

support this view. *Colour* in spirit greyish-yellow. *Texture* firm. *Surface* fairly even. *Oscula*; one (? sometimes more) at the top of an oscular tube in the centre of the flat surface. *Pores* (?).

Skeleton.—The convex (lower) surface of the sponge is covered with a dense thatch (*vide* woodcut, Fig. 8, *th*), of very long tylostylote or subtylostylote spicules, which, radiating outwards and upwards from the centre, form, round the margin of the sponge, the spicular fringe already mentioned. On the flat (upper) surface there is no such thatch, but there is a thick ectosome (woodcut, Fig. 8, *c*) packed with tylostylote spicules, which are for the most part vertically arranged. On the outside of this ectosome is collected a thick stratum of foreign matter (woodcut, Fig. 8, *d*), through which the apices of the tylostylote spicules often project for a short distance. Below the ectosome come the softer tissues of the sponge (choanosome, *vide* woodcut, Fig. 8, *ch*), which are crowded with vast numbers of closely packed, much shorter, tylostylote spicules; these have no very definite order except that they exhibit a tendency to an arrangement in thick, radiating groups with the globular heads in the centre.

Spicules.—*Megasclera*; (1) the exceedingly long, straight, slender, tylostylote or subtylostylote spicules forming the thatch and fringe. It is not easy to give the maximum length of these, owing to the manner in which they break on attempting to separate them for purposes of measurement, but we have found examples about 4·7 mm. long, and this seems to be no uncommon size; their diameter is commonly about 0·02 mm.; the heads are generally subglobular and not very strongly developed, and at the apex the spicule tapers very gradually to excessive fineness. (2) The spicules of the choanosome; these are short, straight, stout, fusiform tylostyli, sharply pointed at the apex and with very well developed, globular heads; size about 0·3 by 0·016 mm. (In the Australian specimen they are shorter than this.) (3) The spicules of the ectosome; these are also tylostylote or subtylostylote and are intermediate in size between the two forms above described.

This species differs markedly enough in external form alone from the original type of the genus, *Trichostemma hemisphæricum*, Sars,¹ to be distinguished at a glance, for Sars' species is very much larger, strongly hemispherical, and has the convex surface uppermost, and provided, in the adult, with many oscula; while the fringe of spicules slopes downwards, *i.e.*, away from the osculum-bearing surface. The differences between *Trichostemma sarsii* and *Trichostemma irregularis* are indicated at the end of the description of the latter species.

The geographical distribution of *Trichostemma sarsii* is a very interesting one; it seems to be confined to very deep water, and was met with off the Azores and in Australian seas, thus giving a very wide range. There are, it is true, certain slight differences between the specimens from the two localities, which have been indicated in the description, but there is nothing to justify us in separating them specifically.

¹ Remarkable Forms of Animal Life, pt. i. p. 62.