

pores we have shown to be almost utterly untrustworthy except for specific distinctions, and we are inclined to set very little value, except for purposes of a most general nature upon the fundamental arrangement of the canal system, that is to say, whether it belongs to Vosmaer's third or fourth type, for the simple reason that in nearly every Monaxonid sponge as yet worked out (and we believe also in the Keratosa) it belongs to the former. Still, although the same *fundamental* type of arrangement will probably be found to prevail throughout the group, yet it is also probable that many minor differences in the canal system of different genera will be discovered, and will prove to be of great systematic value. As examples of such minor differences we may point to the characteristic arrangement of the larger inhalent and exhalent canals in the genus *Phakellia*, and the arrangement of the inhalent canal system in the genus *Esperella*, as already described by us, in both of which genera the canal system differs in the respects mentioned from the more common Halichondrine type found in *Halichondria*, &c. As another example we may note the presence of distinct sphincters or diaphragms in the larger exhalent canals of the genus *Spirastrella*, which seems to be a fairly constant generic character.

We come now to the consideration of the spicules, and of the two categories of these we will take first the megasclera, which we shall find to be of very great service in classification. The same form of megasclera is found to run through large divisions; thus, in the family Homorrhaphidæ, comprising the Renierinæ and Chalininæ, we find only smooth oxeote megasclera and no microsclera. In the Clavulina, again, the megasclera are almost all tylostylote or stylote. But here we occasionally meet with startling exceptions, one of the most striking being the genus *Stylocordyla*, a corticate sponge, agreeing in skeleton arrangement, &c., with other Clavulina, but always with oxeote spicules. In the Heterorrhaphidæ and Desmacidonidæ the form of the megasclera is very variable, but we can always use it for purposes of generic distinction. The size of the megasclera is of very slight use save for distinguishing species, but here it is of the greatest value, especially in groups like the Homorrhaphidæ, where even the different genera have all the same form of spicule.

The microsclera, when present, are of still greater systematic value than the megasclera; indeed they form the best guides to the classification of the Monaxonida. The reason of this is probably that they are not subject to modification to suit the external conditions of the sponge; and, further, they are usually more complex in form, and thus present more points of possible difference than do the megasclera. Their use in the economy of the sponge is probably very slight; in many cases we can hardly believe, from their minute size and irregular arrangement, that they have any, and hence there appears to be no reason why they should undergo much modification with changing conditions.¹ The structures which we have hitherto considered are, on the other hand,

¹ "It is a strange result which we thus arrive at, namely, that characters of slight vital importance to the species, are the most important to the systematist;" Darwin, *Origin of Species*, ed. 6, p. 176.