

(Pl. I.) is almost bare, though faint elevations are visible along the middle lines of the radials, and indistinct, scattered tubercles appear between them, except in the centre of the trivium. In the smaller specimen, however (Pl. II.), there are three, fairly distinct double rows of blunt tubercles which correspond to the trivial radials. But on the bivial side there is more indication of median ridges; while in the fragment shown in woodcut (fig. 10) the double row of tubercles is tolerably distinct all round the cup, except on one of the bivial radials. Other tubercles are scattered about between these rows, though without any definite arrangement; while they are abundant on the dorsal surfaces of the two outer radials and of the large lower arm-joints (Pl. III. figs. 3-9), disappearing, however, as the joints become more and more compressed laterally.

All the entire specimens of *Holopus* which are known to science have been preserved in the dry state, and have a blackish-green tint which is due to pentacrinin, as stated above (*ante*, p. 129). It is darkest in the older individuals, and contributes to the shagreen-like appearance that is so characteristic of the type. An isolated ray (Pl. Va. fig. 3; Pl. Vb. figs. 4, 5) was, however, obtained by the "Blake" off Montserrat, and preserved in spirit. In this condition the skeleton has a dead white appearance.

In the figure of d'Orbigny's original specimen the first radials are shown to bear large, pentagonal axillaries which appear to be all in one piece. They were so described by Pourtalès,<sup>1</sup> and also by Sir Wyville Thomson,<sup>2</sup> who did not, however, exclude the possibility that they might be formed of the second and third radials coalesced, with the syzygy between them obliterated. The very young individual dredged by the "Blake," and the somewhat older form, shown in Pl. IV., throw much light upon this question. The calyx-tube of the former (Pl. V. figs. 9, 10) is wide and shallow, while the second radials which it supports are widely hexagonal and only partially in contact laterally. Resting upon their distal edges are the smaller triangular plates to which I have referred as the axillaries. Agassiz, in his brief description of this remarkable form,<sup>3</sup> states that the larger hexagonal plates are "the radial axillaries of Sir Wyville Thomson, but the smaller triangular ones seem to become fused with them in the adult." I think, however, that there can be little doubt that the larger plates are second radials, and the triangular ones the third or axillary radials. They are all equal and similar, and meet one another all round so as to completely close the cavity of the calyx. It might be suggested that these are the combined second and axillary radials, while the hexagonal plates are the first radials, and no others are present. I do not think, however, that this can be the case; partly on account of the very marked manner in which the hexagonal plates are separated from one another and from the shallow cup below them; and partly because there is no indication whatever of their sending upward extensions between the

<sup>1</sup> *Mém. Mus. Comp. Zool.*, vol. iv. No. 8, p. 62, 1878.

<sup>2</sup> *Loc. cit.*, p. 408.

<sup>3</sup> Description of a young *Holopus*, *Bull. Mus. Comp. Zool.*, vol. v. p. 213, 1879.