

syzygy below the fiftieth node ; but it lies along the cable by the next eleven internodes, and is more or less attached to it by means of the cirri.

The variation in the development of the basals in *Pentacrinus decorus* is most extraordinary, and shows what little reliance is to be placed on the characters of this part of the calyx for systematic purposes. In young specimens they are generally quite small and inconspicuous, appearing only as little triangular knobs or rhomboidal pieces which are sometimes just in contact by their lateral angles (Pl. XXXV. fig. 1). But they do not stand out at all from the general plane of the calyx, and simply appear as continuations of the interradial ridges of the top of the stem upon which they rest. In older and even in adult individuals they may retain this condition (Pl. XXXIV. figs. 1, 8 ; Pl. XXXVI. fig. 3) ; while in others which are still premature they are a little more prominent (Pl. XXXV. fig. 2) ; and when a large series of specimens is examined all stages are traceable between this condition and that of the individuals represented in Pl. XXXVI. fig. 1, and Pl. XXXVII. figs. 1, 2. These have large rhomboidal basals, meeting one another laterally in the re-entering angles of the calyx and standing out as prominent knobs which sometimes extend beyond the interradial ridges of the stem.<sup>1</sup> A somewhat similar though less extensive variation in the development of the basals occurs in the fossil *Antedon scrobiculata* from the Brown Jura.

The ray-divisions of *Pentacrinus decorus* are exceedingly variable. I have met with one case in which the number of three radials, so constant throughout the majority of the Neocrinoids, is considerably exceeded. The radial axillary is primitively the seventh joint above the basal ring, *i.e.*, it is itself a syzygial joint and there are five below it, including the primary or first radials. The second and third of these five joints are united by bifascial articulation, just like the ordinary second radials and axillaries of this species ; and in this respect therefore this aberrant form differs from the type represented by *Metacrinus*, in which the second and third joints of the ray are always united by syzygy, whether the axillary be the fifth or eighth in the series of primitive radials (Pl. XXXIX. fig. 1 ; Pl. XLVI.).

One young specimen of *Pentacrinus decorus* which was brought by Sir Rawson Rawson from Barbados has only ten arms, as is the case in *Pentacrinus naresianus* ; while in another dredged by the "Blake" there are only eleven, one of the primary arms dividing on the fifth joint (Pl. XXXV. fig. 1). A third individual (Pl. XXXV. fig. 2) has two arms on each of four rays ; but on the fifth ray one of the primary arms divides and one of the secondary arms so formed divides again, so that there are twelve in all. Other examples again may have distichal series developed with considerable regularity all round the calyx, and occasionally also one or more palmar series as well (Pl. XXXVI. ; Pl. XXXVII. fig. 2). But the total number of arms rarely exceeds twenty-five in all ;

<sup>1</sup> In the specimen represented in Pl. XXXVI. some of the first radials are considerably distorted, apparently as the result of injury and subsequent regeneration.