

Reviews.

Science, Sociology, and Spiritualism.

Studies: Scientific and Social. By Dr. Alfred Russel Wallace. 2 Vols. (Macmillan.)

If the greatness of a man can be estimated by the extent of the influence he exerts in his day and generation, then Dr. Russel Wallace may claim a place in the first rank of men of light and leading. In the world of science he is regarded as one of the greatest naturalists of the century just closed; among social reformers his writings are accepted as those of a master; and he is a tower of strength to the Spiritualists, to be exhibited when occasion requires as proof that belief in the existence of immaterial things is not incompatible with profound scientific knowledge. All these aspects of Dr. Wallace's character are presented to us by the essays reprinted in the two volumes under notice. We see him as a naturalist explaining the effects of forces acting within and without the earth's crust in moulding the land surface and making the ocean bed, describing the distribution of plants and animals over the world and the conditions which determine it, expounding the principles and perplexities of the theory of evolution in nature, and throwing new light upon the divisions of the races of men. His political expressions are shown to us in papers on the depression of trade, the House of Lords, and the Disestablishment of the Church; and his Socialistic views are reflected by essays on the nationalisation of the land, justice, human progress, and poverty. A man so wide in his sympathies needs not one reviewer but many, and, in the absence of this, only the conspicuous lines of his character can be sketched.

Darwin, Wallace, and Huxley are the names of the triumvirate which founded and established the theory of evolution by natural selection, and it is a remarkable fact that the casts of their minds show the influence of the environment in moulding mental characteristics. Darwin, in his five years' voyage with the *Beagle*, Wallace isolated in the Tropics, and Huxley in the *Rattlesnake*, were all so situated that they were continually being furnished with new facts while in a state of intellectual solitude. Such conditions favour the development of an introspective frame of mind, of reliance upon personal observation, and originality of thought. When, in 1858, Wallace hit upon the idea that natural selection is the process by which new species are introduced and varieties departing indefinitely from original types are evolved, he was shivering under a cold fit of ague at Ternate, in the Moluccas. In a general way, he knew that Darwin was engaged in the study of variation, but when he sent his paper to the Linnean Society the clue to the origin of species had not been published, and it was not till later he learned that his conclusions were the same as those arrived at by another. The idea of evolution is, of course, as old as the Greeks, but it was Darwin and Wallace who raised it from the philosophic stage to the level of a working hypothesis.

The enunciation of a theory is, after all, only a small matter in comparison with the enucleation, and for this a discerning mind is essential. Not only must the way be pointed out, but the causes which have determined the course followed must be understood. In respect of this quality of insight into the workings of nature, Dr. Wallace is distinguished among naturalists. Whether replying to critics of natural selection—and the objections do not now come so much from the Church party as from naturalists themselves—or dealing with the distribution of organic life, or meeting attacks upon the views he champions as to the permanence of oceanic basins and the excavation of the beds of many lakes by ice action, he is always convincing in his arguments. He seems to know nature so intimately that he is able to explain her operations in a manner which carries the conviction of truth with it. Like Sentimental Tommy, he can always be depended upon

to "find a wi" in any difficulty, and by exercising this faculty he has led natural selection out of many tight places.

From the numerous interesting papers in the two volumes two or three appeal to us for special mention. Among the most important in a scientific sense are those dealing with the method of organic evolution, and the much-debated subject of the inheritance of acquired characters. At first sight, it would seem that the theory of evolution must depend upon the transmission of acquired characteristics from one generation to another; but this is by no means the case, and the balance of evidence is certainly against such an assumption. Whether muscles or mental faculties are considered, there is no proof that strength and skill due to long-continued exercise are passed on to children. With but few exceptions, men of genius start up suddenly, and though their offspring or their descendants may be great, they rarely equal their parents. All arguments which can be adduced in support of the inheritance of acquired characters break down on examination, while, on the other hand, there is a mass of evidence that a wide range of modifications of structure can be accounted for by variation and natural selection. This is Dr. Wallace's position, and most students of natural history agree with him.

Of late years the Darwinian view, that modifications of species have been produced by the gradual accumulation of innumerable slight variations, each good for the original possessor, has been attacked, especially in America; and serious endeavours have been made to show that modifications are produced capriciously by monstrosities or sports of nature. Against this view, which Dr. Wallace strenuously opposes, may be urged the facts derived by actual measurements of various parts of numerous specimens of one kind of animal—such, for instance, as crabs—living under the same conditions. Measurements made by Prof. Weldon show that variations from the average are comparatively large, and that it extends to every part of the structure of the animal and to every external and internal organ. Natural selection—that is, the survival of the fittest among the individual variations annually produced—seems, indeed, to be all-sufficient to account for organic evolution.

Students of the science of language will find an essay on the expressiveness of speech suggestive in places, even though they do not agree with the conclusions. The argument, illustrated by numerous examples, is, that as many words are truly expressive of the meaning attached to them, they may form a clue to the origin of speech. For instance, in the word *whistle* we have a near approach to the action of whistling; in *squall*, *screech*, and *yell* we have a fair imitation of cries due to sudden pain and anger; and in *wail*, *groan*, and *sob* we have the more subdued indications of grief. Many similar words are shown to convey by their sounds the sentiments they express, but perhaps the best examples are from descriptive poetry, as in the lines:

Myriads of rivulets hurrying through the lawn,
The moan of doves in immemorial elms,
And murmuring of innumerable bees.

Max Müller treated this theory of the origin of language with disdain, but Dr. Wallace shows that much can be said for the view that speech has been evolved from the emotional cries of animals and the mouth-gestures of savage ancestors.

Little space has been left to mention Dr. Wallace's essays on Sociology and Spiritualism, but there are a few points to which we must refer. The nationalisation of the land is prescribed as the panacea for all social evils, and Spiritualism is preached as a means of moral salvation. The essential condition of a real social advance is said to be equality of opportunity, which is defined as "absolute fair play as between man and man in the struggle for existence. It means that all shall have the best education

they are capable of receiving; that their faculties shall all be well trained, and their whole nature obtain the fullest moral, intellectual, and physical development." So far as education is concerned, it may almost be said that equality of opportunity exists at present, for it is possible for any boy with brains and aptitude for work to climb the educational ladder from the Board School to the University. But Dr. Wallace makes the phrase mean that surplus wealth shall be claimed by society, in order to secure similar advantages to all; for he holds that the transmission of wealth is as opposed to natural laws as the transmission of culture. To our thinking, however, the principle is unsound, because *inequality* of opportunity is one of the most powerful factors of human progress. People who have opportunities do not recognise them, and those who have not make them if they possess sufficient strength of mind. In fact, it almost seems that the best way to produce really great men is to discourage them in their early days and so bring out power of overcoming difficulties. Remove all obstacles and incentive to competition and you replace evolution by devolution.

Spiritualism is only touched in a few pages of the volumes, but sufficient is said to make a scientific mind wonder at the miracles which faith can accomplish. As with religious belief, so with Spiritualism—it is a matter of personal conviction, and some of us are so constituted that we should distrust the evidence of our senses, and criticise the desires of our sentiments in either matter. Blessed are they to whom a less sceptical frame of mind has been given.
