

THE DESCENT OF MAN.*

great noteworthy with the candor, the modesty, and the earnestness which characterize the author of the "Origin of Species" is the self-doubt which has not only led him to avoid anything like an answer in reply to the many violent attacks upon him, but has also enabled him to spend so many years an application of his theory to the creation of the world than he "should thus only add to the prejudice against it," and wished that "Natural Selection" should be considered simply upon its merits as a scientific theory alone. But it was not to be so. A sensation-loving public, and those who write for it, would not receive an equal discretion; and more attention was called to a review of the "Origin of Species"—"Light will be thrown upon the origin of man, and on his history"—with others in which the hypothesis that "all animals are descended from four or five—perhaps five or six—progenitors," and since the human body is unquestionably vertebrate, and mammalian, the conclusion was inevitable that the human progenitors "were the remote ancestors not merely of dogs, cats, and monkeys, but likewise of man himself. Nor was this all. The supposed narrowing of the supposed "great gulf" between man's body and that of the apes has slowly forced upon shrieking humanity the possibility of our nearest relatives, not only zoologically, but genealogically, the so-called anthropoid and tailless apes—the orang, the gorilla, the chimpanzee—which are, if not themselves our ancestors, at least the undeveloped descendants of some ancient ape-like, and now extinct progenitors. The storm raised by these ideas has not yet ceased; even now, the day is called upon to stop the progress of the heresy, and are asked, "What is the use of your asserting, Sunday after Sunday, that man is made only a little lower than the angels, when right under your nose is a set of anatomical miscreants who contend that he is only a trifle higher than the monkeys?"

Such objections this last work will be evidence of its author's deep depravity and foreordained eternal condemnation. But to more fully understand it, it will appear the most bold and impartial exposition of the present state of scientific opinion respecting the origin of man and his relation to the lower animals. But here a very essential qualification is to be made. The word "man" includes three very different ideas: first, the human body, which, whatever its first origin, is now regarded as developed from a germ which is to all appearance identical with the germ of a fish or a serpent—even at a much later period the human embryo is indistinguishable from that of a dog, and the fully-formed individual differs less from the higher apes than they do from the lower apes. The second part of man is the animal mind and instinct and intelligence which we surely possess in common with the lower animals, and which, perhaps, as Darwin holds, may be only a higher development of the same. But the third and essential idea of man is of his immortal soul. Although some hold that beasts, too, are immortal, and although some maintain that even conscience and the religious sentiment with which we are endowed are not inherent with man (vol. ii., p. 377), yet on the whole the popular opinion implies that at some stage in his upward progress he did become an immortal being," though, while admitting the impossibility of ascertaining that stage, he suggests that it is really of no more consequence than it is to determine the exact period when the forming germ of the immortal soul in the development of a single individual. At the same time we accept what he here says as warrant for the exclusion of the lower part of man, with all its powers and capacities, from the discussion of his present and past relations to the lower animals. With the immortal soul, we may let our author speak for himself, from the chapters of the "Descent of Man," admitting that he presents his case better than any one can do it for him:

*The Descent of Man, and Selection in Relation to Sex. By Charles Darwin. London: Chapman & Co., 1871. 2 vols., pp. 488. New York: D. Appleton & Co., 1881.

"The main conclusion arrived at in this work, and now held by many naturalists who are well qualified to form a sound judgment, is that man is descended from some less highly organized form; . . . the grounds of facts upon which this conclusion rests will never be shaken; . . . the close resemblance of the embryo of man to that, for instance, of a dog—the construction of his skull, limbs, and whole frame, on the same plan with that of other mammals—the occasional reappearance of various structures which man does not normally possess, but which are common to the quadrumanus, and a crowd of analogous facts—all point in the plainest manner to the conclusion that man is the co-descendant with other mammals of a common progenitor."

"Judging from the habits of savages and of the greater number of the quadrumanus, primeval man, and even the ape-like progenitors of man, probably lived in society" (vol. I. p. 148). [According to most accounts, however, the anthropoid apes are not very social.] "There can be hardly a doubt that the inhabitants of these countries, which include nearly the whole of our civilized world, were once in a barbarous condition" (p. 176). "The highest form of religion, the grand idea of God besting sin and loving righteousness, was unknown during primeval times" (p. 175, p. 62). [And he further agrees that all morality and civilization spring by "natural selection from purely selfish sources" (p. 175).] "It would be impossible to fix upon the stage when ape would become man through a series of connecting forms, and it is a matter of very little importance" (p. 220). "The problem of the first advance of savages toward civilization is at present much too difficult to be solved" (p. 161).

"By considering all these things, we can pretty well recall in imagination the former condition of our early progenitors, and infer that man is descended from a hairy quadruped, furnished with a tail and pointed ears, probably arboreal in its habits, and an inhabitant of the Old World. This creature, if its whole structure had been examined by a naturalist, would have been classed among the quadrumanus as surely as would the common ape and still more ancient quadruped of the Old and New World monkeys. The quadrumanus, and all the higher mammals, are probably derived from an ancient marsupial animal, and this, through a long line of diversified forms, either from some reptile like or some amphibian-like creature, and this again from some fish-like animal. In the dim obscurity of the past, we can see that the early progenitors of the vertebrata must have been an aquatic animal provided with branchiæ, with the two sexes united in the same individual, and with the most important organs of the body (such as the brain and heart) imperfectly developed. This animal seems to have been more like the larvae of our existing marine ascidians than any other known form."

