The *sexual differentiation of the Polycyttaria* was first discovered in 1875 by R. Hertwig, and accurately described in the case of *Collozoum inerme* as occurring in addition to the formation of the ordinary crystal-spores (L. N. 26, p. 36); compare also the general discussion of Bütschli (L. N. 41, p. 52). Recently Karl Brandt has demonstrated the formation of both homogeneous isospores (crystal-spores) and heterogeneous anisospores (macro- and microspores) in seven different species of Polycyttaria, and has come to the conclusion that in all social Radiolaria there is a regular alternation between the former and latter generations. Compare his elaborate account of the colonial Radiolaria of the Gulf of Naples (L. N. 52, pp. 145–178).

217. *Inheritance.*—Inheritance is to be regarded as the most important accompaniment to the function of reproduction, and especially in the present case, because the comparative morphology of the Radiolaria furnishes abundant instances of the action of its different laws. The laws of *conservative inheritance* are illustrated by the comparative anatomy of the larger groups; thus, in the four legions the characteristic peculiarities of the central capsule are maintained unaltered in consequence of continuous inheritance, although great varieties appear in the skeleton in each legion. The individual parts of the skeleton furnish by their development on the one hand and their degeneration on the other, especially in the smaller groups, examples of *progressive inheritance.* Thus in the SPUMELLARIA the constant formation of the primary lattice-shell (a central medullary shell) and its ontogenetic relation to the secondary one, which is developed concentrically round it, can only be explained phylogenetically by conservative inheritance, whilst on the other hand the characteristic differentiation of the axes in the various families of the SPUMELLARIA is to be explained by progressive inheritance. In the ACANTHARIA the arrangement of the twenty radial spines (in accordance with Müller's law, §§ 110, 172) was first acquired by a group of the most archaic Actinelida (Adelacantha) through hydrostatic adaptation, and has since been transmitted by inheritance to all the other families of the legion (Icosacantha). The morphology of the NASSELLARIA is not less interesting, because here several different heritable elements (the primary sagittal ring and the basal tripod) combine in the most manifold ways in the formation of the skeleton (compare §§ 123, 124, 182). The affinities of the genera in the different families yield an astonishing variety of interesting morphological phenomena, which can only be explained by progressive inheritance. The same is true also of the PHÆODARIA. In this legion the primary inheritance is especially manifested in the constant and firm structure of the central capsule with its characteristic double wall and astropyle, whilst the formation of the skeleton in this legion proceeds in different directions by means of divergent adaptation. The morphology of the Radiolaria thus proves itself a rich source of materials for the physiological study of adaptation and inheritance.