

## THE DESCENT OF MAN, AND SELECTION IN RELATION TO SEX.

The Darwinian theory has now been before the world for about eleven years, and has provoked an amount of criticism rarely accorded to the works of any single author. At its first appearance it was attacked from almost all quarters—the theologian, the metaphysician, even the man of science, finding or fancying it opposed to his accepted views. As time wore on this hostility became much abated, chiefly because the theory itself had come to be better understood, and men had come to be more familiar with the facts on which it purports to rest or undertakes to explain. That the various forms assumed by life on this earth since it became capable of supporting life were in some mysterious way connected with each other as parts of a vast system; that in structure and organs all the vertebrates were analogous; that the hands of a man, the wings of a bird, the anterior extremities of a horse, &c., were anatomical homologues of each other—that the structure which in one animal served a certain purpose, was modified or specialized for different purposes in another; that, in short, unity of plan was plainly displayed throughout animated nature were facts more or less recognized by all such as had studied comparative anatomy, and numerous were the explanations which at different times had been given of such phenomena. The main characteristic of the Darwinian theory was not so much that it brought out new facts of this kind, as that it undertook to explain those already known by the operation of "natural selection," or "the survival of the fittest in the battle of life." According to the theory in question, as it was first expounded in Darwin's "Origin of Species," the varieties of life past and present were not due to separate creations, but to the development of a few primary types by force of natural selection acting unceasingly throughout a long course of ages. The various species peopling earth, air, and ocean were assumed to be lineally descended from a common ancestry of one or two types. They were supposed to hang together by the chains of ordinary generation, though in the lapse of time numerous links had been effaced or lost. There was a great degree of simplicity as well as grandeur in this theory. It afforded a fair general explanation of much that had hitherto received no satisfactory solution; and was therefore accepted, at least provisionally, by many well fitted to form an opinion. It soon after appeared that though Mr Darwin had been the first to bring the doctrine of natural selection under the notice of the public, he, like many a patentee, was not the only one to whom the discovery had occurred. Many others had surmised the same, or something strictly analogous. But it was felt that the theory, however plausible, was very ill supplied with facts. No one had ever seen natural selection in operation, and the geological record left enormous gaps between species apparently nearly related. In answer to such difficulties, it was said that the geological record was necessarily very imperfect, a very trifling part only of the world having yet been explored; and much was hoped for from a future work by Mr Darwin, in which he promised to favour the public with the full details of which the results only had been given in the "Origin of Species."

Since 1860, very great additions have been made to our stores of fossil remains, and their drift has unquestionably been to strengthen the Darwinian theory in some of its aspects. The writings of Huxley, of Lyell, of Wallace, of Vogt, of Owen, and others too numerous to mention, have likewise set more or less in favour of the Darwinian views regarded generally; and most scientific thinkers are now willing to adopt the Darwinian theory as a provisional one, thus far at least as to assume that all existing species are in some sense or other the descendants of species now extinct, but by which they were formerly represented at remote eras on our globe.

Since the publication of his "Origin of Species," Mr Darwin has not been idle. He has produced many works of a supplementary kind, in which his theory has been still further developed and illustrated. It must be owned, however, that he has not as yet fulfilled his promise in the "Origin of Species," and that the public are still unfurnished with the numerous array of facts from which the theory was stated to be a deduction.

The present two volumes are intended to employ, in explanation of the origin of man, the principles which Mr Darwin has found satisfactory in explaining the origin of the inferior animals. His words are as follows:—

