matter, the fibre thus constituted being echinated by *special* spicules which project from its surface more or less at right angles, or the spicular core may be absent, leaving only the horny fibre and the echinating spicules. Yet here again, we have at least one species, viz., *Myxilla frondosa*, nobis, which seems to indicate a transition between these two types of skeleton arrangement. In the universal absence of chelæ, however, the Axinellidæ are sharply defined from the Ectyoninæ and other Desmacidonidæ.

We come now to the second of our suborders, viz., the Clavulina. We have already indicated the probable relations of this group to the Halichondrina. The four most prominent features of the group (none of which, however, will probably be found to be quite constant throughout) are (1) the presence of radiately arranged tylostylote spicules; (2) the cork-like, granular ground substance; (3) the presence of a distinct fibrous cortex; and (4) the absence of spongin from the skeleton. As we have already hinted, we have no doubt whatever that this group is closely related, through the Tethyadæ, to the so-called Tetractinellida. We shall not further discuss this question, but refer the reader to Vosmaer's latest remarks on the subject.[1]

According to the presence or absence of microsclera we divide the Clavulina into two families; (1) Suberitidæ, in which there are no microsclera, and (2) Spirastrellidæ, in which microsclera are present. This appears to us to be a much more natural arrangement than that proposed by Dr. Vosmaer,[2] viz., according to the presence or absence of mammiform projections on the surface of the sponge.[3] This difference in ideas is perhaps partly accounted for by the fact that Vosmaer has omitted from his scheme the two very important genera *Spirastrella* and *Latrunculia*, both of which are well represented in the Challenger collection. The Clioniadæ, of which group the members, save that they appear to be mostly Clavulina, have only the boring habit in common, will have to be distributed chiefly between the Suberitidæ and Spirastrellidæ, as there is no reason at all for supposing that species of both these families (and of others also) may not have independently acquired the boring habit; and the spiculation of the different boring sponges seems to indicate that this is the case.

[1] Bronn's Klass. u. Ordnung. d. Thierreichs, Porifera, p. 474 (translated by Dendy, *Ann. and Mag. Nat. Hist.*, ser. 5, vol. xix. p. 249).

[2] Bronn's Klass. u. Ordnung. d. Thierrichs, Porifera, p. 328, *et seq.*

[3] Vosmaer also gives in the diagnosis (*loc. cit.*) of his Polymastidæ "Faserrinde meist sehr deutlich," and of his Suberitidæ "eine echte Faserrinde fehlt immer;" but, inasmuch as he includes the genera *Suberites* and *Stylocordyla* in his Suberitidæ, we must emphatically deny the correctness of the latter statement (*cf.* our own researches on the minute anatomy of these genera, *supra*, and Pl. L.).