

Fig. 2. Transverse section through the uppermost part of a retracted polyp of *Heliopora cœrulea*, as viewed from below, showing the under surface of the most superficial structures closing the mouth of the calicle, *i.e.*, the immediate under surface of the polyp-lobes seen in Plate I. fig. 5, and Plate II. fig. 1. The drawing is from a decalcified preparation. The soft parts lining the wall of the calcareous calicle are cut through; they retain the form of the calicle, to which they were closely applied. The wall presents a series of longitudinal folds so as on transverse section to show a sinuous outline with twelve indentations separated by twelve bulgings. The indentations occupied in the fresh condition of the animal by calcareous matter represent the twelve ridge-like calcareous septa present in the calicle. The indentations are neither in form nor arrangement symmetrical, nor are the eight mesenteries (MM) arranged symmetrically with regard to them.

Between the mesenteries the body-wall of the polyp does not reach outwards everywhere the entire distance to the wall of the calicle, but is continuous with this only in the region of its indentations. At each of the bulgings of the wall a wide aperture is left, by which the cavity of the polyp communicates with the canal systems around.

MM. Mesenteries.

OO. Openings by which the polyp cavity communicates with the canal-systems. The light oval spaces shown in the shaded areas of the openings are the sinus of the superficial canal-system.

Fig. 3. Vertical section through one of the siphonozooids of *Sarcophyton*. On the left-hand side of the drawing the calcareous spicules are shown *in situ*. On the right the appearance presented after these have been removed by acid is shown.

The points of the spicules accompanied by a layer of connective tissue project up far into the prominent layer and raise it up just as do the external ectodermal points of hard tissue in *Heliopora*. The connective tissue shows excessively small ramified nuclei scattered through its otherwise homogeneous tissue. Portions of adjacent siphonozooid cavities are shown on either side of the central one; the transverse fibrillation of their wall is indicated.

Sp. Spicules.

S.C. Cavities from which spicules have been removed by acid.

S. Stomach of the siphonozooid provided within with cilia directed inwards.

M E. Its mesenteries.

M F. Mesenterial filaments.

C. Canal of the transverse system, forming a communication between two adjacent siphonozooid cavities and lined by endodermal cells continuous with the layers lining the siphonozooid cavities.