

tion of the externally projecting spicules of the fibres, the spirals had not all a common direction, but on one side were left, and on the other right-handed; where the change in direction occurs the spicules project at right angles to the surface, instead of obliquely, and are differently arranged around the oscules which occur in this region, for instead of forming a fringe, which lies obliquely over the oscule on one side and slopes obliquely away from it on the other as is the case usually, they here surround the margin of the oscule radiately, diverging from it on all sides, like the feathers around the eye of an owl.

The spicular fibres are composed of the large oxeas (1) which are sometimes much curved in accordance with the curvature of the fibres. Oscar Schmidt has suggested¹ that the fusiform shape of the oxea in the Tetillidæ has produced the spiral course of the fibres; this is obviously not the case, the curvature of the fibres is due to some other cause, and may influence, but is not determined by the shape of the spicules.

At the peripheral ends of the fibres protriænes appear and project beyond the cortex; indeed these are the chief hispidating spicules of the sponge, anatriænes scarcely appearing except towards the base, where they become the prevailing projecting forms, and radiate in long brushes downwards amidst the matted mass of sand and spicules which furnish a solid foundation to the sponge. The smaller oxeas, though characteristic of the cortex, are not confined to it, but also occur in the choanosome just below; probably they are formed in the choanosome and pushed out from it into the cortex.

Next to the massive spicular base the oscules are the most striking feature of the sponge; they are very conspicuous, large, and numerous; in one small specimen, 19 mm. high by 23 mm. broad, twenty-three oscules were counted, the largest 5 mm. in diameter; of course in larger specimens they are correspondingly more numerous, and may attain an outside diameter of 10 mm.

They are chiefly confined to the sides of the sponge and are more numerous on one side than the other, that namely which lies most remote from the spicular core. Thus of the twenty-three oscules in the case just quoted, five only can be seen at once on one side of the sponge, and as many as twelve on the other.

The margin of the oscule is a smooth, white, shining ring, very conspicuous amidst the dark grey forest of surrounding spicules (Pl. III. fig. 1; Pl. XXXIX. fig. 1). It forms the outer end of a cylindrical or oscular tube which extends through the cortex and then expands into the flask-shaped cloacal chamber. The walls of the oscular tube are solid, imperforate, and thicker than those of the cloacal chamber, which communicates through sieve-like groups of pores with the excurrent canals. These are wide open tubes, which as they approach the cloaca become subdivided again and again by numerous trabeculæ, till they are reduced to sinuses, which surround the immersed side of the cloacal wall, radiating away from it in all directions. The free surface of the cloacal chamber is raised into a polygonal network of rounded ridges, produced by fibrous

¹ Spong. Atlant Gebiet., p. 8, 1872.