

of *Bourgueticrinus* (*ellipticus* and *æqualis*) the uppermost part of the stem is formed of joints of an altogether different character from those which are to be found lower down. The latter are wider than high, with articular faces of a pointed oval shape, the two diameters of the oval being very unequal in length. Towards the upper part of the stem this inequality disappears, and the joints become more discoidal, though never thin and lamellar, as in the highest part of the stem of *Rhizocrinus* and *Bathycrinus* (Pl. VII. figs. 2, 11; Pl. VIIIa. fig. 1; Pl. IX. figs. 1-3; Pl. X. fig. 2). Above these discoidal joints, however, the stem gradually enlarges, and from two to four of the uppermost joints on which the calyx rests are of great relative size, both height and diameter being considerable. Sometimes the top joint is highest and sometimes the one below it; but at any rate one or more of these large upper joints remain united with the calyx to form the so-called summit. The upper stem-joints of *Apiocrinus* are not as a rule much higher than those below them; but the diameter often increases considerably from a point in the stem a little way below the calyx, so that a tolerably large number of joints enters into the composition of the summit. In species like *Apiocrinus crassus*, *Apiocrinus magnificus*, and *Apiocrinus murchisonianus*, however, there is scarcely any enlargement of the stem below the calyx, the uppermost joints, except the highest one on which the basals rest, being but little if at all larger than those below them. The same variations appear in *Millericrinus*. *Millericrinus nodotianus* has high upper joints, while those of *Millericrinus simplex* are thin and discoidal externally; though the uppermost joint has a large synosteal surface for the reception of the basals which rest upon it.

It seems to me very probable, therefore, that the existence of similar variations will have to be admitted in *Bourgueticrinus*; though on the other hand a revision of the genus may result in the transfer of all the species without enlarged upper stem-joints to *Rhizocrinus* or *Mesocrinus*, especially if the articular faces of their radials are well developed and not reduced to a minimum as in *Bourgueticrinus æqualis*. But I am quite prepared to have to abandon *Mesocrinus* as a distinct generic type, and to modify the descriptions of *Bourgueticrinus* which are given by palæontologists so as to include in this genus the two species *Mesocrinus fisheri* and *Mesocrinus suedicus*, on which the genus *Mesocrinus* was based.

Even then, however, *Apiocrinus* and *Bourgueticrinus* would differ from *Rhizocrinus* and *Bathycrinus* in the character of the upper stem-joint. In the two genera last mentioned, as in *Pentacrinus*, this joint is the youngest and smallest of the whole stem, being merely a delicate film of calcareous reticulation which is received into and concealed by the curved under surface of the basals. In *Apiocrinus*, however, and in *Bourgueticrinus* this upper joint, though perhaps small externally, is large internally and supports the basals in five large fossæ on its surface.

As it closes the calyx below and really belongs thereto, de Loriol¹ has called it the

¹ Swiss Crinoids, p. 6; Paléont. Franç., *loc. cit.*, p. 19.