

## II.—THE STEM AND ITS APPENDAGES.

We have already seen that three types of stem occur in the recent Crinoids, which are characteristic respectively of the families Pentacrinidæ, Bourgueticrinidæ, and Hyocrinidæ. Broadly speaking, it may be said that these embrace all the varieties of stem which are met with in the Neocrinoidea. For the mode of union of the joints in *Apiocrinus*, *Millericrinus*, and *Eugeniocrinus* must have been very much what it is in *Hyocrinus*; though the "root" of the first-named genus is somewhat peculiar in its nature.

## A. PENTACRINIDÆ.

In all the genera of this family the stem consists of discoidal joints which are never (in the adult) higher than wide, and have the characteristic petaloid markings on their terminal faces (Pls. XI., XIV.; Pls. XV. figs. 4, 5; Pls. XIX., XXII; Pl. XXVI. figs. 12-18; Pls. XXVIII., XXIX; Pl. XXX. figs. 25-30; Pl. XXXa. figs. 1-7; Pl. XXXVII. figs. 10-22; Pl. XXXIX. figs. 3-11; Pl. XLI. figs. 1-5, 6-8, 15-17; Pl. XLVII. figs. 1-9). Certain of these joints, separated from each other by intervals of variable length, bear whorls of cirri, and they have consequently received from Sir Wyville Thomson<sup>1</sup> the very appropriate name of "nodal joints." There are usually five cirri at each node, situated in the direction of the rays (Pls. XI., XVIII., XIX., XXXIV.-XXXVI., XL., XLII.-XLVI., XLVIII.-LII.). Sometimes, however, one cirrus is deficient, as shown in the left hand figure on Pl. XXXVI.; while in *Pentacrinus alternicirrus* there are only three cirri at one node, and two at each of those above and below it, the positions of these two corresponding to the two gaps at the node of three cirri (Pl. XXV.; Pl. XXVI. figs. 13, 14; Pl. XXVII. figs. 1-3). The cirri of two successive nodes therefore alternate in position as the leaves do in the stem of a Labiate plant, the two faces of the stem which bear no cirri at one node being the only ones which have cirri at the nodes above and below it.

The function of the cirri, which vary considerably both in length and in stoutness, is described by A. Agassiz<sup>2</sup> as follows:—"These they move more rapidly than the arms, and use them as hooks to catch hold of neighbouring objects, and on account of their sharp

<sup>1</sup> Sea Lilies, p. 7.

<sup>2</sup> Letter No. 3, on the dredging operations of the U. S. Coast Survey, Sr. "Blake," from December 1878 to March 10, 1879, *Bull. Mus. Comp. Zool.* vol. v. No. 14, p. 296.