

B. THE PERISOMATIC SKELETON.

This name was given by Sir Wyville Thomson¹ to "the basal and oral plates, the anal plate, the interradial plates, and any other plates or spicula which may be developed in the perisome of the cup or disk." He pointed out that the plates of this system are "essentially variable in number and arrangement; most of the minor structural modifications throughout the group depend upon the multiplication or suppression of plates of this series. Even in the same species they are by no means constant," e.g., *Antedon rosacea*. The nature of the basals and orals has been already discussed; and very little need be said about the anal plate. For although this forms an essential part of the cup of the Pentacrinoid larva of *Comatula*, and is of extreme importance in its palæontological relations, yet it disappears soon after the termination of Pentacrinoid life, undergoing exactly the same process of resorption as the orals have previously done. It is curious, however, that there should be no special anal plate in *Hyocrinus*, which has such large orals (Pl. VI. figs. 1-5), while it is also absent in the adult *Rhizocrinus*, and is perhaps never developed at all; for Sars figures a young individual only 25 mm. long in which the first brachials are comparatively large and form a sort of pyramid, while the second brachials are undeveloped, and he makes no mention whatever of an anal plate.² Whereas in *Antedon rosacea* the anal plate appears soon after the second radials (which represent the first brachials of *Rhizocrinus*); and it is relatively quite large by the time that the first brachials are developed, forming a nearly complete circle together with the first radials, between two of which it is intercalated.

The interradial plates are those minute disks or granules which occur in the substance of the perisome uniting the rays and their subdivisions, and are sometimes difficult to distinguish from the lowest joints of the pinnules. They were first detected in *Antedon milleri* by J. S. Miller,³ who figured them as forming one "intercostal" between every two second radials. This was probably due, as remarked by Dr. Carpenter,⁴ to his having only employed a low magnifying power in his examination of them. Müller⁵ described them as occurring in *Pentacrinus asteria* (Pl. XIII. fig. 1), and noticed their difference from the plates on the ventral surface of the disk which are pierced by the water-pores (Pl. XVII. figs. 6, 10). They are very abundant in some species of the Comatulidæ and Pentacrinidæ, uniting the rays and their lowest divisions very closely together; while in other types they may be wholly or entirely absent in some individuals, and more or less well developed in others. In fact, the same individual may have them in one or two of

¹ *Phil Trans.*, 1865, pp. 540, 541.

² *Crinoïdes vivants*, p. 27. Tab. iv. fig. 95.

³ This is the *Comatula fimbriata* of Miller, which occurs in Milford Haven. See his *Natural History of the Crinoidea*, Bristol, 1821, Frontispiece, fig. 2, G.

⁴ *Phil. Trans.*, 1866, p. 716.

⁵ *Bau des Pentacrinus*, *loc. cit.*, p. 49.