

of the branchial sac, and the atrial aperture, as usual, as the dorsal side of the body, then the ventral edge of the branchial sac is more extensive than the dorsal, and has its anterior half fused with the mantle to form the anterior part of the body-wall, while its posterior half forms the greater part of the horizontal membrane (Fig. 11, p. 93), the remainder being the posterior part of the dorsal edge of the branchial sac. According to this interpretation of the structure, the short endostyle described by Moseley (Pl. X. fig. 3, *en.*) would be confined to the posterior end of the ventral edge of the sac: its position is shown diagrammatically by *end'* in the above woodcut (Fig. 11).

The large space below the horizontal membrane in which the visceral mass is placed, and which opens to the exterior by the atrial aperture, I regard, then, as a peribranchial cavity which lies wholly at the posterior end of the branchial sac, and which has no communication with the cavity of the branchial sac except indirectly by means of the alimentary canal.

The specimen from Station 299, off Valparaiso, in the South Pacific, which I have examined, resembles Moseley's figures (Pl. X. figs. 1-5) of *Octacnemus bythius* in general shape, but differs (see Pl. X. figs. 6 and 7) in having a well-marked prominence upon the dorsal edge of the body in which the visceral mass is lodged,<sup>1</sup> and upon the anterior surface of which the atrial aperture opens. The breadth of the specimen across the outstretched processes is now 8 cm., but was probably about 12 cm. when living, judging by the amount Moseley's specimen has contracted since he measured it.

The branchial aperture is large and is transversely elongated, while the atrial is smaller and more circular. They are placed 2 cm. apart, and the atrial aperture is 1 cm. from the dorsal edge of the body. The rounded dorsal projection which contains the viscera (Pl. X. fig. 7, *ad.*) is roughened on its lower surface, and if the body were attached to some foreign object it must have been by this part.

The test is thin, and easily torn, over the greater part of the body; but it is thickened round the margins of the posterior end so as to form slight pads at the bases of the conical processes (see Pl. X. fig. 8, *t'*). Test cells are numerous and of various shapes (Pl. X. fig. 12), but are mostly of small size. No large bladder cells are present, but a few rounded cells larger than their neighbours have considerable vacuoles (Pl. X. fig. 12), and so show an approach to the formation of bladder cells.

The mantle is thin, but has a good deal of musculature. It adheres closely to the inner surface of the test. The muscle bands have the general arrangement described and figured by Moseley (Pl. X. figs. 1, 2, and 5). Figure 14 shows more exactly the arrangement of the chief muscle bands on the conical processes. In a longitudinal section of one of the processes the chief transverse muscle bands are seen cut in section on the inner surface of the thickened pad of test. Besides these chief muscle bands, there are numerous very fine bands formed of one, two, or three muscle fibres each,

<sup>1</sup> Possibly the visceral mass was displaced in Moseley's specimen.