three faces of the pyramid there is a broad groove; hence the sponge might also be described as composed of three broad, ascending, divergent lobes, arising from a common base, and united together almost up to their apices. *Colour* in spirit pale yellow. The *texture* of the sponge is very firm and dense, but internally it is traversed by wide canals. The *dermal membrane* is thin and transparent, loaded with mega- and microsclera. The *surface* is smooth and even, except for numerous irregular cracks which traverse it in every direction. These cracks (Pl. XIV. fig. 1, *p.a.*) form a reticulation all over the surface, except on the summits of the lobes, where they are absent. The effect thus produced closely resembles that of sun-cracks upon a cake of mud. Some of the cracks are quite closed, others are gaping, and in the latter condition they are seen to be crossed, at a little distance below the general surface of the sponge, by a delicate membrane, while in this membrane, from wall to wall of the crack, run very numerous transverse bands of fibres, distinctly visible to the naked eye.

Upon examining prepared sections with the microscope the real meaning of these cracks is at once seen. They are pore-areas (Pl. XIII. fig. 16). The delicate membrane forming the floor of each is pierced by numerous small holes, the *pores*, which reduce it to a mere sieve. These pores are about 0·06 mm. in diameter, and lead into large subdermal cavities, immediately underlying the cracks. The terminal branches of the incurrent canal system open out of these subdermal cavities by round mouths about 1 mm. in diameter. The bands of fibres above mentioned, which run across in the pore-bearing membrane from side to side of the cracks, stain deeply in borax carmine, and there can be little doubt that they are contractile bands, or, in other words, muscles, whose function is to open and close the cracks and thus to regulate the supply of water. A few pores also occur scattered in the dermal membrane, over the general surface of the sponge.

Although more properly coming under the head "Skeleton," we cannot here pass over the way in which the edges of the pore-bearing cracks are formed. Each edge is guarded by a bristling row of projecting spicule-points. The spicules to which these points belong are arranged in tufts; each tuft radiates from a point below the dermal membrane, a little to one side of the crack, and the spicules project obliquely upwards and terminate in the fringe along the edge of the crack (*vide* Pl. XIII. fig. 16).

The *oscula* are grouped on the summits of the lobes (Pl. XIV. fig. 1, *o*, and fig. 1*a*), and with this fact must be connected the absence of pore-bearing cracks in these regions. There are in all about twenty oscula, averaging in diameter about 4 mm.

Skeleton.—(*a*) *Dermal;* a very dense, felted layer of stylote spicules, laid horizontally and not arranged in fibres. (*b*) *Main;* a rather irregular but compact reticulation of dense spiculo-fibre, in which one may distinguish main fibres running vertically to the surface of the sponge, and secondary fibres crossing these at right angles. As the main fibres approach the surface the spicules composing them spread