1884, contains 20 orders, 85 families, 739 genera, and 4318 species. The consideration that but a small proportion of the ocean has yet been investigated renders it likely, however, that even this large number does not include the half of the recent species. The great progress which our knowledge of the organisation of the Radiolaria has made, by means of comparative study, renders it possible to arrange this enormous mass of forms in four main divisions or legions, and these are again related in pairs, so that two divisions of the highest rank or subclasses are constituted, the *Porulosa* (or *Holotrypasta*) and *Osculosa* (or *Merotrypasta*).

The division of the Radiolaria into two subclasses and four legions (or principal orders), I sought to establish in 1883 in a communication on the Orders of the Radiolaria (Sitzb. Jena Gesellsch. Med. u. Naturwiss., February 16, 1883). As a believer in the theory of descent, I regard all the systematic arrangements of specialists as artificial, and all their divisions as subjective abstractions, and hence I shall be guided in the establishment of such groups as subclasses, legions, orders, &c., by purely practical considerations, especially by the desire to give as ready a survey as possible of the complex multitude of forms (compare §§ 154 to 156).

3. *Porulosa or Holotrypasta.*—The subclass Porulosa or Holotrypasta includes the two legions, PERIPYLEA or SPUMELLARIA, and ACTIPYLEA or ACANTHARIA, which agree in the following constant and important characters:—(1) The *Central Capsule* is primitively a sphere, and retains this homaxon form in the majority of the species. (2) The *Membrane* of the central capsule is everywhere perforated by very numerous minute pores, but possesses no larger principal aperture (osculum). (3) The *Pseudopodia* radiate in all directions and in great numbers from the central capsule, passing through its pores. (4) The *Equilibrium* of the floating unicellular body is in most Porulosa pantostatic (indifferent) or polystatic (plural-stable), since a vertical axis is either absent, or, if present, has its two poles similarly constituted. (5) The *Ground-forms* of the skeleton are therefore almost always either spherotypic or isopolar-monaxon, very rarely zygotypic. The two legions of the Porulosa are distinguished mainly by the skeleton of the SPUMELLARIA (or PERIPYLEA) being siliceous, never centrogenous, nor composed of acanthin, whilst in the ACANTHARIA (or ACTIPYLEA) it is always centrogenous and made up of acanthin; hence in the former the nucleus is always central, in the latter always excentric.

4. *Osculosa or Merotrypasta.*—The subclass Osculosa or Merotrypasta includes the two legions MONOPYLEA or NASSELLARIA, and CANNOPYLEA or PHÆODARIA, which agree in the following constant and important characters:—(1) The *Central Capsule* is originally monaxon (ovoid or spheroidal) and retains this ground-form in most of the species. (2) The *Membrane* of the central capsule possesses a single large principal aperture (osculum) at the basal pole of the vertical main axis. (3) The *Pseudopodia* radiate from a stream of sarcode which passes out from the central capsule only on one side, namely, through the principal aperture. (4) The *Equilibrium* of the floating body is