the bifid spines are so deeply cleft that they become forked. Much more interesting and more varied than these different forms of the distal end are those of the apophyses of the radial spines.

The Apophyses of the Radial Spines, or their "lateral transverse processes," are of the greatest importance for the morphological development of the whole subclass. Only in sixteen among the sixty-five genera of ACANTHARIA are the apophyses perfectly wanting; in the other genera they determine in the first place their general character. In the Acanthometra the apophyses remain perfectly free, whilst in the Acanthophracta their meeting ends or branches compose the latticed shell. All differences in form and shape of the apophyses can be reduced to only two primary modes; either the spine bears two opposite or four crossed apophyses; correspondingly all Acantharia apophysaria may be divided into two different main groups, the Zygapophysica (with two opposite lateral processes) and the Staurapophysica (with four crossed lateral processes opposite in pairs). Both groups have probably no direct phylogenetic connection, but seem to be derived independently from different stocks, and produce different families. The Zygapophysica are probably derived from Astrolonchida with two-edged spines (*Zygacantha*), and from this group arise the Diporaspida, the ancestral group of the majority of Acanthophracta. On the other hand the Staurapophysica are probably derived from Astrolonchida with four-edged spines (*Acanthonia*), and from this group arise the Tessaraspida. The apophyses of the Acanthonida are partly simple, partly branched or even latticed; the apophyses of the Acanthophracta are never simple, constantly branched and commonly latticed.

The Malacoma (or the whole soft body of the ACANTHARIA as opposed to the skeleton) exhibits some peculiarities which distinguish them from the other Radiolaria, as well in the structure of the central capsule and its nucleus as in that of the enveloping extracapsular body and the pseudopodia.

The Central Capsule is constantly spherical in the far greater number of the ACANTHARIA, viz., in the following six families:—Astrolophida, Chiastolida, Astrolonchida, Dorataspida Sphærocapsida, and Phractopeltida. Among these six families the Astrolonchida and Dorataspida are far greater and far richer in different forms than all the other families. The central capsule becomes ellipsoidal or cylindrical, prolonged in one axis, in the three families, Amphilonchida, Belonapsida, and Diploconida; it becomes discoidal or lenticular, by the shortening of one axis, in two families, viz., in the Quadrilonchida and Hexalaspida. Finally, the peculiar family Litholophida is distinguished by the conical form of its central capsule.

The Membrane of the central capsule in all ACANTHARIA is simple, commonly thin, sometimes very delicate; in some species it seems to be developed late, just immediately before the formation of the spores; but in no species is it completely missing. The membrane is constantly pierced by innumerable fine pores, for the emission of the