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‘Literature. Review.’

Contributions to the Theory of Natural Selection; by Alfred Russell Wallace, author of the Malay Archipelago, &c. Macmillan, London.

The theory, or rather hypothesis, of Natural Selection, is a branch of that philosophy which is popularly known as the Darwinian. It is called the Darwinian philosophy because Mr. Darwin, in his work entitled the “Origin of Species,” and in his other publications, has elaborated, supported, and illustrated it with great ingenuity and force of argument. This philosophy embraces two distinct hypotheses, both of which may be either true or false, or either of which may be true and the other false, but both of which, nevertheless, are quite distinct from each other. Darwinism is a compound system, embracing on the one hand the hypothesis of Lamarck, and of the author of the *Natural History of the Vestiges of Creation*, or else that of the theist, and, on the other, the hypothesis of Natural Selection as thought out in the first instance by Mr. Wallace, and more fully elaborated and illustrated by Mr. Darwin. The share which these two eminent men had respectively in bringing this celebrated hypothesis under the notice of philosophers, is modestly and generously stated by our author, who says:—

“The present work will, I venture to think, prove that I both saw at the time the value and scope of the law which I had discovered, and have since been able to apply it to some purpose in a few original lines of investigation. But here my claims cease. I have felt all my life, and I still feel, the most sincere satisfaction that Mr. Darwin had been at work long before me, and that it was not left to me to attempt to write the *Origin of Species*. I have long since measured my own strength, and know well that it would be quite unequal to that task. Far abler men than myself may confess that they have not that untiring patience in accumulating, and that wonderful skill in using large masses of facts of the most varied kind,—that wide and accurate physiological knowledge,—that acuteness in devising, and skill in carrying out, experiments, and that admirable style of composition, at once clear, persuasive, and judicial,—qualities which, in their harmonious combination, mark out Mr. Darwin as the man, perhaps, of all men now living, best fitted for the great work he has undertaken and accomplished.”

It is a rather singular coincidence that both these thinkers should have had their attention respectively directed to the same classes of facts, and that these facts should have suggested to both their minds the same hypothesis. Mr. Wallace published his first essay, in which he promulgated his views in 1855, whilst he was in Sarawak, four years before the publication of Mr. Darwin’s work on the “Origin of Species.” Mr. Darwin, in the introduction to his work on the variation of plants and animals under domestication, attributes the beginning of his speculations to the suggestive influence of the distribution of life over large continental areas, and to the phenomena of life as exhibited in the Gallapagos island; and, strangely enough, Mr. Wallace was led to adopt the hypothesis of Natural Selection by considering the very same classes of phenomena. Although the hypothesis of Natural Selection is distinct from the hypothesis which traces the probable ancestry of all living organisms to one or a few simple germs, yet it, nevertheless, consociates with that hypothesis harmoniously, is suggested by it, and is a fitting companion

to it. Although the hypothesis of Natural Selection is concerned with the origin of species rather than with the origin of organization and life, yet, if we travel backwards in thought to the waste of ages, we shall soon find that the one hypothesis leads us to the brink of that boundless abyss which is spanned by the other. We may stop at a certain point in duration, and then determine, that beyond it we shall not move a single step into the chaotic waste, however tempting a field it may be for speculation, but rather that from it we shall return to the warm earth and skies of our own age, tracing as we proceed on our homeward route the principle of the survival of the fittest, as the principle which governs the organization and differentiating of species. By adopting this course, we get rid of the necessity for studying the origin of life. We find life, and organization of some sort, in existence at that point in the history of our planet beyond which we have determined that we will not proceed with our researches, and then we trace their gradual divergence and variations from that point downwards to our own time. This is the only way in which we can separate the hypothesis of natural selection from hypothesis relating to the origin of life. But a mode of procedure of this sort does not satisfy that Aristotelian type of mind, which distinguishes the modern philosopher, and hence the efforts of some writers to separate the hypothesis either of Lamarck, or of the theist, from that of Darwin, have been comparatively fruitless.

Mr. Wallace, however, gets rid of this difficulty altogether. He is half, if not wholly, inclined to adopt the theory of the theist, who assumes the existence of an intelligent and contriving Creator, as absolutely necessary to account for the phenomena of life and organization. Although he adopts this theory merely in regard to the special creation of man, yet, it is easy to perceive how elastic the theory is, and how readily it comes to our aid when we are pressed with a difficulty respecting the origin of any other species of animal. The brain of the lowest savages and of the prehistoric races is, and was, immensely superior, both in size and in complexity of organization, to that of the highest animals, yet, the mental faculties of savages are but slightly superior to those of animals. Here is a difficulty which the hypothesis of Natural Selection fails altogether to account for. Any process of development, or selective modification, would have given the savage a brain but slightly superior to that of the ape. Dr. Haeckel evidently felt this difficulty, and, in order to meet it, supposed the existence of a race of animals between the gorilla and the most ancient of the prehistoric races of men known to science. Mr. Wallace, however, gets out of the difficulty in a much more manly and satisfactory way. He says:—