"We may here remark that the omission of Birds from this genealogical tree is less a defect than at first appears; for, although we are far from being willing to give up the old class of Aves and consider Birds as only outlying and rather aberrant members of the new combination *Naupactipedia* (which includes turtles, insects, alligators, pterodactyls, and Ichthyosaurs), yet their whole organization brings them so near to the higher reptiles that it is easier to regard them as a divergent branch from the stem which afterward produced the mammals, and at last man."

A careful study of the "Descent of Man" has added many to the general and special difficulties of natural selection which arose during the examination of the "Origin of Species"; but we have space for only a few cases. Our author gives no sufficient grounds for his belief that our "ape-like progenitor" possessed a caudal appendage. Man has a rudiment of a tail which in the embryo projects like that of a dog; but since it does not increase, the subsequent development of the legs throws it into obscurity, whence it but rarely emerges as a "small external rudiment of a tail" (p. 41, 45). "No explanation has ever been given of the loss of the tail by certain apes and by man;" but the "great diversity in its length (existing in some monkeys of five, and in others of twenty-five vertebrae) indicates that it is of not much importance to them, and, therefore, apt to become more or less rudimentary" (p. 144). But how, then, can we account for the great length of the tail in some Old World monkeys (with whom it is not rudimentary as with the New World species), since we are further told (p. 144) that "modifications which are of no service to an organism cannot have been acquired through natural selection;" and again, if, "being of little importance, they are likely to become rudimentary," they become exceptions to the other general rule given in vol. II. p. 370: "Modifications formerly of importance, but no longer of any special use, will be long inherited." Our author seems to base his conclusion that our ape-like progenitor possessed a tail, only upon its occasional reappearance as a rudiment ascribable to reversion; but surely a few more generations back can be so obsolete, since he thinks the human nose had its commencement in the Hook-ek Gildon (which is less than man in other respects than the noseless gorilla and chimpanzee), while it carried to a ridiculous extreme in the neopithecian mania, a yet lower monkey, which possesses a tail of considerable length.

These, and other cases which we must omit, are not given as in any way militating against the general hypothesis of Derivation, but only to show the inconsistencies into which we are led in the effort to account for

the origin of organisms by means of natural selection of "minute individual variations."

In the "Origin of Species" two pages were devoted to that kind of selection which is called "sexual;" but the conviction of the necessity of some auxiliary to natural selection, together with the accumulation of evidence of its importance, has led our author to devote the greater part of his last work to the elucidation of sexual selection, and to conclude that of all the causes which have led to the difference between the sexes of man, and, to a certain extent, between man and animals, it has been by far the most efficient. The terms "sexual" and "sexual selection" are defective, as our author admits, since both are natural, as contrasted with artificial selection by man, but they are defined as follows:

"Natural selection depends on the success of both sexes, at all ages, in relation to the general condition of life; sexual selection depends on the success of certain individuals of the same sex in relation to the propagation of the species" (p. p. 280).

The latter is further defined:

"The sexual struggle is of two kinds; in the one, it is between the individuals of the same sex, generally the male sex, in order to drive away or kill their rivals, the females remaining passive; while in the other, the struggle is likewise between the individuals of the same sex, in order to excite or charm those of the opposite sex, generally the females, who no longer remain passive, but select the more agreeable partners" (p. p. 280).

The result is summed up as follows (p. p. 284):

"Courage, pugnacity, perseverance, strength, and size of body, weapons of all kinds, musical organs—both vocal and instrumental—bright colors, stripes and marks, and ornamental appendages, have all been indirectly gained by the one sex or the other through the influence of love and jealousy, through the appreciation of the beautiful in sound, color, or form, and through the exertion of a choice."

It would appear, then, that selection is through love or through war, but that in either case the successful competitor is the more likely to perpetuate whatever individual peculiarities he may possess as to strength, weapons, or ornament, and thus originate a new variety, which, by wider and wider divergence, will, in course of time, be entitled to rank as a new species, and may finally differ generally as to family, codical, class, and branch characters from the parent stock. Supposing this to be true, Darwin is right in denying the existence of anything like species, genera, etc., excepting as more or less different varieties ("Origin of Species," §§ 155, 432, and 485); and this is totally incompatible with the view so forcibly stated by Agassiz: "Individuals alone have a material existence; species, genera, and all higher groups exist only as categories of thought in the supreme Intelligence; but as such have as truly an independent existence, and are as unvarying as thought itself after it has been once expressed."

Let us glance, however, at some special difficulty of the theory of "selection in relation to sex." The male seldom fights with each other for the females, and the larger may naturally be supposed to have the advantage, yet the males are smaller than the females (vol. II. p. 7), as is generally the case with fishes, and Darwin admits that this fact is surprising. In some cases, even, there is antagonism between natural and sexual selection; for instance, "stags are loaded with an additional weight of many pounds, and will be greatly retarded in their flight from wild beasts."

