

## SCIENCE.

*Darwinism*: an Exposition of the Theory of Natural Selection, with some of its Applications. By Alfred Russel Wallace. (Macmillan.)

AMONG the great and pregnant thinkers of a great and pregnant age of thought, it is probable that Mr. Alfred Russel Wallace has never yet received his due meed of recognition. Most discoverers, indeed, are amply satisfied if in the course of a lifetime they strike out a single grand and epoch-making conception. Mr. Alfred Russel Wallace has struck out two such on very different planes of speculative and practical thought. That one and the same man should have evolved in biology the theory of natural selection and in politics the theory of land nationalisation is truly astonishing. After ages, looking back upon those two great accomplished revolutions in belief and practice, will wonder that this age, so heedless of its own greatness, should have allowed so powerful and original a thinker to remain for life in such comparative obscurity. The princes of humanity nowadays begin to get known only as they verge towards the bourne of eighty.

Mr. Wallace's new book may be regarded in either of two lights—first as a popular exposition, and secondly as a manifesto. For it is addressed to two worlds at once—to the general public, to whom it will come as a work of popular science; and to the scientific few, to whom it will come as an authoritative exposition of its author's final ideas on organic evolution.

From the first point of view all that need here be said is that the work is written throughout with that fulness of knowledge, that charm of style, and that lucidity of exposition to which Mr. Wallace has everywhere and always accustomed us. As an artist and an expositor he is clearly superior to his great fellow-discoverer, Darwin, in his power of entering into the position of the average reader, and of seizing upon the points—especially, so to speak, the pictorial points—likely to interest that phlegmatic person. He is graphic and readable where Darwin is often luminous but dry. He knows how to state his case to the twelve respectable men in the box, and how to keep their intelligence on the alert till he has made them hear it out and frame their verdict. As a popular statement of the evolution theory in organic nature, I have no hesitation in saying most readers will find *Darwinism* a far better work than *The Origin of Species*. It is lighter, it is brighter, it is less technical, and it is brought down to date in every department. The arrangement, in particular, is beyond all praise. Instead of beginning with the obscure facts of variation, so dull to the general, Mr. Wallace begins, where indeed Darwin in his own mind began, with the struggle for existence, and thence almost deductively infers (though with abundant inductive verification) the necessity for natural

selection as a factor in evolution. All this expository work is admirably done. The sketch, so to speak, is in perfect drawing. It shows Mr. Wallace in the most favourable light as a scientific artist of the highest excellence. His proportion and perspective are almost always just. Let me add that he has with characteristic modesty omitted, what nobody else in such a treatise could possibly omit, all reference to his own important part in the simultaneous independent discovery of the principle of natural selection by two distinct thinkers. This is only of a piece with Mr. Wallace's whole attitude on the matter throughout. While lesser men have wrangled with unseemly discussion over petty questions of priority, Mr. Wallace, with the careless unselfishness of true greatness, has been content to see his own principle triumph under the name of that still more admirably equipped naturalist to whose advocacy of their joint idea its universal acceptance is without a doubt mainly attributable.

From the second point of view, as a reasoned statement of Mr. Wallace's final evolutionary position, the work, of course, demands more extended criticism. It is a last testament and confession of faith on all the debateable points in the evolutionary platform.

To begin with, Mr. Wallace fights hard what I firmly believe to be the losing battle in favour of natural selection, pure and simple, as not only the main but also almost the sole cause of the production of species. He rejects sexual selection; he practically rejects use and disuse; he will hear of nothing but the one original true faith in survival of the fittest, alone and unadulterated. This, he truly says, is pre-eminently the Darwinian doctrine (as opposed, he means, to earlier Lamarckian and Spencerian evolution), and hence he claims for his book the position of the advocate of "pure Darwinism." It would perhaps be even more correct, however, to call this the Wallacean than the Darwinian doctrine. It is the doctrine of Mr. Wallace's own paper, read with Darwin's before the Linnean Society, and unmodified since in either direction. Darwin himself from the very first admitted sexual selection, and, to a less degree, functional modification; and each subsequent edition of the *Origin of Species* showed the gradual widening of its author's mind in the direction of still further comprehensiveness. In this, it seems to me, he was right, and his fellow-discoverer wrong. Of course, it is impossible, in the space here at my disposal (fancy really *criticising* in three or four columns a work of thought!) to express the reasons why I differ on this point from Mr. Wallace; but I think the general drift of evolutionary opinion for many years past has steadily set the other way. At first Darwin and everybody else, delighted with the new key, attempted to make it open all locks at once. Gradually, as one problem after another arose, it became evident that fresh wards must be added, fresh modes of unfastening hidden bolts admitted. And nowadays I believe most biologists, looking to the extraordinary complexity of organic life, will be tempted to say, "Darwin, indeed, gave us a master-key in natural selection—a master-key to the problems we then saw; but innumerable subsidiary keys are still needed, and each of these we must accept thankfully as helping us to solve the remain-

