SCIENCE AND THE BIBLE:

A Lecture

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Darwin's book *On the Origin of Species* was published some years subsequently to the *Vestiges*. I will now endeavour to state, as clearly as is consistent with extreme brevity, the hypothesis which he propounds, the grounds on which it is

based, and some of the most conclusive objections to its acceptance.

The author rejects the idea proposed in the *Vestiges* as an assumption, which does not explain the phenomena; and he proposes in its stead another, which he calls "*natural selection.*" This phrase he uses to designate "the preservation of favourable, and the rejection of injurious variations," which he supposes to have been going on continually throughout all past ages in the visible world. Its operation, according to his conception of it, is described by him as follows:—"It may metaphorically be said that natural selection is daily and hourly scrutinising throughout the world every variation, even the slightest, rejecting that which is bad, preserving and adding up all that is good, silently and insensibly working whenever and wherever opportunity offers at the improvement of each organic being in relation to its organic and inorganic conditions of life." In this manner he imagines "species have been modified during a long course of descent by the preservation, or the natural selection, of many successive slight favourable variations." And not only species in the scientific meaning of the term, but also genera and families and orders; so that all "animals have descended

from at most only four or five progenitors, and plants from an equal or lesser number. I shall here omit all notice of plants, for the truth of the hypothesis can be tested as surely and more simply by confining our attention to animals only.

The grounds on which this hypothesis is based are substantially the three following—the order in which I place them is different from that in which they occur in the book, but appears to me the more logical. The first is the struggle for existence, caused by the high rate at which all organic beings tend to increase, in connection with the fact that the greatest amount of life can be supported by the greatest diversification of structure. The second is the variability observable in what are called the varieties of particular species in the animal world; and the power of man, by care in breeding and other means, to produce in domestic animals, such as sheep and cattle, and especially pigeons, changes so great as to form, in appearance at least, new species. The third is the care which nature takes of all organic beings. This last is not expressly mentioned by the author, but is evidently implied throughout his work.

Now, assuming all this—that such a struggle for existence is continually going on upon the earth,

that man has been able to produce such wonderful results, and that nature does take care of all that are under her keeping—it does not prove, it does not even furnish any argument for, such a gradual development of all the various kinds of organic being as is supposed by the hypothesis of natural selection. It may have suggested the idea, but it can do no more. Unless the author can adduce some facts in evidence of its truth, his proposed solution of the problem of creation must be regarded as at least merely conjectural. Has he then adduced any such facts? I have looked carefully through his book, and can find none—none whatever. He certainly relates a large number of very curious and interesting facts concerning the structure, habits, and instincts of different animals; some as illustrating, in his opinion, the action of natural selection, some as showing the advantages of intercrossing, some as exhibiting the manner in which he supposes varieties may have been introduced, and others for various purposes. Also, in relating these he frequently points out how, as he thinks, they elucidate or accord with, or may be explained by, his hypothesis. But after very careful examination I do not hesitate to affirm, that no one of them alone, nor therefore the whole of

them together, in any the slightest degree corroborates it. The most plausible is the following, and what weight ought to be attached to it, you will judge for yourselves. There exists, the writer tells us, in individual animals, a tendency to revert to some of the characteristics of their ancient progenitors. Thus several breeds of pigeons (which you will remember are all only varieties, not distinct species) are descended from an ancestral pigeon of a bluish colour, having certain bars and other marks upon it; and when any breed assumes by simple variation a bluish tint, these bars and other marks invariably re-appear, but without any other change of form or character. Now, the horse, the ass, the hermionus, quagga, and zebra, are species, not varieties, of the same genus; and, among other characteristics by which they are distinguished from one another, are certain bars and stripes in different parts of the body, which are peculiar to some, and wanting in the other species. But Darwin states, on the authority of certain persons whom he names, that mules and other hybrids have in a number of instances been known to be marked with bars and stripes, not to be found in the species to which their parents belonged. He also mentions that in the north-western part of India there is a breed

of horses, the Kattywar, so generally striped, that a horse without stripes is not considered as purely bred. From these facts he draws a conclusion, which he states as follows:—"For myself, I venture confidently to look back thousands and thousands of generations, and I see an animal striped like a zebra, but perhaps otherwise very differently constructed, the common parent of our domestic horse and ass, the hermionus, quagga, and zebra." Am I not justified in saying that a theory, which rests upon no stronger argument than this, is no more than an arbitrary and unphilosophical hypothesis?

But this theory of Darwin is deserving of yet stronger condemnation; for it is not only unsupported by any facts, but it is liable to several obvious and insuperable objections. Some of these the author himself mentions; and he frankly acknowledges, that, although he does not think them fatal to it, he can never to this day reflect upon them without being staggered. Some of them are indeed sufficient, one would think, to stagger his most unreflecting partisans. I will briefly enumerate the principal.

