

In each foot of the pereon the arterial blood courses as well by the anterior as the posterior rim of the side-plate. In the four first pairs the anterior stream supplies the side-plates and the accessory branchiæ (where such exist). The cavity of the side-plate is formed into three longitudinal canals, which on the lower rim unite, and besides communicate with one another by numerous cross canals. The arterial current flows down in the front and middle canals, while the venous current ascends in the hinder. The hinder arterial current of the foot passes partially into the branchiæ, partially into the foot itself, and partially into the lamella of the brood-pouch in the female or its homologue in the male. In the three last pairs of pereopods the front arterial current provides for the foot and its accessory branchia, the hinder sends its secondary currents into the branchia, the side-plate and the marsupial lamella. In the side-plate the current runs round beside the rim. [With this account should be compared Dr. Delage's account of the circulation in corresponding parts of *Talitrus locusta*.]

From each appendage of the pereon and pleon a single venous current proceeds. All these take their way to the dorsal side of the body-cavity and debouch in a spacious venous sinus, bounded below by the intestine and its adipose tissue, on the sides by the muscles of the back, and above by the back of the animal. [This Delage calls the pericardiac sinus, and assigns it a bounding membrane of its own, open only to the thirteen pairs of pericardiac vessels.] In this sinus, which lies over the hinder aorta and over the heart, a hinder and an anterior current are to be distinguished. The former flows from the hinder end of the body forwards to the third pereon-segment, the other has a backward direction and reaches the same segment. In the hinder current debouch the venous currents of the five last pereon-segments and of the whole pleon, to the anterior belong the venous currents of the antennæ, the head and the two first pereon-segments.

At the diastole the blood collected in the (pericardiac) sinus passes through the gaping ostia into the heart. This movement is helped by the upper wing-like muscles, as by their contraction the sinus in its horizontal and perpendicular diameter is contracted, and its two streams in this way are pressed towards the third pereon-segment, and rush with greater energy through the slits, the heart acting like a suction pump. The front slit takes only the blood of the front current, the hindmost of the hinder, the middle the leavings of both.

It thus appears that the arterial currents from the two aortas and their branches wash various organs of the body, as the intestinal canal and the nerve-centres, and then in full tide press into the articulated appendages, finally to quit them as venous currents and pass into the dorsal sinus. Wrześniowski found no direct bending round of the hinder arterial current into the dorsal sinus, such as Claus has described in *Phronima sedentaria*. The whole blood-content of the venous dorsal sinus passes, he says, direct into the heart, without previously traversing the branchiæ as Spence Bate states, *Sessile-eyed Crustacea*, i. p. xxxii. On the contrary the branchiæ receive their blood from the same arterial streams which supply the feet, and the contents of the venous dorsal sinus present a mixture of the blood returning from all parts of the body, which has been subjected not only in the branchiæ, but, at least partially, also in the antennæ, side-plates and legs, to oxygenation. A separation of the arterial and venous blood is therefore not arranged for.

The blood-plasma in young specimens of *Goplana polonica* appears of a yellowish-red colour, in adults of more or less greenish, sometimes even emerald-green hue. The body becomes paler, when the blood is drained away. The blood-corpuses in this species are of considerable size, consisting of a soft, granular protoplasm, in which clear, pseudopodial-like processes sometimes make their appearance. More or less numerous fat-drops in the plasma of the blood circulate with it throughout the body.