

2013. The maxillary and premaxillary bones, with the teeth (excepting the last molars), of the *Ctenomys Magellanicus*.

The rhinencephalic part of the cranium is preserved.

Presented by Captain King, R.N.

2014. The left ramus of the lower jaw of the *Ctenomys Magellanicus*, with the implanted parts of the teeth exposed.

Presented by Captain King, R.N.

2015. The facial part of the skull of the *Ctenomys Braziliensis*.

The interorbital part of the frontals is flat, with the superorbital ridges slightly raised above its level. The nasal bones are longer in proportion to their breadth, and straighter than in the Magellanic species. A portion of the narrow lacrymal is preserved with the antorbital process of the frontal and the attached process of the maxillary.

Presented by Charles Darwin, Esq., F.R.S.

Genus *Lagotis*.

2016. The cranium of Cuvier's Chinchilla (*Lagotis Cuvieri*), wanting the basi-sphenoid.

The mastoid portion of the large tympanic bulla rises to the upper surface of the cranium as in the true Chinchilla, but it is completely girt by a process of the superoccipital, which extends outwards to articulate with the extremity of the slender process of the squamosal. The vacuity which intervenes between the alisphenoid, parietal, and tympanic, and which, in other Mammalia, is closed by the more expanded squamosal, is here, through the retention by that bone of its primitive form as a diverging slender ray, left uncovered. The meatus is long, wide, infundibuliform, with the outlet obliquely truncate and directed upwards and a little backwards: the petrosal bulla, continued from its lower extremity, seems to describe a semicircular curve downwards and backwards, circumscribing the large foramen, which directly pierces the bulla beneath the meatus. The paroccipital is slender; its point does not extend below the level of the tympanic bulla. The articular groove for the lower jaw is deep, and is completed externally by the malar. An almost circular piece seems to be cut out of the zygoma, above the junction of the malar with the squamosal. The facial part of the lacrymal extends half-way across the antorbital root of the zygoma, where the zygomatic part of the maxillary articulates by suture with the nasal process of the same bone, circumscribing a large antorbital vacuity. The nasal processes of the premaxillaries slightly expand at their extremities, which extend beyond the corresponding ends of the nasals. A strong and long oblique ridge traverses the inner side of the ramus of the lower jaw. The outer side is irregularly swollen by the bases of the sockets of the curved molars, but has not the distinct ridge which characterizes that part in the Cavies.

Presented by J. B. Pentland, Esq.

more towards the sacrum. The metapophysis is first fully developed upon the seventh dorsal, and progressively elongates to the last lumbar, where it exceeds the spinous process in length. It presents an articular surface at the under and fore part of its base to be articulated with the anapophysis of the antecedent vertebra. These anapophyses increase in thickness rather than in length in the succeeding vertebræ, and upon the last dorsal present an articular surface at their under part for connection with a parapophysis. These accessory joints coexist with the ordinary articulations between the anterior and posterior zygapophyses, and there are consequently twelve joints between each pair of vertebræ, in addition to the ligamentous one between the bodies of the vertebræ. This mechanism is designed to give great strength and fixedness to the vertebræ of the trunk in relation to the support of the bony carapace, and to the affording a firm fulcrum or centre to the powerful muscular forces exercised by the limbs in the act of burrowing. The elongated metapophyses have a more direct relation to the support of the carapace, the spinous processes representing the 'king-posts,' and the metapophyses the 'tie-beams' in the architecture of a roof. The sacral vertebræ progressively increase in breadth after the second, to form an extensive juncture with the ischial bones. The tuberosities of the ischia, and similar tuberosities at the fore part of the ilia, bend outwards and upwards, to afford four strong additional supports to the bony carapace: the long diapophyses of the first caudal vertebra abut against those of the last sacral vertebra and the tuberosities of the ischia. The metapophyses reappear upon the second caudal vertebra, and continue to the antepenultimate one, where they are reduced to ridges upon the anterior zygapophyses.

The posterior dorsal ribs are deeply excavated upon their external surface; five pairs directly join the sternum, which consists of six bones, a very small one being interposed between the fourth and the long one supporting the ensiform cartilage. The clavicles are complete. The acromion is bifurcate, the longest division arching forwards and downwards to meet the clavicle. The humerus is perforate above the inner condyle. The ulna is remarkable for the length and strength of its olecranon. There are four digits on the fore-foot, the two middle much exceeding in length and strength the outer and inner ones. The femur has a third trochanter. The tibia and fibula have coalesced at both extremities. There are five digits on the hind-foot.

