Suborder I. SPHÆROPHRACTA, Haeckel.

Definition.—Shell spherical, with twenty radial beams of equal size.

Family XXXIX. S p h æ r o c a p s i d a, Haeckel (Pl. **133**, figs. 7–11 ; Pl. **135**, figs. 6–10).

Sphærocapsida, Haeckel, 1881, Prodromus, p. 469.

Definition.—ACANTHARIA with simple spherical porous shell, composed of innumerable very small plates, each of which is pierced by one radial porule. Twenty radial spines of equal size meeting in the centre of the shell and disposed according to the Müllerian law of the Icosacantha, sometimes short and enclosed in the shell, at other times long and piercing it (rarely rudimentary or quite absent). Shell pierced therefore either by twenty larger perspinal pores or by eighty smaller aspinal pores. Central capsule spherical, enclosed in the porous shell.

The family S p h æ r o c a p s i d a, founded by me in 1881 for the single genus *Sphærocapsa*, represents a very peculiar and remarkable group of the A c a n t h o - p h r a c t a, very different from the five other families of this suborder, and probably derived, independently of them, directly from the A c a n t h o n i d a. Whilst the lattice-shell of the five other families is composed of the meeting branches of lateral apophyses of the twenty spines, and its meshes are all or partly the intervals between these apophyses, in the Sphærocapsida the spherical shell has quite another structure, and is composed of innumerable small plates (each with one pore) which are secreted on the surface of the spherical calymma, independently of the twenty radial spines, which do not possess true apophyses.

In all Sphærocapsida the structure of the spherical shell is quite peculiar and different from that of all other Radiolaria. It is composed everywhere of innumerable very small plates or aglets, which are connected irregularly like paving-stones, and form a single continuous layer or pavement on the surface of the spherical calymma (Pl. **133**, fig. 11, *a* ; Pl. **135**, figs. 8, 10). The small plates or paving-stones, which we will call "aglets," are connected at their meeting edges by a kind of cement, and form together with it a continuous thick capsule of acanthin. The form of the aglets is commonly more or less irregular, roundish or polygonal, sometimes longish (Pl. **133**, fig. 11, *a*), more rarely it becomes rather regular, hexagonal, square, or roundish (Pl. **135**, fig. 8). Usually all aglets of one and the same individual are of nearly equal size, between 0·01 and 0·02 in diameter, rarely less or more. The outer face of the aglets is more or less concave, so that the elevated meeting edges of the neighbour-ing aglets commonly form together a prominent network of crests (Pl. **135**, figs. 8, 10) ; rarely the meeting edges partly cover one another like squamules (Pl. **133**, fig. 11, *a*).