side, and the *anterior* members of the two "posterior" pairs. This arrangement, disregarding for the moment the want of directives, is not without parallel amongst the Actiniaria. G. v. Koch, R. Hertwig, and Erdmann have shown that in the Zoanthidæ there is an alternation of macro- and microsepta, which is regular, excepting as regards four pairs. The majority of the pairs of mesenteries consist of a macroseptum and a microseptum, *i.e.*, of one which is complete and another which is incomplete. The macrosepta bear reproductive organs and mesenterial filaments; the microsepta are sterile and end on the oral disc. In the sagittal axis one pair ("ventral") consists of two macrosepta, and corresponds with the single siphonoglyphe. The other pair of "directives" consists of two microsepta. In addition to the directives two other pairs consist of mesenteries of the same type. These are usually situated one on each side, and only a little distance from the small ("dorsal") directives. They may consist of either micro- or macrosepta. Erdmann explains this peculiar arrangement by supposing that a dorsal and ventral zone of mesenteries exists, and that the two zones approximate either with small (*microtype*) or large mesenteries (*macrotype*). According to his investigation, the approach of the two zones is brought about by two mesenteries of the microtype in *Zoanthus*, *Mammilifera* and *Corticifera*. The macrotype arrangement is found in *Epizoanthus* and *Palythoa*. The microsepta appear to be rudimentary and not young ones, and supposing them to correspond with the imperfect mesenteries of *Leiopathes*, there would be a similarity in plan between the arrangement in *Leiopathes* and those Zoanthidæ having the mesenteries arranged on the microtype.[1] According to this view, the tentacles in *Leiopathes* correspond in the main to interseptal chambers. The intraseptal space between the two pairs of mesenteries in the transverse axis is lost, whilst the other intraseptal areas, in elongate forms, abut on a portion of the lateral body-wall.

An apparently fatal objection to this explanation consists in the fact that the arrangement of mesenteries in Antipathidæ would have no parallel in the Actiniaria or Madreporaria. In these orders the sagittal axis is terminated at each extremity by a pair of "directive" mesenteries and not by two adjoining members of adjacent pairs. The probable absence of a siphonoglyphe may mask the arrangement of mesenteries, and the greatest diameter of the oral aperture may possibly not lie in the true sagittal axis. It may be mentioned that a flattening of the stomodæum at one, or sometimes at both extremities, has been observed in certain species (*e.g.*, *Cirripathes propinqua*), but I am unable at present to determine its significance. Apparently there is no structural difference between this and other portions of the stomodæum.

A comparison of the arrangement and comparative development of the mesenteries in *Madrepora*, *Seriatopora*, and *Leiopathes* is of considerable interest. Figures 15, 16, and 17 represent diagrammatically the arrangement of mesenteries in the three genera.

[1] A different interpretation of the arrangement of the mesenteries in Zoanthidæ is suggested on p. 59.