

In the Appendiculariidae the peribranchial cavity is represented by two "atrial canals," which connect the two stigmata of the branchial sac with the exterior. They lie on the ventral side of the sac at the sides of the endostyle, and the apertures are near the middle of the ventral surface close to the anus. A similar condition of parts is found at a comparatively late stage of development in Simple Ascidians, and the single peribranchial cavity of the adult is the result of the fusion of the two atria, into one of which the

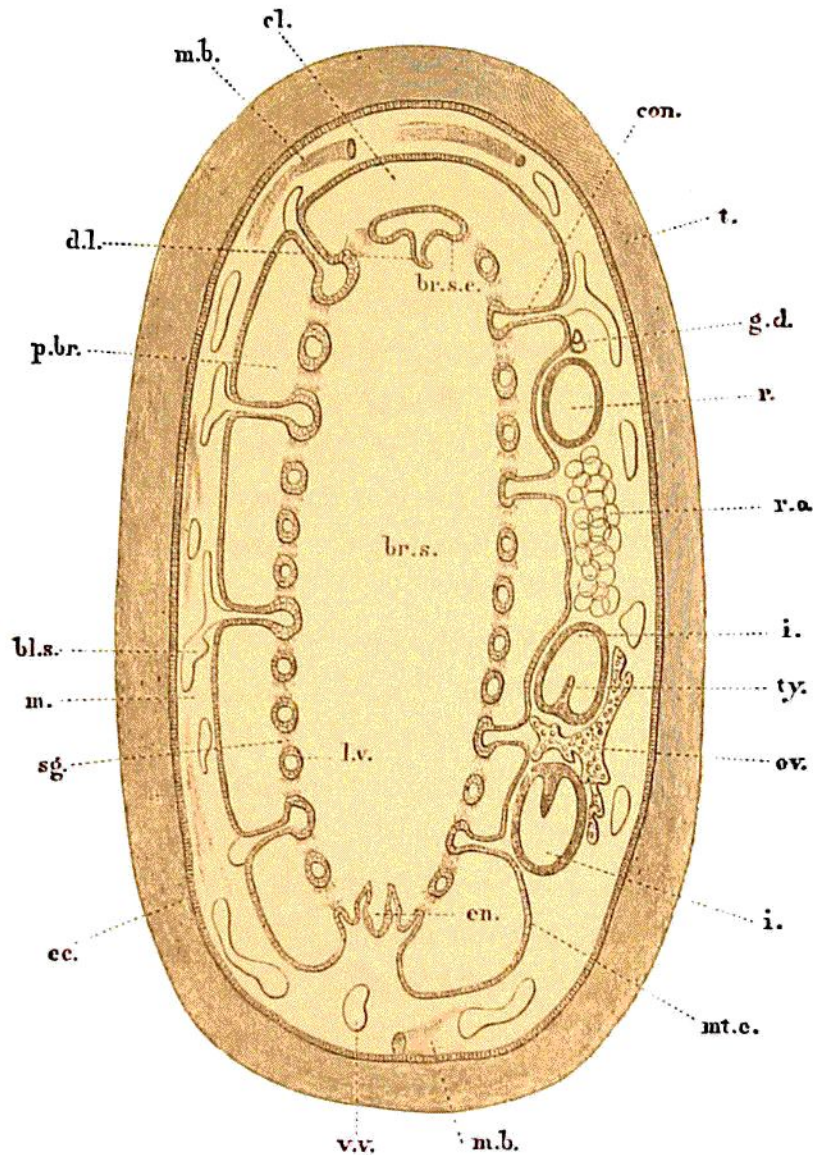


FIG. 9.—Diagrammatic transverse section through the middle of the body of *Ascidia*.

*t.*, test; *ec.*, ectoderm; *m.*, mantle; *m.b.*, muscle-bands in mantle; *bl.s.*, blood sinus in mantle; *v.v.*, great ventral vessel; *mt.c.*, epithelium lining the peribranchial cavity; *p.br.*, peribranchial cavity; *cl.*, cloaca; *br.s.*, cavity of branchial sac; *l.v.*, longitudinal vessel of branchial sac; *sg.*, stigma; *en.*, endostyle; *br.s.e.*, epithelium lining branchial sac; *d.l.*, dorsal lamina; *con.*, connective between branchial sac and mantle; *i.*, section of intestine; *ty.*, typhlosole; *ov.*, ovary; *r.o.*, renal organ; *r.*, section of rectum; *g.d.*, section of genital ducts.

anus has come to open. The common aperture finally moves to the dorsal surface of the body; consequently the dorsal atrial aperture of the Ascidian represents the three ventral apertures of *Appendicularia*.