

The surface, especially towards the anterior end, is raised into a series of strongly marked projections, very similar to those seen in *Ascidia mammillata*.

The test owes its dark colour partly to the small pigment cells (Pl. XXIX. fig. 3, *p.c.*) which are scattered so plentifully through its substance, and partly, especially in the peripheral part, to the vessels, which are very dark in colour. In the outer layer (Pl. XXIX. fig. 3) the swollen terminal knobs of the small twigs form a dark band. The bladder cells (fig. 3, *bl.*) are very small.

The branchial sac has a characteristic appearance; this is chiefly due to the large papillæ, which are shaped like paddles or La Crosse bats (Pl. XXIX. figs. 4 and 5), when seen from the side, but are simply rod-like or tapering when seen from above (figs. 4 and 6). The whole sac is strongly plicated, but the crests and troughs are very short, as none of the transverse vessels enter into the plication. There are wide membranous connecting ducts (Pl. XXIX. figs. 5 and 6, *c.d.*), which unite the internal longitudinal bars to the transverse vessels. The endostyle is normal.

The teeth on the free margin of the dorsal lamina are large and rather close together, and the ribs are distinctly continued out to their points (Pl. XXIX. fig. 7, *d.l.*).

The small intermediate tentacles (Pl. XXIX. fig. 9, *tn.*) are curious; they are very minute in comparison with the others. They are present in the great majority of the interspaces, but are wanting in a few of them, one of which is seen in figure 8, immediately above the dorsal tubercle. The peritubercular area is shallow.

One specimen, in excellent condition, was obtained off East Moncœur Island, Bass Strait, at Station 162; April 2, 1874; depth, 38 to 40 fathoms; bottom, sandy.

*Pachyclæna obesa*, Herdman (Pl. XXVIII. figs. 1-5).

*Pachyclæna obesa*, Herdman, Prelim. Rep., Proc. Roy. Soc. Edin., 1879-80, p. 462.

*External Appearance.*—The shape of this species is unknown, on account of the absence of the greater part of the test; it was probably oval or irregularly spherical, and the anterior end must have been broad and irregularly rounded. The apertures are not distant, they are fairly conspicuous but depressed.

The surface is smooth and slightly mammillated. The colour is a dark earthy brown.

Length of the body, probably about 10 cm.; breadth of the body, about 6 cm.

*The Test* is cartilaginous, thick (8 mm.), solid, rigid and opaque; vessels are visible on the internal surface. It contains also numerous pigment cells and some bladder cells in the outer layers.

*The Mantle* is thick on the right (branchial) side of the body, and on the siphons, but is not very muscular; it is membranous on the large distended left (visceral) side. The siphons are long and rather narrow.

*The Branchial Sac* is long and narrow, and pointed at the posterior end; it is longi-