ing problems which survival of the fittest hardly touches and sexual selection is powerless to unlock." In another century, I fancy, endless new factors in evolution which escape us now will be added to the three or four main ones—natural selection, sexual selection, use and disuse, direct action of environment—which we now possess.

In other points—such as his continued objection to the natural evolution of man's mental faculties, his rejection of aesthetic preferences in animals, and even his acceptance of Weismann's theory of heredity—it seems to me we can throughout trace the action of a curious *a priori* tendency in Mr. Wallace's mind. Not that Mr. Wallace himself would admit its action, or is even conscious of its presence. He has always excellent inductive reasons to give for the faith that is in him. Nevertheless, it is immediately apparent to the outside observer that Mr. Wallace differs, as a rule, from the main stream of evolutionary opinion just in those points where a certain particular preconception would lead him to differ. He accepts organic evolution and natural selection without prejudice to the immortality of the soul and the great gulf fixed between the animal and the human; just as Prof. Mivart accepts them, without prejudice to the teaching of St. Thomas of Aquinum. It would seem as though Mr. Wallace first struck out his grand generalisation of natural selection without fully realising all its implications in the world of mind; and that when he began to feel the vastness of those implications, he tried to hedge by making special reservations in favour of some divine element in the human species. Certain it is that in all these cases he specifically permits us to see, as one at least of his objections, a reservation of this character. Sexual selection, for example, seems to him to imply an amount of aesthetic faculty in lower animals which he cannot allow to any but the human intelligence. And his final chapter on Man restates and reinforces all those peculiar views as to the origin of human faculty with which we are already familiar in Mr. Wallace's work elsewhere.

The acceptance of Weismann's theory, in particular, now so fashionable among biologists—probably because it comes to us from Germany—seems to me peculiarly unfortunate for the future of science. The Spencerian doctrine of the inheritance of functionally acquired modifications of structure appears to hold out our only chance of explaining, not merely the origin and development of the nervous system and the mental nature of man, but even the historical growth of the artistic and intellectual faculties, the birth of genius, the rise of civilisation, and the very existence of individual character generally. If we take that principle away, it is hard to see how the facts of human life can be accounted for at all. Weismann does take it away, and takes it away wantonly, for no better reason than in order to make out an unverifiable theory, for which no positive facts of any crucial sort can be cited. We are asked to give up a plausible hypothesis which explains and co-ordinates all the phenomena, in favour of an unproved dogma, which reduces them at once to a meaningless chaos. Of course, if Weismann's argument was absolutely unassailable, then we should be forced with a sigh to accept the

implications—to land ourselves once more in a slough of uncertainty; but so long as its basis remains in the present condition, we are justified in refusing to burden our minds with so terrible a weight in our pursuit of truth.

Once away from this debateable ground, however, nothing can exceed the rigorous logic of Mr. Wallace's reasoning. The book is especially noticeable for three points. In the first place, it contains many new facts and theories of value, often drawn from recent but unfamiliar sources, especially American. In the second place, Mr. Wallace, while ignoring the modern laboratory school of biologists, is never afraid of accepting fresh views, even from quarters usually deemed heretical. And in the third place, he is, as always, a remarkably candid, courteous, and just controversialist. Whether he agrees with any particular writer, or whether he differs, one feels at least throughout that his ally and his opponent alike are being treated with scrupulous fairness and equal courtesy. There is not a word anywhere that even Mr. Samuel Butler could consider harsh or disingenuous. It is impossible to lay down the book without feeling a pleasant consciousness that we have been here in the company, not only of a deep thinker, a finished naturalist, and an acute reasoner, but also of a generous, broad-minded, and honourable gentleman.

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