

from twenty to fifty roundish or spherical, strongly refracting nucleoli, are present; more rarely there are several hundred very small ones. Sometimes the nucleus is penetrated by fine trabeculæ, in whose meshes lie the nucleoli (Pl. 101, fig. 2). In certain nuclei, which contained a few large nucleoli, these were of irregular form, probably the result of amœboid movements (Pl. 101, fig. 1). In the formation of spores in the CANNOPYLEA, the nucleus apparently becomes dissolved, and its numerous nucleoli develop directly into the nuclei or mother-nuclei, which produce the nuclei of the flagellate spores. Furthermore, many PHÆODARIA seem to multiply by simple cell-division, since very commonly (especially in the *Phæocystina* and *Phæoconchia*) two large nuclei (right and left), may be met with in one central capsule; sometimes also a single large nucleus, in which a sagittal constriction marks the commencing division of the capsule (Pl. 101, figs. 2, 36; Pl. 104, fig. 3; Pl. 124, fig. 6, &c.).

The large nucleus of the PHÆODARIA was first described in my Monograph in 1862, in the case of *Aulacantha* (p. 263), *Aulosphæra* (p. 359), and *Cœlodendrum* (p. 361), as a "large, spherical, thin-walled endocyst," from 0.1 to 0.2 mm. in diameter. More detailed descriptions, especially with respect to the behaviour of the nucleoli were given by R. Hertwig in 1879 (L. N. 33, p. 97).

71. *The Endoplasm or Intracapsular Protoplasm.*—In all Radiolaria the intracapsular protoplasm, which, for the sake of brevity, may be termed "endoplasm," constitutes originally, and especially in the earliest stages, the only important content of the central capsule, except the nucleus. In certain SPUMELLARIA and NASSELLARIA, of simple structure and of small dimensions, this condition persists for a long period, and the endoplasm then appears as a homogeneous, colourless, turbid or finely granular, mucous, semi-solid mass, which cannot be distinguished from the ordinary undifferentiated protoplasm of young cells; no definite structure, and in particular, no fibrillar network, can be discovered in it even by the use of the customary reagents. In the great majority of the Radiolaria, however, this primitive homogeneous condition of the endoplasm is very transient, and it soon undergoes definite modifications, becoming differentiated into separate parts or producing new constituent contents. Such products of the internal protoplasm are in particular hyaline spheres (vacuoles and alveoles), oil-globules, pigment-bodies, crystals, &c. The most important of the differentiations which take place in the endoplasm is that into an internal, granular, *medullary* substance and an external, fibrillar, *cortical* substance; although the various legions behave somewhat differently in this respect (§§ 77–80).

72. *Intracapsular Hyaline Spheres.*—The central capsule of very many Radiolaria contains in its endoplasm numerous spherical bodies of varying size, which consist of watery or albuminous fluid, and have previously been regarded as nuclei, or described as products of the internal protoplasm, under various names, such as "spherical transparent