The dental formula is:— $\frac{8-8}{8-8}=32$. None of the teeth are implanted in the premaxillaries. The chief expansion of the cranium is for the lodgement of the capacious olfactory capsules. The elements of the occipital bone have not coalesced: the superoccipital develops a pair of strong tuberosities at its upper part.

Mus. Brookes.

2297. The vertebra dentata and five following cervical, with fourteen dorso-lumbar vertebræ of the *Dasyus Apar.*

The spine of the third cervical has completely coalesced with that of the dentata, which is thick and high, but more extended forwards than backwards. The spine of the fourth cervical is applied to its back part. The neural arches of the succeeding cervicals have no spines, but form thin transverse bars of bone, which in the middle are incomplete above the fifth and sixth cervicals, upon which the antecedent vertebræ are strongly bent backwards.

Their bodies are extremely broad in proportion to their length or antero-posterior diameter. The articular bed for the head and tubercle of the first dorsal rib is contributed to, in equal shares, by the last cervical and first dorsal vertebræ. Ten vertebræ show the impression of the articulation of the head of the rib in addition to the first dorsal, and the neurapophyses of these eleven dorsal vertebræ are directly perforated by the spinal nerves. The articulation for the last rib is as equally divided between the two contiguous vertebræ as is that of the first rib. The prominence supporting the articular surface for the head of the rib answers to the 'parapophysis,' just as the prominence supporting the articulation for the tubercle of the rib, represents the 'diapophysis.' The prominence in the first lumbar vertebra which articulates with the under part of the anapophysis of the last dorsal, repeats, or tallies with, the prominence in that dorsal which articulates with the head of the last rib: it is, therefore, a 'parapophysis.' The diapophysis projects, as in the dorsal vertebræ, from the upper and outer part of the base of the short and thick anapophysis, and this anapophysis presents, as in other Armadillos, two articular surfaces: one, above, for the under part of the metapophysis; another, below, for the upper part of the parapophysis. Thus, the vertebræ are interlocked by tenon-and-mortice joints, as Cuvier has described; but it is by distinct parts of the vertebræ from those which form the corresponding joints in the back bone of serpents.

This and the following parts of the same skeleton were presented by Charles Darwin, Esq., F.R.S.

2298. The pelvis of the same Armadillo.

The sacrum includes 12 vertebræ, the spines of which unite to form a continuous bony crest. The anterior tuberosities of the ilia and the posterior tuberosities of the ischia are distinct epiphyses in this young specimen: the former are supported by the metapophyses of the first sacral vertebra, which also develops laterally two articular parapophyses. Ossification has not so far advanced as to unite the pubic bones together at the symphysis. The posterior sacral vertebræ present the same remarkable breadth which characterizes the other species of the genus *Dasypus*.

2299. The manubrium sterni of the same Armadillo, with the first pair of dorsal ribs and the ossified cartilages of the two succeeding pairs. These hæmapophysial portions of the costal arches are much longer than those of the first rib.

2300. The left humerus of the same Armadillo: it is short, thick, strongly curved, with prominent deltoid and supinator ridges, and is perforated above the inner condyle.

2301. The left ulna of the same Armadillo.

2302. The left radius of the same Armadillo.

2303. The left tibia and fibula of the same Armadillo. A single epiphysis is applied at both their extremities to the shafts of the two bones.

2304. The bones of the left fore-foot of the same Armadillo.

The four carpal bones of the proximal row are distinct from one another: the os magnum in the second row has coalesced with the metacarpal of the enormously developed digitus medius. The base of the metacarpal of the index is wedged between that metacarpal, the trapezoides, and the trapezium. The unciforme also supports part of the middle metacarpal as well as the short cubical metacarpus of the fourth finger and the rudiment of that of the fifth. The index digit has three phalanges. The medius and annulus have each but two, and resemble each other in the character of their modifications, although greatly differing in size. The chief peculiarity, however, in this specimen is the very large sesamoid bone developed in the flexor tendons, and filling the palmar aspect of the fore-foot: a second sesamoid is attached by ligament to the apex of the large palmar one.

2305. The bones of the left hind-foot of the same Armadillo.

The scaphoid is remarkable for its two inferior tuberosities, the interspace between which receives the under part of the entocuneiform bone. The metatarsals and the phalanges of the three middle digits are preserved, with the ungual phalanx of the innermost one or hallux.

