

complete. The margins of the plates are incurved towards the poral faces, rendering them more concave than they would otherwise be. Where the oscular faces of two plates have come in contact in course of growth, they have grown together. The height of this fragment is 75 mm., the thickness of the plate from 8 to 10 mm. Bowerbank's specimen, with a height of 188 mm., presents a thickness of from 10.5 to 12.5 mm.

Most of the specimens illustrate in a very striking manner the local death to which sponges, and especially Lithistid sponges, are liable; the greater part of some of the fragmentary plates consists of dead skeleton, the remainder of complete and apparently healthy sponge. In one case the wall having everywhere decayed around a circumscribed patch which still remained alive, the latter, prevented from extending laterally, has increased in thickness, so that it is 1 mm. thicker than any of the normally grown specimens with which it is associated, and, of course, much thicker than the rest of the plate to which it belongs.

The whole exterior surface of the sponge is invested with an epithelium, on the under surface of which spirasters are thickly scattered. In a tangential section one sees below this the cladomes of the dichotriænes, with the cladi of various sizes extended in every direction, and not regularly mapping out poral areas, as is the case with many other sponges provided with similar spicules. Between the cladi, often in the angle of the deuterocladi, tubercular processes are seen extending directly upwards from the underlying desmas. On the oscular surface the dichotriænes extend up the sides of the oscular cones, but do not proceed far beyond the margin of the summit, which is usually from 0.4 to 0.5 mm. in diameter, and bears in the centre the oscule, which is from 0.1 to 0.3 mm. in diameter. The epithelium, with its associated spirasters, extends across the annular space which separates the oscule from the desmas, and is continued downwards as a lining to the excurrent tube. On the poriferous surface the desmas are absent from numerous special areas, each of which is perforated in the centre by a single pore, from 0.02 to 0.06 mm. wide; sometimes no poral aperture can be distinguished, the position of the pore, however, remains clearly indicated by what appears to be a dense aggregation of spirasters; this is, however, an optical delusion, due to one's looking down into the poral canal, the sides of which are covered with spirasters underlying the epithelium. The dichotriænes are not regularly arranged around the poral area, and their cladi do not extend quite close to its margin.

The ectosome (Pl. XXXIV. fig. 13) is about 0.8 mm. thick on both faces of the sponge. It consists of a gelatinous matrix full of round or oval empty vesicles, from 0.02 to 0.0316 mm. in diameter; occasionally a small quantity of granular protoplasm is seen investing a part of the interior of the vesicle, and within this, bulging it out on one side, is a spherical or oval vesicle, about 0.004 mm. in diameter, containing a central granule, together resembling a nucleus with its nucleolus. In other cases several little bodies, reminding one of choanocytes, are seated on the wall. They consist of a basal