

appear to undergo but little change, while the collenchyma is subject to considerable modification; in some places, sometimes near the exterior surface, sometimes in the neighbourhood of the water-canals, the vesicles which contain the granular cells become enlarged at the expense of the intervening collenchyma, which is reduced to forming the thin film-like walls of irregular cavernous spaces; the matrix then ceases to stain with hæmatoxylin, and the collencytes, which do not lose this property, become all the more visible. The granule cells remain within the enlarged vesicles unchanged, appearing now dark on the light ground of the field of the microscope, but little interfered with by the remaining collenchyma; while in the case first described they appeared as lighter bodies on the darker ground of collenchyma. Next to the epithelium of the water-canals the granular cells are frequently arranged in a single close layer forming an investing wall (Pl. VIII. fig. 36).

This peculiar form of collenchyma is similar to that met with in *Pachastrella abyssi* and in so many species of Lithistids.

The ectosome, 0.4 mm. in thickness, differs from the choanosome chiefly in the absence of flagellated chambers, partly in minor details (Pl. VIII. fig. 35). The collencytes are frequently modified into elongated fusiform cells not more than 0.02 to 0.04 mm. long; running parallel to the surface, sometimes in great numbers, they give to the ectosome a fibrous appearance. A few of such fusiform cells may be directed at right angles to the surface, their distal ends terminating against the outer epithelium. The finely granular cells are as a rule rarer in the ectosome than elsewhere.

The epithelium of the water-canals is rendered very evident by the deep stain taken by the nuclei of its component cells (Pl. VIII. fig. 36); by the presence of these little almost black dots the epithelium can be traced throughout the canals right up to the flagellated chambers, where it becomes replaced by the usual choanocytes. The flagellated chambers vary from about 0.02 mm. in diameter to 0.02 by 0.0275 mm.; the incurrent canal passes into them by a prosodus, and they communicate with the excurrent canal by a long aphodus; both prosodus and aphodus are frequently obliterated so far as their cavity is concerned, but they can still be easily traced by the line of apposed epithelial nuclei where their walls are in contact.

In the young state the spicules are smooth (Pl. VIII. figs. 32–34) and not spined, with very slender cladi and rhabdome, the former curved usually more or less sigmatelically; the deuterocladi of the dico- and tricho-cladose forms are relatively much shorter in the young state than subsequently (Pl. VIII. figs. 33, 34). They are then suggestively similar to the trilophose candelabra of *Placina trilopha*, F. E. Schulze (p. 279). In one or two instances a young spicule was observed within a scleroblast (Pl. VIII. fig. 38); the adult spicule has not been observed in connection with a scleroblast, but nuclei similar to those of the collencytes are sometimes to be met with, forming a series down its sides (Pl. VIII. fig. 37).