

exception must, however, be made in the case of many animal ovicells, which, in their peculiar form and composition, often recall large Radiolarian nuclei. With respect to the external shape two main forms may be distinguished, as primary and secondary. The *primary form* of the Radiolarian nucleus is the sphere; it occurs not only in most swarm-spores, but also in most adult forms belonging to the legion SPUMELLARIA, and in individual instances in other groups; indeed the nuclei of most SPUMELLARIA, as also the concentric central capsules in which they lie, are true geometrical spheres. The *secondary forms* of the nucleus are found in the majority of adult Radiolaria, and arise from the primary spherical forms in various ways, either by the elongation or contraction of one axis, or by the formation of apophyses or processes. The most important of these secondary forms are as follows:—

1. *Ellipsoidal nuclei*, arising by elongation of one principal axis; very common among the NASSELLARIA, as well as in many PRUNOIDEA and LARCOIDEA among the SPUMELLARIA; also in several ACANTHARIA.
2. *Discoidal nuclei*, arising by contraction of one principal axis, sometimes lenticular or spheroidal, biconvex, sometimes shaped like a disc or coin; especially common in the DISCOIDEA among the SPUMELLARIA, also in some ACANTHARIA; the large nucleus of the PHÆODARIA is always spheroidal or almost spherical, with a slightly shortened main axis.
3. *Stellate nuclei*, spherical, and armed with evenly distributed radial club-shaped or conical processes; rare but very characteristic, especially in the two large Thalassicollida *Thalassopila* (Pl. 1, fig. 3), and *Thalassophysa* (Monogr. d. Radiol., Taf. i.); also in some Sphærellaria (Pl. 11, fig. 5).
4. *Amœboid nuclei*, with unequal processes irregularly arranged, in certain irregular forms of SPUMELLARIA and ACANTHARIA.
5. *Lobate nuclei*, with several (usually two or three) large ovoid or pyriform lobes, which protrude into corresponding larger lobes of the central capsule, in many NASSELLARIA, especially the multiarticulate Cyrtoides (Pl. 59, figs. 12, 13). The budding nucleus of the ACANTHARIA is also lobate (Pl. 129, figs. 6–11).

67. *The Nucleus of the Peripylea*.—The nucleus of the SPUMELLARIA or PERIPYLEA shows in certain groups a very primitive arrangement, indeed the archaic structure from which the various forms of nuclei of other Radiolaria may be derived; but on the other hand, in other groups it exhibits very peculiar and remarkable differentiations. In the first place it may be noted that the monozootic or solitary SPUMELLARIA usually possess a single serotinous nucleus, which only divides into numerous swarm-spores at a late period;