The three primary radial beams, corresponding to the three basal feet of *Plectaniscus* and *Cortina*, exhibit in the Cyrtoidea the greatest variety in form and size, and chiefly in their relation to the shell, the latter serving mainly for the distinction of genera. Originally these three cortinar beams arise from the basal plate of the cephalis, the odd caudal foot appearing as a prolongation of the basal rod of that plate, and the paired pectoral feet as prolongations of its coracal rods (between the jugular and cardinal pores). The lattice-work of the thorax is developed usually between the three cortinar feet, more rarely inside or outside of them. Therefore the three beams appear commonly as three divergent ribs in the wall of the thorax, and continue over its basal mouth as three free terminal feet. With the increasing length of the shell and the number of its joints the three radial ribs are also prolonged, and their free distal ends may be prominent at very different points, either as three lateral wings or as three terminal feet. These are either solid spines or lattice-plates, sometimes more or less ramified.

The three radial apophyses are prevalent in the majority of the Cyrtoidea, which we call "Pilocyrtida" (or Cyrtoidea triradiata). Their number increases in the Astrocyrtida (or Cyrtoidea multiradiata). The most frequent cases of multiplication are here caused by the development of six or nine radial apophyses; these may be enclosed ribs, or lateral wings, or terminal feet. In the sexradial Cyrtoidea there are three secondary or interradial apophyses interpolated between the three primary or perradial; in the nine-radial Cyrtoidea, however, there are six adradial apophyses interpolated.

A third and last great group is formed by the Corocyrtida or Cyrtoidea eradiata. These exhibit no radial apophyses, neither enclosed ribs, nor free lateral wings, nor terminal feet. But in a great number of them internal traces of an original triradiate structure are visible, mainly in the cortinar septum between cephalis and thorax; this often exhibits three or four, and sometimes six cortinar or collar pores, of the same typical shape as in the triradial Spyroidea. Sometimes even an internal columella with three radial branches is preserved, as in *Axocorys*. It is therefore very probable that a great part of these Cyrtoidea eradiata (if not all) may be derived from triradiate or multiradiate ancestral forms, by reduction and loss of the radial apophyses. In another part of this group, mainly in the Monocyrtida eradiata (Cyrtocalpida) it is possible, or even probable, that their eradiate shell has originated independently from Nassellida, and that they have no true relation to radial Cyrtoidea.

The Central Capsule of the Cyrtoidea, first observed by J. Müller (1858), and more fully described in my Monograph (1862), was very accurately examined by Richard Hertwig (1879). His observations were confirmed by numerous new forms, which I was able to examine in well-preserved preparations of the Challenger. The central capsule, according to these, exhibits the same typical shape, which is characteristic of all Monopylea (with porochora and podoconus), and may be derived with the latter from the common ancestral forms, *Cystidium* and *Nassella* (=the skeletonless Nassellida). In