

plates which make up each of these rings (Pl. XII. figs. 1, 2, 11-16, 22-25; Pl. XVIII. figs. 4-7; Pl. XX. figs. 1-3, 6-9; Pl. XXI. figs. 6, 7; Pl. XXIV. fig. 6, *lb*; fig. 7, *l*, *lb*, *L*; Pl. LVIII. fig. 1, *l*, *lb*; fig. 2, *L*). The radials of *Bathycrinus* are likewise united in this way (Pl. VIIb. fig. 4, *l*); but the sutures between the basals seem to be of a still closer nature. They are visible externally in young individuals but disappear in the adult, so that the "base" seems externally to consist of but one single piece¹ (Pl. VIIa. figs. 12-14). Sections through a decalcified specimen show, however, that it is really composed of five parts like the base of *Pentacrinus* (Pl. VIIb. fig. 2, *B*). These five parts are, nevertheless, very closely anchylosed. No parallel fibres of connective tissue pass between them, such as unite the five first radials together (Pl. VIIb. fig. 4, *l*). But the organic basis of the skeleton is much less close, if not absent altogether, along five lines which radiate outwards from the chambered organ and indicate the position of the sutures. They stain less deeply with hæmatoxylin than the surrounding tissue, but do not reach the exterior of the section (Pl. VIIb. fig. 2). Neither are they visible in sections through the top and bottom of the basal piece; and but for the knowledge obtained in this way, the basal piece would probably have been described as an uppermost stem-joint, as has actually happened in the case of *Rhizocrinus*.

In some individuals of *Rhizocrinus lofotensis* (Pl. IX. figs. 1, 2) there are no indications of suture, even in the adult; though in others the sutures are visible externally (Pl. X. fig. 2). In the former case the nuclear connective tissue network is continuous through the whole section, which exhibits no unstained radiating lines, as do similar sections of *Bathycrinus*. There is a marked difference between the two genera, however, as regards the lateral union of the radials. Those of *Bathycrinus* are united by synosteal fibres (Pl. VIIb. fig. 4, *l*), just as in *Pentacrinus* (Pl. XXIV. figs. 7-9; Pl. LVIII. fig. 2, *L*) and *Comatula*. But those of *Rhizocrinus* are much more closely connected, just in fact in the same way as the basals of *Bathycrinus* are. No ligamentous fibres are visible in horizontal section, but only five (or six) radiating lines where the nuclear network is incomplete (Pl. VIIIa. fig. 6). The radials in this type, and the basals in *Bathycrinus*, seem to be united by a limestone deposit which has different characters from that usually found in Echinoderms; and I think it will be advantageous to denote this by the term "anchylosis," reserving "synostosis" for cases in which ligamentous fibres are concerned in the union of the joints; though both of them, like the "syzygy," would be considered as sutures.

Smooth sutural unions like those between the basals and radials, though somewhat less close in their character, occur at intervals in the stem of the Pentacrinidæ, every nodal or cirrus-bearing joint being united in this way to the joint below it (Pl. XIX. figs. 3, 4; Pl. XXII. figs. 16, 20, 21; Pl. XXVI. figs. 12-16; Pl. XXXI. fig. 3;

¹ This must be carefully distinguished from the "article basal" of the Apiocrinidæ, which is the uppermost stem-joint that supports the basals.