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NOTES: The review was recorded in the 'Index to annotations' by Darwin in his copies of *Gardeners' Chronicle*. [CUL-DAR222.1], as being of special interest to Darwin.

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Notices of Books.

The Descent of Man, and Selection in Relation to Sex. By Charles Darwin, M.A., F.R.S. 2 vols. Post Svo.

There are two points of view from which a book like the present may be considered, and the conclusion arrived at will differ very materially according to the point chosen. If we apply a rigid mathematical test to Mr. Darwin's conclusions, we shall assuredly have to dissent from them. But on the other hand, it is quite clear that from the very nature of things such a test must fail. The test and the thing to be tested are not congruous.

In dealing with such tremendous questions, we must rest content with approximations — demonstration is out of the question. The laboriously educed inferences of the most learned in such matters can be but more or less shallow guesses at best. Such guesses are what scientific men call hypotheses, and their value in affording a rational explanation of observed facts is admitted on all hands. What the magnet is to a heap of iron filings such should a hypothesis be to a mass of facts. When the magnet is applied, each particle of iron instantly assumes a definite position in relation to all the other particles in the heap, and to the magnet itself. Where chaos was, order is. "Form rises out of void solution and discontinuity," as Carlyle has it; and "as in some chemical mixture that has stood long evaporating but would not crystallise, instantly when the wire or other fixed substance is introduced crystallisation commences."

The larger the number of facts the more perfectly they can be made to harmonise, the more thoroughly they can be brought into relation the one with another and with the whole, the better obviously is the hypothesis. Even if the hypothesis be ultimately proven false, and have to be superseded by a better one, the gain is still great.

As Mr. Darwin himself says:

"False facts are highly injurious to the progress of science, for they often long endure; but false views, if supported by some evidence, do little harm, as every one takes a salutary pleasure in proving their falseness; and when this is done, one path towards error is closed, and the road to truth is often at the same time opened."

From this point of view, the hypothesis of evolution appears to us to present enormous advantages over any that has been yet advanced. A multitude of heretofore isolated facts become, on this hypothesis, suddenly invested with a significance and a meaning which enables us at once to co-relate them with other facts. Organs, for whose appearance and peculiarities we could previously only give what is ungallantly called a ladies' reason, "they are so because they are so," are now often susceptible of a rational interpretation, and can be fitted into their places much as the pieces of a child's puzzle are.

To this hypothesis of evolution, Mr. Darwin added that of natural selection, or, as otherwise expressed, the survival of the fittest. Given an inherent tendency to vary, those variations, which confer on the individual manifesting them a greater power of maintaining itself against adverse conditions, would be the most likely to be

perpetuated. It is, however, needless to dwell on these points, nor on the "provisional hypothesis" of pangenesis, the main features of which are probably by this time familiar to the majority of our readers. Let us rather endeavour to put before them in general terms the nature of Mr. Darwin's arguments as applied to the genealogy of man.

"Descent" is the term used by the author, and correctly enough, in one sense, though from another point of view, it may be said that the whole work is a series of arguments in support of the hypothesis that man has ascended from some lowly organised form to his present post of vantage. To support his argument, Mr. Darwin adduces a vast number of demonstrated facts, and an almost equal number of more or less plausible assumptions, and which go to show that in mental endowments, no less than in bodily conformation, there is absolutely no difference in kind, but only in degree, between man and the lower animals. Now, this is somewhat startling, and may wound the prejudices or self-complacency of some self-styled lords of the creation, but we may console ourselves by the recollection that we are dealing with an hypothesis, which may be false; and that at any rate, whichever view we take, the miracle of life remains as great and unfathomable by finite intelligence as ever.

The germ from which all animated creatures proceed is so simple in construction as almost to transcend analysis. The physical nature and appearance of these germs are well-known to observers. They are essentially the same throughout all classes of animated nature. It can be demonstrably proved that a jellyfish and a man, like every other living thing, progress from a simple speck of this character up to their full development. The highest organised creature begins, for aught we can tell, exactly as the lowest does. This being so, it seems the height of silliness to feel any wounded pride at the notion that our ancestors in a period far too remote for us to be able to realise, were more like monkeys than men — when each individual among ourselves, only a few years back, was represented by a gelatinous vesicle less than a pin's head in size, and at that time absolutely undistinguishable from the similar starting points, not of highly organised monkeys only, but of creatures that in their most highly developed condition could live on a pin's point! What right have we to sneer even at such an organism as this? It is the Creator's handiwork as much as ourselves, and as such transcends anything man can do.

To revert to our author and his line of argument.

Naturally, it may be divided into two parts, the physical or corporeal, and the mental. Of course so learned a naturalist has no difficulty whatever with the first division. We are fearfully and wonderfully made, it is true; but this is true of every other living creature, be it what it may. If we are physically superior in some respects, in others we are inferior to the animals. There is no one point in the structure of our bodies that is absolutely different from that which occurs in other creatures, and, as we have just said, some creatures are superior to us in certain portions of their organism. Nothing is more absolutely certain than this, that corporeally we rank with and among the animals we affect to despise, and that by no sophistry can we succeed in disowning the relationship. To our thinking, it is only those ignorant of anatomy — that hymn of praise to the Creator, as it has been called — who would really feel this as an indignity. True science, which is always reverent, feels no such desire to efface the Creator's stamp from His handiwork.

That there is an homology or essential identity of structure in man and the higher animals, no naturalist doubts. That there is on the whole a regular gradation from the simplest to the most highly organised creature is indisputable, even though here and there flaws and unfilled gaps appear, some of which we know were filled up once, as we have evidence to prove it, and thus it is not unfair to suppose that others may have been so too.

