

longitudinal bars are more than usually close. In *Molgula pyriformis* there are only three internal longitudinal bars in each of these regions, but, as I have shown elsewhere,<sup>1</sup> in the case of *Styela grossularia*, a more rudimentary condition even may be traced through a series of gentle gradations into a well-developed fold.

The dorsal tubercle is very variable in the Molgulidæ. In typical species of the genus *Molgula* it is usually cordate or reniform in outline, with both horns coiled inwards, but not forming large spirals. In *Molgula forbesi* (Pl. V. fig. 11), we find a comparatively simple tubercle, with one horn turned out and one in, while in *Molgula gigantea*, and in *Ascopera gigantea* (Pl. III. fig. 5), the spirals are very large, quite as large as in any of the Cynthiidæ, which are usually supposed to have the most complicated tubercles. In *Molgula pyriformis* (Pl. VI. fig. 3), and *Eugyra kerguelenensis* (Pl. VI. fig. 9), on the other hand, the dorsal tubercle is found in the simplest possible condition, namely, as the slightly enlarged aperture of the duct from the neural gland bounded by a plain prominent margin, circular in the one case, and quadrangular in the other. It is rather puzzling to find this simple condition of the dorsal tubercle in the most highly differentiated family of Simple Ascidiæ, and it does not in the least help us towards a solution of the question why in so many other forms the aperture of the duct of a gland should have acquired such a complicated structure. However, the complexity of the dorsal tubercle is evidently not correlated with that of the other organs, as we sometimes find it in very different conditions in two species which, from the rest of their structure, seem closely allied.

Among the Cynthiidæ the sub-family Bolteninæ contains the greatest novelties. It has always been an interesting group, as it contains the rarest and least known forms. The Challenger expedition has revealed the existence of a small group of pedunculated Ascidiæ, apparently confined to great depths, and having several striking peculiarities. These are more nearly allied to *Boltenia* than to any other previously known genus, and have been placed in two closely related new genera—*Culeolus* and *Fungulus*.

On account of the great interest attaching to these forms, I have gone into very considerable detail in their description, and especially in that of *Culeolus murrayi*, the only large species of which there were two specimens in the collection.

As I have shown in the tables given in the two preceding sections of the Report, both the horizontal and the vertical distributions are wide in this genus. The localities of the species are widely separated, and occupy all the great oceans:—one species being from the North Atlantic, off the east coast of North America; two from the Southern Ocean, between the Cape of Good Hope and Kerguelen Island; one from the South Pacific, to the north of the Kermadec Islands; one from the North Pacific, east of Japan<sup>2</sup>; and one

<sup>1</sup> On Individual Variation in Simple Ascidiæ, Trans. Lit. and Phil. Soc., Liverpool, 1882.

<sup>2</sup> While these sheets were passing through the press, I received from the Challenger Office a tube containing a small specimen of a *Culeolus* from this locality (Station 241, 2300 fathoms). It is evidently a new species, and will be described and figured in the second part of this Report.