

Pl. LVIII. figs. 1, 3—*ai*; Pl. LXII.); and he therefore considered them as belonging to the perisomatic system, on the ground of their not being thickened by the peculiar fasciculated tissue of parallel rods such as is found in the growing stem- and arm-joints. He described this fasciculated tissue as appearing in the first radials. But according to Dr. Carpenter "there is no distinction in texture between the endogenous additions by which the first radials and the basals are respectively thickened; so that we cannot place them in separate categories on this score. But further, we have seen that in the stage now described, the basals as well as the radials are perforated to give passage to the radiating extensions of the sarcodic axis of the stem, which only reach the radials through the basals; so that this ground of distinction also fails to separate them."

The basals and radials form part of the apical or abactinal system of the Crinoid, and are represented by the genital and ocular plates of the Urchins, and their homologues in the other Echinoderms.¹ The oral plates of the Crinoid correspond in like manner with the mouth-shields of Ophiurids, the "odontophores" of Asterids, the oral plates of the Psolidæ, and possibly also with the five actinal plates of *Palæostoma mirabilis* among the Urchins.² As regards the rest of the Crinoid skeleton, however, nothing more than a very general homology can be established with the skeleton of the other Echinoderms.

The perisomatic skeleton consists essentially of numerous minute plates which are usually more or less isolated, but sometimes slightly connected by fibrils of connective tissue (Pl. VI. fig. 4; Pl. XVII. figs. 6-10; Pl. XXVI. figs. 1, 2; Pl. XXXIII. figs. 6, 7; Pl. XLI. figs. 4, 12-14; Pl. XLIII. fig. 3; Pl. XLVII. figs. 10-13; Pl. L. figs. 1, 2; Pls. LIV., LV.; Pl. LVII. fig. 3, *an*; Pl. LXII.). The radial skeleton, however, consists of successive joints and rods which are developed in a longitudinal direction, and are united to one another by articulation or suture. In either case the ultimate union of the two joints is effected by means of connective tissue fibres, which pass from the nucleated and pigmented organic basis of the one joint into that of the other (Pl. VIIb. figs. 1, 8, *li*, *ld*. Pl. XXIV. figs. 6, 7; Pl. LVIII. figs. 1-3—*l*, *lb*, *L*). These fibres are sometimes quite short, and their ends are surrounded by the denser layers of calcareous reticulation on the apposed surfaces of the two joints, which are thus closely and immovably fitted together, though they can be separated by the action of alkalis. This mode of union is called a "suture," or better, a "synostosis."³

The first radials of the Comatulæ are connected in this manner both with one another and with the centro-dorsal. The same mode of union also occurs between the radials of the Pentacrinidæ and the basals on which they rest, as well as between the five individual

¹ On the Oral and Apical Systems of the Echinoderms, part i., *Quart. Journ. Micr. Sci.*, vol. xviii., N. S., pp. 367-382. Some disputed points in Echinoderm Morphology, *Ibid.*, vol. xx. pp. 322-329. On the Apical System of the Ophiurids, *Ibid.*, vol. xxiv. pp. 1-22. *Vide*, Note A.

² Oral and Apical Systems, part ii., *Ibid.*, vol. xix., N. S., pp. 191-193.

³ See Siuroth, *Zeitschr. f. wiss. Zool.*, Bd. xxvii. p. 435; and also P. H. Carpenter, On the genus *Actinometra*, with a morphological account of a new species from the Philippine Islands, *Trans. Linn. Soc. Lond. (Zool.)*, ser. 2, vol. ii. pp. 55, 56, pl. iii. fig. 4.