are clearly in the direction of more perfect adaptation to the conditions of a free-swimming pelagic existence.

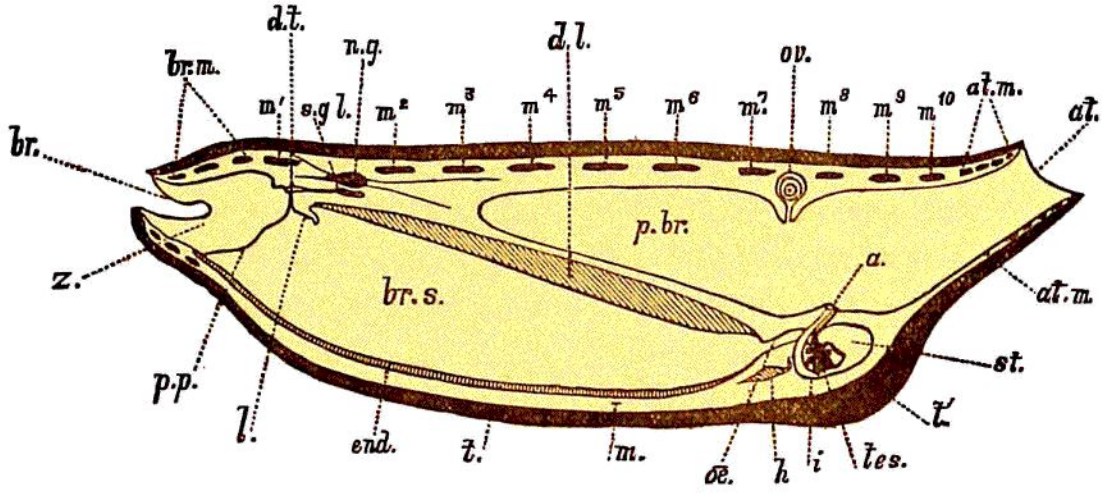

FIG. 16.—Semi-diagrammatic representation of *Salpa* from the left side.

a. anus; *at.* atrial aperture; *at.m.* muscles of atrial aperture; *br.* branchial aperture; *br.m.* muscles of branchial aperture; *br.s.* branchial sac; *d.l.* dorsal lamina (= "gill"); *d.t.* dorsal tubercle; *end.* endostyle; *h.* heart; *i.* intestine; *l.* languet; *m.* mantle; m^1—m^{10}, muscle bands; *n.g.* nerve ganglion; *œ.* œsophagus; *ov.* embryo in ovisac; *p.br.* peribranchial cavity; *p.p.* peripharyngeal band; *st.* stomach; *s.gl.* subneural gland; *t.* test; *t.'* thickened test over viscera; *tes.* testis; *z.* zona præbranchialis.

The very remarkable *Octacnemus bythius*, described first by Moseley from a Challenger specimen, is probably an abnormal and degenerate form allied to *Salpa*, which has migrated into deep water and become fixed, undergoing at the same time certain changes in body-form and in the arrangement of the musculature. The viscera, however, still form a "nucleus" as in the typical *Salpæ* (compare Figs. 16 and 17).

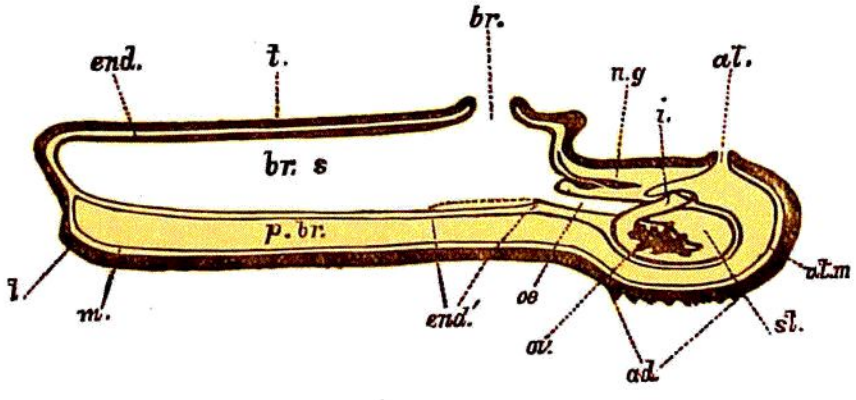

FIG. 17.—Diagram showing the probable structure of *Octacnemus*. (From left side.)

ad. probable place of attachment; *at.* atrial aperture; *at.m.* membrane lining the peribranchial cavity; *br.* branchial aperture; *br.s.* branchial sac; *end.* *end'* portions of endostyle; *i.* intestine; *m.* mantle; *n.g.* nerve ganglion; *œ.* œsophagus; *ov.* ovary and testis; *p.br.* peribranchial cavity; *st.* stomach; *t.* test.

The side walls of the branchial sac in *Octacnemus* have not become aborted, and the stigmata have apparently closed up.

Returning now to the ancestral Appendicularriidæ close to *Appendicularia mossi* (table, p. 120), it is found that in the second great ancestral line diverging from this