

species indeed only just prior to the development of the swarm spores. I have recognised the presence of it in all species which I have investigated (more than a thousand), and even in those in which Brandt denies its existence. It is often very delicate and may easily be overlooked, especially when the contents of the capsule are colourless, but in all cases by the prudent application of staining fluids and other reagents its presence may be demonstrated. Even in those cases in which the contour of the capsule was not visible, and its contents appeared to pass without definite boundary into the matrix of the extracapsulum, it was possible by the use of appropriate stains or reagents, which would not penetrate the capsule, or of those solvents which were capable of dissolving its contents and of causing it to swell up like a distended bladder, to recognise the existence of the membrane. Those Radiolaria in which it is truly absent are young animals of species in which the membrane is only formed immediately before sporification, and persists but for a short time (*e.g.*, species of *Collozoum*, *Sphærozoum*, *Acanthometra*, *Acanthochiasma*, &c.).

57. *The Capsule-Openings of the Peripylea (or Spumellaria).*—The capsule-membrane of the PERIPYLEA is generally perforated by extremely fine and numerous pores, which are distributed at equal distances over the whole surface, and are precisely alike in all parts of the capsule. Hence the SPUMELLARIA may be called “Holotrypasta” or “Porulosa”; they agree with the ACTIPYLEA in being devoid of an osculum or operculum; they are distinguished from the latter group mainly in that their pores are equally distributed over the whole surface of the capsule, whilst in the ACTIPYLEA the pores are disposed in definite groups or lines, separated by large imporous areas.

The central capsule of the SPUMELLARIA, with its innumerable fine and evenly distributed pores, must be regarded as the primitive arrangement, from which the different central capsules of the three other legions have been developed. The central capsule of the ACTIPYLEA has been derived from that of the PERIPYLEA by reduction in the number of the pores and their distribution in definite, regularly disposed areas in the membrane. The central capsule of the Osculosa is characterised by the formation of a special main-aperture (osculum) at the basal pole, which is closed in the MONOPYLEA by the porochora, and in the CANNOPYLEA by the astropyle; the remaining pores, with the exception of the accessory openings of many CANNOPYLEA, remain undeveloped in both these legions. In the same way Hertwig regards the central capsule of the PERIPYLEA as the primitive form (1879, L. N. 33, p. 107).

58. *The Capsule-Openings of the Actipylea (or Acantharia).*—The capsule-membrane of the ACTIPYLEA is perforated by very numerous fine pores, which are regularly distributed over the surface of the central capsule, and separated by imporous intervals. Hence the ACANTHARIA belong to the “Holotrypasta” or “Porulosa”; they have neither osculum nor operculum, and agree in this particular with the PERIPYLEA; but they are separated from these latter chiefly by the fact that their pores are much less numerous, and marked off into regularly arranged groups or lines by imporous intervals. In the PERIPYLEA, on the contrary, the pores are much more numerous and are evenly distributed over the whole surface of the capsule.