The side object of this work is to consider 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 man. As I shall confine myself to these points, it will not be necessary to describe in detail the differences between the several races—an enormous subject which has been fully discussed in many valuable works. The high antiquity of man has recently been demonstrated by the labours of a host of eminent men, beginning with M. Boucher de Perthes; and this is the indispensable basis for understanding his origin. I shall therefore take this conclusion for granted and may refer my readers to the admirable treatise of Sir Charles Lyell, Sir John Lubbock, and others. Nor shall I have occasion to do more than to allude to the amount of difference between man and the anthropomorphic apes, for Professor Huxley in the opinion of most competent judges has conclusively shown that in every single visible character man differs less from the higher apes than those do from the lower members of the same order of primates. This work contains hardly any original facts in regard to man; but as the conclusions at which I have arrived, after drawing up a rough draft, appeared to me interesting, I thought that they might interest others. 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. The conclusion that man is the descendant, with other species, of some ancient and extinct form, is not in any degree new. Lamarck's long ago came to this conclusion which has lately been maintained by several eminent naturalists and philosophers; for instance by Wallace, Huxley, Lyell, Vogt, Lubbock, Buchner, Rolle, &c., and especially by Haeckel. This last naturalist, besides his great work, *Generelle Morphologie* (1866) has recently (1868) with a second edition in 1870, published his *Naturliche Schöpfungsgeschichte* in which he fully discusses the genealogy of man. If this work had appeared before my essay had been written I should probably never have completed it. Almost all the conclusions at which I have arrived I find confirmed by this naturalist, whose knowledge on many points is much fuller than mine.

We have already stated that Mr Darwin's peculiar and characteristic explanation of the development of species was that of natural

selection. This he seems originally to have deemed of itself sufficient to account for the greatest diversity, any other agencies being only dimly hinted at. It should seem, however, that since his first publication, he has so far profited by the criticisms and discussion it provoked as to have become satisfied that natural selection, for how long soever continued, would not of itself suffice for the explanation of such enormous diversities of type. He accordingly has since brought gradually into notice another agency, viz. "sexual selection," and in the present volume, this agency is made to play a far more important part than its predecessor. In relation to this matter he says—

During many years it seemed to me highly probable that sexual selection has played an important part in differentiating the races of man; but in my "Origin of Species" (first edition, p. 199), I contented myself by merely alluding to this belief. When I came to apply this view to man I found it indispensable to treat the whole subject in full detail. Consequently the second part of the present work, treating of sexual selection, has extended to an inordinate length compared with the first part; but this could not be avoided.

By sexual selection Mr Darwin means the preference shown by individuals of one sex for those of the other, which are distinguished by certain peculiarities of structure, colour, and the like. Thus he believes that in man the well known characteristics of the Caucasian, the Malay, the Negro, and other races, were developed and fixed by the ancestors of each of these races, having chosen as their partners, individuals in whom such characteristics were most obvious, and that such preferences became more and more intensified in every succeeding generation. He further supposes that the loss of the hairy covering with which the ancestors of man were furnished, in common with the apes, was due to their preference for a naked skin. In support and confirmation of this view he institutes an elaborate inquiry into "sexual selection," as manifested among the lower animals—among birds, reptiles, and even insects. The mane of the lion, the spots of the leopard, the gorgeous plumage of the bird of Paradise, the sweet song of the nightingale, the buzz and the hum of insects, &c., he attributes to the operation of this agency. There can be no doubt that he has collected a large and varied body of facts in support of this view; but we fear it will be found on calm consideration that, though sexual selection may have had a certain effect in the development of species, it labours under certain objections which render it even less adequate as a co-efficient agency than natural selection. It is quite true that, by careful selection, breeders of cattle, of dogs, or of birds have been able to create certain distinct strains, amounting almost to sub-species. Yet it by no means follows that the preference shown by individuals in the "choice of their mates would in free nature produce similar results. Among all animals the sexes are pretty evenly divided; and when not interfered with by man, they generally contrive to find mates. Such unions are just as likely to be fertile whether the parents are pre-eminently distinguished by personal attractions or not. Hence we cannot suppose that preferences of this kind can have any general effect, unless we further assume that such individuals as display little symmetry or attractive plumage are in some way or other destroyed or excluded from propagation—an assumption for which there is no foundation. It is true that among certain races of civilized men it has been the practice for chiefs to monopolize a number of females distinguished for beauty, and that in consequence many of their brethren have been condemned to celibacy. But there is no evidence that this practice was ever universal, or prevailed in the infancy of the race. On the contrary, from all that can be relied upon in the history of mankind, and from all that we know of the habits of the anthropoid apes, from whom, according to Mr Darwin, we are descended, monogamy was the earliest rule. And when this is the case, the permanent results of sexual selection must be extremely small. Mr Darwin himself is evidently suspicious of this defect in his theory, but fails apparently to feel its destructive consequences.

