

animals. Besides the data furnished by the investigations already referred to from p. 28 to p. 35, I had most desirable facilities for tracing the embryonic changes of a considerable number of Acalephs. Indeed, I have been able to investigate the embryonic growth of all the types of the class, with the sole exception of the *Diphyidæ* and *Physophoridæ*. But Leuckart, Kölliker, Vogt, Gegenbaur, and Huxley have published such full accounts and exhausting researches upon these very families, that little is now wanting to complete the anatomical and embryological history of the whole class. At all events, our comparisons may now extend to every type belonging to this class. And the anatomy and embryology of the other classes of Radiates—the *Polyps* and *Echinoderms*—are also sufficiently well known to enable us to institute comparisons between them and the Acalephs, and to trace the differences which bear upon the limitation of their respective classes and subordinate groups. In attempting these comparisons, it is, however, indispensable to bear in mind the difference there is between general and special homologies.

General homologies lead to the knowledge of the identity of such systems of organs as present special structural combinations, and are perhaps adapted to different functions. The extremities of Vertebrates afford a good example of this kind of homologies; the pectoral fins with the thoracic arch of a fish, the wing of a Bird or that of a Bat, and the arms of Man, are identical organs, however different they may appear, between all of which general homologies may be traced. Special homologies, on the contrary, indicate the correspondence of identical parts, differing only in their relative proportions and special adaptations. The different systems of teeth, characteristic of the different genera and families of Mammalia, afford good examples of special homologies; and may be studied from the extensive investigations of Professor Owen upon that subject. Now, the more animals are compared in all their structural details, as well as in their various kinds and different degrees of relationship, the more distinctly does it appear that general homologies are co-extensive with the branches of the animal kingdom, while special homologies are circumscribed within the limits of the classes; or, in other words, that all the classes of one and the same branch have identical systems of organs, however different the organs themselves may be, while the representatives of one and the same class only exhibit identical adaptations in the structure of their organs. Such a distinction, as far as it may be carried out, affords, therefore, a valuable additional test in the delimitation of the classes of animals.

What the types are, which should be referred to the class of Acalephs, will already appear from what has been stated in Section II., p. 41, where I have compared the different types of Radiates with one another. It remains, however, for me to prove that the assertions there made are founded in nature; or, in other