

## Family VII. STYLOSPHÆRIDA, Haeckel (Pls. 13–17).

*Stylosphærida*, Haeckel, 1881, Prodrömus, p. 449.

*Definition.*—Sphæroidea with two radial spines on the surface of the spherical shell, opposite in one axis; living solitary (not associated in colonies).

The family Stylosphærida comprises a large number of very common Sphæroidea, and is distinguished from all others by the possession of two radial spines which are placed in one axis of the spherical shell.<sup>1</sup> By the expression of this "main axis" as a solid rod they form the transition to the Prunoida, in which the whole shell is more or less transformed according to this "monaxial growth." But in these latter the shell, as well as the central capsule, becomes ellipsoidal, prolonged in one axis, whilst in the former they remain spherical. However, the distinction of both nearly allied groups is sometimes difficult.

The most simple Stylosphærida are the *Xiphostylida*, with one single spherical lattice-shell. To this ancestral group all other subfamilies can be opposed as "Stylosphærida concentrica," as their carapace is composed of two or more concentric lattice-shells: two in the Sphærostylida, three in the Amphistylida, four in the Cromyostylida, five or more in the Caryostylida. In all these four subfamilies the concentric shells are simple (not spongy) fenestrated spheres. In a sixth subfamily, in the Spongostylida, the shell is wholly or partially composed of a spongy irregular wicker-work, with or without a medullary shell in the centre.

Both the radial spines in all Stylosphærida are opposed normally in one axis; but in many species besides the normal form occur individual abnormalities, in which the two spines are not accurately opposed in this main axis, but placed in two different axes, intersecting at a smaller or larger angle. In the majority of the Stylosphærida both opposite spines have the same size and form; but in some genera they are more or less different, often in a very striking degree. The same differences occur in the nearly allied groups of Prunoida, in the Ellipsida and Druppulida.

The distal ends of both spines are commonly free; but in the small group of Saturnalida (*Saturnalis* with one single shell, *Saturnulus* with two concentric shells, *Saturninus* with three concentric shells) the distal ends of both spines are united, at equal distances from the centre, by a circular or elliptical ring. This remarkable peculiarity occurs in no other group of Sphæroidea, and consequently brings the Saturnalida into close relation with the Discoida.

<sup>1</sup> Stylosphærida = Sphæroidea dissacantha, Prodrömus, p. 449.