

the inner antennæ may be very small, and retractile into fissures fitted to receive them, or they may be very long organs, constantly thrown forward of the head; and descending but a single step, we come to species of Decapoda without proper branchiæ, some having the abdominal legs furnished with branchial appendages, and others with no abdominal members at all.

When we consider, that these diversities occur in a class that may not embrace in all over ten thousand species (not half of which are now known), we then comprehend the wide diversity in the distinctions that exist. The series of species followed through, gives us an enlarged view of those distinctive characteristics upon which the limits and relations of groups depend. The network of affiliations, it is true, is like that in other departments; but it is more magnified to the view.

Moreover, the distinctions are obviously distinctions of rank. There is no ambiguity as to which is the higher or superior group, as among Insecta. The variations are manifestly variations in grade, and we may readily trace out the several steps of gradation, as we descend from the highest Brachyura to the lowest Lernæa. And while we so readily distinguish these gradations, we as plainly see that they are not steps of progress followed by nature in the production of species; but, simply successive levels (grades of types), upon which species have been multiplied.

We, therefore, may consider the class Crustacea as especially well adapted for instruction in some of the higher principles of classification in Zoology; and, if we mistake not, laws may be deduced which have not hitherto taken form in science. These have already been partially alluded to in the previous pages of this volume. But we here bring together the facts in a connected view, in order to state the principles more definitely, and exhibit the full extent of their bearing. We leave out, however, a large part of the details, which may be found elsewhere in this Report.

The fundamental idea, which we shall find at the basis of the various distinctions of structure among the species is, the *higher centralization of the superior grades, and the less concentrated central forces of the inferior*,—a principle which has been applied to the animal kingdom in some of its larger subdivisions, but which has not been followed out into all the details of structure exemplified among Crustacea.