

The *Branchial Sac* is very thick and strong, with seven large folds on each side. The transverse vessels are very large, few, and visible to the eye. They give off numerous branches, which divide and anastomose, forming a network of wide vessels which form the meshes of the sac. These vessels give off much smaller tubes which bound the stigmata. The stigmata are numerous, irregular, and arranged in spirals forming infundibula.

The *Dorsal Lamina* is a short but very broad membrane, with no ribs, but having an irregular margin.

The *Tentacles* are compound, and large; they are sixteen in number, and of two sizes, placed larger and smaller alternately.

The *Dorsal Tubercle* is large and prominent, with both horns much coiled spirally.

This large species was obtained by Professor R. O. Cunningham in the Straits of Magellan during the cruise of the "Nassau," and was briefly described under the name of *Cynthia gigantea* in the Transactions of the Linnæan Society of London for 1871.

Cunningham's description merely refers to a few features in the external appearance, and is insufficient for the identification of the species. It was only when examining the "Nassau" collection in the British Museum that I discovered that the large Challenger *Molgula* from the Straits of Magellan was identical with Cunningham's *Cynthia gigantea*, which had been referred to the wrong genus and family; consequently, while retaining the old specific name, I have treated it otherwise as a new species, and have figured and described it anew in detail.

The external form is somewhat variable; some specimens are almost globular, and others fusiform, while all intermediate shapes occur. The specimen figured (Pl. IV. fig. 1) is typical as to shape, but is of small size. Cunningham mentions that the largest specimen obtained by the "Nassau" measured "eight inches from base to apertures, and was between four and five inches broad." Many of the Challenger specimens exceed those dimensions, the largest being 33 cm. in length, and 17.5 cm. in breadth. This is the next largest Simple Ascidian to *Ascopera gigantea*.

The following list shows the proportions between length and breadth in thirty of the Challenger specimens:—

Specimen.	Length (antero-posterior).	Breadth (dorso-ventral).	Specimen.	Length (antero-posterior).	Breadth (dorso-ventral).
1	5.5 cm.	4 cm.	10	10 cm.	6 cm.
2	6 "	5 "	11	10 "	7 "
3	6.5 "	4 "	12	13 "	9 "
4	7 "	4 "	13	13.5 "	9 "
5	7 "	4.5 "	14	14 "	8 "
6	7 "	6 "	15	15 "	7 "
7	8 "	4 "	16	16 "	10 "
8	9.5 "	5.5 "	17	18 "	9 "
9	10 "	5 "	18	18.5 "	10 "