

distribution of plants, both directly and indirectly. It diffuses plants over a wider area of equal climate, augments their productiveness, and enlarges the limits of their capacity to support different climatal conditions. Agriculture also effects local modifications of climate. Certain species of plants require more special physical conditions for health; others more general conditions; and their extent of diffusion varies accordingly. Thus the plants of temperate climates are more widely diffused over the surface of the globe, because they are suited to elevated tracts in tropical latitudes. There is, however, another law which relates to the original appearance, or creation of plants, and which has produced different species flourishing under similar physical conditions, in different regions of the globe. Thus the plants of the mountains of South America are of distinct species, and for the most part of distinct genera, from those of Asia. The plants of the temperate latitudes of North America are of distinct species, and some of distinct genera, from those of Europe. The Cactææ of the hot regions of Mexico are represented by the Euphorbiacæ in parts of Africa having a similar climate. The surface of the earth has been divided into twenty-five regions, of which I may cite as examples that of New Zealand, in which Ferns predominate, together with generic forms, half of which are European, and the rest approximating to Australian, South African, and Antarctic forms; and that of Australia, characterized by its Eucalypti and Epacrides, chiefly known to us by the researches of the great botanist, Robert Brown, the founder of the Geography of Plants.

Organic Life, in its animal form, is much more developed, and more variously in the sea, than in its vegetable form. Observations of marine animals and their localities have led to attempts at generalizing the results; and the modes of enunciating these generalizations or laws of geographical distribution are very analogous to those which have been applied to the vegetable kingdom, which is as diversely developed on land as in the animal kingdom in the sea. The most interesting form of expression of the distribution of marine life is that which parallels the perpendicular distribution of plants. Edward Forbes has expressed this by defining five bathymetrical zones, or belts of depth, which he calls,—1, Littoral; 2, Circumlittoral; 3, Median; 4, Infra-median; 5, Abyssal. The life-forms of these zones vary, of course, according to the nature of the sea-bottom; and are modified by those primitive or creative laws that have caused representative species in distant localities under like physical conditions,—species related by analogy. Very much remains to be observed and studied by naturalists in different parts of the globe, under the guidance of the generalizations thus sketched out, to the completion of a perfect theory. But in the progress to this, the results cannot fail to be practically most valuable. A shell or a sea weed, whose relations to depth are thus understood, may afford important information or warning to the navigator. To the geologist the distribution of marine life according to the zones of depth, has given the clue to the determination of the depth of the seas in which certain formations have been deposited. Had all the terrestrial animals that now exist diverged from one common centre within the limited period of a few thousand years, it might have been expected that the remoteness of their actual localities from such ideal centre would bear a certain ratio with their respective powers of locomotion. With regard to the class of Birds, one might have expected to