Classification of Sponges.

The principles of classification have assumed in modern zoology a general importance previously unknown, since we maintain that these principles are essentially phylogenetical, that morphological relation in a certain sense is historical, and that a true natural system approaches to the hypothetical pedigree of the related forms. The class of sponges possesses in this respect a particular interest, because they are the lowermost among the Metazoa, the simplest in organisation, and the most variable as regards constancy of species. Led by this conviction, I began in 1867 my researches on the Calcispongiæ, the results of which were published in 1872 in my Monograph of this order.

The general principles of classification there given are in accordance with those which have been employed in three excellent Monographs among the five Reports hitherto published on the sponges collected by the Challenger Expedition. W. J. Sollas in his Report on the Tetractinellida,[1] F. E. Schulze in his Report on the Hexactinellida,[2] and S. O. Ridley and A. Dendy in their Report on the Monaxonida,[3] have expressed opinions and followed principles in the classification of the Spongiæ which are essentially the same as my own. But the same cannot be said of two other reports on sponges belonging to this series, viz., those which Dr. Poléjaeff has published on the Calcarea[4] and on the Keratosa.[5] Since my own researches concerned just these two groups, and since my general statements are severely attacked by Dr. Poléjaeff, I may be permitted here to add some remarks on his opposing views, and to explain the contradictions in our systematical aims.

Poléjaeff has explained his systematical principles not only in the two Reports above mentioned, but also in the general account of his chief results communicated in the Narrative of the Cruise of H.M.S. Challenger.[6] His first and foremost principle is, that a natural classification of the sponges, hitherto wanting, can only be reached by comparative physiology. "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 sponges."[7] The most important part of a natural systematic classification, according to Poléjaeff, consists in the task of proving actually which of the so-called genera and subgenera "are really to be regarded as subgenera (*i.e.*, groups which, although connected by numerous intermediate stages with their systematic neighbours, still present in their organisation a new principle fit for a further development) and not as species and even varieties. This latter question is to be decided (perhaps exclusively) by the methods of comparative physiology."[8] Poléjaeff also

[1] Zool. Chall. Exp., pt. lxiii. vol. xxv. p. cv.
[2] Zool. Chall. Exp., pt. liii. vol. xxi. p. 485.
[3] Zool. Chall. Exp., pt. lix. vol. xx. p. 53.
[4] Zool. Chall. Exp., pt. xxiv. vol. viii.
[5] Zool. Chall. Exp., pt. xxxi. vol. xi.
[6] Narr. Chall. Exp., vol. i. p. 639.
[7] *Loc. cit.*, p. 643.
[8] *Loc. cit.*, p. 644.