

## The Scientific Zealot.

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### DARWINISM AND ITS DEVELOPMENT.

In admitting that the question whether there exists a Creator and Ruler of the Universe has been answered in the affirmative by the highest intellects that have ever lived, Mr. Darwin appears somewhat to jeopardize his right to be acknowledged as an Atheist; yet we cannot comprehend how the Creator acknowledged by a Darwinist and the Creator whom we worship as the one and omnipotent God can be regarded as in the slightest degree reconcilable with each other. Which, then, is the Creator in whom we should place our trust, and which is the Creator who is no more worthy to be worshipped than the most insignificant myths of the ancients? For ourselves, we will acknowledge at once that we do not believe in Darwinism, and that it is our firm conviction that a large proportion of the Darwinian doctrines are altogether untenable—not because the Darwinists lack facts, but because they use their facts carelessly in their attempts to base conclusions upon them. In truth, we might express our views in very few words: we think the Darwinists are in error in assuming that the existence of similarities is proof that all organized beings have descended from a common progenitor, instead of concluding that the existence of certain marked differences is proof of distinctness of origin—we do not say of every species, but of every great class of species. We cannot at all admit that because it might be proved that animals of the orders artiodactyla and perissodactyla, for example, sprang from one common parent, or even that both of these should properly be included in the order proboscidea, therefore it would follow as a consequence that man was an artiodactylous animal; for if there be but one distinction which forms an insuperable barrier, all other similarities would be worthless as evidence of identity of origin.

Darwinism, developed to the full extent which the very nature of a Darwinist's views would compel him to acknowledge as conceivable, must lead us, not only to the supposition that all living beings have descended from one common parent, but also to the belief in the identity of origin of all that has been created; so that we should have to conclude that man, gold, apples, arsenic, fire, wind, and water were all derived from one protoplasm—perhaps the undecorated protoplasm announced by such men as Professor Gustav Huxley, of the University of Iowa. To deny the intention of working so remote a protoplasm as progenitor would be unjustifiable on the part of a Darwinist, for, since the Darwinist accepts analytical proof without the combination of synthesis, he cannot fairly hold the doctrine of biogenesis as against abiogenesis; and Professor Huxley, in his inaugural address at the last meeting of the British Association, almost admitted this by observing that he could not understand how chains could be, even for a moment, doubtful in the matter. With organic chemistry, molecular physics, and physiology yet in their infancy, and every day making prodigious strides, it would be the height of presumption for any man to say that the conditions under which matter assumes the properties we call "vital" may not, some day, be artificially brought together; though he saw no reason for believing that the feat had been performed yet. If it were given him to look beyond the sphere of geologically recorded time to the still more remote period when the earth was passing through physical and chemical conditions, which it can no more see again than a man can recall his infancy, he would expect to be a witness of the evolution of living protoplasm from not-living matter. He would expect to see it appear under forms of great simplicity, endowed like existing fungi with the power of determining the formation of new protoplasm, from such matters as ammonium carbonate, oxalic, and tartaric, alkaline and earthy phosphates, and water, without the aid of light.

Our "philosophical faith" is not, we are bound to admit, strong enough to enable us to participate in Professor Huxley's views. We would accept the doctrine of biogenesis in preference to that of abiogenesis; and we would accept the doctrine of distinct creations, and of their modification by subsequent contingencies in preference to that of natural selection, assisted by sexual selection or the reverse. Every fact that Mr. Darwin has collected in support of his theory may be admitted

without hesitation, and still we should have no reason for doubting the accuracy of the Biblical record concerning the creation of man. "Let us make man, the image of ourselves, to rule over the fishes in the sea and the birds in the air, and over the beasts, and over the whole earth, and over every reptile that creepeth upon the earth. And God created man in His image; in the image of God created He him; and He created the male and female." Nor, on the other hand, if we admit the Bible to be a mere mythological work, should we have any justification for admitting the accuracy of Mr. Darwin's views. Still, if we deny altogether the authenticity of the Bible, there would be so much additional doubt that the evidence opposed to his views would be less, and we should merely have Mr. Darwin's opinions opposed to those of another writer of no greater authority. In order that we may not assume a position that could reasonably be considered to place the Darwinian theory at an unfair disadvantage, we will, for the present, suppose the Bible to be a mere collection of fables, and we will, moreover, suppose, to account for the unquestionable and observable evidences around us of the existence of some supreme ruling power, that the acceptance of the Darwinian theory would permit of the belief in an omnipotent God, since we might assume that at the period of the creation of the universe the whole machinery of nature was set in motion, "just, perfect, and regular," accompanied by a self-sustaining and self-regulating power; and still we should consider the Darwinian theory untenable, because it would be opposed by the very facts which the Darwinists themselves bring forward.