2306. The cranium of the *Dasypus minutus*; showing the sockets of the eight teeth on each side, of which the first, being behind the premaxillary suture, represents that of a canine. *Presented by Charles Darwin, Esq., F.R.S.*

2307. The skull of the Three-banded Armadillo (*Dasypus tricinctus*).

The tympanic is a distinct lamina of bone bent in a half-circle: the membrane connecting its inner and under border with the lower part of the petrosal is not ossified so as to form a continuous tympanic bulla, as in the *D. Peba*. The mastoid is also distinct, is perforated by a vein from the lateral sinus, and terminates below in the usual process. There is no paroccipital. The lacrymal bone is large, and forms a triangular plate upon the face outside the orbit. The alisphenoids join the parietal: the chief expansion of the skull is for the lodgement of the large olfactory capsule. There are two small prenasal ossicles. There are no teeth in the premaxillary bones, but nine on each side the maxillaries, and the same number on each side the lower jaw.

This and the following parts of the same skeleton were presented by Charles Darwin, Esq., F.R.S.

2308. The atlas of the same Three-banded Armadillo.

It has no large transverse processes: the sides of the vertebræ appear to be truncate; they present near the back part a rudiment of a parapophysis and diapophysis. The side of the vertebra is perforated anterior to them, and leads to a canal which bifurcates, one branch terminating within the neural arch, above the articulation for the condyle, and the other perforating the neural arch. There is also a foramen at the back part of the hæmal arch, above the articular surface for the odontoid. There is no spine either above or below the vertebral ring.

2309. The fourteen caudal vertebræ of the same Armadillo.

The transverse processes are long, broad, and depressed, with their outer ends swollen into a rugous kind of exostosis. The hæmal spines of the last five vertebræ present a similar modification at their extremities, which relates to the attachment of the dermal bony sheath of the tail. Metapophyses begin to be developed upon the two caudal vertebræ, and continue after the anterior zygapophyses have disappeared on the seventh caudal. Hæmapophyses are articulated to the interspaces between the second and third, and so on to the seventh caudal vertebræ inclusive, and in the following vertebræ are directly articulated to the under part of the centrum: they are flattened and expanded beneath.

2310. The right scapula and clavicle of the same Armadillo.

The clavicular half of the long acromion is an epiphysis. The coracoid is short and obtuse. There is a tubercle beneath the glenoid cavity. The suprascapular element is represented by a subtriangular coarsely ossified cartilage attached to the base of the scapula.

2311. The right humerus of the same Armadillo. It is perforated above the inner condyle.

2312. The right radius, ulna, and bones of the fore-foot of the same Armadillo.

The scaphoid is the smallest of the four bones of the proximal row. The large pisiform articulates to the posterior interspace between the lunare and cuneiforme, and forms with the lunare a large articular cavity, upon which the palmar patella plays. There is no distinct trapezium: if its homologue exist in rudiment, it is connate with the trapezoides. The magnum has coalesced with part of the base of the great cubical metacarpal of the digitus medius. The outer part of the base of that metacarpal rests upon the unciforme, which also supports the small but thick cubical metacarpus of the annularis, and the rudiment of the metacarpal of the minimus. The medius and annularis have each but two phalanges; the long and slender index retains the normal number of three phalanges.

2313. The right femur of the same Armadillo.

The shaft is bent inwards above the base of the third trochanter. There is a small ossification at the middle of the outer semilunar cartilage. The tibia and fibula are attached at both ends to a similar common epiphysis.

2314. The left femur of the same Armadillo, in longitudinal section.

2315. The exoskeleton of the same Armadillo, forming the supracranial casque and the carapace.

The latter has three of its middle segments moveable, allowing the inflection of the trunk and its complete protection by the approximation of the anterior to the posterior division of the carapace.

The following parts of the same skeleton of the *Dasypus minutus* were

Presented by Charles Darwin, Esq., F.R.S.

2316. The two rami of the lower jaw, in each of which there are nine alveoli: the first and smallest is situated on the symphysis.

2317. The atlas of the same Armadillo.

It has both parapophysis and diapophysis. The neural arch has two perforations on each side; the hinder one for the nerve, the front one for the vertebral artery.

2318. The axis and two succeeding cervical vertebræ.

The confluence is complete with the third vertebra, and is partial between the third and fourth vertebræ.

2319. The three remaining cervical vertebræ.

The neural arch is incomplete above in the sixth, and the harmonia between the right neuropophysis and centrum still remains in the sixth and seventh vertebræ. The transverse process of the seventh is imperforate.

