

divides very early into numerous separate nuclei, which are usually distributed in the peripheral portions of the central capsule. In the *NASSELLARIA* the development of the porochora, and of the podoconus which stands upon it, brings about the formation of a vertical axis, and in consequence the central capsule assumes a monaxon form (usually ovoid or conical); the nucleus then lies in the main axis, but excentrically between the apex of the podoconus and the aboral pole. In many *NASSELLARIA*, however, especially when the podoconus is so large that its apex approaches the aboral pole of the central capsule, the nucleus is pressed to one side and lies quite excentrically. The *PHÆODARIA* exhibit a different arrangement; the large spheroidal nucleus is always subcentral, so that its main axis corresponds with that of the concentric spheroidal central capsule; but since the astropyle always occupies the oral pole of the latter, and since the distance of the nucleus from this pole is always somewhat different from its distance from the other, it follows that, strictly speaking, the nucleus never lies accurately in the geometrical centre.

65. *Homogeneous and Allogeneous Nuclei.*—The nucleus of the Radiolaria not only exhibits a similar structure and composition, and suffers similar modifications to those which are found to occur in the case of other cell-nuclei, but also to some extent shows very peculiar developmental forms, which are seldom or never found in other cells. In the first place the nuclei may be divided into homogeneous and allogeneous, the former are structureless and consist of a uniform mass of nuclein, whilst the latter are composed of different substances and show various structural relations. *Homogeneous* nuclei, whose whole mass is uniform and exhibits no structural differentiation, are probably always to be found in the swarm-spores; in the fully developed Radiolarian body they are found only in the first legion, *SPUMELLARIA*, and that both in many *Monozoa* (especially small *Sphæroidea* and *Prunoidea*) and in the *Polyzoa* (or *Polycytaria*). The whole mass of these homogeneous nuclei, which are usually spherical or ellipsoidal, consists of uniform, perfectly clear and transparent nuclein, and becomes evenly stained by carmine, hæmatoxyline, &c. They may be readily distinguished by these means from the clear vacuoles or “hyaline vesicles,” which are evenly distributed in the endoplasm of many Radiolaria, and may be confused with the former. *Allogeneous* nuclei, which are always composed of different parts and often show complicated structural relations, are found developed in the great majority of Radiolaria. The most important differentiation exhibited by these secondary forms is the separation of the nuclear mass into a firm nuclear substance (caryoplasm) and a fluid nuclear juice (caryolymph). In addition in each nucleus a nucleolus is visible, and often several or many may be seen (see §§ 67 to 70).

66. *The Form of the Nucleus.*—The nucleus of the Radiolaria shows greater variations in form and structure than are to be found in the majority of cell-nuclei;