

MORPHOLOGY.

I.—THE SKELETON GENERALLY, WITH THE MODES OF UNION OF ITS COMPONENT JOINTS.

The organisation of a Crinoid is broadly divisible into two well-marked portions, to which the general names ambulacral and antiambulacral may be given. They correspond, on the whole, to the left and right larval antimers respectively, though probably not exactly so. The first is the visceral mass or "disk," in which is situated the whole of the digestive tube, with both its terminal openings. It likewise contains the central ends of the radial water-vessels and blood-vessels, which converge towards their respective circum-oral rings, and also the corresponding portions of the ambulacral nervous system (Pl. LXII.).

Both the disk and its extensions in the perisome clothing the ventral surface of the arms and pinnules are usually more or less covered by calcareous plates, the arrangement of which will be described subsequently (Pl. VI. fig. 4; Pl. XVII. figs. 6-10; Pl. XXVI. figs. 1, 2; Pl. XXXIII. figs. 6, 7; Pl. XXXIX. fig. 2; Pl. XLI. figs. 4, 12-14; Pl. XLIII. fig. 3; Pl. XLVII. figs. 10-13; Pl. L. fig. 2; Pls. LIV., LV.). They represent a portion of that element of the Crinoid skeleton to which the name "perisomatic" was given by Sir Wyville Thomson¹; for they are all originally developed from simple cribriform films of limestone, such as appear in all young Echinoderms, and thicken by continual repetition of the same formation.

The antiambulacral portion of a Crinoid consists of the stem and its appendages, the calyx, and the skeleton of the rays, arms, and pinnules. This constitutes the radial skeleton, as the term is understood by Dr. Carpenter,² viz., that which is perforated by a central canal lodging an extension of the fibrillar envelope around the chambered organ (Pl. VIIb. fig. 2; Pl. XXIV. figs. 2-6, *ca*; figs. 7-9, *ar*; Pl. LVIII. figs. 1-3, *ar*; Pl. LXII.).

Sir Wyville Thomson was unaware that the primary interradial cords proceeding from the chambered organ perforate the basal plates (Pl. VIIb. fig. 2; Pl. XXIV. fig. 7;

¹ On the Embryogeny of *Antedon rosaceus*, Linck, *Phil. Trans.*, 1865, pp. 540, 541.

² Researches on the Structure, Physiology, and Development of *Antedon rosaceus*, part i., *Phil. Trans.*, 1866, p. 742.