

through the openings of the central capsule with the endoplasm, whilst externally the pseudopodia or mucous threads arise from it, which by their union form the sarcoplegma. The sarcomatrix is only interrupted in the SPUMELLARIA and ACANTHARIA by those parts of the skeleton which perforate the membrane of the central capsule. In all NASSELLARIA and PHÆODARIA, as in the Collodaria, it appears as a perfectly continuous sarcode-envelope of the central capsule. Its thickness is variable; in general it is most strongly developed in the SPUMELLARIA and PHÆODARIA, less so in the NASSELLARIA, and is thinnest in the ACANTHARIA. The thickness seems, however, to vary even in one and the same individual, the difference depending partly upon the different stages of development and partly upon nutritional conditions. After abundant inception of nutriment the thin protoplasmic layer of the matrix is thickened and turbid, rich in granules and irregular masses, which are probably due to enclosed but only half-digested food; xanthellæ also, as well as foreign bodies taken up with the nutriment, such as frustules of Diatoms and shells of smaller Radiolaria, and of pelagic infusoria, larvæ, &c., are often, especially in large individuals, aggregated in considerable quantities in the matrix. After long fasting, on the contrary, this is poor in these enclosed bodies and in granules; it then forms a thin colourless more or less hyaline mucous coating to the central capsule. From a physiological standpoint the sarcomatrix is to be regarded as the *central organ of the extracapsulum*, and as of pre-eminent significance. Probably it is not only the most important organ for the nutrition of the Radiolaria (especially for digestion and assimilation in particular), but perhaps is also the central organ of perception. On the other hand the sarcomatrix belongs to those components of the Radiolarian organism which take no part in the formation of the skeleton.

A. The sarcomatrix was first described in my Monograph in 1862 (p. 110) as the "Mutterboden der Pseudopodien," possessing a pre-eminent physiological importance. Compare also my paper on the sarcode elements of the Rhizopoda (Zeitschr. f. wiss. Zool., Bd. xv. p. 342, 1865).

93. *The Sarcoplegma*.—By the name sarcoplegma, as distinguished from the remaining extracapsular sarcode, is understood the intracalymmar web of exoplasm or "ectosarcode network," which ramifies within the gelatinous mass of the calymma. Internally it is in direct connection with the continuous sheath (sarcomatrix), which encloses the central capsule, whilst externally it is in contact with the superficial sarcode network (sarcodictyum) which surrounds the calymma. The configuration of this exoplasmic web, which penetrates the jelly-veil in all directions, is exceedingly variable; in most Radiolaria it is extremely irregular in form, like the protoplasmic network in the ground-substance of many kinds of connective tissue. In some groups, however, it assumes a rather regular shape which it appears to retain (*e.g.*, in many ACANTHARIA). It must be assumed also that in those instances where the consistency