

The branchial aperture is so damaged in both specimens that it is impossible to make out the exact number of tentacles and the condition of the dorsal tubercle.

Two specimens, both more or less injured, were obtained off East Monceur Island, Bass Strait, at Station 162; April 2, 1874; depth, 38 to 40 fathoms; bottom, sandy.

*Pachychlæna gigantea*, Herdman (Pl. XXVIII. figs. 6-11, and Pl. XXIX. fig. 10).

*Pachychlæna gigantea*, Herdman, Prelim. Rep., Proc. Roy. Soc. Edin., 1879-80, p. 463.

*External Appearance.*—The shape of this species, as far as can be made out, is irregularly oblong, the right side being larger than the left. Probably the body is attached by the posterior part of the ventral edge. The branchial aperture is eight-lobed, terminal, and placed on a large irregularly rounded projection turned towards the left side. The atrial aperture is six-lobed, and is also on a large projection, situated on the dorsal edge; from one-third to half-way down from the anterior to the posterior end. The lobes of both apertures are irregular, but prominent.

The surface is very irregular, and in some places is almost covered by foreign bodies. The colour is a warm yellowish-grey.

Length of the body, about 12 cm.; breadth of the body, 5 to 7 cm.

*The Test* is cartilaginous, very thick (varying from 2 mm. to 4 cm.), solid, rigid, and opaque; it is white in mass with a hyaline tint where thin, and yellowish-grey on the external surface. Large vessels ramify in the inner layer; the vascular trunks probably enter the test at the base of the right side towards the ventral edge. The terminal twigs of the vessels are sometimes slightly swollen, but scarcely knobbed; in some places they are almost covered by bundles of rod-like or tapering yellowish crystals. The bladder cells are very small, and are abundant in the outer part of the test around the small vessels, where yellow pigment cells are also present.

*The Mantle* is strongly muscular over the right side and on the siphons, while on the left side it is membranous. In several places, especially between the siphons and at the anterior extremity of the endostyle, it is marked with dark red.

*The Branchial Sac* is very thick, coarse, opaque, and of a brown colour. It is longitudinally plicated, and has the grooves broken up into pouches by the larger transverse vessels. On the external aspect of the sac certain very wide transverse vessels are connected by equally wide, irregularly placed longitudinal vessels, thus forming an external network of quadrangular meshes, each of which contains about four rows of stigmata. The internal longitudinal bars are stout and bear strong conical papillæ. The meshes are much elongated transversely, and each contains twelve to twenty stigmata.

*The Endostyle* is not conspicuous, it is yellowish, with a dark red line down each side.

*The Dorsal Lamina* is wide, and is strongly ribbed transversely, but not pectinated. It becomes wider and thinner as it approaches the œsophageal aperture, and then narrows again rapidly after passing it.