

all of the greatest importance to the sponge, and subject to great modification with every change in external conditions. Of this we have abundant proof; we have seen already how sponges in warm climates tend to develop much spongin, while the megasclera gradually become fewer in number and less in size. We have also shown that the arrangement of the pores is largely dependent on the arrangement of the dermal skeleton and varies with this, and so forth. But the form of the microsclera does not appear to be dependent upon external conditions or upon any other part of the organisation, and hence we find in them great constancy. Let us take, for example, the large family of the Desmacidonidæ. In this family we find megasclera of several distinct types, and their arrangement in the skeleton varies much; the arrangement of the pores varies enormously, and the external form if possible varies even more. But throughout the whole family we find one and the same fundamental form of microsclera (chelæ), commonly associated with others. These chelæ are such remarkable and complex forms that we cannot possibly imagine that they have arisen independently in the different sub-families and genera, and hence we are obliged to place all these together and separate them from the remainder of the Monaxonida, none of which possess chelæ.

To sum up briefly, the result of our investigation is as follows:—(1) We must always endeavour to classify by an assemblage of characters; (2) of individual characters the form of the microsclera (when present) is the most important, and this owing to the fact that these are subject to less modification than other parts of the organism.

II. THE CLASSIFICATION OF THE MONAXONIDA HERE ADOPTED.

Having thus investigated the data of classification and arrived at certain conclusions with regard thereto, we must now set forth the results to which these conclusions have led us in classifying the Challenger collection, and then discuss the mutual relations of the various subdivisions.

In the following scheme of classification we shall mention only those genera which are present in the collection, as the time at our disposal is not sufficient to enable us to give a complete *resumé* of this very intricate subject. The Challenger collection is, however, very fairly complete as regards genera, and quite sufficiently so to justify this proceeding, and although other genera are not here mentioned it must not therefore be thought that we have ignored them in considering the question. The present scheme is based upon the schemes of previous writers, which have been more or less assimilated and modified in accordance with our increase of knowledge.

For the sake of brevity we have also decided to omit in this place all diagnoses; these will be found given fully in the Description of Genera and Species, to which the reader is referred.