

the polyps of the *Heliopora*. Hence, possibly, the observed lack of propagation of applied stimulus. In their later work¹ they write as follows:—"M. de Blainville's observations on the animal of *Heliopora cœrulea* led him to remove it from the genus *Pocillopora*, in which it had before been placed, and to form the genus *Heliopora* for it, because the animals of *Pocillopora* have never more or less than twelve tentacles. *Heliopora* has either fifteen or sixteen short, broad, triangular, pointed tentacles forming a disc around the mouth. The animals were made out with difficulty with a powerful lens." Eight compound tentacles appear to have been mistaken by the observers for sixteen simple ones.

Stomach.—The stomach of *Heliopora* is closely similar to that of other Alcyonarians. As seen in the contracted condition its walls are horizontally plicate. In transverse sections, as Plate I. fig. 3, the layers composing its walls are well seen. There is the usual covering of the endoderm; but in the mesoderm, within the layer of homogeneous connective tissue, a second narrow zone (Pl. I. fig. 3, B) can be detected which is probably muscular. The inner ectodermal lining of the stomach is continuous with that of the tentacles, but ciliated.

Mesenteries and Muscles.—Eight mesenteries completely divide the upper part of the cavity of the polyp into eight radially-disposed chambers. The mesenteries consist of a median plate of homogeneous connective tissue, which is directly continuous with the similar layer of the lining membrane of the calicular cavity, and also with that surrounding the stomach, and of an investment of endodermal cells covering the median plate on both sides, excepting where the retractor muscles intervene between the two. The retractor muscles form the lower borders of the mesenteries; they consist of long stout fibres which, lying on the surface of the mesenteries, take origin from the lower part of the sides of the polyp-cavity, and reach sometimes as far down as the margin of the tabula. They curve thence inwards and upwards, becoming gradually more concentrated as they ascend, and are inserted round the mouth and region just below it, in the intervals between the bases of the tentacles.

The muscles have in position, with regard to the plates of the mesenteries, the same arrangement which Kölliker² has described as existing in the Pennatulidæ,³ and which has also been found in the genus *Umbellula* by Lindahl and figured by him.⁴

The arrangement of the muscles is seen in Plate I. fig. 3, where R M, R M are the muscles. At opposite ends of the long axis of the stomach the muscles are on

¹ Quoy et Gaimard, Voyage de la Corvette l'Astrolabe, Paris, 1832, t. iv., Zoophytes, pp. 252, 253.

² Prof. Kölliker, Anatomisch-systematische Beschreibung der Alcyonarien, Abh. d. d. naturf. Gesell., Frankfurt. 1870.

³ "Om Pennatulidsläget *Umbellula*," Kongl. Vet. Akad. inlemnad den 10. Feb. 1874: Stockholm, tab i. fig. 8.

⁴ Professor Schneider and M. Röttken must certainly have been mistaken in their conclusions concerning the arrangement of the muscles with regard to the mesenteries in Alcyonaria, if the figure given in the Ann. and Mag. Nat. Hist., 1871, vol. vii. p. 437, as representing them be correct.