

spicules. Ectodermal processes well developed, and provided with muscle fibres.

Branchial Sac small, and not well developed. Rows of stigmata few, usually three or four.

Alimentary Canal united to thorax by a narrow neck. Stomach usually smooth walled.

Reproductive Organs placed alongside the intestinal loop. Male system consisting of a single large testis around which the first part of the vas deferens is spirally coiled.

Gemmation from the pyloric region; thorax and abdomen of the new Ascidiozoid formed from separate buds. Embryonic blastogenesis rudimentary only.

This is a clearly defined family, most of the members of which have a very characteristic appearance, which distinguishes them from all other groups of Compound Ascidi-ans.

The colony is in most cases, like that of most of the Botryllidæ, a flat expanded crust, which may be of any shape (*Leptoclinum*), and is usually of a pure white colour. In some cases, however, the colony becomes thickened to form a large rounded mass (*Didemnum*). It is never much elongated vertically. Common cloacal apertures are usually distinctly visible, and they may be of large size, but the systems are always irregular and difficult to trace.

The Ascidiozooids seem at first sight very like those of the Distomidæ, and Milne-Edwards classed the two groups together as "Didemniens." In both cases the body consists of two regions only, the thorax and the abdomen; and in the Didemnidæ, as in many Distomidæ, these regions are separated by a very narrow neck composed of the œsophagus, the rectum, and the vas deferens, surrounded by a covering of mantle. A more minute examination of the Ascidiozooids shows, however, that in the details of structure the Distomidæ and the Didemnidæ are not really closely allied. In the latter group the branchial sac is feebly developed, and has only three or four rows of small stigmata, while in most of the Distomidæ the branchial sac is large and well developed; the mantle also is characteristic in the Didemnidæ, and it gives off ectodermal processes or vessels which leave the body of the Ascidiozoid not at the posterior end of the body, as in most other Compound Ascidi-ans, but near the anterior end of the branchial sac, where it joins the branchial siphon, and in the neighbourhood of the posterior end of the endostyle. These vessels always contain muscle fibres continuous with those of the mantle, and appear to act, as von Drasche suggests,¹ as retractor muscles serving to change slightly the position of the Ascidiozoid in the investing mass. The vessels arising from the posterior end of the endostyle are provided with terminal knobs or bulbs.

The test or investing mass is usually gelatinous or cartilaginous, and its matrix is clear and structureless, but contains enormous quantities of spherical or stellate calcareous

¹ Die Synascidien der Bucht von Rovigno, p. 31, Wien, 1883.