

The Ctenophoræ are free Acalephs moving in various ways, their main axis being generally turned in the direction of their onward motion, but at times also

variation of mine, that K. E. von Baer long ago already insisted upon the necessity of the distinction, in view of an accurate appreciation of the true relations of animals, though his warning has not been heeded. (Comp. vol. 1, p. 221.) The reason why Baer's suggestion to distinguish between *the degree of perfection in the structure of animals* and *the type of organization* has not been followed out, lies perhaps in the vagueness of the expressions he uses: but whosoever has comprehended that distinction for himself cannot fail to perceive that what I have alluded to when discussing the value and significance of *the plans of structure* of the animal kingdom with reference to classification, is the same thing as what Baer calls *the type of organization*; and that what he calls *the degree of perfection* in the structure of animals corresponds to the two features of their structure which I have distinguished as *modes of execution* and *degrees of complication*, after I had perceived that Baer confounds under one expression two distinct categories of structure,—one relating, indeed, to the *relative degrees* of perfection in the animal structure upon which orders are founded, but not necessarily including another, broader consideration, the *ways and means* of the execution of the plan, upon which alone classes are based. (Comp. vol. 1, p. 137–176). To some extent I have already pointed out the general homologies which unite the Echinoderms and the Cœlenterata (pp. 64–87, and pp. 99–113); but it is so difficult to trace these general comparisons through the obstructions of a confused nomenclature, and in the face of the still greater obstacles arising from the remoteness of the whole type of Radiates from that to which we ourselves belong, that a thorough appreciation of the general as well as the special homologies of these animals can only be the result of a prolonged comparative study of all their types, and an equal familiarity with all of them. I venture to say, that if Leuckart and Gegenbaur had devoted their special attention to the Echi-

noderns as extensively as to the Acalephs, they would feel less confident that there is a typical difference between them. As for myself, I must declare, in the words of K. E. von Baer, that I can perceive only “different degrees of perfection in their structure,” and no difference “in the type of their organization;” or, in the words of my Essay on Classification, Polyps, Acalephs, and Echinoderms are built upon “one and the same plan of structure,” and therefore belong to the same branch of the animal kingdom, while as classes they differ in the “modes of execution of that plan.” As classes of one branch, they are held together by general homologies, while special homologies may be traced respectively in all the representatives of these classes. The most striking of these general homologies, because thus far least noticed, unquestionably, is that of the aquiferous system of the Echinoderms, and the radiating chambers of the Polyps, linked together by the chymiferous tubes of the Acalephs. It is not my intention here to trace all these homologies, to which I shall devote a special chapter in the sequel; but, since the appreciation of the true relations of the Echinoderms to the other Radiates must depend upon the views entertained of their homologies, I would urge upon the naturalists who consider the Echinoderms as a distinct type, the importance of closely comparing on one side the simpler ambulacral system of the lower Holothurians with the radiating chymiferous tubes of the naked-eyed Medusa, and on the other side the peculiar mode of branching of the chymiferous tubes in the genus *Aurelia* with the ramifications of the aquiferous system in *Scutella* and *Echinarachnius*; or the radiating pouches of *Cyanea*, and their numerous tentacles opening freely into these cavities, with the ambulacral suckers of any Star-fish; or the circular aquiferous tube of *Echinarachnius* with the circular chymiferous tube of the naked-eyed Medusa,—and I doubt not that the result of such comparisons will be a growing conviction, that the spherosome of the