since O. Schmidt has discovered and figured such an axial canal cross, just in the middle of four teeth on the little anchor spicules (of the same genus *Farrea*), which belong to the same system as the "*Clavulæ*."[1]

Though I agree on this point with O. Schmidt, I cannot accept his opinion that the monact umbel and anchor spicules of *Farrea* are homologous with the terminal rays of certain discohexasters to which they have some resemblance. These terminal rays I regard simply as prongs without axial canals; the umbel and anchor spicules, on the other hand, I regard as true monacts.

Mode of Union of the Spicules.

After this general review of the most important forms of spicules, I pass to describe their modes of union. In many Hexactinellida there is no distinct union between the individual spicules, which either lie quite isolated in the soft tissue, or exhibit only a slight connection or mutual support by being closely disposed side by side, or by being interwoven or entangled with each other (Pl. XVII. fig. 6). In other cases, however, numerous spicules are bound into a firm framework by a laminated siliceous substance. It may be that parallel or closely opposed rays become surrounded by a common concentrically layered sheath of siliceous lamellæ and so become united into a beam (Pl. LXXVI. fig. 5; Pl. C. fig. 2), or it may be that the ends of the rays of one spicule are opposed to the intersection nodes of another, and become fixed as if soldered; or further, it may be that the rays of adjoining spicules crossed in any direction are bound together by lamellæ of silex, so laid down that the interspaces are filled by web-like layers of siliceous substance (Pl. XX. fig. 3). Smaller hexacts frequently occur in which the end of one ray is soldered transversely to a larger beam (Pl. XXVII. fig. 8). If there be no immediate contact of the adjoining spicules, then boss or cone-like elevations may grow out from the sides of two opposite beams, meet one another, and, becoming surrounded with laminated siliceous material, form transverse bridges or *Synapticula*,—which have not, of course, axial canals (Pl. XX. figs. 2–4). Finally, in certain conditions, both adjoining spicules, and the branches of one and the same spicule, may become connected by a fine delicate lattice-work, with quadrate or rounded meshes. The beams of the network arise at right angles to the lateral borders of the spicular rays, and always lie in the same plane, while they are further united by transverse anastomoses. Here again there is no axial canal (Pl. LXIV. fig. 3). When this lattice-work is greatly developed, the gaps may be quite filled up, so that finally a thin siliceous plate results. It is remarkable that such lattice-work and plates are found only in bounding surfaces which come into contact with solid bodies, especially where the Sponge has grown on a solid substratum, but also round about foreign bodies which have

[1] Spongien des Meerbusens von Mexiko, ii. p. 38, Taf. v. fig. 9.