

firm and compact. *Surface* even, very minutely hispid. *Dermal membrane* thin and difficult to distinguish. *Pores* scattered (?). *Oscula* none observed; the sponge appears to be lipostomous.

Skeleton.—The main skeleton is a somewhat Isodictyal reticulation of stout stylote spicules; there is no very distinct fibre (although one can usually distinguish primary skeleton lines running towards the surface and crossed at right angles by secondary lines), but there is a fair amount of horny connecting substance at the nodes of the reticulation; the whole arrangement is rather vague and confused. In addition to the smooth stylote spicules, which form the chief portion of the main skeleton, there are numerous spined styli, some of which appear to echinate the main skeleton while others are scattered loosely through the soft tissues (some of the latter may have been forced from their proper position in cutting the sections; there can be little doubt that these spined spicules are really homologous with the echinating spicules of allied species). The primary fibres end on the surface in dense tufts of slender stylote spicules whose points project outwards; mingled with these are more of the echinating spined styli already mentioned, while the centre of each tuft is occupied by one or more large, smooth styli like those of the main skeleton.

Spicules.—(a) *Megasclera*; (1) Smooth, stout, usually slightly curved styli (Pl. XXIX. fig. 4), tapering gradually to a sharp point at the apex and narrowing towards the rounded base; size of full grown examples about 0.4 by 0.025 mm.; these form the main skeleton. (2) Much smaller, straight, slender styli or subtylostyli (Pl. XXIX. fig. 4c), rounded and usually very faintly spined at the base and tapering gradually to a sharp point at the apex, size about 0.23 by 0.0065 mm.; these form the tufts at the ends of the primary fibres. (3) Small, spined styli (Pl. XXIX. fig. 4a), almost or quite straight, very sharply pointed and with large, curved spines, shaped like the thorns on a briar. These spines are very unequally distributed, they are abundant at the base of the spicule, where they are arranged so as to point towards the apex, then they almost cease and at about the centre of the spicule become suddenly abundant again; in this second position they are very large, stout and curved so as to point towards the base; size of spicule about 0.175 by 0.013 mm.; their arrangement has already been indicated. (b) *Microsclera*; of two kinds. (1) Very minute, palmate isochelæ, about 0.01 mm. long; abundant. (2) Toxa (Pl. XXIX. fig. 4b), with spined ends, size about 0.14 by 0.0024 mm., also abundant.

Vosmaer¹ briefly describes under the name *Clathria lobata* a new species from the Cape of Good Hope; this sponge certainly has a very remarkable resemblance to the Challenger species under discussion, but the description is so short and imperfect that an absolute identification would be impossible without comparison of specimens; till such is practicable we shall consider the Challenger sponge as a variety of Vosmaer's species,

¹ Notes from the Leyden Museum, vol. ii. p. 151, 1880.