

tentacles are numerous, and a little irregular, but not of two sizes arranged symmetrically. The dorsal lamina has its ribs very closely placed (Pl. XXXIV. fig. 6), and the edge is distinctly serrated.

Two specimens of this curious species were found at Port Jackson, Australia, at a depth of 6 fathoms.

*Pachychlæna*, n. gen.

Sub-genus *Pachychlæna*, Herdman, Prelim. Rep., Proc. Roy. Soc. Edin., 1879-80, p. 461.

*Body* attached, sessile. Branchial aperture eight-lobed, atrial six-lobed.

*Test* cartilaginous, very thick, solid and opaque.

*Branchial Sac* longitudinally plicated. Internal longitudinal bars bearing large papillæ at the angles of the meshes. Stigmata straight.

*Dorsal Lamina* in the form of a membrane.

*Tentacles* simple.

*Viscera* large, placed on the left side of the branchial sac.

In the first part of the Preliminary Report, I distinguished the three species forming the present genus from the other species of *Ascidia*, on account of the remarkable thickness and solidity of the test. This feature suggested *Pachychlæna* as an appropriate sub-generic title. As, however, I have not recognised any other sub-genera among Simple Ascidiæ, and as it is objectionable to introduce new grades into classification, unless absolutely necessary, it will be more convenient to consider *Pachychlæna* of generic rank, at least until some form is found which links it to *Ascidia*. That such a form may be found I have no doubt. *Pachychlæna* and *Ascidia* are closely allied, and although the specimens of the two genera in the Challenger collection are clearly distinguishable, it is easy to imagine a species, or a series of species, uniting their characters, and forming a gradual transition from the one to the other.

The three species of *Pachychlæna* described below agree in the following particulars:—The body is sessile and attached, but of different shapes. The test is thick and opaque, and of a firm cartilaginous texture. The branchial sac is longitudinally plicated, and is of considerable thickness. The meshes are transversely elongated (Pl. XXVIII. figs. 2 and 7, and Pl. XXIX. fig. 4), and have large papillæ at their angles; no smaller intermediate papillæ are present. The specimens of two of the species were all more or less injured, so that the exact determination of the body form is impossible, but the single specimen of the remaining species, *Pachychlæna oblonga*, is in perfect condition.

*Pachychlæna oblonga*, Herdman (Pl. XXIX. figs. 1-9).

*Pachychlæna oblonga*, Herdman, Prelim. Rep., Proc. Roy. Soc. Edin., 1879-80, p. 461.

*External Appearance*.—The body is irregularly oblong in shape, widest about the middle, and narrowing somewhat towards the anterior end, which is obtuse and flattened;