

87. *The Extracapsular Fat-Globules.*—Fat is probably as widely distributed in the exoplasm as in the endoplasm of the Radiolaria; a considerable proportion of the small, dark, highly refractive granules appear to consist of fat; most likely they are for the most part direct products of metastasis. These widely-spread granules, which are sometimes coloured, and which by their passive motion produce the phenomenon of granular circulation in the exoplasm, are not the only fatty structures in the extracapsulum; larger globules sometimes occur. In certain large Collodaria (e.g., *Thalassicolla melacapsa*, Pl. 1, fig. 5; *Thalassophysa sanguinolenta*, &c.) radial series of oil-globules are found in the calymma, especially in its proximal portion; in others the central capsule is surrounded by a layer of oil-globules (situated in the sarcomatrix). In the PHÆODARIA a part of the phæodium appears to consist of fat-globules.

88. *The Extracapsular Pigment.*—The formation of colouring matters in the extracapsulum is on the whole rare in the Radiolaria, apart from the "yellow cells" (see § 91) and from the peculiar phæodium of the PHÆODARIA, which will be separately treated of in the next paragraph. Considerable masses of extracapsular pigment, usually black or blue, rarely brown or red, are found only in a few Radiolaria belonging to the first three legions; most often in the SPUMELLARIA. Some large Collodaria, e.g., the common *Thalassicolla nucleata* and a few other species of this genus (Pl. 1, fig. 4), are characterised by a rich deposit of black or blue pigment in the sarcomatrix and in the proximal portion of the calymma. Brown pigment is deposited in the calymma of many Sphæroidea and Discoidea, as well as of some NASSELLARIA (*Cystidium*, *Tridictyopus*, &c.). In a part of the ACANTHARIA red pigment granules are thickly strewn in the sarcoplegma and pass along the free pseudopodia, as for example in *Actinelius purpureus* and *Acanthostaurus purpurascens*. The composition and significance of these extracapsular pigments are not completely known.

On the extracapsular pigment of *Thalassicolla nucleata*, compare my Monograph, pp. 87, 251. On the red extracapsular pigment-granules of the ACANTHARIA, see L. N. 19, pp. 345, 364, &c.

89. *The Phæodium of the Phæodaria.*—The PHÆODARIA, which are distinguished from the other three legions of Radiolaria by the double membrane of the central capsule, and the peculiar structure of the main-opening (astropyle), differ also in other points, the most important of which is the constant presence of a voluminous mass of extracapsular pigment. This possesses a peculiar constitution and special significance, and is not to be confounded with the extracapsular pigment-granules of other Radiolaria (e.g., *Thalassicolla*), and hence it has been distinguished by the name "Phæodium," and the individual granules which compose it as "Phæodella" (see note A). The phæodium is always excentric in position relatively to the central capsule, of which it