trifascial articulations; while the third, sixth, and ninth brachials are usually free, *i.e.*, united by muscles to the joints before and behind them, as the joints of a Crinoid arm generally are. In *Rhizocrinus*, however, the two joints of each successive pair are united by syzygy, so that muscular articulations and syzygies alternate regularly all along the arm. But as regards the last point *Bathycrinus* approaches *Rhizocrinus* much more closely than was supposed by Sir Wyville Thomson. Instead of there being one syzygy (trifascial articulation) only, or two at the base and others scattered sparingly at irregular intervals, there is just as much regular alternation after the ninth brachial as there is throughout the whole arm of *Rhizocrinus*. In fact, in some irregular arms of *Bathycrinus* the third brachial is the only joint which has muscles attached at both ends, the alternation which would ordinarily commence with the tenth appearing on the fourth and following joints.

Except in *Bathycrinus aldrichianus* the bases of the arms are but little wider than the succeeding portions. The flattening of the dorsal surface at the sides of the median ridge, which commences on the two outer radials, is continued on to the first two or three brachials and then disappears (Pl. VIIb. figs. 7, 8). The same is the case with the sharp lateral edge which is so marked on the second and axillary radials. In *Bathycrinus aldrichianus* it is continued out on to the first eight arm-joints (Pl. VII. fig. 2), and marks the line of junction of the curved dorsal surface and the side faces, which slope upwards and inwards towards the medio-ventral line (Pl. VII. fig. 8). An arm of this species, 30 mm. long, consists of fifty joints; but the first seven or more bear no pinnules. In most cases the first pinnule is borne on the eleventh joint, when this, as is normally the case, has a muscular articulation at its distal end. The ninth brachial is usually a joint of this kind, and in *Bathycrinus aldrichianus* and *Bathycrinus campbellianus* sometimes bears the first pinnule, while the eighth may do so. But the joint which bears a pinnule is invariably united to its successor by muscles, so that the pinnules only occur upon every alternate joint through the whole length of the arm, exactly as in *Rhizocrinus*. The only difference is that the joints which do not bear pinnules are united to those which do by syzygies in *Rhizocrinus*, and by trifascial articulation in *Bathycrinus*. The distal face of a pinnule-bearing joint of *Bathycrinus aldrichianus* is shown in Pl. VIIa. fig. 21; and a corresponding joint-face of *Bathycrinus campbellianus* in fig. 23. In the latter type the pinnule-socket is more at the side of the joint and less at the end than in *Bathycrinus aldrichianus*.

The pinnules of *Bathycrinus* (Pl. VII. fig. 7; Pl. VIII. fig. 5) are moderately short and slender, and composed of relatively few joints. The lateral edges of these joints, especially the outer ones, are produced upwards at the sides of the medio-ventral furrow so as to protect it very completely. This is most marked in *Bathycrinus campbellianus* (Pl. VIII. fig. 5) and to a less degree in *Bathycrinus aldrichianus* (Pl. VII. figs. 2, 7). It is also figured by Danielssen and Koren[1] in *Bathycrinus carpenteri*. The first six or

[1] *Nyt Mag. f. Naturvidensk.*, Bd. xxiii., Tab. i. fig. 14.