gelatinous films formed by some species of *Botryllus*, and great thick lobed solid masses as in *Sarcobotrylloides*, may be found, and they all belong to the family Botryllidæ.

The systems vary greatly in shape in the different genera, but they are always conspicuous, and usually clearly defined (see Fig. 7, p. 35). The common cloaca of the system is usually large and conspicuous, even in spirit specimens. It has a more or less well-marked membranous margin and is frequently lobed, a lobe corresponding to each Ascidiozooid in the system.

The Ascidiozooids are distinctly marked on the outside of the colony, and are characterised by their short and undivided bodies, showing no distinction between branchial and visceral regions such as is found in most other Compound Ascidians. The branchial aperture is described by von Drasche as "toothless" in his definition, but this cannot be accepted as an invariable characteristic, as *Botrylloides purpureum* has the branchial aperture distinctly lobed (see p. 43 and Pl. II. fig. 7, *br*). The atrial aperture is generally provided with a single lobe or projecting languet which joins the membranous margin of the common cloaca.

The common test is soft and gelatinous. It is usually very transparent, and contains a great many branched "vessels" or ectodermal processes from the Ascidiozooids containing blood and ending in swollen knobs or bulbs. The branchial sac is always of very large size, larger than in any other family of the Ascidiæ Compositæ. It extends over the entire length and breadth of the body of the Ascidiozooid, the alimentary and reproductive viscera being placed alongside it. There are usually about twelve rows of stigmata, and at the middle of the series there are from ten to thirty in each row. The dorsal lamina is a plain narrow membrane which may be corrugated, but has no distinct teeth nor ribs. The tentacles are not large, and never exceed sixteen in number. They may be reduced to two. Four larger and four smaller, placed alternately, is the characteristic arrangement.

The alimentary canal lies on the side of the posterior one-third or one-fourth of the branchial sac, and is mainly directed transversely. The stomach is large, and is usually globular in shape. It is folded longitudinally. On each side of the body, about the middle, lies the ovary, more or less surrounded by the spermatic vesicles. Thus two hermaphrodite genital glands are present. Gemmation usually takes place from the sides of the Ascidiozooids, but in *Sarcobotrylloides* at least buds may also be formed in the dilatations on the ectodermal processes or vessels of the common test (see Pl. IV. fig. 13). Consequently the lateral budding can no longer be regarded, as it was by von Drasche, as a diagnostic feature of the Botryllidæ, although it is certainly the characteristic method of reproduction by gemmation in the family. The exceptional method found in *Sarcobotrylloides* will be discussed at length further on (see p. 59).