

E N. Endoderm.

C. Canal cut transversely.

Fig. 4. Portion of the superficial structures of *Heliopora cœrulea* as viewed in a thin vertical section.

E. Ectoderm, consisting of elongate club-shaped cells running out below into fine processes, which traverse the next succeeding layer (M) of homogeneous connective tissue. At the bases of these cells are others of similar structure but irregular form. Small nematocysts lie amongst these external ectodermal cells, and some of them (N) are shown in the deeper regions. At EN the wall of one of the tubular cavities of the cœnenchym is seen in section at its edge, showing its three layers and the residue of animal matter (P) left by parts of its calcareous wall after decalcification.

Between EN and the section of the wall of the canal (V') a narrow strip of the inner surface of the tubular cavity is viewed from its surface aspect.

E. External ectodermal layer.

M. Layer of homogeneous connective tissue.

N. Nematocysts.

C. Connective tissue cells.

V. Canal of superficial system.

V'. Canal of deep system.

E N. Endodermal cells.

D. Layer of connective tissue cells.

P. Residue of tissue after decalcification of a portion of the wall of a cœnenchym tube.

Fig. 5. Section vertical to the surface of the corallum of *Heliopora cœrulea*, showing the structure of the hard tissue.

A. Former calicular cavity shut off from the recent calicle A' by the tabula, C.

The tube cavities on either side have similar tabulæ developed in them. In the cases of some of the tubes the tube walls are shown as cut parallel to their surfaces, in other places the cut edges of the walls only are seen.

The tabulæ being applied against the already formed insides of the calicles and tubes as a later formation, the line of the old wall of the calicle in each case can always be traced up for some distance past the level of the tubula, which appears as the bottom of a second tube fitted within the first. The calcareous fibres forming the walls of the tubes and calicles are inclined upwards and outwards at a uniform angle from the vertical axes of these structures.