

SECTION IV.

MORPHOLOGY AND NOMENCLATURE.

Thus far, my aim has been to present an outline of the views entertained by different naturalists upon the various relations among the animals referred to the type of Radiata, taking that group in the widest sense in which it has ever been considered. I have accompanied this survey with incidental critical remarks, and with a few considerations upon the mode of ascertaining the natural limits of a class, and have arrived at the conclusion, that the type of Radiates embraces only three natural classes. This conclusion is founded upon the evidence adduced, that the animals heretofore referred to Radiates, and not belonging to the one or the other of these three classes, are not genuine Radiates, and must therefore be excluded from that type.

I have attempted to show, farther, that the proposed division of Radiates into *Coelenterata* and *Echinodermata*, as distinct primary types, is a mistake arising from an incorrect appreciation of what constitutes respectively a type or branch, and a class, in the animal kingdom. If the views I hold on this subject are true, the *Echinoderms*, being built upon the same plan as the *Polyps* and *Acalephs*, belong to the same type as the so-called *Coelenterata*, and constitute only one class of that type. The peculiarities insisted upon as a ground for considering *Echinoderms* as a distinct type are not differences in the plan of structure, but merely differences in the mode of execution of one and the same plan.

I hold, farther, that the *Coelenterata*, as circumscribed by Leuckart, embrace two distinct classes, the essential characters of which are of the same kind as those that separate the *Echinoderms* from either of them; so that, considering classes to be founded on different ways of carrying out the same structural plan, the type of *Radiata* should be divided into three classes,—the *Polyps*, the *Acalephs*, and the *Echinoderms*. It is true that the range of structural differences in these classes, within their respective limits, is not always exactly parallel; but it is a fact, too much overlooked by naturalists, that there are very few groups in nature of the same essential value, presenting identical degrees of difference, or even approximating each other in their number of genera and species.

In the regular sequence of my exposition I should now present a sketch of the natural features of the class of *Acalephs*; but before I make the attempt, a few words upon their morphology and nomenclature are indispensable. This is important, in order that I may be able to present the characteristics of the class