That the embryonic, or earliest visible stages of man, and even the "most lowly organised of creatures, are, generally speaking, identical, must also be admitted. This being so, it is clear that a theory which assumes a common summa, or stock from which the creatures have descended, offers great advantages over the old notion that each creature, or species of creature, was separately and independently created without any reference to the others. Surely, this latter notion would imply a meaningless waste of power and a want of design quite out of character with what we meet with in Nature. The evolutionists, however, as it appears to us, push their hypothesis too far when they make the suggestion of a single, or, at least, of a very few starting points. Looking to the curious parallelism in structure, functions, and habitation, which different groups, both such as are evidently closely allied and such as are more remotely so, present, we can see no good reason for limiting the stemmata to so small a number as many adherents of the evolution theory do. Every worker in any department of natural history is familiar with such parallelism as we are alluding to. A group of animals or plants, for instance, of generally complex structure, has some members of an extremely simple structure. It is all very well to say that these latter are degenerations from the type — that their peculiarities are to be accounted for by abortion, or suppression, and so forth. What proof of such an assumption does the study of development give? In plants at least none whatever, as a general rule. An Euphorbiaceous plant, for instance, or a Passiflora of simplest structure, is as simple in the beginning as it is at the end. The hypothesis of suppression, or abortion in such a case is based on analogy merely, or on the assumption that in remote times such abortion or suppression did take place, and that it has been perpetuated by inheritance. Similar simplifications take place in most groups. As we constantly have instances of this parallelism in variations of form and other attributes, and we do not always find evidence that convergence takes place, or that divergence has taken place, it seems fair to infer that the number of primordial forms must have been larger than ultra-evolutionists admit. Of course, where intermediate forms do exist, or have existed, the parallelism is destroyed, and the genetic relationship is then unquestioned.

Turning to the mental faculties, Mr. Darwin pursues precisely the same kind of argument. Teaching the evidence of mental operations, if they may be so called, up to their highest development in dogs, he has no difficulty in showing the identity of those mental processes, so far as they relate to physical need or to external circumstances, with those which are exercised by man. We might, in imagination, picture an animal taking up this book and, paraphrasing Shylock's interrogatories, ask — "Hath not a beast eyes? Hath not a beast hands, organs, dimensions, senses, affections, passions? fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means, warmed and cooled by the same winter and summer as a Christian is; if you tickle us do we not laugh? If you poison us do we not die?"

So far we can travel with our author. The structure of the brain and nervous system of animals is the same as our own; the difference is one of degree only. Moreover, the conditions under which those mental operations we have referred to manifest themselves are the same in animals as in ourselves. Mr. Darwin, with his usual candour, fails not to insist on what he calls the enormous difference in mental power between the lowest and most degraded savage and the highest ape: indeed, it appears to us that he overrates the difference. We fail to see the enormous degree of difference between an intelligent dog and a wretched savage unable to count beyond four, with no conscience, no idea of a deity. Again, where is the enormous difference in mental power between the unfortunate human idiot and the dog? Is not the latter often the more highly endowed of the two? Again, is it not often a virtual libel on the animal creation to say in the case of

abandoned ruffians —

"The souls of animals infuse themselves into the trunks of men."

Assuming the identity in kind of the mental operations of men and animals, so far as they have reference to physical needs and outward circumstances — so far even as memory is concerned — there yet remains a still higher class of faculties, of which the "moral sense," or the conscience may be taken as illustrations. Man is not only "a forked straddling animal with bandy legs," as Swift has it, but also "a spirit and an unutterable mystery of mysteries." Now we can conceive it possible that these faculties of our nature are superior developments of our other mental powers ; but we have no evidence whatever that animals have these higher faculties ; no fact to support even the hypothesis that they could be evolved from such as they have. On the other hand, it is right to remember that the lowest type of savages seem as destitute of them as animals themselves. Even among the most degraded classes in so-called civilised countries the higher mental faculties are similarly absent, or if present they are latent and in abeyance. If latent and in abeyance in such classes, why not as much so in the brute creation? If the one are capable of improvement the other must be so too.

By far the larger portion of Mr. Darwin's volumes are occupied with the subject of sexual selection, and on this matter he has thrown open to the public another of those wonderful armouries which he has collected. Facts, illustrations, and anecdotes of animal life in all its variety are here brought forward by the hundred, and, as they have been in former works of Mr. Darwin's, so here they are marshalled with wonderful skill and adroitness to support the theory, which is this — that any creature possessing a larger share than his fellow of those personal adornments or qualities which are likely to prove attractive to his mate of the opposite sex, will transmit to his progeny in equal ratio those qualifications, whatever they may be. The unfortunate animals, poorly endowed with the means of making themselves attractive to the opposite sex, will be the last to obtain wives — will get the least desirable among them, and will, in consequence, beget a comparatively degenerate posterity. No romance exceeds in interest this portion of Mr. Darwin's volumes. The fierce encounters of fishes, the gorgeous plumage of birds; the curious antics that these vain creatures play off before their ladyloves; the exquisite songs by which others endeavour to enchant their mates; the selection exercised by mammals and by human beings in their choice of a partner — all these subjects are dilated on with that fertility of illustration, clearness of narration, and appositeness to the subject in hand, which have characterised all Mr. Darwin's writings ; and a large majority of readers will, we apprehend, be carried away by the accumulated evidence here before them, and on this point, at least so far as the animal creation is concerned, will yield ready assent to his theory. The least satisfactory portion of the whole work, as we have said, is naturally that treating of the higher mental characteristics of men and animals; the facts recorded are not of equal weight, and but little attempt is made to assign to them their due value. Moreover, obviously the subject is one which no naturalist can ever hope to fathom. Hypothesis here gives way to speculation, and that speculation must of necessity be wild.