

septa, in which the remaining septa are grouped in pairs, but in which six is not the fundamental number for the arrangement of the septa, e.g., *Sicyonis crassa* with sixty-four pairs of septa, and *Polyopis striata* with sixteen pairs. The two directive septa correspond to two distinct œsophageal grooves.

In the second group we find two pairs of directive septa, the single septa are constructed precisely as in the true Actiniæ, but, with the exception of the directive septa, are not united in pairs. I name *Edwardsia* as a type of this group.

In the third division, to which only a single species of those examined by me, *Scytophorus striatus*, belongs, the variation from the typical condition runs in the opposite direction. The paired arrangement of the septa is preserved, but one pair of directive septa is wanting (Pl. XIII. fig. 3).

In the fourth division we can clearly recognise a single œsophageal groove on the œsophagus; the septa inserted at the bottom of the groove may also be defined as directive septa, but it is not possible to point out on them the muscular arrangement found elsewhere. They agree, however, with the other septa, in so far as they have a thin layer of transverse muscular fibres on both sides. This is the case in *Cerianthus*. The fifth division is formed by the Zoanthidæ, in which the septa are paired, but partially in a rudimentary condition.

The plan which I have drawn up here, partly from the observations of others, but principally from my own earlier and later investigations, of the structure of the Actiniæ, allows me to make a few criticisms on the more important systems of Actiniæ already published.

Ehrenberg in his system of the Actiniæ, has made use first and foremost of the presence or absence of the sucking papillæ, then of the openings in the mural membrane, and, finally, of the form, length, and arrangement of the tentacles. The sucking papillæ recur in Gosse's system, though they are made of subordinate importance; they are described by him as hollow papillæ, furnished with a muscular apparatus, by which a vacuum is formed. I have entirely omitted the sucking papillæ in the general description of the anatomy of the Actiniæ, as I have never observed them, even in forms which were capable of incrusting themselves with foreign bodies. I am the more justified in doubting their existence, as Gosse has given no proofs verifying his assertions. Jourdan has lately described something like sucking papillæ in *Bunodes verrucosa*, his "verruës glandulaires," epithelial cones, consisting almost entirely of glandular cells, which press into the mesoderm, and partly form entirely or almost entirely detached mesodermal islands of cells. Here, however, we must consider the fact that, in the case of an extremely papillose surface, the depressions and sinuses between the papillæ may often resemble glands in transverse sections, taken through the wall. I have never been able to convince myself of the existence of glands in *Bunodes minuta*, which does not, however, refute the assertions as to their presence in *Bunodes verrucosa*. It is safer anyhow to consider the adhesion of foreign bodies as brought about, on the whole, not by means of sucking-cups,