

are true spheres. Furthermore the simple or concentrically composed lattice-spheres of *Sphæroidea*, *Sphærophracta*, and *Phæosphæria* may be regarded as spheres, although strictly speaking they are endospherical polyhedra. From the primary spherical form of the Radiolaria all other secondary forms may be derived in the following order:—1. By the development of a main axis the Monaxonia arise. 2. By the development of transverse axes the Stauraxonia arise. 3. In both groups (Monaxonia and Stauraxonia) the two poles (or upper and lower halves of the body) are at first similar (Isopola). 4. By differentiation in the two poles or halves of the body (distinction between the basal pole and the apical) the forms with different poles (Allopola) arise. 5. The transverse axes of the Stauraxonia are at first equal (regular pyramids and double pyramids). 6. By differentiation in the transverse axes (distinction between the sagittal and the frontal axis) the amphitheat pyramids and double pyramids arise. 7. From the amphitheat pyramids the Amphipleura arise by differentiation of both poles of the sagittal axis. 8. The zygopleural ground-form appears last, as the simplest form of the Amphipleura.

47. *The Ground-Forms of the Spumellaria.*—The SPUMELLARIA, being the oldest and most primitive Radiolaria, have for the most part either indifferent or multistable equilibrium; e.g., all Colloidea and Beloidea which have a spherical central capsule, and also most Sphæroidea. Among these primitive Centrostigma true spheres and endospherical polyhedra are represented in the utmost variety, and the regular polyhedra in particular. By the development of a vertical main axis these Centrostigma have also given rise to very numerous Centraxonia, which are usually isopolar, very rarely allopolar. Sometimes they are Monaxonia (circular in transverse section), sometimes Stauraxonia (polygonal in transverse section). The vertical main axis is longer in the Prunoidea, shorter in the Discoidea than any of the other axes. The Larcoidea are distinguished by their lentelliptical or triaxial ellipsoid form; the three different but isopolar axes corresponding with those of the rhombic octahedron; but even among the Sphæroidea, Prunoidea, and Discoidea, this form is sometimes produced by the differentiation of two different transverse axes at right angles to each other. Whilst these ground-forms (Centraxonia and Centrostigma) occur in the utmost variety among the SPUMELLARIA, the centroplanar (or true bilateral) ground-form is entirely wanting.

48. *The Ground-Forms of Acantharia.*—In the small family Astrolophida, which contains the most archaic forms of the legion (*Actinellius*, *Astrolophus*), the ACANTHARIA show a direct relation to the most primitive SPUMELLARIA (*Actissa*), and like these have indifferent equilibrium; their central capsule is a sphere, their calymma an endospherical polyhedron, whose angles are indicated by the distal ends of the numerous