WALLACE'S TROPICAL NATURE.

New scientific writers surpass or equal Mr. Wallace in the power of stating the results of persevering and well-directed scientific inquiry in a form not only intelligible, but really interesting, to the general public. He has now published a general sketch of tropical nature, pointing out how and why it differs from the nature of the other two zones. Nowhere among the descriptions of the tropics that have been given is to be found a summary of the past history and the actual phenomena of the tropics which gives that which is distinctive of the phases of nature in them more clearly, shortly, and impressively. Most persons who have not passed through a National School, and all who have, are aware that the climate of the equatorial regions is always much the same; but few readers of Mr. Wallace's book will feel that they have anticipated any large part of the consequences which, as he shows, flow from this simple fact. The climate is hot, to begin with, because it is unvarying. The sun in June is higher in London than in Java, and the sunlight lasts five hours longer; but then in Java the tropical regions the sun, such as it is, is always going on. Tropical heat is the joint product of the constant high temperature of the soil and of the ocean; of the great amount of aqueous vapour in the atmosphere; of the great extent of the equatorial regions and of the latent heat given out during the formation of rain and dew. As Mr. Wallace says, uniformity and abundance rather than any characteristic manifestations are the prevailing features of all the climates. The next important fact to note about this zone is that it is, throughout the circumference of the globe, a region of forests edged first with woody country and then with deserts. In these gigantic forests man feels himself an intruder. He has a sense of solemnity and wildness rather than of beauty. He finds high overhead the foliage of the larger trees almost excluding the light of the sun; then under this foliage a growth of minor trees forty or fifty feet high, and then an undergrowth of dwarf palms, and tree-ferns. Sometimes the ground is covered with flowers, which, however, are not conspicuous, and the climbing plants which twist themselves up and down as they follow the fortunes of a standing or a fallen tree cannot flower until they get to the light. In fact, as general vegetation becomes more luxuriant, flowers form a less and less prominent feature of the landscape. In the great virgin forests flowers are rarely seen. By far the greater number of equatorial forest trees have small and inconspicuous flowers. On natural exposures, such as steep mountain sides, the banks of rivers, or the ledges of precipices, or in artificial clearings, flowers are to be found, but not in the ordinary equatorial scenery. On the other hand, the vegetation of the tropics is extraordinarily various. Trees of the same kind are not found together. A naturalist, as Mr. Wallace informs us, may walk for miles without seeing a second specimen of a tree he has just been examining. Here, again, the equality of the climate tells. The species that have been developed find a habitat here and there, and, as the climate is the same now throughout each year and in one year after another, but they have been the same through countless ages. They have not been visited by the glacial catastrophes which have changed the conditions of life in the temperate zones. And what has once reached them thrives free from the vicissitudes of climate. The differences of type which countless causes are always producing have not been checked by the type becoming extinct through cold. This is, in the opinion of Mr. Wallace, the reason why, for instance, there are so many more kinds of butterflies in the equatorial zone than in the temperate.
zones where the fauna is limited and of a low order, and how this has happened is explained by Mr. Wallace in his concluding chapter. He there treats of the indications of geographical changes affecting the distribution of animals, and the general arrangement of the earth's surface has been the same for so long that no account need be taken of possible earlier differences. The land has been united in the north and has pushed southward in the great promontory of South America, which is considered by Mr. Wallace to be true in the case of Tasmania. Where deep seas are now found there have always been deep seas, but there have been constant variations in the shallow seas. Sometimes the bed has risen and sometimes it has been submerged, sometimes inhabited by land and sometimes by water. Where we find a limited fauna, and that of a low type, as in Madagascar or the island of Minorca, we know that the spot was cut off from the main continent by rising land. The lesser faunas of Madagascar show the point which the development of animal life had reached on the earth generally when the sea came and prevented fresh immigration. Two difficulties, however, stand in the way of Mr. Wallace's conclusion. The animal life had not reached its highest development when the sea came. The animal life has not been locally developed, did it get there? The second point is that no one but a great naturalist can pretend to have an opinion upon it. The general arrangement of animal life had not been locally developed, did it get there? Mr. Darwin has long ago treated this point with his usual exhaustive lucidity. The animal life that is found there is precisely the same as that found in the low lands of South America. The animals have been the same for a million years. The birds that can fly far are found; those that cannot fly far are not found. The ovum of frogs and toads may be supposed to float in the water, and snakes may have travelled on wandering trees. But Mr. Darwin has no suggestion to make, and he has far too keen a sense of what science demands to hazard a guess where he has no real evidence on which his guess may be based. Mr. Wallace, however, is a great naturalist, and among his many qualities as an economist he has a special facility for advocates, for he rejects entirely the theory of sexual selection as a cause of variation, which was one of the most prominent points of Mr. Darwin's account of the scheme of nature. Why are males, and especially male birds, so beautiful, and why has their beauty gone on increasing? Because, Mr. Darwin answered, the females keep picking out the prettiest males. No, answers Mr. Wallace; yet Mr. Darwin has no suggestion to make, and he has far too keen a sense of what science demands to hazard a guess where he has no real evidence on which his guess may be based.

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Mr. Wallace is a great naturalist, and the most useful and indispensable artificial images are often forty feet high, and have crowns on their heads. The existence of such vast works implies a large population, abundance of food, and an established government. The birds that can fly far are found; those that cannot fly far are not found. The ovum of frogs and toads may be supposed to float in the water, and snakes may have travelled on wandering trees. But Mr. Darwin has no suggestion to make, and he has far too keen a sense of what science demands to hazard a guess where he has no real evidence on which his guess may be based.