

In no part of the growing points of the corallum of *Heliopora* is there any trace of the calcareous tissue being built up of the fusion together of a network of spicules, as occurs in the case of the corallum of *Corallium rubrum* and also in that of *Tubipora*, as was shown to be the case by Perceval Wright,<sup>1</sup> and as may be seen at once by examining the growing end of the tube of a spirit specimen of *Tubipora*. In this respect *Heliopora* differs most markedly from both *Corallium* and *Tubipora*. The structure of the hard tissue of *Heliopora* is, however, in many respects very like that of the sclerites of *Primnoa*.

#### Blue Coloration of the Corallum of *Heliopora cœrulea*.

The corallum of *Heliopora* is coloured of a deep blue, and has always been regarded as remarkable amongst corals for this fact. Now that it is known to be an Alcyonarian structure the fact is less exceptional, since both *Corallium* and *Tubipora* have a deeply coloured corallum, and many other Alcyonarians have coloured spicules. Amongst Madreporaria such a condition is exceptional, but the coralla of some *Fungias* and *Desmophyllums* is coloured madder red by a peculiar colouring matter which I have termed "polyperyrhrin,"<sup>2</sup> and which occurs also abundantly in many Medusæ and other Cœlenterata. In the case of certain Eupsammidæ also the corallum is red.

The blue tint is seen in sections of the corallum of *Heliopora cœrulea* to be diffused within the hard tissue. The colour is faint or almost absent in the freshly-growing tips of the corallum, and pale in the most recently-formed superficial structures generally; it is darkest in the layer lying immediately beneath these, that is to say, in the most recently matured tissue. In transverse sections it is seen to be darkest at the surfaces of the walls of the tubes and calicles. In vertical sections of the corallum the continuation of the dark blue line marking the margin of the wall of each tube enables the line of the tube to be traced past the superadded tabula, and marks the boundary between the two structures. Very exceptionally, intensely blue streaks are developed more internally on either side of the central canal, as in Plate II. fig. 6, where B marks such a blue band. The usual distribution of the colouring is that shown in Plate I. fig. 4, where the dark zone at the margin of each tube seen in section represents intense colouring. The tabulæ are almost colourless.

When the corallum is boiled for a long period in caustic potash the blue colour remains unaltered. When the calcareous matter is removed from the corallum by means

<sup>1</sup> J. Perceval Wright, On the Animal of the Organ-pipe Coral, Ann. and Mag. Nat. Hist., vol. iii. p. 377, 4 ser., 1869.

<sup>2</sup> H. N. Moseley, On the Colouring Matters of various Animals, and especially of Deep-Sea Forms dredged by H.M.S. Challenger (Quart. Journ. of Micro. Sci., new ser., Jan. 1877, vol. xvii. p. 2).