

The tissues of the cloacal tube are crowded with sanidasters throughout.

*Soft Parts.*—A central canal, of much less diameter than the tube itself, from one-half to one-third in a small specimen, traverses it from end to end (Pl. XVII. figs. 15, 18). A collenchymatous wall invested with epithelium on its free surface bounds the canal, and a series of muscular vela or diaphragms of the usual character constrict it at irregular intervals. The collenchymatous wall of the canal is separated by a system of irregular canals or lacunæ from the skeletal wall of the tube, which is also clothed with collenchyma; a connection between the two is afforded, however, by the collenchymatous strands and lamella which bound the lacunar spaces. These freely communicate with the central canal by numerous round or oval apertures in the canal wall (Pl. XVII. figs. 15, 16, 18), which is thereby reduced to a mere sieve-net; in the other direction they open to the external water by sieve-pores in the tissue of the skeletal wall. The exterior of the tube is invested with epithelium and an irregular layer of collenchyma containing numerous fusiform cells, most of which run longitudinally along the sides of the spicular fibres. The collenchyma is thickest about the skeletal framework, but extends thence in fibrous strands across the interspicular rectangles, subdividing them into a number of oval or rounded areas; secondary, smaller fibrous strands frequently proceed from the main strands, and subdivide the larger areas into round or oval fenestræ. The investing epithelium with its associated collenchyma reduced to the thinnest possible layer, where it extends over these, is perforated by round or oval pores from 0.012 to 0.039 mm. in diameter; the number of pores present in a single porous area may vary from one to six, according to the size of the pores and of the area (Pl. XLI. fig. 5).

The sanidasters which underlie the investing epithelium accompany it when it forms the roof of a porous area, but usually not quite up to the margin of the pore; stopping a little short of this they leave the membrane bare; it is apparently structureless, probably consisting of a double epithelial layer only. The pore-sieve structure presented by the cloacal tube is precisely similar to that which serves for the entrance of water into the incurrent system in so many other sponges, and might lead us to question its excurrent function; of this, however, there can be little doubt, since the excurrent canals of the choanosome occupying their usual position, and becoming larger towards the deeper parts of the sponge, can be readily traced into communication with the base of the tube. A similar excurrent structure is also met with in the nearly related sponge *Disyringa dissimilis*, Ridley.

*Connection of the Cloacal Tube with the Sponge-body.*—The base of the tube, *i.e.*, that part of it within the sponge-body, is surrounded by lacunar spaces, which are bounded on the one hand by the choanosome of the sponge, and on the other by the exterior of the base of the tube; they are thus furnished with collenchymatous walls which are connected across the lacunæ by thick collenchymatous bands (Pl. XVII. fig. 10).

At the point of emergence of the tube the upper and lower fibrous layers of the