

DARWIN'S "DESCENT OF MAN."

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Mr. Darwin sends forth the "Descent of Man" to a world ready to welcome it, however much some may regard it as man's descent in a sense not in the title. It was otherwise when "The Origin of Species" was published eleven years ago. Then the few defenders of the theory were in a seemingly hopeless minority. The intervening time has been brief, yet the doctrine of natural selection is now the doctrine of leaders of scientific thought, the only question being as to the extent of its application. The young and rising among naturalists display even an enthusiasm in its support, and the opposition of veterans whose opinions have been fixed by a life-time of antagonism to evolution in any form, grows fainter. Some of the latter are going—they know not whither. Sir Charles Lyell, the highest living authority in geology, opposed all theories of development for forty years, and embodied his opposition in numerous standard works. Yet, in a new edition of his "Principles of Geology," he has abandoned his former views as untenable, and confesses himself forced to accept the new doctrine. The scientific journals now teem with articles, of which the principle of natural selection is a necessary element. It is unhesitatingly assumed without any apology, and is the basis of the researches now made by some of the foremost scientific minds of the world. The classification of animals has a definite principle to conform to—community of descent, and with this advantage to the naturalist, principles discordant with it are sinking rapidly out of sight. When "The Origin of Species" first appeared, Professor Owen's division of the mammalia, according to the structure of their brains, seemed likely to win many adherents, or at least to excite much discussion. Now, it is quietly ignored. The object generally aimed at is to keep descendants of the same form in a group separate from descendants of any other form; and for this purpose numerous minor points of resemblance are of much more importance than the amount of similarity or dissimilarity in a few points. Moreover, resemblances in unimportant structures and useless or rudimentary organs reveal the old lines of descent, and far outweigh great differences in organs whose usefulness has rendered them subjects of modification.

The nature and growth of language is such that he who promulgates an entirely new theory can scarcely find words and groups of words which are not in some way associated with the views he is opposing. Mr. Darwin was at first somewhat negligent in this particular. On the same page with his explanations of the way in which he supposed peculiar forms to have arisen by the survival of such individuals only as were best adapted to the conditions around them, he would use phrases expressing to most minds (though not to his) intention, contrivance, design. Thus he says of one species of orchid, "the labellum is developed into a long nectary, in order to attract lepidoptera, and we shall presently give reasons for suspecting that the nectar is purposely so lodged that it can be sucked only slowly, in order to give time for the curious chemical quality of the viscid matter setting hard and dry." Mr. Darwin has now apparently become aware of the necessity to be careful and consistent in his words, and few, if any, such expressions can be found in his last work.

His great object in "The Descent of Man" is to show that "man, like every other species, is descended from some pre-existing form." In thus confining his attention to a single species, he is obliged to exclude the arguments which are to be found in "The Origin of Species," derived from the relationships of large groups of animals and plants, their geographical distribution and geological succession. He finds, however, sufficient evidence for his purpose in the following three great classes of facts:

1. **HOMOLOGOUS STRUCTURES.**—It is well known that all the bones in the human skeleton can be compared with corresponding bones in a monkey, bat or seal. The same is the case with the muscles, nerves, blood vessels and internal viscera. Even in the brain of man every chief fissure and fold has its analogy in that of the orang. Equally close correspondences exist with

subject to disease, habits, reproduction, and other processes, and even kinds of parasites, both internal and external. "It is, in short, scarcely possible to exaggerate the close correspondence in general structure, in the minute structure of the tissues, in chemical composition and in constitution, between man and the higher animals, especially the anthropomorphic apes."

2. **ANATOMICAL DEVELOPMENT.**—Man, physically, is developed from a microscopic ovule, which does not differ, as far as can be observed, from the ovules of other animals. The embryo, as it grows, resembles the adult stages of lower forms. For instance, the heart is at first a simple pulsating vessel, and the lower part of the backbone projects like a tail, extending considerably beyond the rudimentary legs. Even as late as the seventh month, as Haeckel informs us, the convolutions of the brain have reached the same stage of development as in a baboon when adult. "Without question," says Professor Huxley, "the mode of origin and the early stages of the development of man are identical with those of the animals immediately below him in the scale. Without a doubt, in these respects, he is far nearer to apes than the apes are to the dog."

