

CHAPTER VI.—PHYLOGENY OR GENEALOGICAL DEVELOPMENT.

(§§ 153–200.)

153. *Sources of Phylogenetic Knowledge.*—For the purpose of constructing a hypothetical genealogical tree of the Radiolaria, as of all other organisms, three sources of information are open to us, viz., palæontology, comparative ontogeny, and comparative anatomy. In the present case, however, these three sources are of very different value; the first two are at present only very inadequately known and have only been partially investigated, hence they can only be utilised to a very slight extent. The comparative anatomy of the Radiolaria, on the other hand, is so completely known, and affords such certain glimpses into the morphological relations of the related groups, that by its aid we are in a position at all events to lay down the general features of their phylogeny with some probability, and to lay the foundation of a natural system.

154. *Natural and Artificial Systems.*—Although in the classification of the Radiolaria, as in the case of all other organisms, the natural system must be regarded as the goal of systematic classification, our phylogenetic knowledge of the Radiolaria is too fragmentary and inadequate to admit of the systematic arrangement here adopted being regarded as a thoroughly consistent natural system, that is, as representing the true genealogical tree of the class. Owing, however, to the extraordinary variety of form of the Radiolaria, and the complicated relationships of the larger and smaller groups, a synoptical grouping of the different categories and the erection of a complete, even if to some extent artificial, system, becomes a logical necessity. Under these circumstances, and regard being had to both these conditions, the following systematic treatment of the Radiolaria will appear as a *compromise between the natural and artificial systems*, like all other zoological and botanical classificatory attempts. On the one hand, the attempt is made to arrange the larger and smaller groups as nearly as possible according to their phylogenetic relationships, whilst, on the other hand, the practice of circumscribing each by a definition as clear and logical as possible has been carried out. Since these two efforts naturally often come into contact, the insufficiency of many parts of the arrangement is obvious, hence its hypothetical and provisional character is emphatically stated.

155. *Systematic Categories.*—The categories or different orders of divisions have in the Radiolaria, as in all other organisms, no *absolute* significance, but only a *relative* value. In itself it is quite unimportant whether the whole group be regarded, as at first, as a *family* (Ehrenberg, 1847), or as an *order* (J. Müller, 1858), or as a *class* (Haeckel,