

*Spicules*.—I. Megascleres. 1. *Desma* (Pl. XXXII. figs. 4, 5), in the young adult state quadri radiate, with smooth cylindrical epactines, simple or branched, with triangular depressions about the centre occupying each angle when three arms meet; in the older adult state they are sparingly tubercled, either by simple, rounded, conical tubercles, or low, transverse, crescentic ridges. The zygoses are formed by the meeting of several cladi, the tubercles intertwining to form an inextricably tangled knot. So thorough is the union that no distinction can be drawn between adapted tubercles and those to which they are adapted, every tubercle is both one and the other. At the base of the sponge the tubercles run out into elongated twig-like processes of most varied form, and these adapt themselves accurately to the asperities of the surface of attachment. The simple epactines of the desma are on average 0.25 mm. long. The axial rod extends from the centre for a distance of from 0.032 to 0.064 mm. into each epactine; in a few cases the axial rod was observed to have lost its tetrad character, the number of its rays being reduced to three (Pl. XXXII. fig. 6) or two; in others it was seen to have retained it in spite of the loss of tetrad form in the desma; in one case a desma near the base of the sponge was found reduced to a single cylindrical shaft, branched at the ends, but with the tetrad axis preserved in its midst.

2. *Phyllotriæne* (Pl. XXXII. figs. 7–9); (a) of the oscular surface; rhabdome short, conical, rounded at the inner end, distally expanding into thin plate-like cladi flattened in a horizontal plane; the three protocladi usually bifurcate, sometimes trifurcate, giving rise to deuterocladi, which subdivide into terminal branches with rounded margins. (b) Of the poral surface; similar, but in addition discotriænes having cladomes with entire margins more or less circular in outline or broadly lobate. The phyllotriænes are arranged in several layers, and when discotriænes occur they overlie the space enclosed by the curved or semicircular angles formed by the cladi of the underlying phyllotriænes. The rhabdome of the discotriæne descends perpendicularly through this space.

In some of the branched phyllotriænes a ridge runs from the rhabdome to each protocladus, producing three triangular depressions similar to those which characterise the young choanosomal desma. The cladi of the deeper-lying phyllotriænes are thicker than those of the more superficial.

The rhabdome of the phyllotriæne is about 0.16 mm. long; the cladi of the branched phyllotriænes measured from origin to end are very various in length, the largest attaining a length of from 0.32 to 0.45 mm. The discotriænes measure from 0.18 to 0.2 mm. in diameter. The axial rod extends throughout the length of the rhabdome, but not more than from 0.0118 to 0.028 mm. into the cladome. The three protocladi of the discotriæne commence like the epactines of the desma in granular or reticular silica, and they retain this granular appearance for some time, up to a length of 0.08 mm.

3. *Rhabdus*.—This was not observed, but it does not follow that it is not present.