A considerable part of the work is taken up with attempts to explain the nature and origin of speech, reasoning, conscience, and other qualities in man, by which he is usually thought to be distinguished from the lower animals. We cannot say that the author throws much light on this subject. He has here ventured into a field for which nothing in his previous training had fitted him. Of metaphysics he evidently knows little. Indeed the confusion of thought into which he is sometimes betrayed when attempting to deal with mental science is not a little amusing.

The conclusions as to the origin of man at which Mr Darwin arrives are towards the end of the second volume stated as follows:—

By considering the embryological structure of man—the homologues which he presents with the lower animals—the rudiments which he retains—and the reversions to which he is liable, we can partly recall in imagination the former condition of our early progenitors; and can approximately place them in their proper position in the zoological series. We thus learn that man is descended from a hairy quadruped, furnished with a tail and pointed ears, probably arboreal in his habits, and an inhabitant of the Old World. This creature, if its whole structure had been examined by a naturalist, would have been classed amongst the Quadrumana, as surely as would the common and still more ancient progenitor of the Old and New World monkeys. The Quadrumana 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 progenitor of all the Vertebrata must have been an aquatic animal, provided with branchiae, with 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 larvæ of our existing marine Ascidians than any other known form.

Startled apparently by the inference—viz. that he may be drawn from such conclusions, Darwin, a few pages later on, endeavours to throw out some general considerations by which they may be obviated or at least softened. He says—

The belief in God has often been advanced as not only the greatest but the most complete of all the distinctions between man and the lower animals. It is however impossible, as we have seen, to maintain that this belief is innate or instinctive in man. On the other hand, a belief in all-pervading spiritual agencies seems to be universal and apparently follows from a considerable advance in the reasoning powers of man, and from a still greater advance in his faculties of imagination, curiosity and wonder. I am aware that the assumed instinctive belief in God has been used by many persons as an argument for His existence. But this is a rash argument, as we should then be compelled to believe in the existence of

many cruel and malignant spirits, possessing only a little more power than man; for the belief in them is far more general than a benevolent Deity. The idea of a universal and beneficent Creator of the universe does not seem to arise in the mind of man, until he has been elevated by long-continued culture. He who believes in the advancement of man from some lowly-organized form, will naturally ask how does this bear on the belief in the immortality of the soul. The barbarous races of man, as Sir J. Lubbock has shown, possess no clear belief of this kind; but arguments derived from the principle of hereditary causes, as we have seen, of little or no avail. Few persons feel any anxiety from the impossibility of determining at what precise period in the development of the individual, from the first traces of the minute germinal vesicle to the child either before or after birth, man becomes an immortal being; and there is no greater cause for anxiety because the period in the gradually ascending organic scale cannot possibly be determined. 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 parts 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.

Upon the whole, we should say that the present work is characterized by much ingenuity, and many original views. It is more distinguished, however, for speculation than for logical deduction from well-ascertained facts. Imagination is allowed to play too large a part, and that scientific rigour, for which any such work ought to be distinguished, is sadly wanting. It bears obvious marks of haste in the preparation, as witness the obvious blunders into which the author has fallen, as he himself admits in the postscript at the beginning of the second volume. It further proves that he has lost confidence in that agency of "natural selection" by which he once thought the origin of all species might be explained. The admixture of mental science with a work in which such an element ought to have no place is a very great mistake, and this becomes intensified into a blunder when it is seen that Mr Darwin is a mere tyro in such speculations. In short, while the work, if proceeding from an ordinary writer, might please by its eccentricity and might be welcomed for its suggestive thought, it will rather detract from than add to the reputation of an author, who has hitherto been regarded as the founder of a new school in natural history.

## COMMERCIAL INTELLIGENCE.

(Telegraphed by Special and Ordinary Wires.)

LONDON, Friday Night.

There has been an active inquiry for accommodation in the Discount Market, owing to the requirement of the foreign loans just introduced. Rates continue firm, at 3 per cent for first-class two months' paper, and fully 2½ for three months' acceptance. There was a good demand at the Bank Discount Office. No bullion operations reported.

