

In *Ascidia* the heart lies upon the left side of the body, along the posterior edge of the stomach, while in *Ciona* it is also in close relation to the stomach, but runs more antero-posteriorly than in *Ascidia*, on account of the changed relations of the alimentary canal. In *Corella* the heart is placed comparatively far forwards, being situated upon the anterior border of the stomach, and consequently upon the right side of the body.

In *Clavelina* the heart is placed in the abdomen, and runs antero-posteriorly along the side of the stomach on its inner edge.

In the *Ascidie* *Compositæ* the heart varies somewhat in position in different groups, and, according to Milne-Edwards, is always in close relation to the generative organs. In *Botryllus*, where there is no abdomen developed, both heart and genitalia are situated close to the posterior part of the branchial sac, the heart being on the left side. In *Didemnum* and some allied forms, the heart runs alongside the stomach on the right side of the abdomen, while in *Amaroucium* and a number of other genera, the heart and the genital organs form a long projection, extending far beyond the intestine, and known as the post-abdomen.

In *Pyrosoma* the heart is placed towards the posterior end of the ventral edge of the branchial sac, and near the stomach.

In *Salpa* the heart is large, and is situated close to the visceral nucleus on its anterior and ventral sides.

In the *Appendiculariidæ* the heart only is known. It is a short sac placed upon the ventral side of the stomach, between the two lobes, and having longitudinal slits in its sides. Neither Huxley nor Fol have been able to observe blood corpuscles.

In the forms in which it has been most completely made out, the circulation is as follows:—A large vessel arises from each end of the heart (fig. 13, *h.*). One of these (*br.c.*), after giving off a branch to the test (*v.t'*), runs along the ventral edge of the branchial sac below the endostyle (*v.v.*), and gives off lateral branches which open into the transverse vessels (*tr.*) of the branchial sac, and thus distribute the blood to be aërated. The heart itself is in all probability merely the modified posterior end of this great ventral vessel. The trunk arising from the dorsal end of the heart (*c.sp.*) gives off first a branch to the test (*v.t.*), which turns towards the corresponding branch from the ventral vessel, and the two pass side by side through the mantle, to enter the test usually near the posterior end of the ventral side. In the substance of the test they break up into branches, which run alongside one another, and finally communicate in the terminal knobs (*t.k.*) of the ultimate twigs. The dorsal trunk then gives off branches to the mantle (*v.m.*), and ends by breaking up into a number of vessels for the stomach (*v.st.*), intestine, and reproductive organs.

The blood circulating in the mantle, the stomach, the intestine, and the reproductive organs is then collected by several vessels (*sp.br.*) opening into a large trunk (*d.v.*) lying along the dorsal edge of the branchial sac, and communicating with the dorsal ends of the transverse vessels of the sac. Thus, as Lacaze-Duthiers has pointed out, there are three