

not quite separated pairs of ganglia. Finally, Dohrn states in the same paper that besides the five (six) double ventral ganglia there are two others, which, however, in some genera, totally disappear, and in other genera are preserved only in a rudimentary condition. Accordingly, Dohrn observed immature stages of *Phoxichilus*, in which, behind the sixth ventral ganglion, were present two distinctly separated, although much smaller, pairs of long ovate ganglia. Of these the first pair gives off no nerve, and the second pair the two nerves for the abdomen.

For my observations with regard to the nervous system of the Pycnogonids, I made use of the following specimens from the material of the Challenger Expedition:—one of *Nymphon hamatum*, one of *Nymphon brachyrhynchus*, two of *Nymphon brevicaudatum*, Miers; numerous specimens of *Nymphon robustum*, Bell; one of *Colossendeis leptorhynchus*, one of *Colossendeis megalonyx*, and one of *Colossendeis proboscidea*, Sab.; finally, one of *Phoxichilidium pilosum*. What I tried to ascertain in my investigations was, in the first place, the innervation of the cephalic appendages and of the proboscis, in the second place the structure of the first thoracic ganglion, in the third place that of the last thoracic ganglion, and the presence or absence of the two rudimentary abdominal ganglia. In how far I have been successful in this may be judged from the following:—

The nervous system consists in all species of Pycnogonids of a supra-oesophageal ganglion, an oesophageal commissure, and five (seldom four) thoracic ganglia. The supra-oesophageal ganglion is situated in the cephalothoracic segment; however, its place varies greatly with the form of the segment, and therefore it even shows small differences in the different species of one genus. The differences in the different genera are more considerable. In the genus *Nymphon* it is, as a rule, placed towards the hinder extremity of the cephalic part of the cephalothorax, below the oculiferous tubercle, and above the insertion of the two ovigerous legs. In the genus *Colossendeis* this ganglion is found nearly in the middle of the cephalic part of the cephalothoracic segment, which part is usually separated (distinctly in *Colossendeis leptorhynchus*, e.g.) from the remaining part of the segment by means of a constriction; the oculiferous tubercle is here exactly above the ganglion. In *Phoxichilidium* the ganglion is found also above the insertion of the ovigerous legs; but the oculiferous tubercle is in most species of this genus situated quite anteriorly, on that part of the cephalothoracic segment which overhangs the proboscis. As a rule the shape of this ganglion is round (Pl. XVIII. fig. 6), but in *Colossendeis* the comparatively small ganglion is much broader than long (Pl. XVIII. fig. 4). Whereas, in the other genera the two oesophageal commissures are very short, run parallel to each other, and enclose a narrow canal through which only the oesophagus passes (Pl. XVIII. fig. 11 C.), in *Colossendeis* (I observed it in *Colossendeis leptorhynchus*, Hoek, and in *Colossendeis proboscidea*, Sab., sp.) this canal is very wide (Pl. XVIII. fig. 4), the commissures which connect the supra-oesophageal ganglion with