

others different sizes alternate. The second set of vessels, the fine longitudinal or interstigmatic, are on the same plane as the transverse vessels, but run longitudinally, separating the different stigmata in a row, and serving as a means of communication between the transverse vessels (figs. 4 and 5, *l.v.*). These interstigmatic vessels are some-

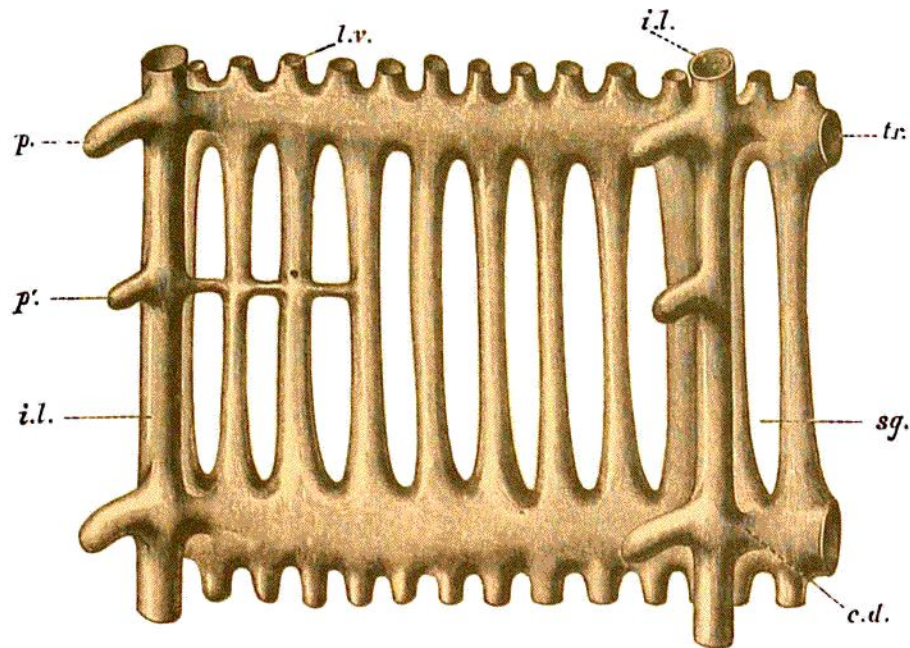


FIG. 4.—A Single Mesh of the Branchial Sac of *Ascidia*, seen from the inside.

*tr.*, transverse vessel ; *i.l.*, internal longitudinal bar ; *l.v.*, fine longitudinal vessel ; *p.*, papilla ; *p'*, smaller intermediate papilla ; *c.d.*, connecting duct.

times very irregular. The third set of vessels, the internal longitudinal (figs. 4 and 5, *i.l.*), occupies a plane internal to the first and second, and consists of a series of stout bars running from the anterior to the posterior end of the branchial sac at right angles to the transverse vessels and communicating with them by short wide connecting ducts

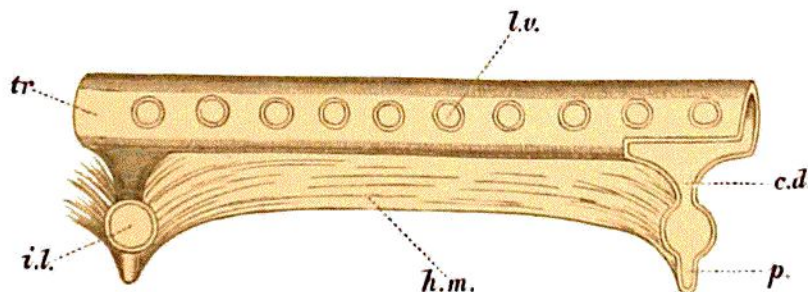


FIG. 5.—Diagrammatic horizontal section through a Mesh of the Branchial Sac of *Ascidia*, showing the interior of the transverse vessel, connecting duct, and papilla at the right hand end.

*tr.*, transverse vessel ; *l.v.*, fine longitudinal vessel ; *i.l.*, internal longitudinal bar ; *p.*, papilla ; *c.d.*, connecting duct ; *h.m.*, horizontal membrane.

(figs. 4 and 5, *c.d.*) placed at the points of intersection. These strong bars are a prominent feature in the branchial sac viewed from the interior, and, along with the transverse vessels, form the boundaries of the rectangular meshes into which the inner surface of the branchial sac is divided.