

I.—ORGANISATION AND CLASSIFICATION OF THE KERATOSA.

One might perhaps feel inclined to say that this title promises but very little ; that a classifier has to search for systematic characters not only into the organisation of the animals in question, viz., into their Anatomy and Histology, but also into other regions of Biology, and, in the first instance, into Embryology and Palæontology. Unluckily this is impossible so far as the horny sponges are concerned. Some fossils have been described which may possibly be referred to the Keratosa, but this cannot be regarded as scientifically proved, nor is the number of such forms sufficient to permit any further conclusions.¹ The possibility of a *future* application of Palæontology to phylogenetic purposes respecting the Keratose Sponges is not entirely excluded, though there are reasons to believe that this group is a very recent one, but up to the present time the application above mentioned is impossible. Again, with respect to embryological data even such a modest hope cannot be assumed. Of course our knowledge is still very fragmentary, but what we know only confirms the opinion that the ontogeny of the horny sponges is very monotonous, and that therefore its further profound study would probably be of consequence only for the solution of certain *embryological* problems (in the strict sense of the word), but not of much service in augmenting the number of systematically important characters. The classifier is thus thrown on the resources of Anatomy and Histology alone ; chiefly on those of Anatomy, since it is only in exceptional cases, as in *Ianthella* or *Cacospongia vesiculifera*,² that histological characters can be applied to systematic purposes. But, nevertheless, this would be of no further consequence were the anatomical characters of, so to speak, unconditional value. Yet even this is not the case, and this is just what renders the classification of the Keratosa so very difficult, and makes the danger of “describing individuals instead of genera and species” (O. Schmidt) greater in this group than elsewhere. For Comparative Anatomy can only state this or that difference in organisation, but is very often quite powerless, at least in the Keratosa, to decide the question whether this or that anatomical peculiarity is constant or merely accidental. It is therefore obvious that the systems of the Keratosa we are now so diligently elaborating will prove, with the progress of the Comparative Physiology, to

¹ Zittel, Zur Stammesgeschichte der Spongien, München, 1878, p. 9.

² Page 58 of this Report.