

"nor travel a hundred yards out of his way to witness the scandalous imposture" he was invited to see.

Here we may let the matter rest; leaving our readers to judge for themselves whether the ravings of anti-scientific zeal merit further consideration.

REVIEWS.

The Descent of Man, and Selection in Relation to Sex. By CHARLES DARWIN, M.A., F.R.S., &c. London: John Murray, Albemarle street. 1871.

"WHAT a piece of work is a man! how noble in reason! how infinite in faculty! in form and moving how express and admirable! in action how like an angel! in apprehension how like a God!" So says Shakespeare. The object of Mr. Darwin's present work is to inquire into the origin and descent of this "beauty of the world," this "paragon of animals." We shall state the purport of his work, with some comment of our own upon it, and leave it to others to decide how far Mr. Darwin's researches have led him to a right conclusion. It would be very easy to turn this book into ridicule. Every petty and prejudiced sentiment would concur with the attempt. It would be more difficult to answer it. We shall not attempt to do it. But, at the same time, learned as the work is, far-reaching as is the research evinced in it, philosophical as are the evidences adduced, and ingenious as are the deductions sought to be drawn from them, we are neither convinced nor satisfied by Mr. Darwin's arguments. We grant that we start upon the investigation to which Mr. Darwin invites us, with such a load of natural prejudice, that it is all but impossible we should keep pace with him. It is bad enough to contemplate the possibility of being descended from an ape; but when we find that even so we have not ascended the depth of our origin, but have to go back still further to the primary origin of both men and monkeys; it is—whether it be true or not—revolting to our pride of intellect, and even to our animal nature, to find it gravely propounded as a fact in natural history that we have a common origin with all vertebrate animals, whether elephant or monkey, snake, frog, or fish. Yet such is Mr. Darwin's theory, and before we comment upon it, we had better let him state it in his own words.

"The most ancient progenitors in the kingdom of the Vertebrata at which we are able to obtain an obscure glance, apparently consisted of a group of marine animals resembling the larvae of existing Ascidians. These animals probably gave rise to a group of fishes, so highly organized as the *Saurietes*; and from these the *Canoids* and other fishes like the *Lepidosteus* must have been developed. From such fish a very small advance would carry us on to the amphibians. We have seen that birds and reptiles were once intimately connected together; and the Monocremata now in a slight degree connect mammals with reptiles. But no one can at present say by what line of descent the three higher and related classes, namely, mammals, birds, and reptiles, were derived from either of the two lower vertebrate classes, namely amphibians and fishes. In the class of mammals the steps are not difficult to conceive which led from the ancient Monocremata to the ancient Marsupials; and from these to the early progenitors of the placental mammals. We may then ascend to the Lemnidae, and the interval is not wide from these to the Simiidae. The Simiidae then branched off into two great stems, the New World and the Old World monkeys; and from the latter, at a remote period, Man, the wonder and glory of the Universe, proceeded."

