

embedded in the horny axis, while the outer end projects beyond the surface in the form of a tuft of smaller stylote spicules; these tufts are sometimes seen with a single large stylote spicule in the centre, surrounded by the smaller ones. The primary skeleton lines are crossed by both vertical and horizontal secondary fibres, which are probably in part formed by the branching of the central axis. The whole system of fibres is rather confused.

*Spicules.*—(a) *Megasclera*; smooth styli, of two chief sizes; (1) stout, almost straight, unusually sharply pointed, variable in length, measuring up to about 0·7 by 0·023 mm. (Pl. XIX. fig. 2); (2) slender, straight, sharply pointed, variable in length, measuring up to about 0·7 by 0·0063 mm. (Pl. XIX. fig. 2a). The distribution of these two kinds of spicules has already been indicated; in addition to the tufts of slender spicules which project from the surface there is a zone of very slender, longitudinally placed styli at a short distance below the surface; indeed it is here that the slender styli attain their greatest length and slenderness, being both longer and more slender than those of the tufts, and it is from one of these longest that the above measurements have been taken. There is little doubt that we have in all these only slight modifications of one form of spicule. (b) *Microsclera*; (1) small palmate isochelæ (Pl. XIX. fig. 2b), extremely abundant in the dermal membrane but scanty below; length up to about 0·025 mm. (2) A very few smooth toxa, about 0·07 mm. long; we have only seen a few of these, so they may be foreign, but we think not.

The most remarkable feature of this sponge is the extraordinary development of horny matter. The whole sponge, its megasclera, and their arrangement, much recall the genus *Raspailia*.

*Locality.*—Off Port Jackson; depth, 30 to 35 fathoms. One specimen.

*Esperiopsis challengerii*, Ridley, sp. (Pl. XVIII.; Pl. XIX. figs. 8, 8a, 8b).

1885. *Amphilectus challengerii*, Ridley, Narr. Chall. Exp., vol. i. pt. 2, p. 570, fig. 187.

1886. *Esperiopsis challengerii*, Ridley and Dendy, Ann. and Mag. Nat. Hist., ser. 5, vol. xviii. p. 341.

Sponge (Pl. XVIII. figs. 1, 2, 3) of very definite, beautiful and symmetrical external form, a good idea of which will be obtained by reference to the figures.<sup>1</sup> From a slightly expanded base, which has evidently served to attach the sponge to the bottom upon which it grew, arises a straight or slightly curved stem, composed of densely packed and firmly united stylote spicules. This stem is very much compressed laterally, and from its anterior edge (as we shall term it) arise a number of short, simple branches, placed one above the other at gradually increasing intervals, thus dividing the stem into a series of unequal "internodes," the longest of which is at the top. The stem itself, and each of

<sup>1</sup> These drawings are by Dr. J. J. Wild, artist to the Expedition.