

are relatively large, but otherwise of the usual character, with paired fossæ for the muscles and interarticular ligaments (Pl. VIIa. fig. 15, *rm'* and *li'*), and the single one beneath the articular ridge for the reception of the dorsal ligament (*ld'*). The second radials (Pl. VII. figs. 5, 5*a*) are broad, flattened, and somewhat quadrate in form, with a more or less distinct medio-dorsal convexity (Pl. VIIb. fig. 6, R2) and a well-marked furrow in the middle line of the ventral surface (Pl. VII. fig. 5*a*). The proximal face resembles that of the first radials, which is high relatively to its width (Pl. VIIa. fig. 15), while the articular surface at the distal end is low and much extended laterally. The axillaries are more or less pentagonal, with a forking median ridge on the flattened dorsal surface. The ventral surface is flattened like that of the second radial, with which the axillaries articulate without the intervention of muscles. But the lateral margins of the median ventral furrow rise gradually from the distal to the proximal end of the joint, where they are produced into more or less expanded, wing-like processes which project forwards over the first brachials (Pl. VII. figs. 4, 4*a*; Pl. VIIa. fig. 17). The bases of these serve for the attachment of the muscles and ligaments which unite the axillaries and first brachials, while their upper portions support the interrarial diverticula of the gut (Pl. VIIb. fig. 7, R3).

According to Sir Wyville Thomson, the two outer radials of *Bathycrinus gracilis* and *Bathycrinus aldrichianus* are united by syzygy; while Danielssen and Koren make the same statement respecting *Bathycrinus carpenteri*.¹ This is not really the case, however, and as a matter of fact there are no true syzygies in *Bathycrinus aldrichianus* at all; nor, as I believe, in any species of the genus. The distal face of the second radial is shown in Pl. VIIa. fig. 16. Apart from its external form, it has a general resemblance to the corresponding face of the second radial in *Pentacrinus decorus*, *Pentacrinus naresianus* (Pl. XXX. fig. 1; Pl. XXXIV. fig. 6) and the Comatulæ, *i.e.*, there is a vertical articular ridge which separates the two fossæ lodging large bundles of ligament (*li'*). But in *Bathycrinus* a third and smaller bundle of ligament is inserted into a deep pit (*ld'*) at the lower or dorsal end of the vertical articular ridge. The proximal face of the third radial is of the same character; and in reality the union of these two joints, instead of being an immovable syzygy, is a modification of the bifascial articulation permitting lateral movement only, which is so common in the Comatulæ, and is also characteristic of four recent species of *Pentacrinus*. Externally this form of articulation looks very much like a syzygy, as the joints are brought into closer connection than when they are united by a pair of muscular bundles; but a glance at their apposed faces is sufficient to show that the plainness of the syzygies in *Pentacrinus* or *Rhizocrinus*, and the striation so common in the Comatulæ, are altogether absent, being replaced by distinct ridges and fossæ. In describing *Bathycrinus gracilis*, Sir Wyville Thomson² pointed out that "the first brachial is united to the second by a

¹ *Nyt Mag. f. Naturvidensk.*, Bd. xxiii. p. 6.

² *Proc. Roy. Soc. Edin.*, 1872, vol. vii. p. 773.