg, ds, pat, phy, sl, sx, tm, v, wd

SB1 3; 6; 9; 11 Falconer about bull-dog degenerating in form; 14; 16; 31; 32; 38 to 72; 74; 90 to 104; 167; 182; 183; 186; 232; 238; 245; 249

SB2 □β

Special Dogs not abstracted

15 Wild Indian Dog tamed Q

90 Setter Historically known to be Spaniel; see what insensible Selection has done Q

16 Deterioration of Dogs in India Q

31 On the cross of Grey-hound & Bull-dog Q - Instinct

35 In greyhound all depends on true Breed p.31 Change in.

73 difference in size of Dogs & Bitches

92 Pointer so closely allied to Hound makes the pointing more odd N.Q

182 167 Q certain dogs most subject to certain diseases 232 Distemper, Terriers specially white (u)

186 & 238 Difference in pulse, in different Breeds Q

249 On Number of toes in Dogs NQ

3 10-14m, 32-41m (F. Cuvier) 6 7-8m, 10-15m, 18-23m 9 49-52m 11 13-22m, 25-26m/?, 46-47m 14 1-5m 15 3u "búánsú", 29-31m/Q 16 1-9m/3-5Q 17 38-45m 21 43-51m 31 1-7m, 43-50m/44-46m 32 17-23m, 25-31m 33 5-9m/6u "altogether | scent" 34 25-26m, 29-31m 35 15-18m/15-16m, 22-25m 38 28-30m, 38-40m 40 23-28m 41 1-4m 42 15-18m, 18-21m, 22w 12 var. 44 47-49m 45 8-10m, 11-12m 46 14-17m 50 27-31m, 44-46m 62 11-17m 72 21-25m 73 5-7m/2-10w Does not Greyhound differ remarkably V. Martin 74 34-38m 90 24-29m 91 1-3m, 3-19m, 16-21m/17u "Irish | exceedingly", 20u "English | setter" 92 25-26m, wb this makes the instinct more curious, as with setter alliance with Spaniel 93 18m, 19-26m, 29m, 34m 103 8u↔, 17-19m 144 5-11m/10u "five months"/11u "seventh" 153 3-22m, 15-17m, 17-21m 154 1-7m 167 47-48Q 48-50m 175 13-19m 182 39Q 40-42m 186 38-42m 225 44-47m 232 20-30m/22-23u↔, 32-35m 233 48-49m 234 34-39m, 40-42m 235 23-24m, 26-27m, 35-36m, 44-45m 238 18-22m 239 21-22m, 49-50m 240 14-15m, 15-16m 245 15-20m 249 33-36m, wb How is this in other Canidae Cats same as Dogs Hyena all 4 toes Civettes all 5 toes.

YOUATT, William *The pig* London; Routledge, Warn & Routledge; 1860 [CUL]
br, cs, he, sl, sp, sx, ta, v

SB Abstract

piii on Selection Q (with crossing

p11 Pedigree of Pigs (Q under Pigs) for selection

p24 25 On Prejudices about colour in Pigs which Q would influence selection; also Trueness of Marks; White Pigs Blister

27 Reversion after 27 years

29 30 33 34 36 on in & in breeding - separate families

☞ All these References for Vol I located in proper places

iii 16-23m/w crossing ● 3 26-30m, fig.w delete 7 17-25m 11 10-13m/Q 14 fig.c 18 wt/ 1-11w p.24 is not believed to have been crossed by Chinese or Neapolitan 6-11m/7u "white breeds" 19 28-32m/29u "photographs" 22 16-19Q 24 21-23m, 34-37m 25 20-27m, 25-28m 26 10-13m 27 17m, 18-22m 29 12u "second | female", 21-25m/21m/24-25Q 25-28m 30 12u "Mr. Fisher", 18-25m/Q/22u "Improved Essex", 33-35m, 34-35x 33 11-15m/x 34 35-41m, 38-39m 36 32-33m 37 1-6m 59 20-24m 61 wtee, 7-13m/Q 12-14w 14 days difference wbee

YOUATT, William *Sheep* London; Baldwin & Cradock; 1837 [CUL]

beh, ch, cs, dg, ds, pat, phy, sl, sx, tm, v, wd

NB1 163 Where has Daubenton published an account of his crosses in Sheep? Where see French Agricult. Periodicals

234 only Lambs?

