

the colony became thicker and more massive (*Polycyclus* in the one group, and *Sarcobotrylloides* in the other).

Returning now to the main axis of the Simple Ascidiæ, it is found to acquire the folded branchial sac soon after the separation of the ancestral Botryllidæ, and immediately after this, close to the point of division (M. in table) into primitive Cynthinæ and primitive Styelinæ, the genus *Bathyoncus* was given off as a side branch. The origin of this form may either have been (as shown in table) from the main axis before it divided, or from the branch of the Styelinæ not far along from the point M. *Bathyoncus*<sup>1</sup> is a deep-sea genus, in which the branchial sac has undergone that remarkable modification, already discussed (p. 133), which results in the total suppression of the fine interstigmatic vessels. It is closely allied in other respects to the primitive Styelinæ, and has simple tentacles. This peculiar modification of the branchial sac has not been met with in any of the true Cynthinæ, but it occurs in *Culeolus* and *Fungulus* amongst the Bolteninæ (see table, *Culeolus*, and Fig. 28, p. 147).

In the primitive Styelinæ the tentacles remained simple as they were in the ancestral Ascidiæ Simplicis, and the number of folds in the branchial sac became limited to four on each side. The genus *Pelonaia*, which was formerly regarded<sup>2</sup> as a very abnormal Tunicate, differing in some important respects from all other Ascidiæ, is now known<sup>3</sup> to be an ordinary Simple Ascidian, and it was probably derived from the ancestral Styelinæ (table, p. 150). The folds in the branchial sac have disappeared in *Pelonaia*, but they are found in a more or less rudimentary condition in a number of species of the genera *Styela*<sup>4</sup> and *Polycarpa*.

Throughout the sub-family Styelinæ comparatively little modification has taken place. The tentacles never become branched, and the branchial sac remains in a simple condition, with four folds on each side. It is very interesting to find that even in those Styelinæ where the branchial folds become lost (e.g. *Styela oblonga*), it is still possible to make out indications of their former presence by means of the arrangement of the internal longitudinal bars and the sizes of the meshes and stigmata.

The reproductive organs consist of one or two long convoluted masses upon each side of the body in typical species of *Styela*, and of a large number of small rounded masses, called "polycarps," attached all over the inner surface of the mantle in the genus *Polycarpa*; but species are known which form a perfect series of gradations between these two conditions.<sup>5</sup> Probably both of them, as well as the form of genitalia found in the family Botryllidæ, are derived from an ancestral condition, which would be found

<sup>1</sup> This Report, Part I., p. 165.

<sup>2</sup> See Forbes and Hanley, Brit. Moll., vol. i. p. 42.

<sup>3</sup> M'Intosh, *Ann. and Mag. Nat. Hist.*, ser. 3, vol. xix. p. 414, 1867; and Traustedt, *Vid. Medd. Nat. For. Kjøbenhavn*, 1879-80, p. 418.

<sup>4</sup> On Individual Variation among Ascidiæ, *Proc. Lit. Phil. Soc. Liverpool*, vol. xxxvi. p. 315, 1882.

<sup>5</sup> See Sluiter, *Natuurkund. Tijdschr. v. Nederl. Indië*, Dl. xlv. pp. 188 and 228, 1886.