THE PHYLOGENY OF THE HEXACTINELLIDA.

After a detailed investigation of a group of animals, it is incumbent on every naturalist who accepts the evolution theory to attempt the appreciation of his results in their relation to the phylogeny of the group.

In attempting to draw conclusions from the results of my investigation of living forms, I am indeed conscious that such deductions as to pedigree cannot claim to have any absolute certainty, and that the less since, in spite of the splendid work of Zittel, the anatomical and embryological facts can be but slightly supplemented by the results of palæontological research. Certain skeletal portions of fossil Hexactinellida, and especially the connected framework, have indeed sometimes been found wonderfully preserved, and, after separation from adjacent material by careful maceration in acids, have even admitted of very intimate study. But the siliceous spicules occurring loosely in the parenchyma, and specially important for diagnosis, are as a rule not preserved at all. Of the soft parts there is furthermore no trace; and, finally, the fossil remains that have been found represent only some small divisions of the entire class. I must therefore restrict myself simply to collating the conclusions drawn from the living forms with the few results of palæontological research, to show at least to what extent they harmonise.

In the discussion of the phylogenetic relations of living Hexactinellids to one another and to known fossil forms, I shall have repeatedly to refer to the papers which I have in the past year laid before the Berlin Academy.[1] There can be no doubt, to any evolutionist, that the close resemblance, both in general structure and details of organisation, which is expressed in the grouping of different forms in the systematic unities of species or even genera must be based upon, and explained in terms of real relationship. But the greater the extent of the systematic categories, the greater usually are the gaps which are seen to exist in the living fauna, and the more difficult does it become to determine the actual relationships. The conventional method of representing the various forms in a continuous series is felt to be much more insufficient when dealing with the larger divisions than when expressing the relations of the usually simpler varieties of a species or of the members of a genus.

[1] *Abhandl. d. Königl. Preuss. Akad.*, 1886.