240 "dropt Horn" Ewes

238 about Dorset having premature period of oestrus

491 Hot country Sheep all phthisical: Will they breed? - get full particulars

496 Tessiers Paper - date?

☞ p364 Horns misplaced growing in throat

NB2 20 Rudiments do p364 by crossing

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☞ ☞ Read Journ. of As. Soc. of Bengal. vol 10. part 2. p.881 (in Geolog Soc) E. Blyth on wild sheep-

SB1 □β

☞ Good Select

18 Ancient selection

19 Return of sheep to dark colour occasionally

145; 234 R i.e. taking after other vars. R

20 All hornless breeds occasionally drop sheep with horns or rudiments of? Ch.I. throwing back

25 Fat-tailed sheep, mem rudiments of tail compensation Ch.I

60 Splendid sentence on Selection S

70 Effects of pastures Q on wool p.70

YOUATT, SHEEP

p.185 in Australia counteracted by Selection S_s; 117 do; 120 & 167 do
 ♀ 71 on slow & Q insensible changes in wool of British breeds
 114 3 vars. of fat tailed sheep (120 fat under throat Q_s)
 121 Guinea sheep males horned females hornless
 131 & 134 In Argali smaller
 138 Horns of Wallachian Q_s p.148 of Merino Ewes Hornless 234 Horns of South Downs 247
 123 old crosses of Spanish & Morocco sheep S_s
 142 Many Horns generally accompanied by worse fleece (correlation) Q_s
 142 Livingston on pendent ears proof long domestication (disuse)
 147 in 1464 sheep exported from England to Spain S_s
 152 On the Migratory sheep of Spain
 171 Selection of Merinos in Saxony S_s
 172 important under Law of Variation
 178 in 4th cross Wool altered completely—
 181 Merino sheep not quite fertile when first introduced into England
 ♀ Roulin on sheep in S. America not quite fertile
 266 Welch sheep returning thrice into Wales Q
 293 Hardiness of Cheviots proved by even crosses failing
 301 Sheep descending to coast instinctively for sea-weed
 312 Strong sentence Q_s on each sheep adapted to its district. Two main Fam. long & short woolled vars.
 312 Sheep separating Q_s according to their Breed, when turned out (Ch. 6. Separation
 314 On Selection altering breeds of sheep within 50 years without crossing by unconscious selection S_s
 319 good sentence S_s
 315 excellent case of two men unconsciously altering their breeds by selecting for different objects
 325 Leicester sheep not fitted for mountain pastures. Q_s Black-faced resist crosses Q
 SB2 □β
 364 Crosses producing rudimental Horns
 377 Sheep returning home Q
 404 Lambs if separated from flock will eat poisonous herbs Q
 408 on ears pendent or erect according to locality inhabited
 491 on great difference in Sheep from foreign countries in Zoolog. Gardens to die of Phthisis Q_s

494 On qualities becoming fixed by selection & fitted to their own districts S_s
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 496 Tessier on gestation of Ewes ♀ Paris
 1817 see Roy Cat Book NQ
 520 On drafting the Ewe flock good sentence ♀ S_s
 Variability of best breeds S_s

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PART TWO

INDEX AND CONCEPTUAL CONCORDANCE

"Curious coincidence in idea with what I have written" (849h)

Each annotation appears in the index as a string of topic-ciphers, the key to which is to be found on the fold-out sheet inside the back cover. Each entry is cross-referenced under each cipher in the string. Thus a statement involving the four ciphers A, B, C and D appears in Part two four times, as A-B-C-D, B-A-C-D, C-A-B-D, and D-A-B-C. The structure of the entries under each topic-heading is as follows:

A [by itself] [pp.] 1 2 . . .
and [in combination] 3 4 5 6 . . .
infra:
A B C D 5
A C E 3 6
A D F G H 4

(etc).

