

The Alimentary Canal.

This tube, consisting of the œsophagus, the stomach, the intestine, and the rectum, varies greatly in its size, its arrangement, and its position in the body in the different groups of Compound Ascidiæ. In the Botryllidæ it lies almost entirely alongside the branchial sac, while in most other forms it extends for a longer or shorter distance behind it. The typical and probably the primitive arrangement is that shown in fig. 4, A., where the œsophagus (α .) commences at the posterior end of the dorsal edge of the branchial sac ($br.s.$) and runs backwards to open into the anterior end of the ovate stomach ($st.$).

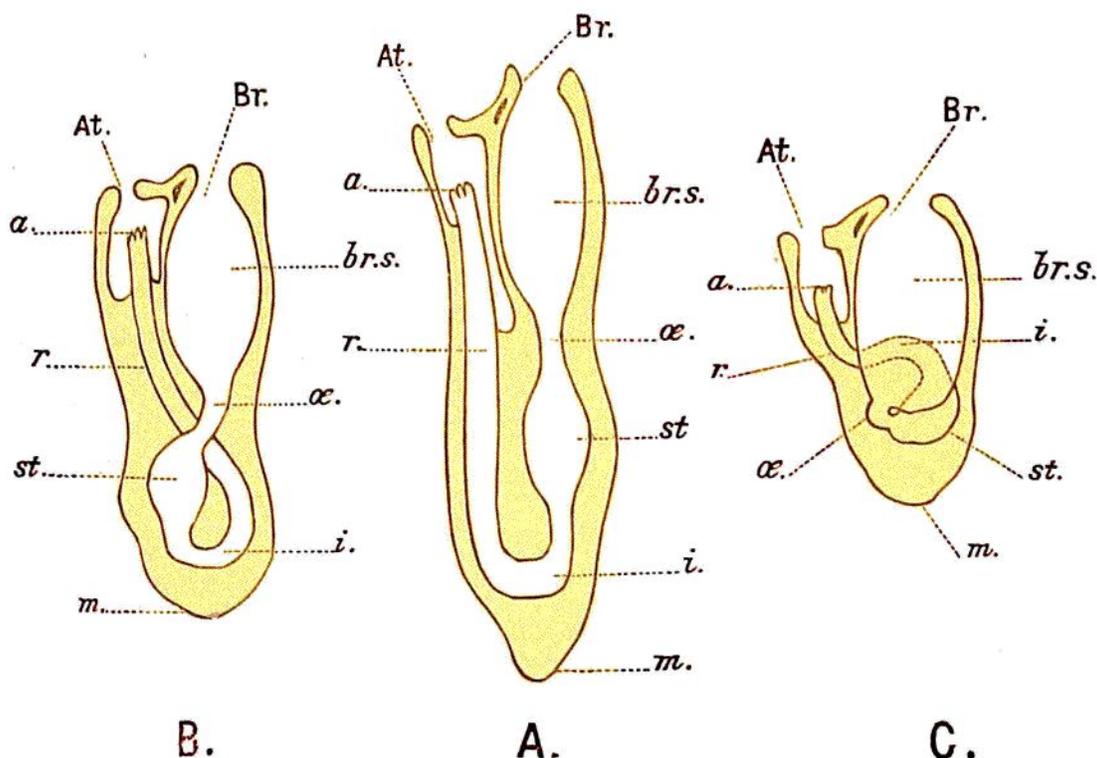


FIG. 4.—Three diagrams showing some of the more important variations of the alimentary canal found in Compound Ascidiæ. A. is probably the primitive condition, and corresponds to *Ciona* amongst Simple Ascidiæ. In C. an arrangement is shown, corresponding to *Ascidia*, which has been produced by pulling up the intestinal loop or by a downward extension of the branchial sac. B. shows a twisting of the loop, which causes the stomach to lie on the dorsal edge of the abdomen. B. may very readily be converted into C.

$a.$, anus; $At.$, atrial aperture; $Br.$, branchial aperture; $br.s.$, branchial sac; $i.$, intestine; $m.$, mantle; $\alpha.$, œsophagus; $r.$, rectum; $st.$, stomach.

The intestine ($i.$) arises from the posterior extremity of the stomach and runs backwards for a short distance, and turns dorsally and then anteriorly to form a narrow loop. It may then be called the rectum ($r.$), which runs forwards alongside the stomach and œsophagus till it reaches the neighbourhood of the branchial sac, where it ends by opening ($a.$) into the peribranchial cavity in the neighbourhood of the atrial siphon ($At.$). From this primitive form two series of modifications have started. In the one the intestinal loop has been drawn forwards so as to lie upon the left side of the branchial sac with the intestine in front of the stomach. This produces the state of affairs found