

termination of a side branch from the ancestral Botryllidæ which has undergone considerable modification (see table, p. 150).

Four generic groups are recognised amongst existing Botryllidæ. Of these, two (*Sarcobotrylloides* and *Polycyclus*) form thick massive colonies, while the other two (*Botryllus* and *Botrylloides*) form thin incrusting colonies. In *Polycyclus* and *Botryllus*, again, the systems are regular and stellate (Fig. 26); while in *Botrylloides* and *Sarcobotrylloides* the systems form irregular linear or branched arrangements. The Ascidiozooids vary in structure according to the shape of the systems. They are short and ovate, with the atrial aperture far from the anterior end of the body, where the systems are regular and stellate; while they are longer and more cylindrical, with the atrial aperture placed close to the branchial, in the forms with irregular or linear systems.

Probably these two opposite conditions of the systems and the Ascidiozooids characterised two branches into which the ancestral Botryllidæ divided (see table, p. 150). Both series had the colony of moderate thickness; but the one, that leading to *Botryllus* and *Polycyclus*, had the systems regular and the Ascidiozooids ovate; while the other, that leading to *Botrylloides* and *Sarcobotrylloides*, had the systems elongated and the Ascidiozooids cylindrical. Probably the first of these conditions was that which obtained amongst the more primitive Botryllidæ (those occupying the line N. before its division), since we find at the present day in young colonies of *Botrylloides* the systems often commencing in stellate forms like those of *Botryllus*, and then gradually elongating and branching to form the more complicated arrangements characteristic of *Botrylloides*.

The difference in the structure of the Ascidiozooids can readily be seen to be merely the result of the shape of the systems. When the system is stellate, each Ascidiozoid forms one of the rays of the star (see Fig. 26, p. 141), with the branchial aperture placed at the anterior end, the point farthest from the centre; and as the atrial apertures open into the common cloacal cavity in the centre of the system, they are necessarily placed far from the anterior end of the body. But when the systems become greatly elongated and branched, it is no longer possible for each atrial aperture to reach the common cloacal cavity, and consequently that cavity becomes prolonged into a series of canals, which penetrate all parts of the system running between the Ascidiozooids. As a result of this, it being no longer necessary for the Ascidiozoid to be stretched out in order to reach the common cloaca, the body comes to be more vertically placed, and the atrial aperture returns to its ancestral position near the anterior end.

Each branch of the Botryllidæ afterwards divided into two groups (see table, p. 150), in the first of which the colony became thinner and more of an incrusting film (*Botryllus* on the one hand, and *Botrylloides* on the other), while in the second