

other axis of the body. The *Discoidea* are probably polyphyletic, having originated from several different groups of *Sphæroidea*; at least two essentially different main groups may be distinguished among them; of these the one is characterised by the formation of a large extracapsular lenticular cortical shell (*Phacodiscaria*), whilst in the other this typical "Phacoid shell" or lattice-lens is wanting (*Cyclodiscaria*, compare pp. 403-409).

The *Phacodiscida* (Pls. **31-35**) perhaps constitute the primitive group of the *Phacodiscaria*, their lenticular or Phacoid cortical shell being connected by radial bars with one or two concentric spherical medullary shells; they may have originated directly from the *Dyosphærida* or *Triosphærida* by flattening of the spheroidal cortical shell. From the *Phacodiscida* the *Cenodiscida* (if indeed they be not the primitive stem-form) have been developed by retrogression and loss of those medullary shells. The *Coccodiscida* (Pls. **36-38**), on the other hand, have been developed from the *Phacodiscida* by the addition of concentric rings of chambers, which may be regarded as incomplete cortical shells, only the equatorial portion of which is developed. Perhaps the *Porodiscida*, the primitive group of the *Cyclodiscaria*, have arisen in a similar way; they lack, however, the typical Phacoid shell, the concentric rings of chambers being directly applied to a small spherical medullary shell in the equatorial plane (Pls. **41-46**). If those rings from the commencement be interrupted by three interradiial gaps (gates) the family *Pylodiscida* arises (Pl. **38**, figs. 6-20). If, on the contrary, the concentric radially divided chambers of the *Porodiscida* become quite irregular and spongy, they pass over into the *Spongodiscida* (Pls. **46, 47**). It is not, however, impossible that part of the *Discoidea* (especially the *Cenodiscida*) have originated directly from skeletonless *Collodaria* with a lenticular central capsule, such as are found in a subgenus of *Actissa* (*Actidiscus*, p. 15).

167. *Genealogical Tree of the Larcoidea*.—The suborder *Larcoidea* presents in the structure, composition, and development of its variously formed lattice-shells much more complicated relations than the other *Sphærellaria*; it is essentially distinguished from them by the characteristic ground-form of its lattice-shells, which is a "lentellipsis" or a triaxial ellipsoid (also the ground-form of the rhombic crystallographic system, the rhombic octahedron). Hence all parts of the body are regularly disposed with respect to three different dimensive axes; all three axes, perpendicular one to another, are isopolar but of different lengths; the longest is the vertical main axis, the mean the horizontal frontal axis, the shortest the horizontal sagittal axis. In the great majority of the *Larcoidea* the lentelliptical ground-form is indicated in the central capsule, even when it is not at once obvious in the skeleton. Since such lentelliptical central capsules are developed even in *Actissa* (*Actilarcus*, p. 16), it is possible that the simplest *Larcoidea* may have arisen directly from these by deposition of a simple lentelliptical lattice-shell in the sarcodictyum, on the surface of the calymma (*Cenolarcus*, Pl. **50**, fig. 7). It is more probable, however, that these simplest forms (*Cenolarcus*, *Larcarium*) have been developed from the simplest *Sphæroidea* (*Cenosphæra*), by the spherical body growing unequally in the three dimensions of space. It appears especially likely