ab	ABORTION	ad	ADAPTATION
ab 249c 649a		ad 304b 380b 380e 446f 449d 455e	ad cc ch che fd * gds he no noa
and 38e 193d 193d-e 194f 255e 255f		534f 647d	nos ook rsa tad ty 128f-h
310a 310c 369f-g 378g 456a 460b-c		and 7f 13e 15e 58c-d 58d 58e 58g 68b	ad cc ch fl gds mhp phy ta tms tya
479h-480a 490b 490e 492b 560d-e		84g 92f 93a 93g-h 96g 109h 111a	¶ 242f-243a
585f 598g 616a 648h 649a 651f 655e		111e 111e-f 112g 112g-h 112h-113a	ad cc ch rsa tay v vc 574f
655f 656b 670d 735g 779a 783h 786f		113b 113c-d 114f-g 114g 118f-g	ad cc cs f hy rsa tms tya y ¶ 872e-f
867f		120c 120h 121a 121h 122d 123g-h	ad cc ds tms ty tya 152a-b
<i>infra:</i>		124b 125c-d 128e-f 128f-h 129c	ad cc em eml emp * rsa tmp v vc
ab af 651f		130e-f 131d 131e 131f-g 131h-132a	856h-857a
ab beh ch tms 867f		133a-b 134a-b 134b-c 136d-e 144h	ad cc ex fd fg ty 369d
ab beh h ook sx vc ¶ 560d-e		147e 152a-b 155e 158d 164c 205e	ad cc ex ig no oos sp vc 483c
ab behi tmp 786f		206f-g 216a 242f-243a 244f-g 289a-b	ad cc fa hep sl wd 509e-f
ab ccc fl 255f		304e 306a-b 306c 331d 357f 358e	ad cc fa tmp 607c
ab dg * hl rsm tms ¶ 479h-480a		359f 366d 369d 369e 373b 375a-b	ad cc fa tms 770h
ab dg fl mn rsw ty 369f-g		375c 380a 380d 389f 397d-e 430a	ad cc * tmp 855c
ab * fl= rsa sx tms 783h		431c 448h 449d 449f 451f 453b	ad cc fd gd oo or rsi sph ty ¶ 456g
ab * rd tms 456a		455a-b 455e 456g 471f 472e-f 477c	ad cc fl 625g
ab * tms 655f		479d 479e 479f 483c 483e-f 487c	ad cc fl * phyfl 121h
ab * ig rd rse tms 649a		500c 509e-f 510d 512g 529g 531e	ad cc fl gdd oos 113c-d
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ab * sxd tms vc 193d		611h-612a 614b 614f 614g 616b-c	ad cc fls nos tyc 112g
ab * tms 585f		624b 625f 625g 626a-b 626b-c 627c	ad cc fls oo 626b-c
ab * tms v 655e		627e 630a 643b 654e 655e 671d	ad cc * gds gr @ in no nos spc ty
ab fg wd= 255e		690f-g 690h 690h-691a 692g 696c	¶ 130e-f
ab fl sx 255e		696h 697a 703c 703c-d 705g 714a	ad cc * gds @ rsm ¶ 125c-d
ab flo * 378g		748b 751a 770h 771d-e 776g-h 778f	ad cc * oo 627e
ab flo * mhp vc 779a		780f 795g-h 806g 846b 846e-f 855c	ad cc * v 487c
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ab ig rsa 648h		<i>infra:</i>	ad cc hep hy sp ¶ 375a-b
ab mn rsm 460b-c		ad beh 453b 654e	ad cc hl tig tma ty ¶ 121a
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ab rsa tma tms ty 656b		ad beh * fd h he pat rsa ty 868d-e	ad cc nos ¶ 131d
ab rsm v ¶ 598g		ad beh * rsm 531e	ad cc pat rsa 887e
ab rsw tms ¶ 670d		ad beh * ta tms 846b	ad cc y 692g
ab sxd vc 194f		ad beh * tms 705g	ad ccw fgs gde phyfl spa 124b
ab tms 310a 310c		ad beh gd rsa tyc 703c	ad ch 471f 533g
ab ty 735g		ad beh tmp ¶ 751a	ad ch fl ooh wd 134a-b
		ad behb ex var 13e	ad ch gd gr rsm sp ti v 529g
		ad behb * @ is phy rsa sl tas	ad= * he= 358e 359f
		244f-g	ad cr rsa v 877a-b
		ad behh cc * sh tms vc 771d-e	ad cs sph ty v var wd ¶ 375c
		ad behh= behr= ¶ 614b	ad dg * rsa tma 479d
		ad behh * fd * gds @ noa nos rsa	ad ds dv fg or sp ty 131f-g
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		ad behi 449d 453b	ad em ex * fd * sl sp ta var
		ad behi behm cc * 449f	690h-691a
		ad behi behm * 451f	ad em * tms 587b
		ad behi behn cc * 93a	ad ex * fgs * oo sph tms ¶ 389f
		ad behi he sl tms tyc 614g	ad ex * gd gde gdi gr @ oo 397d-e
		ad behl * @ 304e	ad fa= fge fgs fl= 455a-b
		ad behm rse tms ty ¶ 92f	ad fa fl hy wd 373b
		ad c2- cs * fg fgn flo hl oo phyfl	ad fa tms ty tyc 868c-d
		rsi sxm tms ¶ 472e-f	ad * 479f 587c-d 696c
		ad c2- cs fl 778f	ad * fg flo * mhp oo tms 776g-h
		ad c2- * gd rsa sph 703c-d	ad * gds @ rsa vc ¶ 894e
		ad c2- * gdd 114g	ad * gds tmp v var 7f
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		ad c1+ cc gds or sp tyc 123g-h	ad * oo spr ty 479e
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			ad fgs 455e
			ad fgs fls * @ no tya ¶ 112h-113a

epilogue

"I have now read your work, but I have nothing particular to say" (223e)

