

opposite sides of the mesenterial plates. The mesenterial chamber (seen beneath in the drawing), which is free of muscles, is the "Dorsalfach" of Kölliker; the opposite one the "Ventralfach." The muscles are covered by the endodermic layer, and are in direct contact with the median plates of the mesenteries, being modifications of the mesoderm.

I have not been able to find any definite protractor muscles in *Heliopora*. I have, however, occasionally seen fibres on the surface of the mesenteries of the lateral margins of the atrium, coming apparently from the stomach-wall, which may prove to be such. In transverse sections I have seen no trace of such muscles.

*Heliopora* having commonly twelve so-called "septa" and eight mesenteries, a definite and regular relation of the eight mesenteries to the twelve plications of the wall of the calicle might naturally be looked for; none such, however, exists. As has been before stated, the number twelve is by no means constant, and where twelve are present the arrangement varies in all kinds of ways. In Plate I. fig. 3 the plications are shown as seen in an actual section, and their relations are accurately copied. Here there may be counted either twelve or thirteen such plications, representing corresponding calcareous septa which occupied the indentations.

There are eight mesenterial filaments, as usual, present, which spring from the angle where the retractor muscles are inserted into the stomach-wall, and are continued down the free borders of the muscles, being attached to them. The filaments have the usual structure. Two filaments appear to be constantly longer than the others; but I am uncertain about this point, it being very difficult to get a view of all the filaments uninjured in any one polyp. To which sides of the mesenterial plates the filaments are attached I have not made out.

*Generative Organs.*—Out of at least a hundred polyps examined from the colony of *Heliopora* hardened for examination, only three were found to contain generative organs; in each of the cases ova. In two of the polyps a single ovum only was present, in the third four ova attached singly to four mesenteries. The ova are attached to the edges of the muscular margins of the mesenteries at a point about halfway between the origin and insertion of the fibres composing the lower border of the muscle (Pl. I. fig. 1). The ovum is attached to this border by a specially developed mass of endodermal cells, and at its point of attachment is in close relation with the mesenterial filament. The ova, as shown (Pl. II. fig. 8), are large, measuring .21 mm. in diameter (the smallest observed measured .17 mm. in diameter); they are composed of an outer membranous capsule, by means of which they are attached in position, and a contained mass of yelk-globules, in which lies a germinal vesicle and germinal spot.

It was not determined which of the mesenteries bore ova, or whether those with long filaments bore them or not, the expectation that abundance of fertile polyps would be