

characteristic of this suborder that they all usually lie in the horizontal median plane of the lenticular shell, arising from its equatorial margin. The *Larcoidea* (Pls. 9, 10, 49, 50) show a great variety in the number and arrangement of their radial main-spines, which in the different families of this suborder stand in direct causal relation to the various forms of growth of the shell; usually the primary main-spines lie either in the three different dimensive axes, at right angles to each other, whose differentiation is characteristic of the lentelliptical *Larcoid* shell (§§ 34, 122) or in definite diagonal axes, which cut the former obliquely. The radial spines of the *SPUMELLARIA* are *never* united in the centre of the body, but arise separately from the surface of the primary central lattice-shell (medullary shell), more rarely from one of the secondary (cortical) shells, which enclose it. Their form is originally three-edged (sometimes pyramidal, sometimes prismatic); the cause of this is to be found in their origin from the nodal points of the lattice-shell, whose meshes are primitively hexagonal; hence three trabeculæ unite in each nodal point, and are produced into the three edges of the spine. Very commonly, however, the spines are round (conical or cylindrical), more rarely polygonal. The three edges are often delicately toothed, not unfrequently spirally twisted around the axis of the spine (Pl. 21, figs. 1, 12).

137. *Radial Spines of the Acantharia*.—The radial spines of this legion have a much greater significance than in the other three classes of Radiolaria, since here alone they are the primary determining factors in the skeletal structure, and grow outwards from the middle of the central capsule. This centrogenous origin of the radial spines is as characteristic of the *ACANTHARIA* as their chemical constitution, which is not siliceous but acanthinic (§ 102). Furthermore, their form is in most cases so peculiar that even an isolated *ACANTHARIAN* spine can be generally distinguished from one belonging to either of the other three legions. In the great majority of the *ACANTHARIA* (all *Acanthonida* and *Acanthophracta*) twenty radial spines are constantly present, which, disposed according to a definite geometrical law, make up the skeleton (compare § 110 above and p. 717). The twenty spines are generally simply apposed to each other in the centre (either by the surfaces or the edges of their pyramidal base); more rarely they are completely united and form a single star-like piece of acanthin (*Astrolithium*). Very rarely (*Acanthochiasma*) each two opposite spines are united so that ten diametric bars cross in the middle of the central capsule. Whilst in the great majority of *ACANTHARIA* these twenty radial spines are present, the small group *Actinelida* is characterised by the possession of an inconstant, often very large number, sometimes over one hundred. Among these *Actinelida* are probably to be found the stem-forms of the whole legion. The variously modified spines of the *ACANTHARIA* may be grouped in three main categories: (1) round (cylindrical or conical); (2) four-edged (prismatic or pyramidal); (3) two-edged (leaf- or sword-shaped). The latter very commonly bear two