

SECTION IV.

HOMOLOGICAL RELATIONS OF AURELIA AND ECHINODERMS.

Leuckart, and with him most of the German naturalists, have urged their convictions of a typical difference between the *Acælephs* and *Echinoderms* with so much confidence, that, holding, as I do, the contrary opinion, I feel bound to avail myself of every opportunity of opposing their conclusions; and *Aurelia* furnishes so striking an instance of a close resemblance to *Echinaraclmius*, that, as a complement to the anatomical description of our *Medusa*, I may be permitted to compare, more closely than might otherwise be necessary, two representatives of the classes in question. That the plan of structure of the *Cœlenterata* bears a striking resemblance to that of the *Echinodermata*, is, I believe, conceded even by those who would separate them, as two primary divisions of the animal kingdom. But it is not generally understood that this resemblance is founded upon as perfect an identity of the structural elements of the two divisions as exists between the classes of *Vertebrata*; for were this identity fully appreciated, the complications of structure which distinguish them, could not be so strongly insisted upon as evidence of their typical difference, as is done by Leuckart and his followers.

Before proceeding, I would remind the reader of the little value which numerical differences undoubtedly have in this question, notwithstanding the constancy of the number of parts in most of the *Radiates*; for though the number five is the typical number among *Echinoderms*, there are *Crinoids* and *Starfishes*, and even *Echinoids*, with four and six spheromeres, and others with an unusually large number; and though the number four and multiples of four are the typical numbers of *Acælephs*, we find those which have five and six spheromeres, and other numerical combinations. We need, therefore, not hesitate to compare an *Aurelia* with a quadripartite and an *Echinaraclmius* with a quinquepartite arrangement of their parts; and I trust that at least upon that ground, no exception may be taken to the conclusions at which I have arrived.

The first question to which I would call attention is, whether *Aurelia* consists of eight or of four spheromeres. At first sight it would seem unquestionable, that there are eight equivalent rays in the body of an *Aurelia* or *Cyanea*, all having an eye at their peripheric termination, but four and four of which, alternating with one another, differ in supporting an oral appendage and a sexual pouch. If, however, the peculiarities of other families are taken into consideration, it will at once appear that neither the presence nor the position of the eyes, is in itself sufficient