Now, without pretending to discuss the matter scientifically, we purpose to offer some objections to this theory, such as may fairly present themselves to any intelligent man, and to which, as we find no answer by anticipation in Mr. Darwin's book, we should be glad to have an answer if it could be accorded to us. Of course, for the purpose of this argument, we are not going to enter upon any religious, sentimental, or other than material considerations. But the first difficulty that strikes us in Mr. Darwin's theory is this:—Granted that the age of the world, so far as is known even by geological disclosures, is but short as compared with its actual existence; that so far as it is disclosed by historical researches, it is but "a span," and that the period occupied by the transition from the larva of a marine animal to a man has been infinite; still, by the very hypothesis, the transition has been going on constantly; there have been certain marked stages in it, these have comprised minor stages, and that process as it has been going on from the beginning, is still going on, and will go on for ever, so that man himself is but the intermediate stage between the marine animal of the past, and the unknown being into which he is progressing, and will be developed in the far future—surely we might expect to find, either in geological or historical eras, traces, however slight, of the physical man in various stages of development, and so of other animals. Yet men, and other animals too, are now what they have ever been since we have any knowledge of them. The Arab sheik of to-day is physically identical with the Arab of the days of Abraham; the lion now in the Zoological Gardens is identically the same lion as that hunted by Nimrod, and those whose effigies are sculptured on the stones of ancient Nineveh. There is no reliable trace, not even the smallest, of any process of transition; the monkey of the antediluvian world is the monkey of to-day; the man of to-day is as distinguishable in mind and body (but not more so) as the sons of Noah were from the antediluvian monkey. And if you take animals or beings which afford a still better test, namely, those which appear to be intermediate between the animal and the bird, the beast and the fish, or the vegetable and the animal world, as the bat, the saurian, or the lichen, still you find in them no sign of progression; the bat is what he has ever been; neither more a bird nor less a beast; the saurian, instead of progressing, is extinct, and the lichen is lichen still, and neither an oak nor an oyster, a whale nor an elephant. Yet surely if Mr. Darwin's theory be true, we might expect even in the progress of the comparatively few ages of which we have any knowledge to be able to discover some small stages of the transition process; some marks of the development contended for, some indication that the lancelet is developing into the ape, some sign that the educated monkey is developing into man; but where are they to be found? Between the lowest savage and the highest philosopher it is only a question of degree, but what is there to bridge over the impassable chasm which separates the most intelligent animal from the lowest savage? And does Mr. Darwin think it possible that in the process of ages the descendants of any pair of monkeys, however improved by natural or other selection, or however trained, disciplined, or educated, could build a house, make a watch, or solve a mathematical problem?

Again, as we can discover no sign of this process of development, so we can see no necessity for it in what, for want of a more definite phrase, we will call the economy of nature. If it could be contended that all things sprang from one common stock, we might deem the theory more intelligible; but if one species of beings is to have a common origin, and another species another and a different one, why should there not be several

creations of the several classes, as well as of the several species? If these are to be vertebrate and invertebrate animals, why not distinct creations of the several kinds or classes of vertebrate, as the fish, the bird, the ape, the man? It would require no greater creative faculty to produce an original oyster than an original man; and if the existence of man was contemplated as well as of fishes, why should not each have been severally created? Or if both have sprung from one creation, how is it that the one has remained a fish ever since its original creation, and the other a man? Or if there has been change, why should not the original man have deteriorated into the ape, the fish, the marine animal, as naturally as the process is supposed to have been reversed, and the marine animal have progressed into the fish, the ape, the man?

It seems to us that Mr. Darwin's argument is capable of being reversed, and that by exactly the same process of reasoning on the analogies between men and animals, man might be shown to be the original of all other forms of animals, from himself to the monkey, and from the monkey to the lowest form of the vertebrata, even that from which Mr. Darwin thinks we all have emanated. Neither does the analogy of insects, which go through several stages of development, appear to us to support Mr. Darwin's theory. The grub becomes a chrysalis, the chrysalis a butterfly; but there it stops, and the same process goes on eternally, but never progresses farther. Why is this? Mr. Darwin may fairly tell us he does not know. But why should the doctrine, or rather process of development be limited to one class or order of created beings only, when the principle is obviously applicable to all others? The answer as it seems to us is that this process of development, though it doubtless exists, is nevertheless limited to development within the same classes. The monkey may by training, and, if Mr. Darwin pleases, by natural selection, become a very intelligent monkey, with very respectable habits, but he and his descendants will never become men. And so men may degenerate in mind and body, and become idiots or savages, but they will never become monkeys.

