

lattice-work, with meshes which do not attain a width of a $\frac{1}{2}$ mm., and are separated by yet thinner strands, the skin on the rib-like projecting truncate edges exhibits a much more irregular network with polygonal or roundish meshes, 1 to 2 mm. in diameter, and with firm whitish strands passing laterally into a compact marginal fringe about 1.5 to 2 mm. in breadth, which forms the boundary between the narrow-meshed quadratic network of the sides, and the wide-meshed firmer sieve-network of the rib-like edges (Pl. LI. figs. 1, 16). Through both these networks, which differ so much from one another, the subjacent cavities are seen, shining through as a labyrinth of united passages. On the superior, somewhat obliquely pyramidal or flatly conical, truncate extremity of the sponge, the wider network, strengthened by firm solid junction-plates, is terminally expanded and united, while the fine quadratic dermal lattice-work is confined to the sides, with the exception of several angular or rounded terminal prolongations, which extend beyond the lateral terminal margin on to the summit. Where some of this lateral dermal sheath has been rubbed off by accident or design, the labyrinthine passages and spaces are directly exposed, and it can be seen how the canals and cavities beneath the narrow quadratic dermal network form a connected, continuously distinct anastomosing system of canals, a little finger's breadth thick, which are separated by a wall of 1 mm. thickness from another adjacent canal system, which likewise forms a connected network of anastomosing spaces and passages. This second system of passages extends directly under the wide-meshed, more irregular lattice-work, which we have noted on the rounded off lateral edges. The two canal-systems are everywhere separated only by a thin partition, and their canals extend side by side, not only under the external skin, but penetrating inwards, traverse the whole internal body, so that the broad, irregular, longitudinal canal in the axial region is an integral part of that system of passages, which extends below the wider irregular network of rounded side margins, and which opens at the superior terminal plate. This remarkable presence of two completely separated canal systems is represented in Pl. LI. fig. 16, in the lateral portion of the sponge from which the external wall has been partly removed, and also in the diagrammatic cross section of the whole sponge in Pl. LII. fig. 1.

Through the fine quadratic dermal network which covers the slightly convex lateral surfaces of the body, the water passes first into the subjacent canal system, by which it is carried to all parts of the body, penetrating at length through the partition wall (which, though only about 1 mm. thick, contains the *membrana reticularis* and forms the proper parenchyma) into the second system of canals which is in connection with the central longitudinal canal or gastral cavity. Thence the water reaches the exterior by the efferent ducts, namely, either by the wide-meshed oscular sieve-network of the longitudinal side edges, or by the superior terminal region.

That the relation of these two adjacent, but perfectly distinct, labyrinthine canal systems to the flow of water is as above described, is demonstrable not only from their