Entertaining, as we do, the opinion that man is separated through his mental faculties by an impassable barrier from all the lower animals, we naturally looked first for Mr. Darwin's evidence to the contrary. We find it wanting. His offers some negative evidence, it is true; but we cannot see that his evidence at all approaches conclusiveness. We sought some instances of savages, seldom visited by more enlightened members of the great human family, having given evidence of at least some progressive natural development during historic times; yet not only does Mr. Darwin render us no assistance in this direction, but every item of history we possess is rather to the contrary. Or, if he had no record of natural development in man, surely he might have given, had it existed, some evidence of it, either in the animal world or in the vegetable kingdom. He does nothing of the kind; but, on the contrary, gives facts which enable us to prove the inaccuracy of his views. His instances of the development of what he regards as the reasoning faculties of the lower animals are numerous; but that development he shows to have resulted from the exercise of the judgment and control of man, and to have been altogether modified by either natural selection or sexual selection. He gives instances of breeders of stock who have succeeded in improving a race of animals by carefully pairing the particular individuals which most nearly approach the breeder's idea of perfection; but will not even Mr. Darwin admit that here the development is directly due to the prevention of natural selection and of sexual selection also? Let Mr. Darwin inquire of any experienced grazer the result that follows from permitting either natural selection or sexual selection to have its play among his flocks, and he will learn that a degenerate race of sheep or cattle is the inevitable consequence. Were it not for general knowledge of this fact, the letting of rams and bulls would cease to be a profitable trade, and less care would be necessary to prevent degeneration; but it is a curious fact that, unless means be taken to prevent it, the least desirable cattle and sheep, like unselected and unselected members of the human race, are precisely the most prolific breeders.

The feeling of religious devotion, Mr. Darwin tells us, is a highly complex one, consisting of love, complete submission to an exalted and mysterious superior, a strong sense of dependence, fear, reverence, gratitude, hope for the future, and, perhaps, other elements, and he considers that such a feeling indicates moderately high intellectual and moral faculties; yet he sees some distant approach to this state of mind in the deep love of a dog for his master. He thinks it was the same high mental faculties which led man to believe in various spiritual agencies, and considers that we owe an infinite debt of gratitude "to the improvement of our reason, to science, and our accumulated knowledge," for the distribution of superstitious, the disease of trial by fire, &c.; but to give his argument any force he should prove that the dogs of the present day have higher religious feelings than they had ten centuries ago, and more especially that these feelings result not from any influence exercised by man, but from natural development. We do not ask him to prove that the dogs, even of the nineteenth

century, here any decided religious views, and we even admit that their actions are more thoroughly indicative of a high moral tone of mind than those of the members of many religious sects towards each other; but we think it desirable that he should show that there has been at least some slight natural progress. Instead of this there has been, so far as we can learn, absolutely none. The level of dogs has improved—that is to say, the level has become more in accordance with man's taste; but this improvement has been brought about entirely by the exercise by man of that judgment which, we contend, was directly given to him, and to him alone, by his Creator.

Whenever we can trace any improvement in a race of animals, it seems always traceable to man's influence; and such as man may exercise that influence he is altogether powerless to impart that reason in the lower animals which has been given to him alone. But with man, even the most degraded man, the race is totally different; so that it would appear that, although the special reasoning faculties which his Creator gave him are sometimes permitted to lie dormant, they are never so entirely lost as to be past recovery. The *Book of Job*, of *Coplan*, for example, are described as possessing a language limited to very few words, and some of them are so degraded that it appears doubtful, in certain cases, whether they possess any language whatever; they have no knowledge of a God, nor of a future state; no temples, nor any idols; they do not even bury their dead, but cover them with leaves and brushwood in the jungle; they are as ill-treasured and misshapen as Shakespeare's Caliban; have no idea of time or distance; no name for the hours, days, or years; no doctors (which is perhaps an advantage, by the way); no games and no amusements; yet, upon the very first attempt of civilization they give evidence of possessing the human element of progress and improvement, and have actually cultivated the religion of their benefactors, and even adopted the habits of villages. And the *Book of Job* are not alone in affording such independent evidence of the existence of an inseparable barrier between man and the lower animals; and whenever an opportunity for observation has been found it has always tended to prove that man, like the inferior animals, degenerates when the propagation of the race is left to natural selection and sexual selection, though, unlike the lower animals, he never entirely loses the exclusive faculties which God has implanted in him.

But as it would probably be as difficult for us to prove to Mr. Darwin that he has drawn erroneous conclusions as it would be for him to prove to us that they are not erroneous, we will content ourselves with merely pointing out what we conceive to be the natural development of his theory, leaving our readers to judge whether one or other view is tenable, or where the theory of natural selection and sexual selection should begin. If we admit that Mr. Darwin is correct in his conclusion that man owes his origin to the natural development of the low forms of ani-

