

*Philosophy, Metaphysics, and General Science.*

*Contributions to the Theory of Natural Selection.* A Series of Essays. By ALFRED WALLACE, Author of "The Malay Archipelago," etc., etc. 12mo., pp. 384. London and New York: Macmillan & Co. 1870.

The "contributions to the theory" thus modestly offered were, some of them, published by Mr. Wallace in a scientific periodical before the theory itself had been given by Mr. Darwin to the world. Mr. Wallace, as we have stated in a former Quarterly, had in some degree anticipated Darwin, and his independent incursions into the field startled the great theorist into a premature publication. Yet in the present volume Mr. Wallace is particularly delicate to disclaim more than his own due, and is jealous lest a single fiber of Darwin's laurels should perchance seem to bind his own brow. In this volume, as in his "Malay Archipelago," lately by us reviewed, Mr. Wallace impresses us with his eminently conscientious candor.

A large share of the book is devoted to the curious subject of protective resemblances in the animal world. A species of beetle may so resemble the bark of the tree on which it holds its residence that it escapes destruction by its invisibility. Large numbers of animal species survive and permanently exist by this deceptive protection. Tristram, in his work on the ornithology of North Africa, is quoted as saying: "In the desert, where neither trees, brush-wood, nor even undulation of the surface afford the slight-

est protection from its foes, a modification of color which shall be assimilated to that of the surrounding country is absolutely necessary. Hence, *without exception*, the upper plumage of *every bird*, whether lark, chat, sylvain, or sand-grouse, and also the fur of *all the smaller mammals*, and the skin of *all the snakes and lizards*, is of one uniform Isabeline or sand color."—P. 50. The inference is that every species wanting this protection has perished, and we have a demonstration, it is argued, of Natural Selection, or the "survival of the fittest." Mr. Wallace traces this interesting subject through a great variety of resemblance in various parts of the world. It leaves the impression that, in a great number of instances, species do permanently exist by favor of special conditions; a conclusion probable and curious enough in itself, and very corroborative in its effect; but falling short, perhaps, of universality of application.

In his "Theory of Birds' Nests," Mr. Wallace maintains that birds build no more by mere instinct than man does. He assumes to prove that birds even learn to sing their particular notes, not from the inward promptings and shapings of the vocality, but from imitation of the parent note. Birds sing the song they are first habituated to hear; and if it be the tune of some other species, then their form will belong to one kind and their song to another! In a similar way birds *learn* to build. The same species build with different materials and in a different manner under different conditions. They improve in their style of building. On the other hand man builds also by imitation, according to necessities and conditions. On the whole, according to Mr. Wallace, the bird mind and the human mind differ not in the nature but in the range of their faculties. There is much to which we incline to demur in this ingenious chapter.

Mr. Wallace next gives an extended reply to the Duke of Argyll's argument in behalf of creation by Omnipotence in accordance with Law. He states the six Darwinian laws, (which are, indeed, but the simple statement of well-known facts,) which we may give as follows: *First*, All species tend to increase by propagation in a geometrical ratio; yet, *Second*, each species is in fact so limited by immense destructions as to remain stationary in actual number. *Third*, each species tends to produce its own likeness; yet, *Fourth*, this likeness always admits of a degree, more or less, of individual variation. *Fifth*, when a variation is disadvantageous, the individual or species perishes in the struggle for existence, and leaves none but the best adapted for survival.

*Sixth*, geological changes are constantly introducing new conditions, and so both destroying old species and tending to increase the amount of variation. Thus by a few well-ascertained permanent *facts*, formulated into *laws*, Mr. Wallace thinks that all the varieties of life are solved, and many facts are found which no other theory will explain. These six laws are indeed not primitive. Back of them you might assign a divine Law-giver. But, as he thinks, Herbert Spencer has shown in his "First Principles" and his "Biology" that all these so-called Laws may be but the simple necessary "results of the very nature of life, and of the essential properties of organized and unorganized matter."

I believe that the universe is so constituted as to be self-regulating; that, as long as it contains life, the forms under which that life is manifested have an inherent power of adjustment to each other and to surrounding nature; and that this adjustment necessarily leads to the greatest amount of variety and beauty and enjoyment, because it does depend on general laws and not on a continual supervision and re-arrangement of details. As a matter of feeling and religion, I hold this to be a far higher conception of the Creator and of the Universe than that which may be called the "continual interference" hypothesis; but it is not a question to be decided by our feelings or convictions, it is a question of facts and of reason. Could the change which Geology shows us has ever taken place in the forms of life have been produced by general laws, or does it imperatively require the incessant supervision of a creative mind?—P. 268.

Mr. Wallace, like most reasoners of his class, is very anxious to save trouble to the Infinite. God, in his view, may be able to take care of large things, but cannot afford to notice small things. He might, perhaps, be allowed to regulate the orrery of the universe revealed to us by the telescope, but not the infinite littleness suggested by the microscope. We are not told how big an article must be in order to be visible to Omniscience. We are not told how much nearer to infinity a planet is than an animalcule. Such a reasoner seems not to realize that under color of honoring he is truly degrading the Deity. God is absolutely perfect in the infinitely little as in the infinitely great; equally wonderful in both universes. Under color of excusing God from trouble, such reasoners ever first excuse God from all care for the universe, and then from all existence in it. It is the first pious and respectful step toward Atheism.

Yet man, Mr. Wallace maintains, has by the power of reason risen largely above the power of external conditions, and so *above the law of Natural Selection*. An animal or species overtaken with a slight defect perishes in the struggle for existence. But man by protective inventions and by mutual social aids defies to a great degree the consequences of special disadvantages. In the

geologic ages, before man had attained under special favorable conditions the powers of reason, though probably possessed of nearly his present form, he was developed into the different races in which he now is found. A specialization into races cannot take place after the fully rational period has commenced, and man has become able to resist the specializing influences.

But in man Mr. Wallace also discovers original characteristics for which Natural Selection cannot account, and which bear the marks of Overruling Design. He goes through a striking demonstration to show that savage man has a larger brain than Natural Selection can allow, requiring a primitive endowment. So the hairless skin, the peculiarities of the human hand, and the powerful moral intuitions which Mr. Wallace's ample experience among uncivilized races has enabled him there to trace, are all traits above the power of Mr. Darwin's theory to explain. In man, then, Mr. Wallace recognizes specialty, supremacy, and overruling purpose. After such concessions, what becomes of the outcry against "special creation?" Why not have done with it, and allow man, in the noble language of the primitive document, to have been "created in the image of God?"

Mr. Wallace revolts, too, quite erectly, against the Atheistic conclusions with which second-rate reasoners have endeavored to overlay Darwin. He revolts, too, against Mr. Huxley's "protoplasmic" materialism. Matter, moreover, he believes not to be constituted of ultimate particles. What have generally been considered to be "atoms," he holds to be infinitely minute "centers of force;" so that all matter is *force*; and of this *force* the cause and basis are the divine volition; so that in the entire system and movement of things the divine will is immanent. If so, then, we think each "center of force" is a "special creation;" and so is each "variation in species," and so is every definite form of species. Every movement of every ultimate "center of force" requires a movement of divine volition. Instead of being "self-regulating," "the universe" is regulated at each infinitesimal step; and that "inherent power of self-adjustment" is the immanent God adjusting every part and particle. God ceases to be that infinitely lazy Turpitude which the savans would make of him, and is ever working with equal wonderfulness in the infinitely great and throughout the infinitely minute. Doubtless, an infinite and eternal Being would persistently act with a free uniformity according to the Law of wisdom. And it is that uniformity which unwise men use to abolish God and establish Atheism.