The nerve ganglion and neural gland form an ellipsoidal opaque mass, placed in the mantle over the prebranchial zone. The aperture of the dorsal tubercle is immediately on the ventral face of this mass, and opens between the base of the dorsal tentacle and the anterior end of the dorsal lamina. It is a longitudinally placed slit with raised edges (Pl. XLII. fig. 13, *d.t.*). There is a very slight peritubercular area, but the tubercle really occupies nearly the entire breadth of the prebranchial zone. The region bounded by the peripharyngeal band (Pl. XLII. fig. 13, *p.p.*) is nearly as wide from side to side as it is dorso-ventrally.

The œsophagus commences at the dorsal edge of the posterior end of the branchial sac, and runs backwards to open into the large globular smooth-walled stomach (Pl. XLII. figs. 7, 8, 9, *st.*). The intestine, after leaving the posterior end of the stomach, curves round ventrally and then anteriorly in a wide open loop. It runs forwards to about the level of the œsophagus, and then turns dorsally at a sharp angle to become the rectum (Pl. XLII. figs. 7, 8, 9) which crosses the œsophagus and so reaches the dorsal edge of the branchial sac. The rectum contains dark-coloured fæcal pellets.

The reproductive organs were not well developed in any of the Ascidiozooids examined; but many of them showed buds in various stages of development (see Pl. XLII. figs. 7, 8). The method of budding is that first described by Macdonald, and since called pyloric budding by Giard. The thorax and the abdomen of the new Ascidiozooid arise as distinct buds[1] from the body of the parent (Pl. XLII. fig. 7, *br.s'.* and *st.*, *i'.*).

Diplosoma, Macdonald.

Didemnum, Milne-Edwards, Observations, &c., 1841.
Diplosoma, Macdonald, Trans. Linn. Soc. Lond., vol. xxxii. p. 373, 1858.
Diplosoma, *Pseudodidemnum*, and *Astellium*, Giard, Recherches, &c., 1871.
Pseudodidemnum, *Astellium*, Della Valle, Contribuzioni, &c., Napoli, 1877.
Diplosoma, von Drasche, Die Synascidien, 1883. In part.
Diplosoma, *Pseudodidemnum*, and *Brevistellium*, Jourdain, Comptes rendus, t. c. p. 1512, 1885.

Colony usually thin and incrusting, rarely thick.
Systems irregular. Common cloacal apertures rounded.
Ascidiozooids divided into thorax and abdomen.
Test soft and gelatinous, usually transparent, sometimes pigmented, never with calcareous spicules.
Branchial Sac large, with four rows of stigmata.
Alimentary Canal moderately large. Stomach ellipsoidal and smooth-walled.
Reproductive Organs close to the intestinal loop. Vas deferens straight.
Gemmation pyloric. Larva gemmiparous.

[1] Possibly the two buds may have a common origin from the œsophageal region, such as Jourdain has described in the case of *Diplosoma* (*Brevistellium*) *spongiforme* (*Comptes rendus*, t. c., No. 24, p. 1512, 1885).