"Male birds have sometimes acquired ornamental plumage at the cost of retarded flight, and at the cost of some loss of power in their battles with rival males" (II. p. 248); and although our author would account for these and other cases by assuming that these spreading antlers enabled the stags best provided with them to overcome their rivals, and that this was of more consequence than the ability to escape their pursuers, yet he admitted and inexplicable facts of capture on the part of the females of many species (II. p. 256), causing them to prefer some other than the conqueror, make the explanation less satisfactory. A still more difficult case is that of the "spike-horn bucks," which seem to be increasing in number among the Adirondacks. "The spike-horn is a more effective weapon than the antler in combat of all kinds, and far less likely to hinder escape from beasts of prey. Unfortunately the first specimen was merely an accidental freak of nature." But his spike-horns gave him an advantage, and enabled him to propagate his peculiarities" (vol. II. p. 245). Now, when the remote ancestors of these deer first began to acquire horns, it is more likely, upon any kind of hypothesis, that the horns were spiked or simple than branching. If they are more useful now, why were they not then? and how did antlers originate and become the rule? Again, if the other kind of sexual selection be applied to, we must assume that the females had an inherent admiration for antlers, and

selected such individuals as had them. But aside from the
 ability of accounting by natural selection for any such limited
 why is it not equally operative at the present day? In fact
 acknowledge the difficulty in these cases, and we recommend
 study of the explanation given for the long and back-washed
 of the crya lemmings (on page 141 of vol. II), as an instance of
 factory nature of all reasoning from natural selection when
 particular cases. Everywhere some other condition is required
 as sufficient cause is assigned.

Darwin not only ascribed to selection the power of producing
 from monkeys, but also of originating all the many shades of color
 to color, length, and distribution of hairy covering, form of face
 and skull, which distinguish the human races—differences
 regard as specific in their character. But he seems to me
 that is necessary for us to agree with him, by holding that all
 distinctions have arisen since the birth of the first human being
 more time would have been allowed by supposing that several
 "progenitors," in different parts of the world, produced an in-
 men. We are led to say this because Mivart is inclined to dis-
 even the millions of years which geology allows would be in
 the production of the human race by the slow process of selection.

As to color, if we suppose black to have been gained by us
 then (p. 262), what was the original color? and if, "with
 savages, the people of each tribe select their own characteristic
 skin" (p. 267), how can we account for any divergence from the
 color of the skin as we to form race? The same inconsistency
 the above general law and the existing facts is found in respect
 characters that distinguish the races of man, for since these in-
 tions are evidently of no value in respect to ordinary selection,
 we can only account for the preservation and perpetuation of
 in color, length of hair, etc., by assuming an inherent purpose
 minds of the women for things which had no previously noted
 direct contravention of the rule above given.

We will not discuss in detail the difficulties which Wallace
 in the way of the production of human beings through the action
 tion of selection, but refer the reader to his most instructive and
 wise address to these objections, and attempt to refute them. We
 do not think he is successful; on the contrary, we are more
 inclined to believe that selection is insufficient not merely for the
 character objections, and would not vitiate the reasoning
 conclusions of our author.

* Variability is the necessary basis for the action of selection,
 wholly independent of it (p. 262). With respect to the vari-
 ability, we are in all cases very ignorant (p. 267). The laws of in-
 determine the manner of transmission of several characters (p. 266).
 laws, from unknown causes, are very liable to change (p. 266). It
 be due to the action of some unknown cause (p. 261). As to
 resistance of change, perhaps a large one, must be left to the
 uniform action of those unknown agencies which constitute
 strongly marked and abrupt derivatives of structure in our an-
 cestors (p. 245, and p. 246). In the greater number of cases, we
 say that the cause of such slight variation and of such gross
 much more in the nature or constitution of the organism, the
 nature of the surrounding conditions, through war and change,
 certainly play an important part in making specific changes of it
 (p. 271).

Here is almost all that is required by Mivart, and it is in the
 line of admissions in the later edition of the "Origin of Species,"
 tantamount to a change of front in the face of the enemy," and
 these admissions occur in connection with the attempt to apply
 trials of selection to a single species, and that the highest, it may
 without intending a pun, that the theory is disproved by the "a-
 sum of futility." Surely, if Darwin is obliged to fall back on
 known agencies, and upon such vague hypotheses as progress
 with the means of originating species by natural selection, why do
 not, like Mivart, ascribe to them the sole power of producing spe-
 cific selection to the preservation of favorable individual
 within the species?

It is objected to the view of Mivart that it is merely giving us
 a hypothetical principle, and means no more than to say that "a
 particular because of its specific quality." Why not? There are
 things of which we merely know that they are such and such, and
 as! etc. The progress of science simply increases their number, but
 never do more than reduce them to one, the invisible First Cause.

* "Objections to the Theory of Natural Selection."

(I do not take Mivart's theory as a whole)
 (Mivart's theory is not a whole)
 (Mivart's theory is not a whole)
 (Mivart's theory is not a whole)