

there is a complete ring of united basals as in the recent genera *Atelecrinus* and *Thaumatocrinus* (Pl. LVI. figs. 1-4). In the four other genera of recent Comatulidæ, however, the primary embryonic basals undergo transformation into the well-known rosette, which is really a secondary structure. It lies over the chambered organ, between the under surface of the radial pentagon and the upper face of the centro-dorsal; but it is entirely concealed, and does not appear at all upon the exterior of the calyx.

In many Comatulæ more or less prismatic rods proceed outwards from the inter-radial angles of the rosette, and their ends are often visible on the exterior of the calyx. They occupy exactly the same positions as the rod-like basals of many fossil Comatulæ, but do not represent them morphologically, for they are not developed from the primary embryonic basals. These last become transformed into the rosette, which is a secondary structure as shown by Dr. Carpenter;<sup>1</sup> while the tertiary basals which are connected with its interradian angles are merely ossifications in the connective tissue of the synostosis between the radials and the centro-dorsal, and are somewhat variable in their development.<sup>2</sup> They do not occur in *Antedon rosacea*, nor in the species on both sides of the Atlantic which are most nearly allied to it, viz., *Antedon phalangium*, *Antedon dentata*, *Antedon hageni*, &c.; and they seem to be absent in *Eudiocrinus*, at any rate in *Eudiocrinus semperi*. But they reach a relatively large size in many tropical species both of *Antedon* and of *Actinometra*, in which latter genus I have never found them to be absent, and they also occur in *Promachocrinus* (see fig. 1, A on p. 37). [See Note B.]

## B. THE RADIALS.

There is considerable variation in the degree of lateral union between the individual basals and radials of stalked Crinoids. Those of *Holopus* (Pls. I.-IV.) are so intimately fused that the sutures are entirely invisible on the exterior of the tubular calyx. In *Hyocrinus* (Pl. VI.) the interradian sutures are quite evident, but those between the basals are very obscure. In *Rhizocrinus*, and especially in *Rhizocrinus lofotensis*, the sutures between the basals are usually entirely invisible, not only externally but also in transverse sections of the decalcified calyx; while the basiradial and interradian sutures are merely indicated by very faint lines on the surface of the cup (Pl. IX. figs. 1, 2); and strong measures are necessary before the individual joints will separate from one another. In the Pentacrinidæ and Comatulidæ the union between the radials is less close and the sutures well defined, while the condition of the basals varies according to circumstances (Pl. XIII. fig. 1; Pl. XV. figs. 1, 2; Pl. XVI.; Pl. XX.; Pl. XXXIII. figs. 8-10; Pls. XXXV.-XXXVII.; Pl. XXXIX.; Pl. XLIII.). The union of the

<sup>1</sup> *Phil. Trans.*, 1866, pp. 744, 745.

<sup>2</sup> The genus *Actinometra*, *Trans. Linn. Soc. Lond. (Zool.)*, vol. ii. pp. 93-105; and the genus *Solanocrinus*, *Journ. Linn. Soc. Lond. (Zool.)*, vol. xv., 1880, pp. 212-214.