

sponge. The mesoderm consists of sarcenchyma, except about the spicular tracts, where it passes into collenchyma.

*The Canal System.*—The dermal membrane is perforated by pores which lead directly into the subdermal cavities, from these canals are continued inwards through the cortex and descend radiately into the choanosome, where they soon lose all regularity of direction, and finally communicate with the flagellated chambers, which vary from 0.0276 to 0.0395 mm. in diameter, and open into the excurrent system by narrow aphodal canals.

*Spicules.*—The cortex is without special oxate spicules, but the radiating spicular fibres are well developed, and already present traces of a spiral arrangement. They are composed of all the forms of spicules which are present in the adult. The oxas do not call for special remark, but the anatriænes present a very interesting series of forms; the simplest are terminated distally by a swollen bulb-like thickening (tylote), within which the axial fibre ends simply, or in a slight enlargement; in other cases small processes representing the axial fibres of cladi proceed from it, but end within the bulb, the cladi themselves being absent (Pl. V. fig. 15). Stages in which only one or two cladi are present, occur along with others in which all three are developed. The cladi extend at right angles to the rhabdome for a considerable part of their course, and are suddenly bent back near the ends. The protriænes are similar to those of the adult, though cases in which only two cladi are present appear to be more numerous. Microscleres which are absent in the adult do not appear in the embryo.

*Spicule-Cells or Scleroblasts* (Pl. II. fig. 20).—These somewhat fusiform darkly staining granular cells are very numerous and well displayed. They are about 0.01 mm. broad by 0.023 mm. long, and the contained granules, which are spherical, are about 0.002 mm. in diameter. Granules similar in size and appearance can in many cases be traced from the cell along the whole length of the spicule, showing that the spicule does not simply penetrate the scleroblast, but lies wholly immersed in it. In the case of the anatriænes the film coating the rhabdome thickens over the cladome into a mass of protoplasm, completely embedding it up to the points of the cladi.

*Planula Stage* (Pl. XL. fig. 5).—The preceding embryos, fully developed, but for the absence of an oscule which I could not find, are large and consistent enough to be separated from the mother sponge and sliced separately; less developed embryos are also present in the basal part of the mother sponge, but they so readily fall to pieces that they can only be sliced along with the tissue in which they occur, and as this is traversed by stout spicules, it is very difficult to obtain slices as perfect as could be wished. I have succeeded, however, in preparing serial sections of the planula of this sponge, the only other stage in its development I have met with. It may be added that ova were not observed in any part of this preparation.

The planula is egg-shaped, about 0.8 mm. long by 0.5 mm. broad where broadest. The hypoblast consists of oval masses, often polygonal by appression, about 0.065 by