

mentioned in the family of Teichonidæ two genera, one created by Carter, the other new. The whole collection being represented by thirty species (twenty-three new); four species (one new) have been found to belong to the Asconidæ, ten species (seven new) to the Syconidæ, fifteen species (fourteen new) to the Leuconidæ, and one species (new) to the Teichonidæ.

“The Challenger collection of Horny Sponges proved to be but little larger than that of Calcareæ, consisting of thirty-seven species, twenty-one of which have been found to be new. The collection proved, however, to embrace all the genera of the group distinguished up to this time, with the exception of *Darwinella*, *Aplysilla*, *Aplysina*, and *Phyllospongia*. The author has abstained from describing three species represented only by specimens quite devoid of soft parts, the whole systematic proceeding of the Memoir having been conducted according to the principles upheld by Professor F. E. Schulze, and demanding the examination of the soft parts in no less degree than of the properties of the skeleton. It is for the first time that a comparatively large collection of Keratosa has been classified and described according to the present state of our spongiological knowledge. But in spite of the fact that the brilliant researches of F. E. Schulze have considerably increased within the Keratosa the number of characters fit for systematic application, the author of the report is still of opinion that on the whole the arrangement of the group lately proposed by Dr. Vosmaer, and based on the investigations of F. E. Schulze above mentioned, is still to be regarded as a provisional one, and that so long as Spongiology will not attach due influence to Comparative Physiology in its systematic proceedings, no hopes can be entertained of a natural arrangement of the Keratose Sponges. This is the chief idea of the Memoir, and even the description of the Challenger specimens is to a certain degree subordinated to it and devoted to its foundation. The Memoir opens with the discussion on the organisation of the Keratosa in general and on their chief systematic characters. Its results are that all these characters (namely the structure of the horny skeleton, the tendency of the skeletal fibres to take in foreign bodies, the presence of filaments, the differences in anatomical organisation) are either of little systematic importance, or of such a relative nature that the subdivision of the Keratosa into two main groups (orders) as proposed by Hyatt, Carter, and v. Lendenfeld is impossible. On the other hand the author comes to the conclusion that a direct subdivision into families as suggested by Vosmaer is also of an undoubtedly artificial nature; for such a subdivision, although it pays attention to the relative character of the main systematic characters of the Keratose Sponges, does not give sufficient weight to the circumstance that the application of these characters—namely the structure of the canal system, and the properties of the skeletal fibres, whether homogeneous or heterogeneous—gives rise to systems which are antagonistic to one another; and furthermore, the representatives of Dr. Vosmaer’s families show such many-