

are often found fossil. Of the two other legions those families which possess no skeleton are of course excluded; the Nassellida among the NASSELLARIA, and the Thalassicollida and Collozoida among the SPUMELLARIA. Thus of the 85 known families there remain scarcely 55 of which the skeletons may be expected in the fossil state; and of these scarcely half have been actually observed in this condition. Of the 20 orders of this class enumerated in § 155, the following 9 may be, for palæontological and geological purposes, completely excluded:—(A) The 4 orders of ACANTHARIA (1, Actinelida; 2, Acanthonida; 3, Sphærophracta; 4, Prunophracta); (B) 3 orders of PHÆODARIA (5, Phæosphæria; 6, Phæogromia; 7, Phæoconchia); (C) 1 order of NASSELLARIA (8, Nassoida); (D) 1 order of SPUMELLARIA (9, Colloidea). From a geological point of view the following 6 orders, although occasionally found fossil, are of quite subordinate importance:—(A) Among the SPUMELLARIA (10, Beloidea, and 11, Larcoidea); (B) among the NASSELLARIA (12, Plectoidea; 13, Stephoidea; 14, Botryodea); (C) among the PHÆODARIA (15, the Phæocystina). On the other hand the following 5 orders, which are the main constituents of Radiolarian rocks, are of pre-eminent geological importance:—(A) Among the SPUMELLARIA (16, Sphæroidea; 17, Prunoidea; 18, Discoidea); (B) among the NASSELLARIA (19, Spyroidea, and 20, Cyrtoidea). The numerical relation in which the different families of these orders appear in the Radiolarian formations may be seen on consulting § 157.

250. *Fossil and Recent Species.*—The fact that there are many Radiolaria living at the present day, whose shells are found fossil in Tertiary rocks, is of great phylogenetic and geological significance. This appeared to be the case even from the older observations upon the Polycystina of the Barbados marl (see note A), but more recent and extensive observations both upon these and upon the Miocene Radiolaria of Sicily, have shown that the number of these “living fossil” forms is much greater than was previously supposed (see note B). Among the Miocene Radiolaria numerous species, both of SPUMELLARIA (especially Sphæroidea and Discoidea) and of NASSELLARIA (especially Spyroidea and Cyrtoidea) are not to be distinguished from the corresponding still living forms (see notes C, D). On the other hand, those genera, which are rich both in species and individuals (recent as well as fossil), present continuous series of forms which lead gradually and uninterruptedly from old Tertiary species to others still living, which are specifically indistinguishable from them. These interesting morphological facts are capable of direct phylogenetic application, and furnish valuable proofs of the truth of the theory of descent.

A. Ehrenberg, in his list of fossil Polycystina (L. N. 25, pp. 64–85, 1875), records 325 species of which 26 are still living.