First, by *natural selection*, the author must mean some faculty naturally inherent in animals, and

exercised independently of any external influence, whether of man or any superior being. It is also clearly a faculty, which implies forethought; for it looks forward to the future well-being of the animal, or community of animals, on whose behalf it is supposed to be exercised. But, with the exception of man, no animal appears to be endowed with any forethought beyond that which is required for providing food and other necessaries for itself and family. We have no example in any of such looking forward to futurity. This appears to me a fatal objection *in limine* to the hypothesis of natural selection.

But passing by this, and not stopping to inquire how far the aggregate amount of animal life has been increased by the production of carnivorous or insectivorous animals—the swallow, for example, which devours I know not how many thousand insects in a day—or to ask whether it was for the benefit of the antelope, that its flesh was made such tender and tasty food for the lion or tiger—not stopping to waste your time with such trifling questions as these, I proceed to the consideration of those difficulties and objections to which he has himself alluded. Among them are the following:—the difficulty of conceiving how the peculiar structure and

habits of each particular animal (*e.g.*, the bat), and how the most perfect and wonderful organs (as, for instance, the eye) could be formed by any such gradual modification; the difficulty of accounting for the acquisition and modification of the peculiar instincts of different animals, as the hive-bee; and the difficulty of explaining how the various races of animals became distributed over the earth. These are certainly such as *primâ facie* render the hypothesis of gradual development of species by natural selection extremely improbable; but still they are not such as might not be overcome by a sufficient number of well-authenticated facts. Does, then, the author attempt so to overcome them? No; all that he tries to prove is that, while they render this hypothesis extremely improbable, they do not prove it to be impossible. Thus he argues, that remembering the great variety of animals existing upon the earth, and the dissimilarity of habits among those of closely allied species (*e.g.*, the upland and the common goose), we should be cautious in concluding that the most different structures and habits of life could not graduate into each other. Again, he alleges that if we know of a long series of gradations in complexity, each good for its possessor, then under changing conditions of life there is no

logical impossibility in the acquirement of any conceivable degree of perfection (of any organ) through natural selection. He does not, however, mention any instance of such a series of gradations existing in the animal world. His manner of dealing with the difficulty of accounting for the present geographical distribution of the various kinds of animals over the earth on the hypothesis of all having descended, through modification by natural selection, is very characteristic. As is his custom, he frankly acknowledges the difficulty to be "grave enough." "Nevertheless," he says, "the simplicity of the view that each species was first produced within a single region captivates the mind;" and then he adds, "He who rejects it, rejects the *vera causa* of ordinary generation with subsequent migration, and calls in the agency of a miracle."

But, besides these difficulties, there are two other acknowledged facts, each of which would alone disprove his hypothesis. The one is the absence of all transitional forms, either among living or fossil animals; the other is the very general if not universal sterility of hybrids produced by crossing between species of the same genus, and the absolute impossibility of crossing between different genera. These facts constitute objections, which no evidence,

if any existed, for the probability of the hypothesis, however strong, could overcome. They are absolutely insuperable. For, if this natural selection had been going on in the world during the long succession of past ages, the earth would now necessarily be filled with a multitude of transitional forms. If the hive-bee, the comb of which is such an exquisite structure, had been developed by natural selection from the humble bee, which uses its old cocoons for holding its honey, there must have been between these two kinds, besides the Mexican mellipona, which alone Darwin mentions, an innumerable series of intermediate bees. But none such are known to exist. Again, if all the various kinds of animals have been gradually developed by natural selection, what reason can be assigned for that sterility of hybrids, by which nature now seems peremptorily to forbid the formation of any new species, and for that impossibility of crossing between animals of different orders, which yet more strongly shows their distinctive peculiarities of structure to have been originally inherent and indelible? The answers which the author attempts to give to these objections are really undeserving of notice.

Your patience has, I fear, been severely tried by this long discussion, but I could not abridge it.

The hypothesis against which I have been contending holds so important a place in the pseudo-science of the modern sceptical school, that I have felt obliged to scrutinise it, and the book in which it is propounded, very carefully, for the purpose of showing you that it is altogether unworthy of the favour which has been accorded to it. To what that favour with the public generally, and with some men of high scientific character in particular, is to be attributed, cannot easily be explained. I can only ascribe it to one or other of two causes, or to a combination of them both. The one is, that the multitude of curious and interesting facts of natural history, with which the book abounds, draws off the reader's attention from its argument, and at the same time disposes him to take for granted whatever a writer, who appears to have such a perfect acquaintance with his subject, chooses to assert. The other is, that there exists a *credulity of scepticism* which makes men who are disposed to reject the authority of the Bible blind to the fallacies of any argument, and ready to accept any theory which may help to confirm them in their unbelief. They have not received *the love of the truth;* and, therefore, according to the prophetic saying of St. Paul, *God sends them strong delusion that they should believe a*

lie. I would ask those who possess Darwin's book to compare the description of his idea of creation, in its last two paragraphs, with the 104th Psalm, and the 38th, 39th, 40th, and 41st chapters of the Book of Job, and then say whether his theory or that of the Bible most commends itself to the natural reason.