

relation in reference to the skin, or from the connection between the second and the main central canals, but also from the structure of the soft sponge body, and especially from the form and disposition of the chamber layer, or more correctly of the system of irregular diverticula from the *membrana reticularis*. As in all Hyalonematidæ the latter extends in the parenchyma between afferent and efferent canal-system in such a way, that the convexity of all the diverticula is directed outwards against the entering stream of water, that is, against the afferent system of canals. Every longitudinal or transverse section of the sponge body shows that the *membrana reticularis* found in the partition between the two systems is so disposed or manifoldly bent outwards, that the convexity of each small protrusion is against the processes of those canals which lie under the fine-meshed quadratic dermal network on the flat or slightly convex sides (Pl. LII. fig. 3).

The canals below the dermal membrane, which extends in the form of the fine-meshed quadratic network, represent wide subdermal spaces, and those penetrating inwards are somewhat uniformly wide afferent canals which do not break up into branches, but form an anastomosing labyrinth (Pl. LII. fig. 1).

Large supporting spicules are represented in the parenchyma by a few medium-sized oxyhexacts, and by numerous oxypentacts, some of them with very long rays. Long unciniate spicules also occur (Pl. LI. fig. 3), disposed in brush-like strands or groups, at right angles to the skin, where the parenchymal canal-wall is inserted on the external skin. Besides these, we note smaller spicules of the following types:—Firstly, small oxyhexacts with slim rays of equal or diverse length, beset to a variable extent with somewhat distant, straight or slightly curved spines, which are inserted either at right angles or approximately so (Pl. LI. fig. 15; Pl. LII. fig. 5); secondly, oxydiacts of a similarly spinose character, and with four short, smooth, conical median rays or spines intersecting at right angles, and representing the survival of the other four degenerate rays of the hexacts (Pl. LII. fig. 4); and thirdly, isolated short uncيناتes with small short barbs (Pl. LI. fig. 6).

The dermal skeleton, which supports the fine-meshed quadratic lattice-work, consists of very varied, strongly developed, hypodermal oxypentacts, with long smooth tangential rays, which are often somewhat strongly curved at the base, though sometimes but slightly developed, and which are apposed to one another to form the quadratic lattice-work, while the more or less long, straight, proximal tangential ray, extends to a variable distance inwards, and often projects freely into the hypodermal canal (Pl. LII. fig. 3). Only where the internal wall of the canal is connected with the skin does the tangential ray lie throughout its whole—often considerable—length in the parenchyma. On the tangential strands of hypodermalia, and on the bands of the dermal network extending between the former, autodermal pentact pinuli occur, usually disposed in rows. The four thick and moderately long, externally spinose, terminally somewhat conical or rounded basal