

this type really are different from those of other Pentacrinidæ, has re-established the genus *Balanocrinus* upon them. The five sectors of each more or less circular face have no ridges or denticulations along their sides, those being limited to the outer margin of the joint-face. They are usually therefore of greater size than the corresponding parts on the stem-joints of *Extracrinus* and *Pentacrinus*, which are sometimes much constricted by the development of ridges at their sides. The stem-joints of *Balanocrinus*, therefore, are somewhat like those of *Millericrinus*; though in the latter type the whole joint-face is uniform in character, and not marked out into sectors as is the case in the Pentacrinidæ. Many Palæocrinoids have joints somewhat like those of *Balanocrinus*, *i.e.*, crenulated round the edge, but nothing more. The genus commenced with *Pentacrinus* in the Trias, and survived to the Lower Neocomian, no remains of it having yet been found at any higher horizon; while I have not met with this simple form of stem-joint in any recent species.

Owing to the deficiency of our knowledge respecting the nature of the calyx of *Balanocrinus*, I have found it necessary to use the characters of the stem as the basis of the classification of the family. *Balanocrinus* may have under-basals like *Extracrinus*, or more than three radials like *Metacrinus*; but until we know more about its calyx a classification of the Pentacrinidæ must depend primarily upon the varying features of the stem.

- I. Five to eight large teeth at the sides of each petaloid sector, most of which start from the outer edge of the joint-face, while the remainder meet their fellows in the interpalmar spaces.
 - 1. Three radials, *Pentacrinus*.
 - 2. More than three radials, *Metacrinus*.
- II. Sectors linear with delicately crenulated edges. Under-basals. The first radials much prolonged downwards. Secondary arm-trunks each bear a succession of armlets on the same side, *Extracrinus*.
- III. Joint-faces crenulated round the edge only, not along the sides of the sectors, . . . *Balanocrinus*.

Three other supposed genera have also been referred to this family. One is *Isocrinus*, von Meyer,¹ of which the stem is scarcely known; while it is probable that von Meyer's description of the primary rays as consisting of but two joints, basals being likewise wanting, is also somewhat incorrect. The mode of division of the rays, on which von Meyer laid considerable stress, is perfectly normal. I prefer therefore to refer the type, temporarily at any rate, to the genus *Pentacrinus*, as has been done by Bronn and others, though I will not attempt to follow them into specific details.

Another unrecognised genus of the Pentacrinidæ is the *Chladocrinus* of L. Agassiz.² After defining the stem of *Pentacrinus* as "portant de distance en distance des rayons simples verticillés," he continued, "on pourra désigner sous le nom de *Chladocrinus* les espèces dont les rayons accessoires forment des verticillés plus ou moins distans."

¹ *Isocrinus* und *Chelocrinus*, Museum Senckenbergianum, Frankfurt, 1837, p. 251.

² Prodrome d'une Monographie des Radiaires ou Echinodermes, *Mém. de la Soc. des Sci. Nat. de Neuchatel*, t. i., 1835, p. 194.