

Family VI. COLLOSPHÆRIDA, J. Müller<sup>1</sup> (Pls. 5–8).

*Definition.*—Sphæroidea living associated in colonies, united by an alveolar jelly-body, and connected by the network of anastomosing pseudopodia.

The family Colloosphærida comprises all polyzoous or social Sphæroidea, and constitutes the only polyzoic group among the SPHÆRELLARIA. This group was first constituted by J. Müller as "*Radiolaria polyzoa* with shells."<sup>2</sup> Formerly following his authority, in my Monograph I had separated them from the other Sphæroidea and united them with the social Collodaria (Sphærozoida).<sup>3</sup> Also R. Hertwig in his Organismus der Radiolarien<sup>4</sup> united them with his Sphærozoea. In my Prodrömus<sup>5</sup> I had retained this isolated position. But a further careful study has convinced me that this isolation is not truly natural, and that the Colloosphærida are only "social Ethmosphærida" which have arisen from this solitary sub-family by adaptation to colonial life. There are some forms of Colloosphærida which are nearly identical with some forms of Ethmosphærida, only differing from the latter by their association in colonies; and in some forms of both groups it is quite impossible to decide whether the isolated shells appertain to one or to the other family.

The isolated shell of the Colloosphærida is almost constantly (with few exceptions) a simple extracapsular lattice-shell, as in the Monosphærida; only the small group of Clathrosphærida (with the genera *Clathrosphæra* and *Xanthiosphæra*) exhibit an exception, the simple lattice-shell being overgrown by an external mantle or veil of very thin, cobweb-like, irregular lattice-work (Pl. 8, figs. 6–11). Therefore these Clathrosphærida bear to the Acrosphærida (or the common simple Colloosphærida) a relation similar to that which *Liosphæra* (p. 76) bears to *Cenosphæra*; both shells are extracapsular "cortical shells" at a very short distance apart. In the Colloosphærida true concentric medullary shells never occur; the central capsule always lies quite freely in the simple or double cortical shell, separated from it by a jelly-veil.

Although a well marked difference in the simple lattice-shell of the social Colloosphærida and the solitary Ethmosphærida does not exist, nevertheless in most cases the two shells can be distinguished by a practised observer. The simple fenestrated shells of the monozoic Ethmosphærida are commonly quite regular spheres in a mathematical sense, or regular "endosphærical polyhedra"; whereas in the Colloosphærida they are commonly more or less irregular, often to an extraordinary degree (Pls. 5–8). Some species of Colloosphærida, however, also possess quite regular spherical shells. Another difference is often shown in the lattice-work of the shells, which in the Colloosphærida is nearly always very irregular, and exhibits a peculiar tendency to the

<sup>1</sup> *Loc. cit.*, pp. 17, 55, 1858.

<sup>2</sup> *Loc. cit.*, p. 530, 1862.

<sup>3</sup> *Loc. cit.*, p. 471, 1881.

<sup>4</sup> *Abhandl. d. k. Akad. d. Wiss. Berlin*, p. 55, 1858.

<sup>5</sup> *Loc. cit.*, pp. 30, 133, 1879.