

depressions arranged antero-posteriorly between the larger transverse vessels, but not joining across them (Pl. XXXIII. fig. 3). In this way a series of shallow pouches is formed, opening off the peribranchial cavity.

The dorsal lamina varies in its character, from a plain broad membrane with a smooth edge and no markings, to a closely ribbed structure, with the free edge provided with one or more series of large pointed knob or tooth-like processes, the larger of which usually correspond to the ends of the ribs, and are in the same line with the transverse vessels of the sac.

The tentacles are usually large, and very frequently of several sizes, arranged symmetrically (Pl. XXXIII. fig. 5). Each tentacle is long, tapering and filiform; it is triangular in cross section, and is placed so that one of the sides is anterior and the opposite angle posterior.

The dorsal tubercle is as a rule comparatively simple. The typical form in the genus has a horse-shoe shape, with the aperture placed anteriorly, and the horns turned slightly either inwards or outwards, but not coiled spirally, as in most of the Molgulidæ and Cynthiidæ.

The stomach and intestine lie upon the left side of the branchial sac, and the usual arrangement is that shown in fig. 22, p. 201, where the ventrally directed œsophagus leads into a globular stomach, which reaches to the ventral edge of the body. The intestine, after emerging from the stomach, runs anteriorly, then dorsally, and then posteriorly to form a loop (the intestinal loop) which is open posteriorly. It then turns dorsally and anteriorly again, becoming the rectum which runs forwards near the dorsal edge of the left side, and completes a second loop (the rectal loop), which is open anteriorly.

The branched ovary and testis occupy the intestinal loop (fig. 22, *g.*), and extend over the adjoining parts of the stomach and intestine, while their ducts run along the posterior and dorsal edge of the intestine and rectum, to open into the peribranchial cavity anteriorly near the anus.

A renal organ is present in the form of a mass of clear thin-walled and large vesicles, usually containing concentrically laminated yellow and brown concretions. It occupies the rectal loop and the adjoining regions of the left side of the body.

Eleven species of *Ascidia* were collected during the Challenger expedition, and they were all new to science, with the exception of the apparently common West Indian species, *Ascidia nigra*, Savigny.

*Ascidia challengeri*, n. sp. (Pl. XXX.).

*External Appearance.*—The shape of this species is irregularly oblong, with the anterior end rather narrow; the posterior, which forms the base of attachment, is slightly broader, and the dorsal and ventral edges diverge slightly as they run backwards, and are sometimes curved. The branchial aperture is anterior, terminal, or slightly on the