

lower surface quite uniformly hollowed out, like the funnel-like superior surface, but is somewhat interrupted by four cruciately disposed radial folds which project inwards (Pl. LXVI. figs. 2, 3).

Towards the lower surface with its groove-like concavity, the cylindrical surface of the sides is sharply defined off by a smooth margin with a sharp edge, which projects downwards at a sharp angle. From the upper terminal funnel the cylindrical lateral surface is much more irregularly separated, exhibiting manifold inward folds and less of a sharp margin (Pl. LXVI. figs. 1, 4).

The whole lower surface, from the trumpet-shaped attachment of the stalk to the sharp-edged bounding margin, is covered by a very smoothly expanded dermal network with fine square meshes. Through this, large round lacunæ 10 cm. and more in width can be seen (Pl. LXVI. figs. 2, 3). The character of the cylindrical lateral surface, and of the upper funnel-shaped concavity continued into the central canal of the stalk, differs from that above described in the less uniform development of the bounding membrane, and in its penetration by numerous small and large irregularly disposed round apertures, the latter measuring up to 6 mm. in diameter. These gaps represent the external apertures of numerous efferent canals (Pl. LXVI. figs. 1, 4).

From vertical sections it may be seen that it is only from the inferior grooved surface that the more or less wide afferent canals penetrate upwards into the loose parenchyma of the body, while the corresponding efferent passages all open on the lateral or on the superior funnel-shaped surface (Pl. LXVI. fig. 4). From this it follows that not the superior funnel-like surface alone, but the external lateral cylindrical surface also, corresponds to the gastral surface of other Hexactinellids. The true dermal surface, on the other hand, is represented wholly by the groove-like concavity on the lower surface of the body, and by its direct continuation, the outer surface of the stalk. We have thus to do with an eversion of the originally inner surface of the cup and with a partial overgrowth of the wall, so that a portion of the originally internal gastral surface, that is to say, the upper portion, has become the external lateral surface, while the whole originally lateral external wall has been confined by the outward and downward curvature of the sharp oscular margin to the inferior concave surface of the present sponge body. This theory of the present shape is in complete harmony with the arrangement of the chamber layer and with the distribution of the siliceous spicules. In a vertical section of the downwardly bent, overhanging, sharp edge of the lateral margin, that is to say, of the original everted oscular rim (Pl. LXVIII. fig. 1), it may be seen that the folded chamber layer is disposed in such a way that all the chambers have their convex external surface turned to the delicately latticed skin which covers the grooved inferior surface of the sponge body. The efferent apertures of the chambers, on the other hand, are all directed towards the cylindrical lateral surface, which therefore corresponds to the gastral surface of other sponges, while the inferior surface is really the dermal.