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## 'Current Literature.'

An important and long-expected contribution to the science of zoology has been made by Mr. Alfred Wallace, who shares with Mr. Darwin the merit of calling attention to the mutability of species under certain conditions, and produced a few years ago a delightful book on the Malay Archipelago. "The Geographical Distribution of Animals" (Macmillan and Co.) is a masterly attempt to face the difficulties which beset any explanation of the strange and apparently capricious manner in which animal life is scattered over the world. If similar conditions of soil and climate were accompanied by similar animals if, so to say, creatures could be classed according to the general character of their habitat and its distance from the equator, the task of the geographical zoologist would be comparatively easy; but the method of classifying animals by zones has proved as fallacious as that of dividing history into centuries. Species, like dynasties, schools of theology, and tendencies of thought, overlap and cross each other in a puzzling way, as if to prove that in Nature there is no hard-and-fast line of division. It has indeed long been thought, and is even yet a popular notion, that the manner in which various kinds of animals are dispersed over the globe is almost wholly due to diversities of climate and vegetation, and at the first glance this belief appears well-founded. The Arctic regions are strongly characterised by their white bears and foxes, their reindeer, ermine, and walruses, their white ptarmigans, owls, and falcons; the temperate zone has its rabbits, sheep, beavers, and marmots, its sparrows and songbirds; while tropical regions produce strange quadrupeds and brilliant birds found nowhere in the cooler climates. So the camel, the gazelle, and the ostrich live in the forest, the bison on the prairie, the tapir and jaguar in forests. Hundreds more instances might be quoted in support of the popular belief, but detailed and accurate knowledge of the productions of different parts of the earth has shown that countries exceedingly similar in climate and all physical features may yet have very distinct animal populations. The equatorial parts of Africa and South America, for example, are very similar in climate and are both covered with luxuriant forests, yet their animal life differs as widely as the elephant from the tapir. Equal climatic similarity exists between parts of South Africa and Australia, yet one has lions and giraffes and the other kangaroos and wombats. Marsupials are not found in Europe at the present time, but extend in America from Chile to Virginia. Crows are found all over the world except in South America, the sloths only on the continent; the true lemurs are confined to Madagascar, and the birds of Paradise to New Guinea. Different but closely allied species are found on the opposite sides of great mountain barriers, such as the Rocky Mountains and the Andes; great rivers and river plains, such as the Amazon and the Ganges, separate more or less distinct groups of animals, and arms of sea—if deep and permanent—act as still more effective limits to migration. Thus islands very far away from the mainland almost always have very peculiar animals, found nowhere else, as is strikingly the case with Madagascar and New Zealand; while shallow Straits, like the English Channel and the Straits of Malacca, are not found to have the same effect. As might have been expected from the tendency of his previous works, Mr. Wallace has arrived "at the conclusion that, by some slow process of development or transmutation, all animals have been produced from those which preceded them; and the old notion that every species was specially created as it now exists, at a particular time and in a particular spot, must be abandoned as opposed to many striking facts, and unsupported by any evidence." To support this theory enormous spaces of time are required. The "historical period of three or four thousand

years has hardly produced any perceptible change in a single species," and the "50,000 or 100,000 years" since the last glacial period has only "served to modify a few of the higher animals into very slightly different species." The doctrine evolved from these considerations is that as the law of nature is slow but perpetual change—in living things as in the earth's surface—the present distribution of animals on the several parts of the globe, is the product of all these wonderful revolutions in organic and inorganic nature. Viewed from this standpoint geographical zoology may be made to throw an important light on physical geography, and the ancient existence of submerged continents may be inferred from the animal and vegetable productions of neighboring islands yet extant. Aided by geology and palæontology, as well as by his own minute investigations into the conditions affecting the present distribution of animal life, Mr. Wallace brings an immense mass of learning to bear on his great work, but handles it in too skilful fashion to induce the slightest feeling of weariness. Whatever may be the opinion of the reader as to the generalisations and theories advanced in the two handsome volumes under consideration, there can be no doubt as to the painstaking accuracy and scientific skill with which the enormous array of facts has been marshalled. With a truly philosophic spirit Mr. Wallace writes less in the tone of an advocate than an inquirer, and in a style at once picturesque and intelligible to all who have the slightest rudimentary knowledge of the vast subject to which he has devoted so much labour. The work is abundantly illustrated with maps on a plan suggested by Professor Newton, and by engravings of typical groups of animals admirably created by Mr. J. B. Zwecker.

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The Alfred Russel Wallace Page, Charles H. Smith, 2015.