

nourishment. The collenchyma of the choanosome is reduced to a minimum; the flagellated chambers being separated from each other by the thinnest film. In size these chambers measure about 0·079 by 0·063 mm.; the fenestrated membrane which is produced by the concrescence of the collars of the choanocytes is remarkably well shown, appearing as an inner second wall to the chambers, separated from the true wall by an interval of about 0·016 mm. Its fenestræ, round or oval in outline, vary from about 0·0118 to 0·008 by 0·006 mm. in length and width. The choanocytes are arranged in quincunx, stand about 0·0075 mm. apart, and are connected by protoplasmic threads.

The oxyasters are large and present a great variety of forms—monactines (tylostyles) (Pl. VIII. fig. 19); diactines (microxea), straight, or more usually angulate (Pl. VIII. fig. 18); triactines (triods) like the triradiate spicules of calcareous sponges (Pl. VIII. fig. 16); tetractines (microcalthrops) like those of *Dercitus* (Pl. VIII. fig. 15); pentactines and hexactines (Pl. VIII. fig. 14) like those of Hexactinellid sponges, and divers other forms. They are thickly crowded together, as in *Thenea schmidtii*, giving to the sponge quite a Pachastrellid or Plakinid appearance. The metasters are very similar to the spirasters, the latter as usual are most abundant in the ectosome.

*Thenea grayi*, Sollas (Pl. VI. figs. 21, 22).

*Thenea grayi*, Sollas, Prelim. Account, Sci. Proc. Roy. Dubl. Soc., vol. v. p. 183, 1886.

*Sponge* (Pl. VI. fig. 22) with a more or less flattened summit and rounded base, which in young forms is hemispherical. Oscule large, rounded, laterally placed, and defended by a thick fringe of oxate spicules, the projecting ends of which are longest over the upper margin and become shorter as they descend to the lower margin of the opening. The oscule leads into a somewhat hemispherical depression, or cloaca, which is lined by a smooth, poriferous, or fenestrated membrane. Poriferous area also lateral, restricted to one side of the sponge, opposite to the oscule, elongated laterally, defended by a fringe of projecting spicules, which are most abundant over the upper margin. Rootlets few and slender, surface of the sponge not produced into conical projections at the points whence they issue. Flagellated chambers of medium size, 0·063 mm. in diameter.

*Spicules*.—I. Megascleres. 1. *Oxea*, slender, fusiform, straight or curved, 10·07 by 0·026 mm., and a stouter form 7·8 by 0·08 mm., the former forms the spicular fringes, the latter the spicular fibres within the sponge.

2. *Protriæne*, a stout rhabdome 5·88 by 0·087 mm., with three strong, more or less undulating conical cladi 0·828 by 0·083 mm.

3. *Dichotriæne* of the usual form; rhabdome 5·8 by 0·087 mm.; protocladi 0·238 by 0·0725 mm.; deuterocladi 1·193 by 0·059 mm.

4. *Somal anatriæne*, a short, slender rhabdome, rounded at the proximal end,