“The inference I would draw from this class of phenomena is, that a superior intelligence has guided the development of man in a definite direction, and for a special purpose, just as man guides the development of many animal and vegetable forms. In these few cases a controlling intelligence has directed the action of the laws of variation, multiplication, and survival for his own purposes. We know that this has been done; and we must, therefore, admit the possibility that, if we are not the highest intelligences in the universe, some higher intelligence may have directed the process by which the human race was developed by means of more subtle agencies than we are acquainted with. At the same time I must confess that this theory has the disadvantage of requiring the intervention of some distinct individual intelligence to aid in the production of what I can hardly avoid, considering as the ultimate aim and outcome of all organized existence—intellectual ever advancing spiritual man. It therefore implies that the great laws which govern the material universe, were insufficient for his production, unless we consider (as we may fairly do) that the controlling action of such higher intelligences is a necessary part of those laws, just as the action of all surrounding organisms is one of the agencies in organic development.”

Mr. Wallace has been much censured for this utterance by that class of thinkers who can see nothing in the universe of things but matter and its forces, and who would almost rather reject the hypothesis of Natural selection than embrace the supernaturalism which that hypothesis renders necessary. These men condemn Mr. Wallace's opinion on this matter as dreamy and mystical. With such writers every opinion that does not harmonize with their views, is dreamy and mystical. To our thinking our author has, in the preceding passage, given us the only key that will unlock the mysteries of creation, and bridge over the huge difficulties that assail us on every hand.

A considerable part of Mr. Wallace's book is devoted to the exposition of Natural Selection, and to correcting the false views which have been put forth respecting it in the Times newspaper, and in other publications. The reader will find almost all that he may wish to know respecting the true nature of Darwinism, in the two essays on the action of Natural Selection, on Man, and the limits of Natural Selection as applied to Man. The essay entitled Creation by Law is levelled chiefly at the speculations of the Duke of Argyll, and is an admirable specimen of what critics call literary fencing. He finds difficulties in the views entertained by his grace, and his grace finds difficulties in Natural Selection, while the difficulties on both sides neither can, nor do, balance each other. Our author's remarks on the protective colouring of animals are of more importance, and constitute a very good sample of his style, which is simple and unpretending. He says:—

“Since this essay was first published, a very curious difficulty has been cleared up by the application of the general principle of protective colouring. Great numbers of caterpillars are so brilliantly marked and coloured, as to be very conspicuous even at a considerable distance, and it has been noticed that such caterpillars seldom hide themselves. Other species, however, are green or brown, closely resembling the colours of the substances upon which they feed; while others again imitate sticks, and stretch themselves out motionless from a twig, so as to look like one of its branches. Now, as caterpillars form so large a part of the food of birds, it was not easy to understand why any of them should have such bright colours and markings as to make them specially visible. Mr. Darwin had put the case to me as a difficulty from another point of view, for he had arrived at the conclusion that brilliant colouration in the animal kingdom is mainly due to sexual selection, and this could not have acted in the case of sexless larvæ. Applying here the analogy of other insects, I reasoned, that since some caterpillars were evidently protected by their imitative colouring, and others by their spiny and hairy bodies, the bright colours of the rest must also be in some way useful to them. I further thought, that as some butterflies and moths were greedily eaten by birds, while others were distasteful to them, and these latter were mostly of conspicuous colours, so probably these brilliantly coloured caterpillars were distasteful and, therefore, never eaten by birds. Distastefulness alone would, however, be of little service to caterpillars, because their soft and juicy bodies are so delicate, that if seized and afterwards rejected by a bird, they would almost certainly be killed. Some constant and easily perceived signal was necessary, to serve as a warning to birds never to touch these uneatable kinds, and a very gaudy and conspicuous colouring, with the habit of fully exposing themselves to view, becomes such a signal, being in strong contrast with the green and brown tusks and retiring habits of the eatable kinds.”

The philosophy of a refined and cultivated spiritualism, denounced of course as mystical by materialist philosophers, occasionally lends a charm to Mr. Wallace's speculations. He is not the only thinker of eminence who has been led to believe that force is a product of mind, and that all force is probably will-force. He tells us that—

“However delicately a machine may be constructed with the most exquisitely contrived detent, to release a weight or spring by the exertion of the smallest possible amount of force, some external force will always be required; so in the animal machine, however minute may be the changes required in the cells and fibres of the brain to set in motion the nerve-currents which loosen or excite the pent up forces of certain muscles, some force must be required to effect those changes.”

As in the animal organism, so in the universe of which that organism forms a part, something outside of the machine is needed to set it in motion, and perhaps keep it going. But this is merely the philosophy of one Paul of Tarsus, who, alluding to the Deity, exclaimed—“In Him we live and move and have our being.” It is also in one sense the spiritualism of Berkeley; and surely it is a curious phenomenon to find that spiritual philosophy cropping up in the researches and reasonings of the founder of a hypothesis which is usually regarded as hostile to theism and favourable to the theory of Lamarck.

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*The Alfred Russel Wallace Page*, Charles H. Smith, 2014.