

imperforate limiting zones lie just above the gastral septa, and are indeed partially united with them. This union of the septa of the gastral cavity with the sieve-plate usually occurs only in the centre and at the outer ends, so that one can see the septa, in their middle portion, ending with a free convex margin just below the plate. In some cases, however, each septum unites along its whole extent with the corresponding zone of the sieve-plate. Commensal Anthozoa occur in extremely variable number all over the lateral surface, and even on the cruciate imperforate areas of the sieve-plate. They protrude from circular apertures, which are 2 to 3 mm. in width and possess a firm peripheral layer. In some specimens they cover the whole lateral surface so thickly that the distance between them is not more than from 3 to 10 mm., while they also occur abundantly (Pl. XXVII. fig. 2) on the dividing zones of the sieve-plate. In other specimens they occur singly only here and there, though they never seem to be wholly absent.

Apart from these Anthozoa tubes, the surface of the sponge is comparatively smooth. The pores of the dermal membrane covering the surface are for the most part microscopically small. The extreme inferior end of the body, adjacent to the *Palythoa* encrustating the basal tuft, consists of an inconspicuous but compact circular cushion, varying greatly in breadth in the different specimens. In dried forms, the fine reticulate pattern which is distinctly seen over the whole lateral surface of the body is in this region no longer recognisable.

When the terminal sieve-plate is removed, the gastral cavity is revealed, and is seen to be divided into four wide spaces by the four broad, cruciately disposed, radial septa, with a central conical elevation. The free upper margins of these septa, if not fused with the sieve-plate, are rounded off and convex, and extend from the body margin on the outside to the conical elevation in the centre. The cavities lying between the septa become gradually narrower downwards, and receive from the sides and from below the wide lacunar efferent canals of the body-wall. In a longitudinal section near the central axis, a continuation of the basal tuft is seen as a somewhat markedly twisted strand of spicules, prolonged up the central column and gradually narrowing towards the conical elevation, as was indeed long ago observed and figured by Max Schultze. Since the efferent canals are very wide and often lacunar, and since the subdermal spaces with the afferent canals penetrating inwards from them have a similar character, it evidently follows that the layer between the two systems of canals cannot be by any means broad.

The skeletal elements of *Hyalonema sieboldii* which always remain completely isolated were thoroughly studied in 1860 by Max Schultze, and so excellently described in his monograph, that I must here simply content myself with referring to that admirable memoir, and with a brief review of the different forms of spicules and of the manner of their disposition.