mals or marine Annelids, we are bound by the laws of reason to admit the probable accuracy of Huxley's conclusion as to the evolution of living protoplasm from non-living matter, and thus acknowledge that man is but an advanced development from the inanimate ammoniac carbonates, oxalates, and tartrates, alkalies and earthy phosphates, and water. Nor could our retrospective research for the origin of man stop here, since the carbonates, oxalates, tartrates, phosphates, and water are beyond question composed bodies, and adopting Mr. Darwin's process of reasoning, we must regard them as mere developments by natural selection of the simple elements, these simple chemical elements occupying a similar position in relation to the chemical compounds as that which Mr. Darwin thinks is occupied by man in relation to "a hairy quadruped furnished with a tail and pointed ears"; or, continuing the retrospect but one step further, we must admit that the simple chemical elements are themselves but developments by natural selection of a chemical protoplasm (which chemical protoplasm would then have to be regarded as the progenitor of man) which has yet to be discovered. If we admit the existence of this chemical protoplasm, we cannot with reason deny that the transmutation of metals is quite possible, and that the old alchemists therefore, in attempting to discover the method of effecting it, did no more than ought, for the advancement of science, to be done by the chemists of the present day; and the same especially so as Mr. Darwin acknowledges that changes which in the ordinary course of things can be traced to natural selection can be, and indeed, are constantly, modified by artificial means; so that the argument that the transmutation of metals at will is hopeless, because the course of nature cannot be altered, would not, adopting Mr. Darwin's views, be tenable. But we dispute that Mr. Darwin's facts prove that which he supposes they prove, and may therefore be permitted to doubt either the existence of a chemical protoplasm or the practicability of transmuting metals until we have the pleasure of making the acquaintance of that being little they who, by merely touching the spinning-wheel, and pronouncing the magic words "Turn away, turn away, ho!" and behold; turn away, whew away, draw into gold," was kind enough to supply the wants of that happy individual who sought life-gold. We agree with Mr. Darwin that "ignorance more frequently begets confidence than does knowledge," and that "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"; but we have been "taught to be cautious" how we draw conclusions from given premises, and to remember that the assertion that "young folks" think old folks fools, but old folks know young ones to be so," does not even declare, much less prove, that the "young folks" entertain an erroneous opinion, although that of the "old folks" may be absolutely accurate.

E.D.H.

## Erbitus.

**A Treatise on the Action of *Viv Inertia* in the Ocean.** With Remarks on the Abstract Nature of the Forces of *Viv Inertia* and Gravitation, and a New Theory of the Tides. By Wm. LARSEN, JUNIOR, F.R.S. London: Longmans, Green, and Co.

Since a title as this will be regarded by many as doubtfully respectful, and may lead them to assume that the volume which bears it can be of no possible interest to any but scientific men. They will certainly be mistaken. Whenever any of the objections urged against the contents of the book, want of interest will not be one of them. Whether Mr. Jordan's views are correct is a question which cannot be determined conclusively upon a more hasty consideration of them; but the adoption of them will remove many difficulties in the way of accounting for ocean-currents well-known to exist, but at present little understood. The two motions of the earth re-discovered by Copernicus—the diurnal motion of rotation on its axis, and the motion by which it is annually revolved in its orbit round the sun—are truly said to be the only great movements of the earth of which we have even at the present day a definite knowledge. Not besides these motions a third great movement was, towards the close of last century, pointed out by Sir Wm. Herschel, who showed that, not only is the

earth moving round the sun, but that the sun, carrying with it the earth and the whole solar system is itself moving along among the fixed stars. But, though astronomical observations have demonstrated the existence of this motion, neither its direction nor its velocity have been clearly defined; and so regards any motion which the solar system may, he might we know to the contrary, partake in common with the solar system, the distance to which our range of vision has been extended by the telescope is not sufficient to enable us to obtain any information from astronomy.

In discussing the question whether in the ocean any force of *viv inertia* is brought into play by these motions of the earth, and what effects, if any, result from its action, Mr. Jordan remarks that if an open vessel containing water be held in the hand and moved, the action of *viv inertia* gives the water which it contains a tendency to move along its surface in the opposite direction to that in which it is moved—though the vessel containing the water be set in motion, the water tends to maintain its position. As regards the motions of the earth with the ocean lying on its surface, we do not, as Mr. Jordan says, know either the nature of the forces which move the earth, or the manner in which they act upon the earth; and, therefore, although we know that the earth is in motion, and that water lies on its surface, it is, nevertheless, obvious that the illustrations can cannot be assumed to be analogous to that of the earth

and its ocean, unless it be demonstrated that the force which moves the earth acts directly upon only the solid parts of the earth, and indirectly upon the ocean. It is clear, he continues, that if the force which moves the earth acts directly and equally upon every particle of the earth and ocean, obviously there can be no force of *viv inertia* in play in the ocean. This, however, is inadmissible, for we assume that we know that some force gives the earth a motion of rotation upon its axis, and that the force of gravitation, or, as Mr. Jordan says, of *viv inertia*, does really exist, and admitting this we think we may accept his view that the action of *viv inertia* has much to do with the production of ocean-currents—in fact that (in conjunction with the force that gives the earth its motion of rotation) it creates them. Indeed our own personal opinion upon the subject is wider than this, for we believe, and have long believed, that neither the sun nor the moon has much to do with the tides; but that the tides, as well as