2320. The first dorsal vertebra, which is characterized by its long and slender spine. The nerve perforates the base of the neuropophysis.

2321. Three succeeding dorsal vertebræ, showing the same direct perforation below

the diapophysis, with a second perforation of the neural arch behind that process. Rudiments of metapophyses and anapophyses are present in the last of these vertebræ.

2322. Four middle dorsal vertebræ, including the sixth to the ninth.

The simple metapophysis of the sixth dorsal vertebra begins to articulate with the anapophysis of the fifth: the extent of this articulation progressively increases in the succeeding vertebræ, and in the eighth and ninth a second articular surface is developed on the inner side of the base of the metapophysis which articulates with a new surface developed upon the outer side of the posterior zygapophysis; the ordinary surface on the under part of this process continuing and resting upon the ordinary surface of the anterior zygapophysis. The second nervous perforation, noticed in the first dorsal vertebra, directly traverses the anapophysis in the present vertebra.

2323. The last two dorsal and the three lumbar vertebræ.

In the last dorsal the anapophysis develops a second articular surface from its under part, which joins a surface upon the upper part of the diapophysis of the first lumbar vertebra, so that they are united by a double tenon-and-mortice joint on each side, in addition to the articulations between the ordinary zygapophyses. The metapophyses in the present five vertebræ exceed the neural spines in length as much as the anapophyses surpass them in breadth and thickness. In the lumbar vertebræ the nerves escape by a conjugational hole, and the anapophyses are notched, not perforated.

2324. The eight sacral and first caudal vertebræ.

The first sacral is as complex as the last lumbar, but its metapophyses are shorter, and its spine reduced to a ridge. The base of the metapophysis presents, however, the inner and the inferior articular surface, and the diapophysis develops the superior articular surface, forming the tenon for the reception of the short and thick biarticular anapophysis of the last lumbar, between which and the posterior zygapophysis is the tenon reciprocally receiving the base of the metapophysis of the first sacral vertebra.

2325. The manubrium sterni, showing the two clavicular processes.

2326. The right scapula. It is remarkable both for the length of the acromion and of the coracoid.

2327. The right clavicle.

3827. The cranium and horns of the Long-horned variety of the Common Ox (*Bos Taurus*).
Hunterian.

3828. The skull of a male or bull of the Short-horned or Guernsey variety of the *Bos Taurus*.
Presented by the Very Rev. Dr. Buckland, F.R.S.

3829. The skull of the hornless variety of the Common Ox (*Bos Taurus*, var.).

A rugged, slight protuberance at the posterior and outer angle of each of the elongated frontal bones is the sole indication of the characteristic processes or horn-cores in this variety. It may be remarked that, although the full size and mature dentition have been acquired, the suture between the exoccipitals, and that between these and the superoccipital, remain distinct. The whole of the upper surface of the cranium is formed by the frontals: the parietals, which, at an earlier period, encroach upon the back part of the upper surface, are now pushed quite to the posterior or occipital aspect.

Presented by Henry Cline, Esq.

3830. The cranium of the hornless variety of the Common Ox (*Bos Taurus*).

Not any rudimentary tubercle has been developed at the outer angle of the frontal bone. The left alveolar process of the upper jaw has been diseased. The parts of the occipital bone have coalesced.

Purchased.

3831. The skull of a young heifer of the hornless variety of *Bos Taurus*.

It has only acquired the first true molar of the permanent series of teeth in both jaws. The second true molar was cutting the gum: none of the deciduous molars are shed. The summits of the lobes of the last true molar are exposed on the right side of the upper jaw; two of the lobes of the right lower molar are similarly exposed. The rest of the matrix of these teeth has remained uncalcified. Calcification of the matrices of the premolars had not commenced. The length of the skull in a straight line is fourteen inches.

Purchased.

3832. The skull of a variety of the Common Ox (*Bos Taurus*), which is propagated in the Pampas of South America.

It is remarkable for the stunted development of the nasals, premaxillaries, and fore part of the lower jaw, which is unusually curved upwards to come into contact with the premaxillaries. The nasal bones are about one-third the ordinary length, but retain almost their normal breadth. The triangular vacuity is left between them, the frontal, and the lacrymal, which latter bone articulates with the premaxillary, and thus excludes the maxillary from any junction with the nasal. The horns are developed from the frontal, where it forms the outer angles of the superoccipital ridge. The mature dentition has been acquired in this specimen.

Presented by Charles Darwin, Esq., F.R.S.