

sionally to swell up slightly, so as to fit into a corresponding depression on the upper face of the pentamere below.

THE ROOT is said by Billings to have "identically the appearance of the radix figured as that of *Rhodocrinus asperatus*" (Canad. Org. Rem., Decade IV, pl. i, f. 4 c-d; 1859). The following differences from that figure, however, are to be noted. The lumen is not nearly so wide. The root-branches do not appear so suddenly or decidedly. The vertical series of pentameres are not observed to split so that half of one joins with half of another to form a rootlet. On the contrary only two divisions of the root can be seen, after prolonged preparation, and each of these is composed of two whole vertical series of pentameres. What happens to the fifth series is uncertain. The appearance is as though the distal end of the stem had been pressed so as to split it apart along two or three of the vertical sutures. The two root-branches cannot be traced to their ends, and their structure cannot be ascertained; but a broken section across one seems to show that it was tripartite, and that the lumen was relatively much smaller than that of the stem.

GENERAL CONCLUSIONS.

The chief alteration of view to which this renewed study has led me relates to the Radials.

Mr. Billings (1887) regarded all the radials as simple, except the right posterior, which he described as compound.

In "British Fossil Crinoids, II" (April, 1890, *Ann. Mag. Nat. Hist.*, p. 334 and pl. xiv) I suggested a "far simpler and equally probable" interpretation of the second plate in the r. post. ray, as homologous with the four other plates on a level with it and generally resembling it in form. That is to say, accepting the ideas of Mr. Billings as to the radials and brachials of all the other rays, I regarded the first or lowest plate of the r. post. ray as homologous with the radials, and the second plate as homologous with the proximal brachials. In 1900 ("Treatise on Zoology," III, Echinoderma, p. 178) I repeated the analysis originally based on that of Mr. Billings, as well as the above suggestion; but, having by then had the privilege of seeing the holotype, I was a little more cautious.

Now, as in 1890, I consider that the first and second plates of the r. post. ray are homologous with the plates corresponding