3. **RUDIMENTARY ORGANS.**—The muscles by which many animals prick up their ears and direct them to different points of the compass are in a rudimentary condition in man, as are those by which some animals, especially horses, twitch their skin. The same may be said of the bones which, in most animals, extend into the tail, of the hairs on the body, the "third eyelid," the vermiform appendage of the large intestine, and many minor parts of the structure little known, except to anatomists. Though there are abundant cases of this sort in man, yet there are none so striking as may be found among the lower animals; as, for instance, in snakes, rudiments of hind limbs that never project through the skin; in embryonic birds and whales, teeth that never cut through the gum; in insects, wings incapable of flight and lying under wing cases firmly soldered together. The rudimentary teats and milk glands of male mammals (sometimes capable of imparting nourishment) do not bear so directly on the present subject, because they only show a relation between the two sexes of the same species, not between one species and another.

The three foregoing great classes of facts are intelligible on the theory of evolution; they point to it by strong inductions; they have never been explained on any other hypothesis. It is no scientific explanation to say that vertebrate animals have all been formed on some ideal plan which left needless rudiments here and omitted them elsewhere. If, however, we suppose all vertebrates descended from a common progenitor whose structure, more or less modified, they still inherit, all becomes plain.

Mr. Darwin next considers the human mind, and he considers it within the limitations of the system he builds. It is not merely like the body—an evolution, but it is within the body evolution. The psychology of the treatise, it is hardly necessary to say, comes far short of the excellence of its physiology. His standpoint, in respect to the human mind, is about that of Lord Monboddo a hundred years ago. He contrasts the difference between brute intelligence and human intelligence to be a difference in degree only. He thus asserts that the brute knows what or as man knows, but less; or, what is the same thing, that man knows what or as brute knows, but more. He says in substance: In mind there can be no doubt man excels all other animals. The difference is immense. It is, however, not of kind. If no organic being, except man, had been able to perceive, feel or reason, we could not suppose that our mental powers had been developed from anything exhibited by the lower animals. But we must admit that there is a much wider interval in mental power between one of the lowest fishes, as a lamprey or lancelet, and one of the higher apes, than there is between an ape and man. Yet this immense interval is filled up by numerous gradations. The matter of immensity or breadth of interval rather avoids than escapes a difficulty. If between the human mind and animal intelligence there are but different degrees of the same scale, whence is it that the higher can no more reach the lower than the lower can reach the higher? i. e., that there should be an impassable barrier between one knowledge and the like of it. For, as between man and brute, what either knows the other never apprehends or is cognizant of. Exaltation of brute intelligence does not prove a common scale of measurement. Men have existed who have, mentally, what might be called, by all our means of comparison, a lower position than the cunning monkey. But the possibilities in one case have never been unfolded, while in the other the capacities have all been fulfilled. The idiot is brought no nearer to the ape by reason of his deficient intelligence.

But by this digression we are departing from our purpose, as our object is to state Mr. Darwin's theory at its present stage, not to criticise it. We return.

Here, however, we think Mr. Darwin even understates his position; for, by its correlations, we must consider the interval between the ape and the lowest varieties of man much less than between the extremes of man himself. Compare the savages mentioned in Sir John Lubbock's "Prehistoric Times," who have no word to express any number higher than four, and who use no abstract terms for the commonest objects or affections, with a Shakespeare, a Newton, a Herbert Spencer. Is it possible to do this without a firm conviction that the interval between these extreme specimens of man is immensely greater than the difference between the lowest men and the highest apes?

Man has like outward senses and faculties of immediate perception with other mammals—like avenues of communication to the brain. The same appears to be fundamentally the case with such faculties as memory, attention, curiosity, imitation, discrimination, etc. "Animals may constantly be seen to pause, deliberate, and resolve. It is a significant fact that the more the habits of any particular animal are studied by a naturalist, the more he attributes to reason, and the less to unlearned instincts." If we next turn to the emotions, we often find them highly developed in animals. The grief of female monkeys, of certain kinds, for the loss of their young is so violent as to cause their death. There is a well known case of a dog, suffering under vivisection, licking the hand of his master then engaged in torturing him. The moral sense is considerably advanced in dogs. They love praise, exhibit self complacency, emulation, fidelity, shame as distinct from fear, and something very like modesty when begging too often for food. Many kinds of animals are social, and social habits necessarily imply some wish to aid others of the same tribe, and some sympathy.

But, however certainly we may prove the lower animals possessed of approximations to man's intellectual and moral faculties, the fact unquestionably remains that man has distinctive and peculiar characteristics. Concerning some of these, Mr. Darwin inquires whether any steps can be traced by which they could have been developed to their present state. Of such distinctions as those indicated by the fashioning of tools, the use of fire, the sense of beauty, the faculty of articulate language, and religion.

