

The transverse vessels and fine longitudinal vessels are found in all possible conditions, and the stigmata may vary from small circular openings (Pl. XXV. fig. 14) to very long narrow slits with parallel sides (Pl. VI. fig. 10), but they are never curved. The stigmatic ciliated cells may also vary greatly in form (see Pl. VI. figs. 12, 13; and Pl. XI. fig. 7, &c.). In some cases where the internal longitudinal bars are absent, rudiments of the connecting ducts in the form of papillæ projecting from the transverse vessels are present (*Tylobranchion speciosum*, see Pl. XXII. fig. 9), but generally they are entirely absent except along the dorsal lamina, where they form the series of languets. Horizontal membranes hanging from the transverse vessels are very frequently present, and may be wide or narrow (Pl. XXV. fig. 8 and Pl. XV. fig. 16). The number of rows of stigmata varies from three (*Didemnum savignii*) to about twenty (*Atopogaster aurantiaca*), and the number of stigmata in each row from four or five up to a large number. In the embryos of most of the Compound Ascidiæ, even of those species which have a large number of rows in the adult, there are four rows of stigmata on each side of the sac.

In *Pharyngodictyon mirabile* (p. 154, Pl. XXI. fig. 12) the branchial sac has the simple structure seen in the genera *Culeolus*, *Fungulus*, and *Bathyoncus* amongst Simple Ascidiæ.¹ It is composed of two sets of large vessels intersecting at right angles so as to form large quadrangular meshes. Probably the fine longitudinal vessels are undeveloped, and in that case no true stigmata are present.

The Endostyle.

This is generally a very conspicuous organ in the body of an Ascidiozoid, and is relatively larger than in Simple Ascidiæ. It is sometimes straight, and runs antero-posteriorly, but more usually its course is very undulating, turning first to the one side and then to the other so as to form a series of closely placed folds (Pl. XXII. fig. 6). It never extends beyond the posterior end of the dorsal edge of the branchial sac. It is formed of elongated columnar epithelium, richly ciliated in places.

The Dorsal Lamina.

This may be present in Compound Ascidiæ, or it may be represented by a series of languets which are, I believe, homologous with the connecting ducts of the branchial sac (see p. 161). When a dorsal lamina is present (e.g., *Botrylloides tyreum*,² see Pl. II. fig. 8, *d.l.*) it is a plain membrane with neither transverse ribs nor marginal teeth; it may, however, be corrugated at its free edge, especially near the anterior end.

Languets when present are usually triangular flaps flattened antero-posteriorly

¹ Part I. of this Report, pp. 90, 127, and 165.

² Named *Botrylloides purpureum* on the plate, and in the description, p. 41.