It seems that CD's ever-active spirit inspired the following distinctly prehumous reviews of this volume:

"Never mind" *Charles 'Woodward' Darwin*

"Excellent book" *Charles 'Wright' Darwin*

"Introduction good writing" *Charles 'Jenyms' Darwin*

"a miserable Book – all words, words, words" *Charles 'Geoffroy' Darwin*

"possibly serve for reference" *Charles 'Fleming' Darwin*

"Buy" *Charles 'Eaton' Darwin*

"goodish" *Charles 'Sully' Darwin*

"Many good bits in this Book, but the fundamental idea seems to me groundless & fanciful" *Charles 'Piderit' Darwin*

"first part merely amusing; Index . . . dull" *Charles 'Thompson' Darwin*

"Not much satisfactory too brief" *Charles 'Linnaeus' Darwin*

"Mental I think" *Charles 'Lucas' Darwin*

"I have only skimmed after p.150 for the whole a wretched compilation" *Charles 'Meyer' Darwin*

"Clever" *Charles 'Wichura' Darwin*

"very remarkable . . . very good . . . very common" *Charles 'Lyell' Darwin*

and last but clearly not least:

"Praise his book. Well-known for other excellent Treatises, & add much undervalued, in my opinion, by other writers – a vast step in advance" *Charles 'Duchenne' Darwin*



Topic ciphers

INDEX
SUFFIX

≈	COMPARISON	gdc	COMMON FORMS	rsi	INSTRUCTIONS	
ab	ABORTION	gdd	DISPERSION	rsm	"MEM"	a
ad	ADAPTATION	gde	ENDEMIC FORMS	rsq	QUOTE	
af	AFFINITY	gdi	INTRODUCTION	(does not include "Q"/"NQ")		
beh	BEHAVIOUR	gdn	NATURALISATION	rsw	WONDERINGS ALOUD	
behb	BREEDING BEH	gds	STATIONS	se	SUBSIDENCE/ELEVATION	
behc	COMMUNICATION	gdw	WIDE-RANGERS	sh	SHELLS	
behe	EXPRESSION/EMOTION	geo	GEOLOGY	(shfw: freshwater; shl: land;		
behh	HABIT	gr	GEOGRAPHY	shs: sea)		
behi	INSTINCT	grc	CONTINUITY	sl	SELECTION	b
behl	LEARNING/MEMORY	@	NAMED PLACES	sp	SPECIES	
behm	MIND/COGNITION	h	HUMANITY	spa	ABORIGINAL FORMS	
behn	NEST BEHAVIOUR	h	PEOPLES	spc	CLOSE SPECIES	
behp	PERCEPTION/ SENSATION	he	HEREDITY	spd	DOMINANT FORMS	
behr	REFLEX	hef	FATHERS	spe	ABERRANT FORMS	
behs	SOCIAL BEHAVIOUR	hem	MOTHERS	sph	HIGHER GROUPINGS	
br	BREEDING (ARTIFICIAL)	hep	PARENTS	spr	REPRESENTATIVES	
bri	IN-BREEDING	her	REVERSION	spz	SPTS	
c	CRITICISM	het	TRANSMISSION/ TAKING AFTER	ss	SEXUAL SELECTION	c
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c1	OF CD	hy	HYBRIDS	sx3	THIRD/OTHER SEXES	
c2	BY CD	hym	MONGRELS	sxb	GENDERED BEH	
c3	OF THIRD PARTY	ig	INTERMEDIACY/ GRADATION	sxca	CASTES	
("c2+" = positive crit. by CD)		in	INDIVIDUALS	sxch	SEXUAL CHARACTERS	
cc	CLIMATE/CONDITIONS	ir	IMPERFECTION OF GEOLOGICAL RECORD	sxd	SEX DIFFERENCES	
ccc	CONFINEMENT	is	ISLANDS/ISOLATION	sxm	MONOECIOUS/ DIOECIOUS	d
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cs	CROSSING	no	NUMBER/INCREASE/ DECREASE	tas	SEASONS	
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f	FERTILITY/STERILITY	or	ORIGIN	ts	TRANSMUTATION	f
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f	NAMED FAUNA	pat	PATHOLOGY	tya	ACCOUNT	
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fgn	NECTAR	rd	RUDIMENTS	ud	USE/DISUSE (ACQUIRED CHARACTERS)	
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f	NAMED FLORA			y	YOUNG/OFFSPRING	
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gd	GEOGRAPHICAL DISTRIBUTION					