

II. Microscleres. 6. *Sterraster* (Pl. XXI. fig. 21), spherical, depressed, 0·064 to 0·07 mm. in diameter.

7. *Somal spheraster* (Pl. XXI. figs. 22, 23), a large spherical centrum produced into numerous short obtusely conical spines; usually 0·0198 mm. in diameter, sometimes as much as 0·031 mm.; the spines of forms larger than the average are often expanded at the end, and much resemble the spines of a sterraster.

8. *Somal spheraster* (Pl. XXI. fig. 24), minute, of very variable characters, usually a well-marked centrum, with thick conical or rod-like actines, abruptly truncated at the ends or strongly truncate; the actines may increase in length and become sharply pointed, or they may be reduced till the aster passes into a mere globule. Diameter 0·01 mm.

9. *Choanosomal oxyaster* (Pl. XXI. figs. 25, 26), a small centrum, and smooth, slender, sharp, conical actines; usually numerous, sometimes reduced to four or five; usually about 0·012 mm. long, sometimes as much as 0·017 mm.; total diameter from 0·0276 to 0·039 mm.

*Colour*.—Yellowish-white.

*Habitat*.—Port Jackson, June 1874; 6 to 15 fathoms.

*Remarks*.—There are two specimens of this sponge, the largest 22 mm. in diameter. The cortex (Pl. XXI. fig. 29) is about 0·318 mm. thick. Externally it is invested by an epithelial layer, beneath which lie the minute spherasters (No. 8); a single layer of spherasters (No. 7) embedded in collenchyma succeeds; then follow the sterrasters; the innermost layer of the cortex is very thin, and consists chiefly of fibrous tissue, the cladomes of the dichotriænes lie within it, and in the areas between the cladi the endochones are situated. The chones are of the usual character, the pores of their roofs are about 0·016 to 0·05 mm. in diameter, or on an average 0·025 mm.; the sphincter dividing the ectochone from the endochone is well developed. The chones lead into incurrent canals which descend radially into the choanosome, several uniting some distance below the cortex into a large canal running concentrically (Pl. XXI. figs. 27, 28). The relations of the smaller branches of the incurrent and excurrent canals to one another and the flagellated chambers is shown in thin sections with diagrammatic clearness (Pl. XX. fig. 22), and the incurrent system can be traced from beginning to end; the excurrent canals have, however, only been traced in one direction, *i.e.*, towards the flagellated chambers; whenever an excurrent canal is traced towards the cortex it is found to end by branching into flagellated chambers, and in no case has it been traced into connection with a chone; only one-half of the small specimen was cut up into serial slices, and it is possible, therefore, that the excurrent chones will be found in the remaining half.

The flagellated chambers measure about 0·0276 mm. in length by 0·0316 mm. in breadth; they lie immediately adjoining the sides of the ultimate branches of the incurrent canals, with which they communicate by prosodi, about 0·012 mm. in diameter,