

The second line, leading to *Perophora*, shows more modification. A stolon like that of *Clavelina*, but usually longer and more regular, has been formed, and permanent colonies are produced. A change has also taken place in the shape of the body and in the relations of the alimentary canal. The branchial sac has become relatively larger, both antero-posteriorly and dorso-ventrally, the result being that it occupies nearly the whole length of the short wide body. The stomach and intestine, there being very little space posterior to the branchial sac, have come to lie upon its left side and dorsal edge, thus producing a short-bodied Ascidian with no "abdomen." This shortening of the antero-posterior extent of the body by the alimentary canal coming to lie alongside the branchial sac (Fig. 20), has apparently been produced independently in several distinct groups of the Tunicata, viz., *Perophora*, *Ascidia*, *Corella*, *Botryllus*, and the higher Simple Ascidiæ.

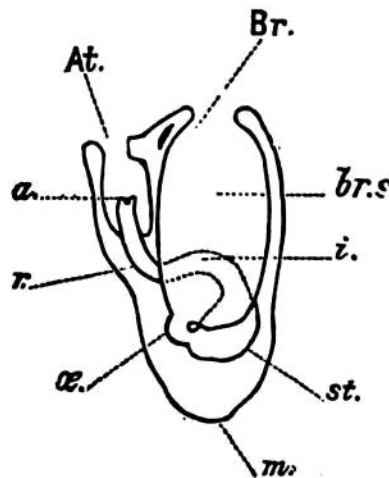


FIG. 20.—Diagram showing a modification of the ancestral Ascidian by which the body is shortened antero-posteriorly and the alimentary canal is placed alongside the branchial sac.

a. anus; At. atrial aperture; Br. branchial aperture; br.s. branchial sac; i. intestine; m. posterior end of the body by which it is attached and from which outgrowths forming buds are produced; æ. oesophagus; r. rectum; st. stomach.

The third line, leading from the Protoascidiates (E. in table, p. 120), is the very important main branch which gave origin to the various groups of Simple and Compound Ascidiæ. The ancestral forms occupying this line are most nearly represented at the present day by *Ecteinascidia*, an interesting genus first made known as a result of the Challenger investigations,¹ and since that studied by Sluiter;² but I am inclined to believe that the branch (F. in table) leading to most of the groups of Compound Ascidiæ was given off rather earlier than the twig leading to *Ecteinascidia*.

The small aberrant group of the Hypobythinae³ was probably formed as a side branch between E. and F. (see table). *Hypobythius* agrees with the ancestral Clavelinids, and

¹ Herdman, this Report, Part I. p. 239.

² Ueber einige einfache Ascidien v. d. Insel Billiton, *Natuurkund. Tijdschr. v. Nederl. Indië*, DL. xlv. p. 160, 1886.

³ Moseley, On two new forms of Deep-sea Ascidiæ, *Trans. Linn. Soc. Lond.*, ser. 2 (Zool.), vol. i. p. 287, 1877; and Herdman, this Report, Part I. p. 227.