strands, which branch and unite again in the thickness of the wall. In the depressed areas mapped out by these ridges, the pore groups are situated.

On approaching the lower margin of the oscular tube, the ridges affect a longitudinal direction, and expanding on each side as they enter it, give to the outermost row of depressed areas the form of arched recesses.

No pores or intercortical cavities are to be detected over any part of the cortex, although they have been searched for in several sections of entire sponges; it would appear therefore that the oscules and cloacal chambers, so-called, are some of them incurrent in function, and in accordance with this we find, proceeding from some of the cloacal chambers, subcortical canals, occupying the same relative position in this sponge that the undoubted incurrent canals do in *Disyringa dissimilis* (see Pl. XLI. fig. 3).

Notwithstanding this supposed difference in function we shall continue to speak of the flask-shaped recesses and their openings to the exterior, whether excurrent or incurrent, as cloacal chambers and oscules.

The minute structures of the "flasks" has been very carefully studied in transverse, longitudinal, and tangential sections, and by teasing.

Oscular Tube.—The wall of the oscular tube (about 0·64 mm. thick in average-sized examples) is mainly composed (Pl. XXXIX. fig. 2) of concentrically arranged myocytes, traversed by a few longitudinal strands of similar cells, from which branches arise at intervals and proceed towards the free face in a radiate direction; as they do so their constituent cells, diverge from each other upwards and downwards, giving them a fan-shaped outline in section. The concentric myocytes represent the fibrous cortex somewhat modified; in the immediate neighbourhood of the oscular wall the cortex is a collenchyma with tangentially disposed fusiform fibre-cells running through it in various directions; by the reduction of the collenchyma to an almost imperceptible residuum, and the consequent approximation of the fusiform cells, which at the same time fall into a concentric arrangement, the chief mass of the oscular tube results. The longitudinal fibres are derived from the walls of the cloacal chamber, but these are simply a part of the cortex invaginated, with fibres of fusiform cells running tangentially through them just as in the rest of the cortex.

The epithelium of the cortex is continued inwards, lining the interior of the flask-shaped recess; below it in the case of the oscular tube is a layer of tissue, about 0·08 mm. thick, sometimes less, which is of considerable interest, since it presents in places structures which are similar to sense-cells (Pl. XXXIX. fig. 8). These are fusiform, finely granular cells, more deeply stained than the adjacent tissue; they are usually somewhat swollen in the middle, where an oval nucleus with a spherical darkly-stained nucleolus is situated; the outer end is elongate, conical, with a rounded point, but no apparent sense-hair, it lies either immediately below the epithelium or projects between the epithelial cells, at the inner end it terminates in one or two fine