

naked-eyed Medusæ, the Hydroids proper, the Siphonophoræ, the Milleporidæ with all the Tabulata of Milne-Edwards, and perhaps the Rugosa also, if their true affinity is actually indicated by the peculiarities of their solid parts and their resemblance to those of the Tabulata.

When considering Individuality and Specific Differences as manifested in the class of Acalephs, I have taken an opportunity of showing, upon general grounds, how futile the arguments are upon which the theory of transmutation of species is founded. Having now shown that that class is circumscribed within definite limits, I may be permitted to add here a few more objections to that theory, based chiefly upon special grounds, connected with the characteristics of classes. If there is any thing striking in the features which distinguish classes, it is the definiteness of their structural peculiarities; and this definiteness goes on increasing, with new and additional qualifications, as we pass from the class characters to those which mark the orders, the families, the genera, and the species. Granting, for the sake of argument, that organized beings, living at a later period, may have originated by a gradual change of those of earlier periods, one of the most characteristic features of all organized beings remains totally unexplained by the various theories brought forward to explain that change,—the definiteness of their respective groups, be these ever so comprehensive or ever so limited, combined with the greatest inequality in their numeric relations. There exist a few thousand Mammalia and Reptiles, and at least three times their number of Birds and Fishes. There may be about twenty thousand Mollusks; but there are over one hundred thousand Insects, and only a few thousand Radiates. And yet the limits of the class of Insects are as well defined as those of any other class, with the sole exception of the class of Birds, which is unquestionably the most definite in its natural boundaries. Now, the supporters of the transmutation theory may shape their views in whatever way they please, to suit the requirements of the theory, instead of building the theory upon the facts of nature, and they can never make it appear that the definiteness of the characters of the class of Birds is the result of a common descent of all Birds; for the first Bird must have been brother or cousin to some other animal that was not a Bird, since there are other animals besides Birds in the world, to no one of which does any Bird bear so close a relation as it bears to its own class. The same argument applies to every other class. And as to the facts, they are fatal to such an assumption; for Geology teaches us that among the oldest inhabitants of our globe known, there are representatives of nine distinct classes of animals, which by no possibility can be descendants of one another, since they are contemporaries.

The same line of argument and the same class of facts forbid the assumption that either the representatives of one and the same order, or those of one and