

The ventricle is pointed behind and in front, each point being the origin of an aorta, but the two aortæ are not in the same line, the anterior being oblique from the outside towards the axis (Fig. P, vii).

The cephalic or anterior aorta, properly so-called, is directed towards the head; its distribution has not been followed in the incomplete specimen of *Spirula reticulata* examined, but in *Spirula peronii* a principal branch passes (as in other Cephalopods) between the pedal and visceral centres (Pl. V. fig. 4, *ar.*). The short posterior aorta (Fig. P) gives off immediately to the left a recurrent branch ("anterior" aorta), which supplies the rectum, and at least in part the genital organs (this is a character of the Cegopsids, this vessel arising anteriorly and directly from the ventricle in the Myopsids; the disposition observed in *Spirula* and the Cegopsids is evidently primitive, the parts supplied by this artery being morphologically posterior). It then immediately arrives at the shell and bifurcates, giving, on each side of the shell, a pallial branch (Fig. P, iv), which continues as far as the terminal disk and fins.

The vena cava is situated quite ventrally, its terminal portion (posterior) being alone visible in the incomplete specimen of *Spirula reticulata* examined. It receives a trunk from the back, which traverses the bottom of the little visceral sac of the last chamber; this trunk comes from the reunion of the two veins arising from the sinuses surrounding the stellate ganglia, veins accompanying the commissure of this last, and its median nerve (Fig. N, iv and ii). At the back of the anus, under the junction of the visceral nerves, the vena cava divides into two branches directed backwards and towards the sides (Fig. S); each of them passes into a renal sac (see further on), these uniting to the corresponding abdominal vein (Fig. S, vi), which presents the enlargement characteristic of Decapods (Pl. VI. fig. 8, *v.v.*), then uniting further to the pallial vein (Fig. S, viii) in forming the branchial heart (Fig. S, vii). This last (Pl. VI. *br.h.*; Pl. IV. figs. 2 and 4, *br.h.*), flattened dorso-ventrally, carries a little ventral appendage directed towards the median line (Pl. VI. fig. 8, *br.app.*; Fig. S, iii), which in *Spirula peronii* appears villous (Pl. IV. fig. 4, *α*) like the pericardial gland of *Nautilus*, to which it morphologically corresponds. From the branchial heart arises the afferent branchial vessel, shorter on the right than on the left (Fig. S, ix) and passing to the surface of the visceral sac on the ventral side of the oviduct (Pl. IV. fig. 5, *br.α*). This afferent branchial vessel passes to the dorsal side of the branchial axis. The branchials, situated quite laterally almost near the dorsal surface, have already been described (see pallial cavity). The efferent branchial vessels occupy the ventral side of the branchial axis; on leaving the branchia, they pass before the afferent vessels which are parallel to them, then at the back of these last and the kidneys. That on the right side is much shorter than that on the left (as in *Ommatostrephes*, *Loligo*, &c., see Fig. P, i, and Pl. VI. fig. 8, *aur. aur'*); it is also more swollen, constituting an apparent auricle, whilst to the left the branchio-cardiac vessel is long with a tolerably constant diameter. The two trunks, contractile in