

QUESTIONS

ABOUT THE

BREEDING OF ANIMALS.

1. If the cross offspring of any two races of birds or animals, be interbred, will the progeny keep as constant, as that of any established breed; or will it tend to return in appearance to either parent? Thus if a cross from the Chinese and common pig be interbred, will the offspring have a uniform character during successive generations, that is, as uniform a character, as the pure-bred English or Chinese ordinarily retains? Thus, again, if two mongrels, (for instance of shepherd dog and pointer) which are like each other, be crossed, will the progeny, during the succeeding generations retain the same degree of constancy and similarity, which might have been expected from pure-bred animals? Is it known by experience, that when an attempt has been made to improve any breed by a cross with another, that the offspring are apt to be uncertain in character, and that *unusual* care is required in matching the descendants of the half-bred among themselves, in order to keep the character of the first cross?—Always please to give as many examples as possible, to illustrate these *and the following* questions.

2. If by care, the character of half-bred animals (mongrels or hybrids) be pre-

served through some two, three, or more generations, is it then generally found, that the character becomes more permanent, and less care is required in matching the offspring? If this be so, how many generations do you suppose is requisite to form a mixed race, into what is ordinarily termed a permanent variety or well-bred race?

3. Supposing some new character to appear in a male and female animal, not present in the breed before, will it become more permanent, and less likely to disappear, after it shall have been made to pass through some successive generations, by picking out and crossing those of the offspring, which happened to possess the character in question?

4. In crossing between an old-established breed, or local variety, which from time immemorial has been characterized by certain peculiarities, or the animal in its aboriginal state, with some new breed, does the progeny in the first generation take more after one than the other? or if not so, is the character of one more indelibly impressed on the successive generations, than that of the other? Or, which is the same question, is the *breed* of the parents of more consequence, when a *breeding* animal is wanted, than when merely a fine animal is wanted in the *first* generation? The effect should be observed both in a female of the old race crossed by the new, and a female of the new crossed by a male of the old; for otherwise the greater or less preponderance of the peculiarities in the progeny might be attributed to the power of the sex, thus characterized in transmitting them; and not to the length of

time the breed had been so characterized. Thus to take an extreme example, we may *presume* that an Australian Dingo is an older breed than a pug-dog: if both were crossed with Spaniel bitches, would the litter in the one case more resemble the Australian, than in the other case the pug: and however this may be, would the pug, or Australian character be most persistent under similar circumstances in successive generations? How would this be in the various breeds of cattle? Thus if a Bull (or cow) of a breed which had long been known to have been white with short horns, were crossed with a black cow with long horns, (or Bull, if the first were a cow) which had accidentally sprung from some breed, not thus characterized, would there be any marked leaning in the character of the calves to either side; or would *successive* generations have a stronger tendency to revert to one than the other side? Please to mention in detail any instances you may be acquainted with.

5. What would the result be, in the foregoing respects, in crossing a wild animal with a highly domesticated one of another species, supposing the half cross to be fertile? Thus if a fox and hound were crossed with pointer-bitches, what would the effect be both in the first litter and in the successive ones of the half-bred animals? To form a judgment on this latter point, the subsequent crosses in each case should be relatively the same; thus the half-bred fox and half-bred hound should be recrossed with the pointer, or with some other, but the same breed.

6. Where *very* different breeds of the

same species are crossed, does the progeny generally take after the father or mother ?

7. When two breeds of dogs are crossed, the puppies of the same litter occasionally differ very much from each other, some resembling the bitch and some the dog. In the mule between the ass and horse, this great variation does not appear commonly to occur. Do you know any cases, where two *varieties* have been often crossed, and *mongrels* have been uniformly produced similar to each other within small limits, and intermediate between their parents? And on the other hand, do you know of *hybrids*, between such animals as are generally considered distinct *species*, varying in this manner ?

8. When breeds extremely different (as the grey-hound and bull-dog, the pouter and fantail-pigeon,) are crossed, are *their offspring* equally prolific, as those from between nearer varieties (such as from the grey-hound and shepherd-dog). Is the half-bred Chinese pig as prolific as the full-bred animal? Does a slight cross increase the prolificness of animals?

