

soft body. The fact that it has recently been reported as absent by various authors is due to their having observed young or unripe specimens, before the formation of the spores. In some species of *Polycyttaria* and *ACANTHARIA* the membrane persists only a very short time.

52. *The Primary Form of the Central Capsule.*—The form of the central capsule is originally a geometrical sphere; and if in accordance with our monophyletic hypothesis all Radiolaria are to be derived from one common stem-form (*Actissa*, see p. 12), then the central capsule of this common stem-form must be regarded as perfectly spherical (*Procyttarium*, p. 13, Pl. 1, fig. 1). Since, further, the enclosed nucleus and the surrounding calymma of this primitive archaic form must also be spheres, and since the nucleus lies in the centre of the body, and the protoplasm is evenly distributed between it and the membrane, it follows that no axes or excentrically differentiated parts are to be distinguished in this most primitive Radiolarian. Rather in the primary central capsule all parts are concentrically and evenly arranged round its centre. This primary spherical form becomes modified in most Radiolaria into various secondary ground-forms, which are correlated partly with the structure of the capsule itself, and partly also with the development of openings in its membrane. In general the ground-form of the central capsule is polyaxon in the *Porulosa* (*SPUMELLARIA* and *ACANTHARIA*); but in the *Osculosa* centraxon forms are more frequently observed; in the *NASSELLARIA* the ovoid (allopolar monaxon) form is predominant, and in the *PHÆODARIA* the rhomboid or amphitlect pyramid. In these latter, the astropyle indicates the basal pole of the vertical main axis, whilst the two parapylæ (right and left) mark the poles of the frontal transverse axis. In the *NASSELLARIA* the centre of the porochora corresponds with the basal pole of the main axis, whilst no transverse axes are originally present.

53. *The Secondary Forms of the Central Capsule.*—The original purely spherical form of the central capsule persists only in the minority of the Radiolaria, namely, the greater part of the *SPUMELLARIA* and *ACANTHARIA*; it passes over into various other secondary forms in the majority of the class, in the whole of the *NASSELLARIA* and *PHÆODARIA*, and in a considerable portion of the *SPUMELLARIA* and *ACANTHARIA*. These secondary or derived forms may be divided into two quite distinct groups, which may be designated endometamorphic and exometamorphic; in the former the cause of the divergence of the secondary form from the sphere lies in the internal structure of the central capsule; in the latter it lies in the external influence exerted by the growth of the skeleton. Obviously the former series of modifications is more significant than the latter.

54. *The Endometamorphic Forms of the Central Capsule.*—The secondary forms of the central capsule, which are due to internal causes connected with its growth, are as follows:—