

surface of the sponge, also, the spicules (whether monactinal or diactinal) composing the primary fibre very commonly spread out so as to form divergent brushes, upon which the dermal membrane rests (Pl. XLVII. fig. 6).

In another important, though less common type the skeleton is regularly reticulate without its being possible to distinguish between primary and secondary fibres. In this case the meshes of the reticulation are triangular, with equal sides each of exactly one spicule's length. Hence there can be no long, continuous fibres such as exist in a rectangularly meshed skeleton, the greatest continuous length of fibre possible being determined by the length of the spicules. Such a skeleton is found in *Myxilla rosacea*, var. *japonica*, nobis (*vide* Pl. XLVII. fig. 3).

2. The *Radiate* arrangement.—This is characteristic of the Suberitidæ, and, to a less

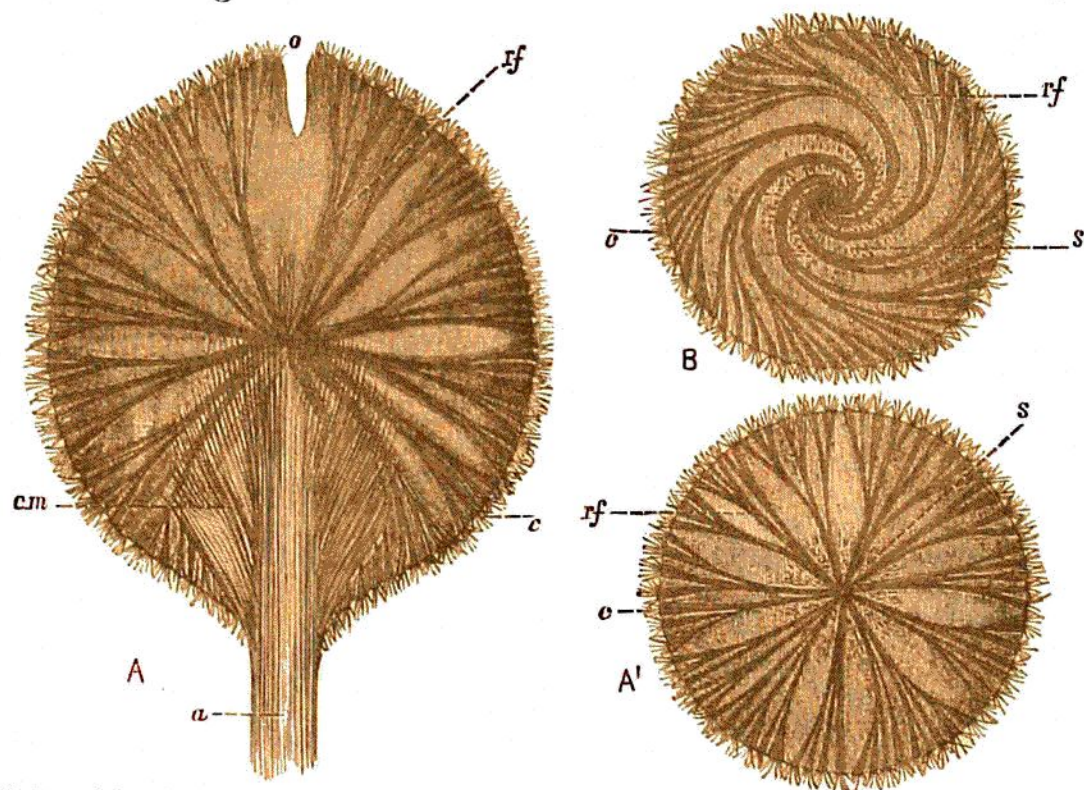


FIG. VIII.—*Stylocordyla stipitata*, var. *globosa*. Sections showing the arrangement of the skeleton. A, longitudinal section of a specimen which exhibits no spiral arrangement of the fibres,  $\times 6$ . A', transverse section of do.,  $\times 4$ . B, transverse section of a specimen in which the fibres are spirally disposed,  $\times 4$ ; o, osculum; c, cortical spicules; a, stem; cm, central mass of spicules derived from the breaking up of the stem; s, sections of do.; rf, the radiating skeletal fibres.

extent, of the Axinellidæ. The fibres or bands of spicules radiate to the surface from a common centre, and there are no crossing fibres (*vide* woodcut, Fig. VIII.). In the Axinellidæ the common centre of radiation is usually much elongated, so as to give rise to a central axis of fibre from which other fibres radiate to the surface. The same may take place in the genus *Suberites* (e.g., *Suberites elongatus*, nobis, *Suberites axiatus*, nobis, &c.). Thus the radiate type of skeleton differs principally from the reticulate type with regular rectangular meshes in that there are primary but no secondary fibres present.

The skeleton of most Monaxonid sponges, whether reticulate or radiate in its arrangement, is generally divisible into two parts—(1) the *Dermal skeleton* (Pl. XLVII. fig. 3, *d.s.*), at the surface of the sponge, specially modified to support and protect the