

V. EXCRETORY SYSTEM.

The visero-pericardial cavity occupies the posterior part of the body, on both sides of the central portion of the shell, which divides it almost completely into two halves, communicating with each other in front of the last whorl, this communication reaching a little backward in *Spirula peronii* between the penultimate and last whorl (Pl. III., *w'*, and Pl. IV. figs. 2, 4). This cavity encloses the heart and the ovary (the two specimens examined being females). The posterior portions of the stomach, although projecting into the visero-pericardial cavity, are situated outside of the "peritoneal" membrane, which bounds it (Pl. IV. fig. 4, *ptn.*). This cavity does not possess openings which communicate directly with the outside, as is the case with the cavity (cœloma) of *Nautilus*. The orifices observed in the Challenger *Spirula* (Pl. IV. fig. 2, *ab*; fig. 4, *b*; fig. 5, *w'*) have been recognised as being produced artificially.

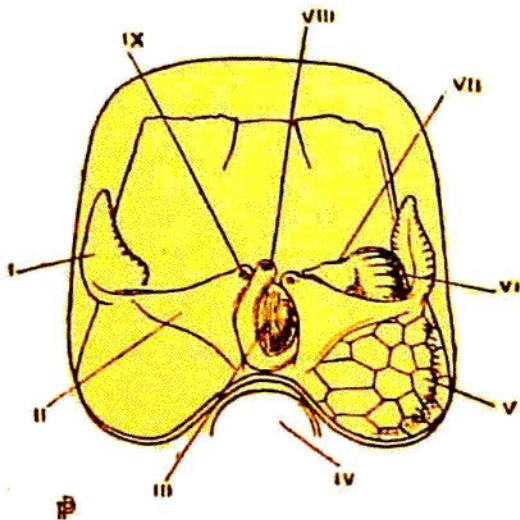


FIG. R.—Pallial cavity of *Spirula reticulata*, laid open, all the nidamental glands removed, ventral view; $\times 4$. i, gill; ii, kidney; iii, ink bag; iv, shell; v, eggs in the oviduct; vi, oviducal gland; vii, aperture of the oviduct; viii, anus; ix, external renal orifice.

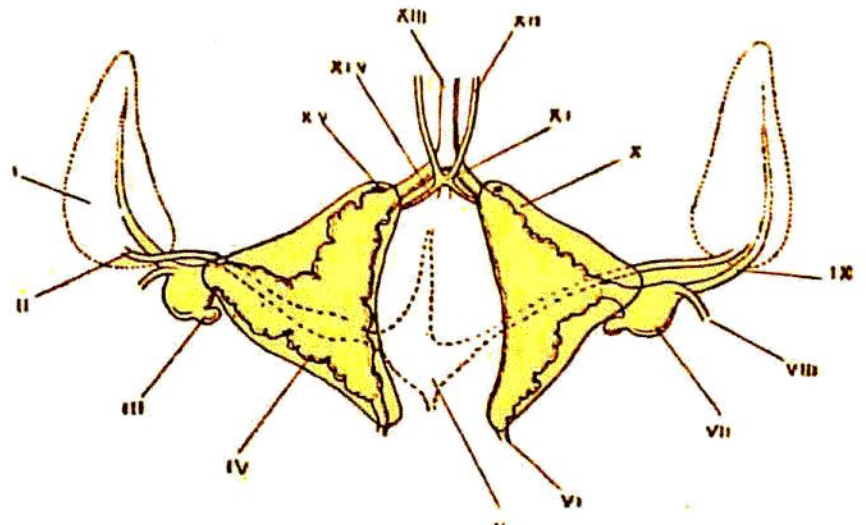


FIG. S.—Ventral view of the renal organs of *Spirula reticulata*; $\times 8$. i, gill; ii, branchio-cardiac vessel; iii, appendage of the branchial heart; iv, spongy body of the kidney; v, ventricle; vi, abdominal vein; vii, branchial heart; viii, posterior pallial vein; ix, afferent branchial vessel; x, point where the reno-pericardial duct opens; xi, junction of the two visceral nerves; xii, visceral nerve; xiii, vena cava; xiv, branchial nerve; xv, external aperture of the kidney.

The kidneys are found behind the nidamental glands on each side of the rectum, at the ventral surface of the visceral sac (Fig. R, ii). They are almost triangular in form and have no communication with each other.¹

The vena cava, as we have seen above, is divided at the back of the anus into two branches directed backwards; each one passes into a renal sac, and, joining the corresponding abdominal vein, form with it the afferent branchial vessel; the whole portion of

¹ Contrary to what Owen says, who speaks of a single renal sac (*Ann. Mag. Nat. Hist.*, ser. 5, vol. iii. p. 11).