

cavity of the centro-dorsal (Pl. LXI. fig. 2), and the same is the case with the flattened basals of *Atelecrinus*.

The chambered organ of *Pentacrinus* is both relatively and absolutely smaller than that of *Comatula*, and the reason for this is obvious. The Comatulid centro-dorsal represents, as it were, a coalesced series of the nodal stem-joints of *Pentacrinus*, and the five cavities of the chambered organ lodged in its upper part are each in connection with one cirrus-vessel only. But the remaining cirri which are borne by the centro-dorsal in greater or less abundance are supplied by a number of vessels that come off below the chambers. Within the dorsal portion of the chambered organ, "lying at the bottom of the centro-dorsal basin, there is a succession of verticils of five triangular leaflets, increasing in size from below upwards, from the extremities of some of the upper of which leaflets issue groups of three diverging cords that proceed to the cirri. I can scarcely doubt that these verticils mark the origins of the earlier cirral cords from the Crinoidal axis; and this obviously suggests that the five-chambered organ is itself only another and larger verticil, which has come by the formation of ventricular cavities in its substance (analogous to the lateral ventricles of the brain), to occupy the whole cavity of the enlarged centro-dorsal basin."¹ In *Pentacrinus*, however, the cirri all come off from the nodal joints of the stem, where the five downward prolongations of the cavities of the chambered organ in the calyx enlarge and each gives off a cirrus-vessel (Pl. XXIV. figs. 3, 4, *chn*). No cirrus-vessels come off from the enlargement of the vascular axis within the calyx, which represents the chambered organ of *Comatula* without the verticils of cirrus-vessels below it. The chambers, however (Pl. XXIV. figs. 6-8, *ch*), are scarcely larger than the nodal cavities in the stem from which the cirrus-vessels arise,² and are much smaller than the corresponding chambers within the upper part of the centro-dorsal of *Comatula* (Pl. LXI. fig. 2), which give off the vessels to the younger cirri. In fact they are sometimes almost equalled in size by the central vessels within the ring of chambers, as seen in Pl. XXIV. fig. 6. They are not closed below as is practically the case in the Comatulæ, nor do they present as sudden enlargements of the stem-vessels as in *Rhizocrinus* and *Bathyrinus*; but these vessels are, as it were, permanently enlarged in the upper part of the stem, owing to the closeness of the nodal joints which are successively formed beneath the calyx, and are only gradually separated by the intercalation of internodal joints between them. The chambers of *Pentacrinus* therefore taper very gradually downwards into the stem-vessels, and it is difficult to say where the latter begin and the former end (Pl. LVIII. fig. 3).

The primary Y-shaped interradiial cords which come off from the fibrillar envelope surrounding the chambered organ of *Pentacrinus* (Pl. XXIV. fig. 7; Pl. LVIII. figs. 1, 3—*a.i.*) sometimes bifurcate before entering the basals. On the inner face of the

¹ See W. B. Carpenter, *Proc. Roy. Soc.*, vol. xxiv., 1876, p. 219.

² Compare Pl. XXIV. figs. 3, 4, 6, which are all equally magnified.