

all other Radiolaria—and are never aggregated in colonies; the calymma includes one single central capsule, and this again one central nucleus, which does not become divided until full maturity.

The Polycyttaria on the contrary (or the Spumellaria socialia) live aggregated in large colonies; the calymma includes a variable number of associated central capsules and each of these commonly one central oil-globule, whilst the original simple nucleus commonly becomes very early divided into numerous small nuclei.

*The Nucleus* of the SPUMELLARIA is originally constantly *central*, placed quite in the centre of the concentric capsule, and it retains this central position in all Monocyttaria or solitary Peripylea; whereas in the Polycyttaria—in consequence of its early division—its place is commonly taken by a central oil-globule. Whilst the numerous nuclei of the latter are very small, the single nucleus of the former is comparatively large, extremely large (more than a millimeter in diameter) in some gigantic Collo-daria.

*The Endoplasm* or the intracapsular sarcode exhibits in the greater number of SPUMELLARIA a more or less distinct radial striation. It encloses a great variety of different parts; vacuoles, oil-globules, pigment-granules, crystals, &c.

*The Membrane* of the capsule in all SPUMELLARIA is simple (never double as in the Phæodaria) and everywhere equally perforated by innumerable small pores; in the thick, double-edged membrane of many large Collo-daria these pores appear (in the optical section of the capsule-wall) as distinct fine radial canals, very densely and regularly disposed.

*The Central Capsule* in the SPUMELLARIA is originally a *geometrical sphere*, and this simple globular form is preserved in all Sphæroidea, and in the greatest part of Colloidea and Beloidea. By prolongation of one axis the form becomes *ellipsoidal* (or even cylindrical) in the Prunoidea, and in some few forms of Colloidea. By shortening of one axis it becomes *lenticular* (or even discoidal) in the Discoidea, and in some few forms of Colloidea. By unequal growth in three different axes, perpendicular one to another, the capsule becomes *lentelliptical* in all Larcoidea. Very rarely the capsule assumes in the SPUMELLARIA a polyhedral or irregular (sometimes even amoeboid) form, only in a few Colloidea.

*The Calymma*, or the jelly-veil including the central capsule, is very voluminous in many SPUMELLARIA of gigantic size, mainly in the large Colloidea, and in all Polycyttaria or social Radiolaria. It includes here a considerable number of large vacuoles or "alveoli." The calymma never exhibits in this legion the dark voluminous phæodium, possessed by all PHÆODARIA.

*Xanthellæ* or "zooxanthellæ" are numerous in the calymma of most SPUMELLARIA, but by no means constant; they are very variable in number and size.

*The Matrix*, placed between the calymma and central capsule, is, in the majority of the SPUMELLARIA, a rather thick layer of granular exoplasm.

*The Pseudopodia* arising from it are very numerous, equally disposed over the whole