

REVIEWS.

GEOGRAPHICAL DISTRIBUTION OF ANIMALS.*

TO review a work like the present one would be, except to some half-dozen writers in the same field, an absurdity, if not an impertinence. To give even an analysis of its contents would require infinitely more space than that of our entire "Reviews." What can we do, then, in the present instance? We can just briefly give an account of the nature of the volume, of what it is the author has attempted to do, and of the time and space which his labours have occupied, and their results have been embodied in. We may say that to us Mr. Wallace appears to have very faithfully succeeded in doing what he wished, viz. that his "book should bear a similar relation to the eleventh and twelfth chapters of the 'Origin of Species' as Mr. Darwin's 'Animals and Plants under Domestication' does to the first chapter of that work." In this respect we may say that the analogy is complete. Nay, more; we fancy that Mr. Wallace's labours, as put forward in the two splendid volumes now before us, will be read when Mr. Darwin's volumes on "Animals and Plants" will have fallen into desuetude. Whether it will have as long a lease of existence as the "Origin of Species," it is, of course, impossible to say; but of its great importance as a scientific treatise there cannot be the least doubt in the mind of anyone who is acquainted with the history of Nature; and this all the more so because it is a work *sui generis*. Mr. Wallace has had to undertake an entirely novel labour in preparing those volumes, and the result is the production of a work that is completely new. Not only so, but it is executed by one who is a thorough master of the subject; by the man who might, but for his extreme modesty, be now in the proud position which Mr. Darwin holds—that of the first naturalist in the world. It is clear, therefore, that we may anticipate a subject dealt with in a philosophic spirit, as such a subject especially requires. And ere we take a glance at Mr. Wallace's labours, let us consider how long they have occupied. This is shown in the following passage from the preface to the work. Mr. Wallace says:—"The detailed study of several groups of the birds and insects collected by myself in the East brought prominently before me some of the curious problems of geographical distribution; but I

* "The Geographical Distribution of Animals; with a Study of the Relations of Living and Extinct Faunas, as elucidating the Past Changes of the Earth's Surface." By Alfred William Wallace. With Maps and Illustrations. 2 vols. London: Macmillan & Co. 1876.

should hardly have ventured to treat the whole subject had it not been for the kind encouragement of Mr. Darwin and Professor Newton, who, about six years ago, both suggested that I should undertake the task. I accordingly set to work, but soon became discouraged by the great dearth of materials in many groups, the absence of general systematic works, and the excessive confusion that pervaded the classification. Neither was it easy to decide on any satisfactory method of treating the subject. During the next two years, however, several important catalogues and systematic treatises appeared, which induced me to resume my work, and during the last three years it has occupied a large portion of my time."

And what, the general reader will probably ask, has the author of the work attempted? We shall endeavour to explain. Animal life exists in almost every portion of the globe; indeed, for convenience, we may assume that on every portion of the earth animal life is apparent. But we find as we travel through, suppose the forests of Brazil, or the regions of Upper India, or in the Arctic provinces, or again in Australia, a very different set of animals. Thus in one we find all the creatures have, more or less, marsupial pouches, as the kangaroo; in another we find the old-world apes; in a third we find elephants, and so on. Then again in point of time—that is, suppose a million of years—we find similarly a peculiarity of distribution of animal existence. For example, we find one type of animals succeeding another as we pass from the older to the more recent fossiliferous deposits. Now in both these cases it is of importance to find out how it happens that such different forms of life came in these localities, both of space or of surface, and of depth. Of course, if you took the view that every animal was separately created, there would be at once an end to the whole discussion; for then you would have taken it for granted, not that the animal of any particular locality arrived there ages ago from elsewhere, but that it was created on the spot. That would be an exceedingly singular view; and, unfortunately for his convenience, the scientific man must give it up at once. Then for him comes the question, How did these several races extend from one part of the world to another? Why, for example, should we find fossil in this country animals the same as those now living in Australia?

It is to this excessively difficult task that Mr. Wallace has partly devoted his attention, though of course he has had in the first instance to endeavour to arrange all the animals which are on the globe into a series of groups, so as to have those that are closely related to each other as to distribution as much together as possible. And Mr. Wallace has discussed the various schemes that have been suggested by different writers, and he has come to the conclusion that there are—as long since proposed by Mr. Sclater—six regions into which the world may be divided. These are (1) *Palæartic*, which includes North Europe, Mediterranean, Siberia, and Japan. (2) *Ethiopian*, which comprises East, West, and South Africa and Madagascar. (3) *Oriental*, which includes Hindostan, Ceylon, Indo-China, and Indo-Malaya. (4) *Australian*, including Austra-Malaya, Australia, Polynesia, and New Zealand. (5) *Neotropical*, including Chili, Brazil, Mexico, and Antilles; and (6) *Nearctic*, comprehending California, the Rocky Mountains, the Alleghanies, and Canada. Now taking these great groups as the primary division of the animal world, the author traces every genus

of vertebrate animals along these lines—mammals, birds, reptiles, and fish. And with this labour is the greater part of these two huge volumes filled. The general reader will find a series of engravings arranged as plates throughout the volume, which will much help toward putting the ideas of the author clearly before him. Each of these represent a division, and shows together the animals that are included in it. Mr. Wallace thinks them well executed; but we do not at all agree with him, for we consider them hard, and generally badly drawn. Still, they lend a great interest to the work. The maps, which are abundant, are also very valuable; but we think the author's method of indicating the different degrees of height by differences of shading is extremely perplexing, for the distinctions are not absolute but gradual, and the confusion resulting from this is very great.

But even admitting these slight objections, the treatise is one of the highest scientific importance; and for ourselves we must express our extreme gratitude to the author for his labours—labours executed purely for the benefit of science, and which can never be repaid by any monetary return they may bring.
