

for I find that it marks the ends of those excurrent canals which terminate by simple ostia in an exceptional specimen to be further referred to later. The mesoderm of the choanosome is a sarcenchyma. The flagellated chambers (Pl. XIII. fig. 9) are very clearly and sharply defined in all their characters. The choanocytes present a rounded base with the usual nucleus and nucleolus, a short collum deeply stainable extends from it, and is continued into an unstained structure seen as two sharply marked lines in section; this is apparently the collar; the collar enters into the fenestrated membrane; the whole length of the cell is about 0.0118 mm. The prosopyle is single and large, about 0.0118 to 0.016 mm. in diameter; the apopyle appears usually to be smaller, from 0.008 to 0.012 mm. across; a narrow aphodus proceeds from it, on an average about 0.019 mm. long, but varying according to the distance to be traversed from the canal into which it flows and the chamber to which it belongs. The chamber always lies close to the ultimate wide branch of one of the incurrent canals, the prosopyle opening immediately into it or by means of a very short prosodus. The marked contrast between the large ultimate incurrent canals, with the layer of flagellated chambers immediately surrounding them, and the small branches of the excurrent system, with their repeated ramifications ending in a special aphodal canal for each flagellated chamber, is well shown in Pl. XIII. fig. 8.

The peripheral ends of the excurrent canals are no larger than those of the incurrent system, and only in a few specimens is an excurrent canal of large size to be met with at all, and this does not communicate directly with the exterior, but by means of smaller branches which run radially to the ectosome, to open by the usual cribriform pore-areas. These areas, which present the same characters whether serving for admission of water to the incurrent system or its ejection from the excurrent, occur between the deuterocladi of the dichotriænes; these, extending horizontally in the ectosome beneath the epithelium, form by their symmetrical disposition a very regular framework; within the areas of this framework (Pl. XV. fig. 20) the ectosomal roof is perforated by pores, from 0.004 to 0.015 mm. in diameter; the margin about each pore is very thin, consisting of an inner and outer layer of epithelium, with an excessively thin intervening layer of collenchyma containing a few fusiform cells; between the pores these increase in number as the collenchyma in thickness, forming a secondary framework of tissue within the primary spicular framework; the thickening of the framework does not affect the level surface of the exterior epithelium, but bulges out on the under surface of the roof, so that in transverse section each pore forms an opening at the summit of a low dome, the walls of which are formed by the secondary framework. In one specimen the areas at one end of the sponge are each occupied by a single aperture or ostium which replaces the fenestration just described. These ostia are the openings of excurrent canals.

In *Anthastra pulchra* and the present species we are presented with a series of stages in the modification of the excurrent canal system which serves to explain the