

spherical part, from which a narrow, cylindrical neck projects into the interior of the cavity, the length of the whole structure being 0.0118 mm.

The vesicles are frequently crowded together so as to reduce the matrix to very thin partitions (Pl. XXXIV. fig. 12). Numerous granules are dispersed through the matrix, and it takes a distinct stain with hæmatoxylin; branching and fusiform collencytes, with nuclei like those seen within the vesicles, are also present. The tissue is therefore a collenchyma containing vesicular cells, similar to those which occur in *Pleroma* and other Lithistids. The vesicular cells are, I am inclined to think, residual cells, developed from smaller but similar cells, which are scattered through the matrix, and which can be traced downwards to a size not exceeding 0.008 mm. in diameter. It appears possible that they may have been filled when fresh with some kind of oil, since in *Pachymatisma*, which possesses similar cells, multitudes of oily globules immiscible with water, are set free on cutting through the cortex. If this oil were soluble in alcohol, the oil-bearing cells in spirit specimens would resemble the vesicular cells above described. The choanosome is distinguished from the ectosome, partly by the presence of flagellated chambers, partly by the character of the mesoderm, which consists of sarcenchyma. There is no sharp line of demarcation between the two regions, however, and vesicles precisely similar to those of the ectosomal tissue extend from it for some distance into the sarcenchyma. The sarcenchyma also contains numerous problematical little bodies, as much as 0.004 to 0.005 mm. in diameter, subangular in outline, apparently homogeneous, and very darkly stained by hæmatoxylin. The flagellated chambers (Pl. XXXIV. fig. 10) are small, about 0.024 to 0.031 mm. broad, by 0.018 to 0.024 mm. long; they open into narrow aphodi, and are supplied by short, wide prosodi. The choanocytes present comparatively large, deeply stained, basal portions, about 0.0035 mm. wide by 0.004 mm. long, the collum appears to present double-contoured walls, and ends in the usual fenestrated diaphragm; the total length of the choanocyte is 0.012 mm.

*Formation of the Desma* (Pl. XXXIV. figs. 3-6).—In slices cut from specimens frozen in gelatine jelly, several young desmas are seen lying close to the outer epithelium bounding the ectosome. They are granular throughout, and are separated from the surrounding collenchyma by an interval which is partially filled by dark, granular, deeply-stained protoplasm, forming an incrusting layer 0.009 mm. in thickness, and containing oval nuclei 0.008 mm. in length, with spherical nucleoli. This darkly-stained material is in striking contrast to the surrounding collenchyma, and evidently associated with the young desmas, so that I am inclined to regard it as representing a layer of scleroblastic cells.