9. Do you know of instances of any character in the external appearance, constitution, temper, or instinct, appearing in half-bred animals, whether mongrels or hybrids, which would not be expected, from what is observable in the parents?

10. In those rare cases, where hybrids *inter se* have been productive; have the parent hybrids resembled each other; or have they been somewhat dissimilar, partaking unequally of the appearance of their

pure-bred parents. Also, what has been the character of the progeny of such hybrids?

11. When wild animals in captivity, cross with domesticated ones, is it most frequently effected by means of the male or female of the wild one?

12. Amongst animals (especially if in a free, or nearly free condition,) do the males show any preference, to the young, healthy, or handsome females? or is their desire quite blind?

13. Where a female has borne young to two different breeds or kinds of animals, do you know of any instances, of the last born partaking of any part of the character of the first born, and to what extent?

14. When a female of one breed has been crossed by a male of another breed *several times*, do the last-born offspring resemble the breed of the father, more than the first-born, and therefore are they more valuable in those cases, where the peculiarity of the father is desired?

15. Do you know instances of any peculiarities in structure, present for the first time in an animal of any breed, being inherited by the grand-children, and *not by the children*? It cannot be said to be *inherited* without it appear in more than one of the grand-children, or without it be of an extremely singular nature; for otherwise it ought to be considered as the effect of the same circumstances, which caused it to appear in the first case.

16. What are the effects of breeding in-and-in, very closely, on the males of either quadrupeds or birds? Does it weaken their passion, or virility? Does it injure the secondary male characters,—the masculine form and defensive weapons in quadrupeds, or the plumage of birds? In the female does it lessen her fertility? does it weaken her passion? By carefully picking out the individuals most different from each other, without regard to their beauty or utility, in every generation from the first, and crossing them, could the ill effects of inter-breeding be prevented or lessened?

17. Where any animal whatever (even man) has been trained to some particular way of life, which has given peculiarity of form to its body by stunting some parts and developing others, can you give any instances of the offspring inheriting it? Do you know any such case in the instincts or dispositions of animals? If an animal's temper is spoilt by constant ill usage, or its courage cowed, do you believe the effect is transmitted to its offspring? Have any cases fallen under your observation, of quadrupeds (as cats or pigs, &c.) or birds (fowls, pigeons, &c.) born in this country, from a foreign stock, which *inherited* habits or disposition, somewhat different from those of the same variety in this country? If removed early from their parents, there are many habits, which we should be almost compelled to believe were inherited, and not learnt from them; and if transmitted to any half-breed we should feel sure of this.

18. Can you give any detailed account of the effects on the mind, instincts or dis-

position of the progeny, either in the first or in the succeeding generations from crossing different breeds, (for instance carrier and tumbler pigeons, grey-hounds and spaniels) or different species, (as fox and dog.) Do they show an aptness to acquire the habits of both parents? Or do they partake strongly of the habits of one side, (if so, which side?) with some peculiarity showing their hybrid origin? Or do they entirely follow one side?

19. Can you give the history of the production in any country of any new but now permanent variety, in quadrupeds or birds, which was not simply intermediate between two established kinds?

20. Do you know any cases of different breeds of the same species, (as of dogs &c.) being differently affected by contagious or epidemic diseases, and which difference cannot be attributed merely to a greater vigour in the one breed than in the other? In countries inhabited by two races of men, facts of this kind have been observed.

21. All information is valuable, regarding any crosses whatever, between different wild animals, either free or in confinement, or between them and the domesticated kinds; *equally so* between any different *breeds* of the same species, especially the less known kinds, as Indian with common cattle, different races of Camels, &c. Please to state all or any particulars, for what object the cross was made and whether it is habitually made; whether the female had offspring before; whether she produced as many of the half-breed at one birth, (if more than one be produced) as she probably would have done of the pure

breed; whether the progeny were fertile *inter se*, or with their parents whether they resembled one stock more than the other and in what respects, and which; and whether the favoured side was the male or female. State, if known, whether the progeny differ when stock (A) is the father and (B) the mother, and from what it does where (A) is the father and (B) mother. If the half-bred are fertile, *inter se* or with the parent stock, describe the offspring whether like their parents and all like each other, or whether they revert to either original stock, or whether they assume any new character?

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