

*Astellia vosmaeri* measures 30 mm. in height, 45 mm. in width, by 41 in breadth; the smaller is about 35 mm. long by 23 mm. wide. In neither, after a careful search, could any trace of an oscule be discovered. The surfaces of both are worn nearly smooth, as if the sponges had been rolled about on the sea-bottom, the hispidating spicules remaining only where protected by the attached sponge and at the opposite pole. The pores measure from 0.025 to 0.0775 mm. in diameter, they occur in sieves which overlie the ends of the canals forming the chones. The chones (Pl. XL. fig. 8) consist of a canal which sends off numerous branches towards the dermal membrane, each branch terminating beneath a pore-sieve. A single chone thus receives water from several pore-sieves, and may drain an area 1.5 mm. in diameter. In some cases, however, only one or two branches are given off from the main canal. In the other direction the canal is continued inwards through the fibrous layer of the cortex with a very much diminished diameter; it is easily traced in thick slices by the layer of scattered pycnasters which accompany it, and which extend over the face of the sphinctral muscle which closes its inner end. This sphincter forms a ring-like swelling on the inner face of the cortex around the end of the chonal canal.

*Ectosome.*—The cortex consists of a thin outer layer of fibrous tissue, 0.06 mm. in thickness, covered by the external epithelium and its underlying layer of pycnasters; of a thick layer of clear collenchyma, 1.0 to 1.5 mm. in thickness, containing, in addition to a network of collencytes, elongated fusiform cells, which, however, are not numerous enough to give it a fibrous appearance; and finally of an inner layer of fibrous tissue, the component fusiform cells of which are arranged in the usual way, *i.e.*, in fibres which run concentric with the surface in various azimuths; this layer varies from 0.16 to 0.475 mm. in thickness, and the total thickness of the cortex varies from 1.35 to 2.0 mm. Where the megascleres pass through the cortex the inner fibrous layer is produced outwards into conical extensions, which surround the cladal ends of the rhabdomes; a single rhabdome with the attached fusiform cells extending obliquely downwards from it on all sides into the fibrous layer may frequently be observed.

*Choanosome.*—The mesoderm is a sarcenchyma, amidst which fusiform cells are sometimes seen wandering, especially in the neighbourhood of the canals. The chones lead into subcortical crypts, which, like the larger excurrent canals, are furnished with collenchymatous walls, in which, in addition to the plexus of collencytes, deeply stained fusiform cells, and rarely large granular cells elongated in the same direction as the fusiform cells, are to be seen. Although no discoverable oscules exist, there is no difficulty in distinguishing the incurrent from the excurrent canals, the interdigitation of the two systems being very clearly revealed in good sections. The large excurrent canals, with collenchymatous walls, communicate with the flagellated chambers only by their terminal branches, and never directly through the walls; indeed, branch canals may sometimes be observed extending between the surrounding sarcenchyma and the collenchyma