

REVIEWS.

A VETERAN NATURALIST.

STUDIES, SCIENTIFIC AND SOCIAL. By Alfred Russel Wallace. In Two Volumes. London: Macmillan and Co., Limited.

THESE two volumes contain the more important articles contributed by their author to reviews and other periodicals during the thirty-five years from 1865 to 1899. The majority of the studies belong to the last decade: from time to time one occurs written twenty or thirty years ago. This experience leaves a curious impression on the reader: it means that he is suddenly confronted with the writer's mind at an earlier date in its history, and that he begins to think into what a different world of interests and views such a study was sent forth. Moreover, on most of the subjects with which Dr. Wallace deals the world has changed its mind not a little during the last thirty-five years. If one word of detraction may be allowed, it is that the collection is unequal: that this opinion should be formed is Dr. Wallace's own fault. He raises expectations so high by his discourses on matters belonging to the physical sciences that a slight feeling of disappointment is felt when it becomes clear that his writings on questions of social interest are not always of the same calibre. We think that those normally interested more particularly in the moral sciences will for once be more attracted by discussions on questions of physical science. Of course, Darwinian conceptions have gone so far beyond their original application that anything written on the evolution of animal life appeals to students of philosophy; and anthropology is another science which comes near the borderland; but even on geological subjects, which make no such general appeal, Dr. Wallace is likely to hold the general reader. Some of the studies are chiefly descriptive, others are complicated trains of reasoning. From the group of articles on the work of the ice age the logician, searching for inferences in the making, might draw a whole quarry of material. A subtle piece of reasoning satisfies an intellectual lover of beauty not less than the physical charm of a fine structure. If the attention is not fatigued by the strain it is one of Plato's pure pleasures to follow Dr. Wallace's speculations on the origin of the Aarschlucht, a narrow, deep gorge with which those who have visited Meiringen are familiar. His view is that the gorge is the work of a sub-glacial torrent, proceeding like a string cutting through a piece of cheese, but doing so very slowly. If this view is justified, it corroborates the general theory, supported by Dr. Wallace, of the action of ice in cutting out valleys, particularly valleys which are lake basins, such as most of those in which the Swiss Lakes are placed. To the modern traveller, who has traced the course of the Rhone glacier, it will be news that in the ice age there was also a northern branch thereof, coming up the course of the present Aar (the one flowing north-east from Lake Thun), cutting out the basin of Lake Neufchatel, skirting the Jura and apparently curving round to join the southern branch east of Lake Geneva. Geological processes are more interesting when one is familiar with their effect as a piece of impressive scenery. This is why Dr. Wallace's study of the Yosemite Valley is likely to interest Americans, and of the similar valleys in the Blue Mountains Australians, not less than his Swiss studies interest Europeans.

One only has time to hint at the great range of Dr. Wallace's scientific interests by citing the titles of some of the more isolated studies in the collection, such as those on the "Palæarctic and Nearctic Regions," "The Coleoptera of Madeira," "The Disguises of Insects," and "The Permanence of Oceanic Basins." As might be expected, one group of essays recalls Dr. Wallace's part in the controversy, at present inactive, on the all-

sufficiency of natural selection. Dr. Wallace, like Huxley, holds to the Darwinian tradition, according to which the struggle for existence, the tendency to vary, and heredity, are sufficient to produce difference of species in the living world. This adherence has brought him into discussion with Herbert Spencer, who believes in the power of environment to modify types. Environment, however, is not a sufficient reason by itself, unless it is shown that acquired characteristics are inherited. Here Dr. Wallace is inclined to agree with Weismann as against Spencer. Apart from the desirability of ascertaining the truth of the matter for its own sake, the question has a practical interest for humanity. It is obvious that Dr. Wallace feels this interest, and that in his statement of the conditions under which human progress is possible he has kept this question well in sight. We gather that he would not be averse from seeing natural selection re-enforced by artificial selection working through restraints imposed by the community, on a clear understanding of what is most worth preserving in man. We may note in passing that Dr. Wallace looks on "geniuses" as "sports," therein differing somewhat from Mr. Galton.

