colonies. The buds would be formed as processes of the body-wall containing prolongations from a blood sinus filled with undifferentiated mesodermal cells and having a median process probably continuous with the endoderm of the branchial sac.[1] A slight modification of this process would result in the formation of a gemmiparous stolon with contained blood vessels, and an epicardial partition such as is now found in the case of *Clavelina* and *Perophora* where permanent colonies are produced, while a degeneration of the same apparatus for budding would result in the formation of rudimentary vascular projections from the body like those which exist in varied conditions in the test of *Ciona*, *Corella*, and other Ascidiidæ.[2]

This ancestral form (E. in table, p. 120, or p. 150), which may be called a Protoascidiate, was probably slightly elongated antero-posteriorly, and attached by the posterior end, but not pedunculated (Fig. 18). The stomach and intestine were placed posteriorly to the branchial sac, and the terminal part of the intestine, on account of the anterior position of the atrial aperture, was bent forwards so that the alimentary canal as a whole formed a narrow loop.

From this point (E.) in the table at least three ancestral lines started. The first leads with very little change to *Clavelina* (Fig. 19), where the body is

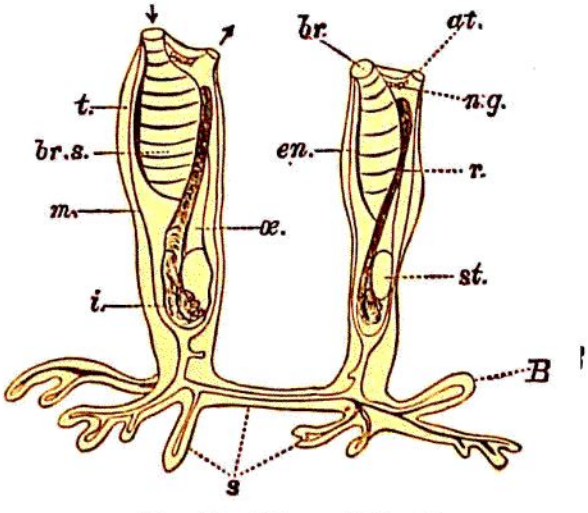

FIG. 19.—Colony of *Clavelina*.

B. bud; *at.* atrial aperture; *br.* branchial aperture; *br.s.* branchial sac; *en.* endostyle; *i.* intestine; *m.* mantle; *n.g.* nerve glanglion; *œ.* œsophagus; *r.* rectum; *s.* stolon; *st.* stomach; *t.* test.

considerably elongated and more or less pedunculated, while permanent colonies are produced—usually by means of a ramifying stolon. In *Clavelina producta*, Milne-Edwards,[3] however, a more primitive condition is found, the stolon being scarcely developed, and the buds being usually produced from the posterior part of the body of the parent Ascidian.

[1] See Van Beneden and Julin, Morph. d. Tuniciers, pp. 289 *et seq.*
[2] See Herdman, On the Evolution of the Blood-vessels of the Test in the Tunicata, *Nature*, vol. xxxi. p. 247, 1885.
[3] *Mém. Acad. Sci. Paris*, tom. xviii. p. 217, 1842.