

in the Actinoids, in which the digestive cavity is compressed in the same manner as in the Ctenophoræ, one end of the actinostome differs in form and structure and functions from the other end, which amounts to a difference between the two ends of the compressed digestive cavity, analogous to the difference existing between the odd ambulacral and the odd interambulacral zone at the two ends of the antero-posterior diameter of the Echinoderms. I do not, therefore, hesitate in considering that transverse diameter of the Ctenophoræ which coincides with the longer diameter of the actinostome and of the circumscribed area as the longitudinal diameter of these animals, and that which traverses the body in the direction of the intermediate chymiferous tubes as the lateral diameter, and these tubes therefore as an interambulacral structure homologous to the interambulacral vesicles or tubes of the aquiferous system of the Echinoderms, and not homologous to the radiating chymiferous tubes nor to the ambulacral tubes proper. As soon as these comparisons are admitted as correct, it must be also acknowledged, further, that one of the leading peculiarities of the Radiates consists in the position of the mouth, which, instead of appearing at the anterior end of the longitudinal or antero-posterior diameter, is placed at the actinal end of the vertical diameter, or, in other words, in the centre of radiation of the whole structure.

The special structure of the Ctenophoræ readily accounts for their peculiar symmetry. Built up of eight homologous segments, their spheroidal body would approach much nearer to a sphere, the primary form of all Radiates, were these segments or spheromeres not unequal among themselves in certain directions, and again perfectly identical in every respect in other directions. Had the similarity of the structure of the Acalephs and Echinoderms been sooner traced in its details,—had, especially, the repetition of homologous segments around the vertical axis of the Acalephs, and the homology of these segments and the ambulacral zones of the Echinoderms, been perceived,—it would have been easy to recognize the foundation of their resemblance as well as that of their difference. The typical architecture of the Echinoderms depends upon the presence of five homologous zones, occasionally reduced to four, and sometimes increased to a larger number; while that of the Ctenophoræ is based upon eight homologous segments. These parts are distinguished by special homologies in their respective classes, but present an unmistakable general homology when compared to one another. When tracing these general homologies, it must, however, be remembered, that the distinction of ambulacral and interambulacral zones, introduced in the characteristics of the Echinoderms, should be discarded to the extent to which they merely express a specialization of parts peculiar to that class, since, in the Holothurians, the interambulacral zones are not more distinct than in the Ctenophoræ.

Recalling now to our mind the statement made before, that the body of the