

regular cube (Pl. 18, figs. 1-3); (b) twelve spines (placed in the corner axes of the regular icosahedron); (c) fourteen spines (six placed in the three dimensive axes of the regular octahedron, eight in the centres of its eight faces); (d) twenty spines (placed either in the same order as in many *Larcoidea* and *ACANTHARIA* [?], or in the twenty corners of the regular dodecahedron); (e) thirty-two spines (twelve placed in the twelve corners of the regular icosahedron, twenty in the centre of its triangular faces). Besides these most important and quite geometrical modes of disposition there also seem to occur in the *Astrosphærida* the following subregular (or symmetrical?) modes: 9, 10, 16, 18, 24, 40, 60, 80. But it is very difficult to give a correct account of these modes. In every case this manifold and regular disposition of the radial spines is of the highest interest for the study of general "Promorphology."

*The Central Capsule* is in all *Sphæroidea* (without any exception) a perfect sphere in the geometrical sense, even in those forms in which the enclosing lattice-shell is more or less irregular (*i.e.*, many *Collosphærida*). This is the most important character, which separates the *Sphæroidea* from all other *Sphærellaria*. For in the *Prunoida* the capsule is ellipsoidal, with one prolonged axis; in the *Discoidea* lenticular, with one shortened axis; in the *Larcoidea* lentelliptical, with three different dimensive axes. The central capsule is originally always enclosed by the lattice-shell; but in many cases with increasing growth this relation becomes inverted; the capsule sending out many club-shaped blind sacs through the meshes of the lattice-shell, and these melting together outside the latter, a new membrane is formed, enclosing a "medullary shell."

*The Nucleus* of the cell exhibits a very different shape in the solitary and the social *Sphæroidea*. In the solitary or monozoic *Sphæroidea* the centre of the central capsule is occupied by a large spherical concentric nucleus, with or without nucleoli; also this nucleus is originally always within the innermost lattice-shell, but with increasing size may overgrow and enclose it. A short time before the formation of the vibratile spores the central nucleus becomes resolved into many small nuclei. In the social or polyzoic *Sphæroidea*—the *Collosphærida*—commonly the simple central nucleus very early (a long time before the formation of the spores) is divided into a great number of small nuclei, whilst the centre of the capsule becomes filled with a large oil-globule. Therefore we find the same difference between the solitary and social forms in the *Sphæroidea* as in the *Colloidea*. Here also the calymma, or the jelly-mantle, enveloping the central capsule, is in the social forms very large and voluminous, differentiated into alveoles, whilst in the solitary forms it is much smaller, without alveoles.