Before leaving Dr. Wallace's studies on the evolution of animal life, we should like to quote some curious observations from his article on "Monkeys":—

"This relationship to the lowest of the mammalia tribes seems inconsistent with the places usually accorded to these animals at the head of the entire mammalian series, and opens up the question whether this is a real superiority, or whether it depends merely on the obvious relationship to ourselves. If we could suppose a being gifted with high intelligence, but with a form totally unlike that of man, to have visited the earth before man existed in order to study the various forms of animal life that were found there, we can hardly think he would have placed the monkey tribe so high as we do. . . . Neither in size, nor strength, nor beauty, would they compare with many other forms, while in intelligence they would not surpass, even if they equalled, the horse, the elephant or the beaver. The carnivora, as a whole, would certainly be held to surpass them in the exquisite perfection of their physical structure, while the flexible trunk of the elephant, combined with his vast strength and admirable sagacity, would probably gain for him the first rank in the animal creation. . . . Man is undoubtedly the most perfect of all animals, but he is so solely in respect of characters in which he differs from all the monkey tribe—the easily erect posture, the perfect freedom of the hands from all part in locomotion, the large size and complete opposability of the thumb, and the well developed brain, which enables him fully to utilise these combined physical advantages. The monkeys have none of these, and without them the amount of resemblance they have to us is no advantage, and confers no rank. . . . the combination of external characters and internal structure which exists in the monkeys is that which, when greatly improved, refined, and beautified, was best calculated to become the perfect instrument of the human intellect, and to aid in the development of man's higher nature; while, on the other hand, in the rude, inharmonious, and undeveloped state which it has reached in the quadrumana, it is by no means worthy of the highest place, or can be held to exhibit the most perfect development of sub-human animal life."

Dr. Wallace reminds us that the gap between apes and mankind has widened by disappearances on each side. His acquaintance with the islands south-east of the mainland of Asia gives him a good title to pronounce on those types of mankind which are nearest the gulf on our side. He thinks that the Australian natives, who may be classed provisionally with the hairy Ainu of Japan, the Veddahs of Ceylon and other Dravidians, come very low in the scale. He subscribes to the opinion that they, as well as the Maoris and other Polynesians, have a certain affinity with the Caucasian type and that there were Caucasian peoples settled in the south-east whom a Mongolian invasion overwhelmed. The lowest of these, as the Australians, appear to represent primitive humanity before it branched off into Caucasian, Negroid and Mongolian types.

The bulk of the second volume consists of essays written on the text that "riches" and "poverty" are the twin evils of States. It is unusual for a naturalist to interest himself with such ardour as Dr. Wallace has done in social questions. The case of Ruskin is hardly relevant: he busied himself earlier in life with

a certain form of intellectual activity, quite unlike the study of nature, which he afterwards renounced, as if afraid that it were dilettantism, when the other call came. Dr. Wallace, however, has never abated his interest in nature and his absorption in economic questions is not a thing of the last decade. If one may hazard a guess, Dr. Wallace's view of Western civilisation has been determined by the fact that he spent so much of his earlier years in savage countries, on the Amazon, in New Zealand. After such experiences a man surveys the characteristics of civilized communities with more detachment than a perpetual denizen of them; to him much is accidental which the other accepts as necessary. A naturalist, again, observes things, whether they be species of animals or human groups, because that is his virtue. If arrangements in nature called for condemnation, Dr. Wallace would observe and condemn, but we make no moral judgments about nature; it is unprofitable. Dr. Wallace feels that it is anything but unprofitable to make such concerning human arrangements, and so the naturalist becomes a reformer. There is no space here to criticise the principles which underlie Dr. Wallace's assaults on the economic basis of modern society. Briefly, he is a collectivist, and his particular quarrel with existing arrangements is due to our toleration of private ownership of land. It is curious that one who is so familiar with the slow processes of nature should sketch such radical reconstructions. One feels that Dr. Wallace's schemes for a new Second Chamber, a new established Church, a new system of money, seem so catastrophic, and cannot be made to look like developments from the existing institutions. Geological epochs certainly are not required for changes in human affairs, but the difficulty of obtaining human consent is not unlike that of wearing away a mountain.

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