According to the statement of the Finance Minister at Calcutta, it will be necessary, in order to balance the budget, to raise a loan of £250,000 in England. This purely financial operation will not, however, interfere with our specie operations with that country, as the amount of bills to be drawn by the Secretary of State upon the dependency will amount, according to the same statement, to £200,000 during the year. No important alteration is proposed in the import duties, but the income tax is reduced to one per cent, and incomes under 750 rupees are exempt. On Change to-day there was not much alteration in the rates for Foreign Exchange, except rather a better demand for bills on Russia. Bar silver flatter, at 60½ Mexican dollars, 56½.

Business on the Stock Exchange has been generally limited, but prices generally maintained.

The English Funds have been quiet, and Consols leave off slightly lower for Account. New and Reduced dull. New Two-and-a-Half per Centa close at 73 cents; Exchange Bills, 3 to 5 per cent; India Five, 100½; do. Four, 99 ½ 100½; do. Bonds, 5 to 12½ per cent.

Little or no business doing in Colonial Government. Indian Railways unaltered. U.S. Bonds have been generally weak, as the issue of the Five per Cent Funded Loan for \$200,000,000 has not been so well received as expected. Illinois rose ½, but Erie was unaltered. Atlantic Western Debentures receded ½, and the Reorganization Stock closed 2½ per cent.

Foreign Securities have been steady, with the exception of Italian, which closed ½ lower. Turkish Five and 1869 Bonds rose ½; Prussian ½; and German Loan at 101½; and French at 94½, are also ½ higher. Egyptian (1866) improved ½, and the Khedive Loan advanced to 72½; Egyptian (1868), Prussian, Anglo-Dutch, Brazilian, and Buenos Ayres were ½ to 1 better. Russian Scrip improved to 1½ per cent, and Brazilian Scrip to par ½ per cent.

In Banks, Alliance and London and Westminster declined ½; National Provincial, second issue, done at 20½.

The Railway Market was good, and closed buoyant. The chief advance was in Brightons, which left off 2 better. Westerns exhibited after rise of 1½. Metropolitan ½, Sheffield ½, Easterns and North-Easterns ½, and Calcutta, North British, South-Eastern, Midlands, Chat, hams, and North-Western were about ½ higher; Chatham Preference, 47½; Devon and Somerset, Certificate, 2½ per cent.

Canadian Lines continued in demand. Grand Trunk Originals rose ½, and the Pref. 1; Great Western Original closed a shade firmer. Grand Trunk traffic, £7200 increase.

Foreign Lines steady. Russian Obligations recovered ½, except Kolloff, which were 1 lower; Central Argentine improved ½, and Dutch Rhenish ½ to 24.

Telegraphs quiet but firm. French Cables rose ½, the report being considered favourable; Constructions improved ½, and British Australian and China and Japan Extensions were slightly better.

In the Mining Market there was an active demand for West Chiverton, which advanced to 0 buyers; Great Var to 5½; price of Prince of Wales to 24; and South Canada to 4½; East Lowell firm at 27 ½; Great Laxey, 16½ 16½; Tynard remained at 14; St John del Rey rose 1, and United Mexican 4.

Miscellaneous Securities very quiet. City London Property receded ½; Finsbury Street Warehouse ½, and International Finance ½; Hudson's Bay firm at 4½.

After official hours markets firm. Consols, 91½; Foreign bonds quiet; Russian scrip, 5 ½ per cent. Americans dull, the New Funds Loan has not been well received. Railways good, especially Brightons. Canadian very firm. Telegraphs steady. On Change, bills on Russia in better demand. Bar silver flatter at 60½. Tailor steady at 44s 2d on the spot and buyers month, 46s June, 45s 9d Oct.-Dec. Linned oil, 23s on the spot here, 22s Hull. Rape oil, 44s 9d to 45s on the spot.

The subscriptions for the new funded loan of the United States were opened to-day by Messrs Baring, Brothers, & Co.; Clews, Habicht, & Co.; Jay, Cooke, McCulloch, & Co.; J. S.