

passes about the inner ends of the ectochones into a fibrous tissue in which the fusiform cells run tangentially, and are variously orientated. The remaining part of the cortex is that which surrounds the tangential canals, the representatives of the endochones and crypts of other sponges; it is partly collenchymatous and partly fibrous in constitution.

In addition to the elements just described, clusters of granule-cells are present, chiefly distributed immediately below the outermost layer of fibrous tissue; they vary from about 0·1 by 0·06 mm. to about 0·2 by 0·18 mm. in diameter, though some are smaller. Each cell, about 0·016 mm. in diameter, is wholly composed of unstained, colourless granules of remarkably uniform size. Between the cells is a thin layer of darkly stained protoplasm, which separates them from each other, forming an inter-cellular network throughout the cluster. A variable number of the cells, sometimes more, sometimes less, are of very different characters to the others; remaining of the same size, they present a well-stained oval nucleus about 0·005 mm. in diameter, enclosing a minute spherical nucleolus, and surrounded by a film of darkly stained protoplasm, which extends in radiating processes to the periphery of the cell; or, instead of this protoplasm, a number of isolated, deeply stained spherical granules may be present. The granules of the unstained cells, on the other hand, are so numerous that they lie contiguous in a solid mass.

The ectosome is continued as a membrane 0·16 to 0·19 mm. thick over the cloaca, and forms a rounded margin to the oscule (Pl. XIV. fig. 14). This oscular membrane is very similar in composition (Pl. XIV. fig. 15) to the rest of the ectosome, consisting of a stained matrix traversed by fusiform cells, which take chiefly a concentric direction around the oscule, but are also partly radiately arranged. Isolated granular cells and clusters of these cells are also present, and, at a little distance below the outer epithelium, the minute vesicles previously mentioned. On the upper surface of the membrane, near the oscular opening, these are very clearly seen, with one fibril running to the outer epithelium, and the other losing itself in the general tissue. The tissue of this oscular membrane extends down the sides of the cloacal tube as a lining layer, 0·26 mm. thick. This presents below the outer epithelium first a layer of chiasters, then of fusiform cells longitudinally arranged, altogether about 0·03 mm. thick; this is underlaid by clusters of granule-cells, forming a layer, traversed by fibrous strands, of about 0·05 mm. thick. The rest of the cloacal wall, about 0·19 mm. in thickness, consists of fibrous tissue, the fibres running both longitudinally and concentrically. The walls of the larger canals are also formed chiefly of fibrous tissue and associated granule clusters; these fibrous walls are frequently 0·1 mm. in thickness.

*The Choanosome.*—The mesoderm is a typical sarcenchyma, with the sarcencytes very clearly defined as small polygonal cells about 0·012 mm. in diameter. In some of them young forms of asters, about 0·004 mm. in diameter, are well displayed; the central part of the cell, as far as the ends of the actines of the aster, is of much paler colour than the