

kind. Of errors of these kinds still current, I may instance the attempt of some naturalists to establish a province or sub-kingdom of *Protozoa*, to include all the simplest members of the Animal Kingdom, and the separation of the Entozoa or intestinal worms from the other worms as a distinct class. The classification in Owen's "Lectures on the Invertebrate Animals," which I have long used with advantage as a text-book, is defective in some parts in this respect.

There are two kinds of investigation much used in classification, which more especially develope the idea of grade or rank among animals. One is that of embryology, or the development of animals from the ovum. Another is that of cephalisation, or the development of the head and organs connected therewith. Both of these are of great importance, but, on the principles above stated, they aid us chiefly in referring animals to their *Orders*. Other limitations of the criterion of grade or rank will appear when we arrive at the consideration of *Classes*.

3. *Function or Use*.—In different animals we often find the same use served by different kinds of organs, as, for instance, the wing of a bird and the wing of an insect, which, though both used for flying, are constructed in very different ways. It would lead us astray were we to arrange animals primarily on this ground: for instance, if we were to group together fishes and crustacea because both swim; or birds and insects, because both fly. Again, in different groups of animals, certain functions and the organs which subserve them are greatly developed in comparison with others. For example, the enormous reproductive power of fishes, or the remarkable development of the locomotive organs in birds, as compared with other vertebrates. This consideration is not applicable in our primary division of animals, but it constitutes the principal ground on which naturalists have based the secondary divisions or *Classes*; and it serves also to indicate the *analogies* between the corresponding members of different primary groups, as, for instance, of the birds in one group to the insects in another.

4. *Plan or Type*.—Under this head we consider the similarity of construction in different animals or organs, without regard to uses. We say, for example, that the wing of the bird and the bat, the paddle of the whale, and the fore-leg of the dog, are similar in type or *homologous* to each other, because they are made up of similar sets of bones. They are modifications of one general plan