But while we thus differ from Mr. Darwin, we readily avow that his work is a most important contribution to philosophical and scientific literature, and recommend its attentive perusal to all who desire information on the interesting subject it relates to. The object of his work, as stated by himself, is to consider "firstly, whether man, like every other species, is descended from some pre-existing form; secondly, the manner of his development; and thirdly, the value of the differences between the so-called races of men;" and we entirely concur with this passage in the introduction,—"It has often and confidently been asserted that man's origin can never be known, but ignorance more frequently begets confidence than does knowledge; it is those who know little, and not those who know much, who so positively assert that this or that problem will never be solved by science." We doubt not that the work will be assailed on very different grounds from many different quarters, and—whether Mr. Darwin's theory be true or not—so much the better for the cause of truth. "Let truth and error come into the field together," says Milton, "who ever knew truth the worse for the encounter?"

The second, and indeed the larger part of the work, relates to "Sexual Selection," and includes much curious information and many important facts; but we have not space to do justice to this subject, and indeed it is one not altogether adapted for our columns.

The last chapter comprises a general summary and conclusion of the work, as to which Mr. Darwin frankly says, "Many of the views which have been advanced are highly speculative,

and some no doubt will prove erroneous." The main conclusion he arrives at, which he states is that now held by many naturalists who are well competent to form a sound judgment, is that man is descended from some low highly organized form. He adds,—

"The grounds upon which this conclusion must will never be shaken, for the close similarity between man and the lower animals in embryonic development, as well as in innumerable points of structure and constitution, both of high and of the most trifling importance,—the rudiments which he retains, and the abnormal reversions to which he is occasionally liable,—are facts which cannot be disputed. They have long been known, but until recently they told us nothing with respect to the origin of man. Now when viewed by the light of our knowledge of the whole organic world their meaning is unmistakable. The great principle of evolution stands up clear and firm when these groups of facts are considered in connection with others, such as the mutual affinities of the members of the same group, their geographical distribution in past and present times, and their geological succession. It is incredible that all these facts should speak falsely. He who is not content to look, like a savage, at the phenomena of Nature as disconnected, cannot any longer believe that man is the work of a separate act of creation. He will be forced to admit that the close resemblance of the embryo of man to that, for instance, of a dog—the construction of his skull, limbs, and whole frame, independently of the uses to which the parts may be put, on the same plan with that of other mammals—the occasional re-appearance of various structures, for instance of several distinct molars, which man does not normally possess, but which are common to the Quadrumania—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."

We think Mr. Darwin must give us the credit of belonging to the tribe of "the noble savage," in having the courage and generosity to print the above passage, notwithstanding the opinion we have expressed of his theory. It is but right to add that in this chapter he deals fairly with the great difficulties he has to encounter in consequence of the high standard of intellectual power and of moral disposition which man has attained. We also deem this passage worthy of all consideration:—

"I am aware that the conclusions arrived at in this work will be denounced by some as highly irreligious; but he who thus denounces them is bound to show why it is more irreligious to explain the origin of man as a distinct species by descent from some lower form, through the laws of variation and natural selection, than to explain the birth of the individual through the laws of ordinary reproduction. The birth both of the species and of the individual are equally part of that grand sequence of events which our minds refuse to accept as the result of blind chance. The understanding revolts at such a conclusion, whether or not we are able to believe that every slight variation of structure, the union of each pair in marriage, the dissemination of each seed, and other such events, have all been ordained for some special purpose."

In conclusion, we are glad that the work is published, and thank Mr. Darwin for it, but if called upon, in the present state of the argument, to decide between his theory of the origin of man, and that held by the majority of men, we, like a former Lord Mayor of York at the close of a geological discussion, must pronounce in favour "of Moses and the Dean."

The Life and Letters of Faraday. By Dr. BENJAMIN JONES. Two volumes. London: Longmans, Green, and Co.

Paper, newsboy, bookbinder, philosopher, yet always a gentleman and always a Christian—such was Michael Faraday. He came of a West Riding family, who spelt their name *Flaraday*. James, the father of the philosopher, was a journeyman at Boyd's, in Welbeck Street, London, and lived over a