

trace of a sagittal ring nor of a basal tripod. This is the case in the remarkable family of *Cyrtocalpida* (*Archicorida* and *Archicapsida*), in numerous *Botryodea* and in other *Cyrtellaria*.

D. The skeleton is composed of a sagittal ring and a basal tripod, without latticed cephalis. This is the case in a few, but very important forms of *Stephoidea*: *Cortina*, *Stephanium*, *Cortiniscus*, *Stephaniscus*, *Podocoronis*, and some allied genera.

E. The skeleton is composed of a sagittal ring and a latticed cephalis, but without basal tripod. This is the case in numerous *Cyrtellaria*, in the *Circospyrida* (or *Zygospyrada* apoda: *Dictyospyris*, *Circospyris*) and some other *Spyroidea*; and in a large number of *Botryodea* and *Cyrtoidea* *eradiata* (a part of the *Sethocyrtida*, *Theocyrtida*, *Lithocampida*, and others).

F. The shell is composed of a basal tripod and a latticed cephalis, but without any trace of the sagittal ring. This is the case in numerous *Cyrtoidea* *triradiata* and *multiradiata*, and perhaps in the majority of the following families — *Tripocalpida*, *Tripocyrtida*, *Podocyrtida*, and *Podocampida*.

G. The shell is composed of all three above-mentioned elements, of a sagittal ring, a basal tripod, and a latticed cephalis. This is the case in the great majority of *Spyroidea* (with a few exceptions only), and perhaps also in the majority of *Cyrtoidea*.

The survey of these seven groups, A to G, each of which is represented by numerous living forms, shows clearly how difficult and complicated the morphology and phylogeny of the numerous *NASSELLARIA* must be. For all possible combinations of the three original structural elements are realised abundantly, and in such complicated relations, and so intermingled in the different orders and families, that it seems nearly hopeless to answer the question of their true origin. The identity in the structure of the central capsule, however, in all these *MONOPYLEA*, makes it probable that they have all arisen originally from the skeletonless *Nassellida* (*Cystidium*, *Nassella*), either in a monophyletic or in a polyphyletic way. In this respect the following phylogenetical hypotheses are possible.

1. Monophyletic hypothesis, deriving all *NASSELLARIA* from a simple sagittal ring (*Archicircus*, *Lithocircus*, &c., Pl. 81). The groups A, D, E, and G may be derived easily from such a ring, but the groups B, C, and F only by means of the hypothesis that the original ring may be completely reduced and finally lost. This hypothesis was stated by me in the years 1877 to 1879, when I had got the first general survey of the astonishing number of new *NASSELLARIA* in the Challenger collection, and as I had found the sagittal ring in the majority of them. This, my former hypothesis, is mentioned by Richard Hertwig (1879, *loc. cit.*, pp. 68, 126). It was afterwards supported with particular energy by O. Bütschli (1882, *Zeitschr. für wiss. Zool.*, Bd. XXXVI.).

2. Monophyletic hypothesis, deriving all *NASSELLARIA* from a basal tripod (*Triplagia*, *Plagoniscus*, &c., Pl. 91). The groups B, D, F, and G, all *triradiata*, may