The Duke of Argyll says that, though monkeys will use stones to break nuts, they never chip them off, or in any way change them, to make them more suitable for their purpose. This is assuming a purpose broader than the act. He affirms that the fashioning of implements for a special purpose is absolutely peculiar to man; and he considers that this forms an immeasurable gulf between him and the brutes. Sir John Lubbock, however, suggests that when primeval man first used flintstones for any end, he might have accidentally splintered them, and used the sharp fragments. From this step it would be but a small one to intentionally break the flints, and not a very wide one to rudely fashion them. This latter advance, however, may have taken long ages, if we may judge from the immense interval of time which elapsed before the men who used stone tools took to grinding and polishing them. The command of fire may also have originated in the breaking or grinding of flint. Its nature would be easily known in volcanic regions.

As to the sense of beauty, it is not peculiar to man at all. Female birds choose male ones for the beauty of their plumage and the sweetness of their song. The kid-

*Mr. Darwin's sympathetic nature leads him to pause in his reasoning when arriving at this case, and remark: "This case, unless he had a heart of stone, must have felt remorse at the last hour of his life."

some ornaments and the decorated birds admired by savages place them far below birds in this respect.

Next, as to language, various imperfect forms of it are found in many animals. Articulate speech is indeed peculiar to man; but few can read the writings of the eminent physiologists, Rev. F. Farrar and Mr. Hensleigh Wedgwood, without receiving added testimony that it originated in the intimation of the winds, waves, other natural sounds, and the instinctive, inarticulate cries of all animals, man's self among the rest. Language once acquired, it would necessarily become a powerful agent in further mental development.

Finally, as to religion, in so far as of human origin, it arose in man's ascribing of life to anything which manifested power or movement. Out of this grew polytheism as a necessity; and finally, monotheism, with its accessories, was a logical sequence.

Mr. Darwin next treats of the processes in which distinguishing characteristics of the human race, both mental and physical, have been developed. Most prominent of these is natural selection, though others are also discussed, and an inability to conjecture an efficient cause for some minor modifications is admitted. Natural selection, in modifying man, has principally developed his mind! The intellectual and moral faculties are variable, and the variations tend to be inherited. In the struggle for existence, the most sagacious, inventive and foreseeing individuals would survive in larger numbers and rear more offspring than others would. Their children would inherit their superiority, and thus, by the accumulation of small differences, great ones would be produced.

These remarks, however, apply mainly to savage nations. Among them the weak in body or mind soon perish, and only the fittest survive. Among civilized men, on the contrary, the imbecile, the deformed, and the feeble are preserved by the care, kindness and self-sacrifice of others. "Thus," says Mr. Darwin, "the weak members of society propagate their kind. No one who has attended to the breeding of domestic animals will doubt that this must be highly injurious to the race of man. It is surprising how soon a want of care, or care wrongly directed, leads to the degeneration of a domestic race; but, excepting in the case of man himself, hardly any one is so ignorant as to allow his worst animals to breed." Mr. Darwin does not, however, advise neglect of the weak and helpless. This, he says, could only be for a contingent benefit, with a certain and great present evil, namely, a deterioration in the noblest part of our nature. Hence, he sees no remedy for the undoubtedly bad effects of the weak surviving and propagating their kind, except one which is more to be hoped for than expected, the advance of opinion and moral feeling sufficiently to keep the weak from marrying.

Assuming now that the human species is a co-descendant with others of some primitive form, Mr. Darwin next considers the proper position of man in the natural system. Most naturalists place man in a separate order, called *himana*, co-ordinate with those of the *quadrumana*, *carnivora*, etc. Many, however, are returning to the classification of Linnaeus, in which man is included with the *quadrumana* in the order primates. The differences between man and the *quadrumana* result chiefly from his erect position and progressive intellect; the many points in which he agrees with them far outweigh these variable characteristics. Mr. Darwin thinks that man is no more than a subfamily of the primates. The leading characteristics which distinguish the Old World monkeys from those of the New World are also found in man, showing that the monkeys of the Western continent separated from the original stock before man separated from the remainder. Man also agrees with the anthropomorphous group of the Old World monkeys in the characteristics which distinguish them from the rest of their family. Hence, it is probable that "some ancient member of the anthropomorphous subgroup gave birth to man."