of old ones, are not ordinarily by zigzag and meandering paths, but by relatively straight ones; and though, of course, a path once taken may be diverged from, yet in such a case it is not regained. This applies particularly to the organism as a whole; in minor details more latitude is permissible."

(*c*) "Parallelism and convergence of development are much more general and important modes of evolution than is commonly supposed. By parallelism is meant the independent acquisition of similar structures in forms which are themselves nearly related, and by convergence such acquisition in forms which are not closely related, and thus in one or more respects come to be more nearly alike than were their ancestors."

Chapter XIII.

Geographical Distribution.

Zoo-geographical Regions—Phyto-geographical Regions—Factors in Distribution — The Great Faunas and Floras: Littoral, Pelagial, Abyssal, Fluvial, Terrestrial—Evolution of Faunas.

Although various naturalists from Pliny to Buffon seem to have been impressed by certain outstanding facts concerning the geographical distribution of living creatures, the serious study of the subject hardly began before the Darwinian era. There was collecting of material and an occasional attempt to group plants and animals in geographical regions, but the significance of the problem could not be perceived without the light of the evolution idea. The main problem is to find out the causes of the existing distribution, to discover the factors which determine why certain organisms are here and not there, and others there and not here; but it is evident that the problem does not press upon the non-evolutionist.

Zoo-geographical Regions.

Following a short history of zoo-geography by Dr. Arnold E. Ortmann, we may distinguish various periods of inquiry into the regions of distribution.

A. Wagner seems to have been the first (1844–1846) to attempt any systematization of the mass of materials