

2. *Orthotriæne* (Pl. XXVII. fig. 4), a conical rhabdome with a strongylate termination, and slender, cylindrical cladi, curving outwards and slightly forwards, with rounded or pointed ends. Rhabdome 0·318 by 0·0158 mm., cladi 0·206 mm. long.

II. Microscleres. 3. *Sterraster* (Pl. XXVII. fig. 5), small, spherical, the ends of the actines granulated, diameter 0·0553 mm.

4. *Somal spherule* (Pl. XXVII. figs. 6–9), a minute sphere with a smooth surface, 0·00395 mm. in diameter. This occurs below the outer epithelium, and is distributed generally throughout the sponge.

*Colour.*—Somewhat purple on the upper surface, yellowish-white underneath.

*Habitat.*—Bahia, September 1873; shallow water.

*Remarks.*—This sponge is represented by a single fine and perfect specimen, with one small, well-marked lobe, and a large, massive part indistinctly divided into two lobes. It measures altogether 130 mm. in length, 100 mm. in breadth, and 80 mm. in height. There are three oscules, one to each lobe; the largest is 11 mm. long by 8 mm. wide, surrounded by a smooth margin, 4 mm. wide. A smaller oscule, 10 by 6 mm., leads into a cloaca, 12 mm. deep and 11 mm. wide in broadest part; it is smooth and imperforate for 6 mm. from the mouth, for the rest of its extent its walls are a mere network, the meshes being occupied by the mouths of the excurrent canals. The excurrent canals extend through the whole length of the lobe in which they occur (Pl. XXVII. fig. 2).

*Ectosome.*—The cortex (Pl. XXVII. fig. 13) is about 0·796 to 0·92 mm., the ectochrote (Pl. XXVII. fig. 14) from 0·05 to 0·24 mm. in thickness; the sterrastral layer varies but slightly on each side, 0·65 mm. in thickness, and the fibrous layer is from 0·05 to 0·08 mm. thick. On approaching the oscule the cortex is thickened to form its margin and inflected to be continued, somewhat modified, as the lining of the sides of the cloaca. There it becomes somewhat thinner, about 0·636 mm. thick on the average; the ectochrote with its thick crust of spherules is 0·16 mm. thick; the sterrasters are somewhat sparingly scattered through a fibrous tissue 0·238 mm. thick; and the inner fibrous layer without sterrasters is also 0·238 mm. thick.

The pores are chiefly circular, 0·05 to 0·064 mm. wide. They are closely and uniformly distributed over the dermal membrane, not being collected into small circumscribed groups (Pl. XXVII. fig. 11); the very short poral canals unite together immediately below the surface, at first in groups of two forming wider canals; and these are scarcely formed when they similarly coalesce in groups of three and four; the larger canals resulting are separated by walls of vesicular tissue, covered with globules and the all-investing epithelium. The larger canals open freely at the bottom of the ectochrote into the outer end of the chones (Pl. XXVII. figs. 12, 13); the chones are fairly, regularly, and closely distributed, varying from 0·253 to 0·5 mm. in diameter, more or less circular in transverse section, and on the whole more cylindrical than conical in general form.