

The first pair are placed on the sides of the heart opposite to the second pair of legs; the second pair are placed similarly, but opposite to the third pair of legs; the third pair are found near one another at the posterior extremity of the heart. Through these three pairs the blood is admitted into the heart,<sup>1</sup> while it leaves it through a large opening placed at its anterior extremity. No aorta or arteries arise from it. In the heart of the specimens in spirits of *Nymphon robustum* and some other species I observed a compact mass of blood-plasm, which so totally filled up the cavity of the heart as to give, after having been taken out, an exact figure of its form.

As to the blood-corpuscles I only observed that they are, in *Nymphon* and *Colossendeis*, round and flat bodies with a distinct nucleus. However, I observed also more irregularly-shaped fusiform bodies, especially numerous in the cavities of the skin of *Colossendeis* (Pl. XVIII. fig. 1). With regard to their shape and dimensions there is no great conformity between the opinions of Cavanna and Dohrn; however, it is only the study of fresh material that can finally settle such controversies.<sup>2</sup>

6. *Genital Organs*.—About the testis of the Pycnogonids hardly anything is known; and this cannot be wondered at when one considers that the true males were only discovered by Cavanna in the year 1875, the animals with swollen thighs described as males before that period being really the females. However, even Cavanna does not seem to have correctly identified the male organs, for he places them in the fourth joint of the legs. Dohrn has been the first, and hitherto the only one, who has pointed out the true position occupied by the testis, “Die Hoden liegen im Körper der Pycnogoniden; nicht in den Beinen, und bilden dort jederseits einen Schlauch, welcher in jede Extremität seiner Seite einen kleineren Schlauch absendet, der an der obenerwähnten Stelle in einer runden Oeffnung endet.” This description, true in the main, is, however, not applicable to all the species of Pycnogonids; for, from what I have observed myself, I am able to furnish full evidence that, for some species, Dohrn’s description is not quite correct.

A large specimen of a male *Colossendeis proboscidea*, figured of the natural size in Plate XXI. fig. 10, has been opened on the dorsal side. The skin with the heart being removed, the testis is observed *in situ*, and the intestine may be distinguished below it; the male organ, therefore, is placed rather at the dorsal side of the body.

The two laterally and longitudinally running parts of the organ are united posteriorly

<sup>1</sup> From observations I made, in the summer of 1880, in the laboratory of Prof. Lacaze-Duthiers at Roscoff.

<sup>2</sup> Cavanna calls them “piccolissimi globuli ellitici o sobellittici.” Dohrn, on the other hand, describes the blood-corpuscles as “ungewöhnlich gross und complicirt.” According to Dohrn, there are two forms of blood-corpuscles—“die einen bilden einen blassen, suzammengfalteten Ballon, in dem ein etwas glänzenderer linsenförmiger Kern sich findet neben 3–4 grossen Vacuolen; die anderen sind deutliche Amöben, mit lebhaften amöboiden Bewegungen und umschliessen oder tragen eine grössere Anzahl glänzender Tröpfchen.” It seems to me that the large balloon-forming elements come very near to my fat cells (see p. 127); and as to the amœboid corpuscles, these are probably my fusiform elements and the elliptic ones of Cavanna. If Dohrn is right about his large blood elements, then the animals must have still others of a third form.