2. The cerebro-brachial connective may be either (i.) adventitious or (ii.) primitive.

(i.) It is impossible to deny the tendency of neighbouring ganglia, when they are homonymous or successive, to become united by nervous threads. On considering, for example, a large number of Streptoneura, it will be seen that the left anterior visceral ganglion (subintestinal, left pallial, or parietal ganglion) is united by a connective to the right pleural ganglion, with which it has really nothing to do (*e.g.*, *Cassidaria*).[1]

In *Natica* the propedal ganglion is not united to the cerebral ganglion; in the female *Nautilus* the ganglion which innervates the internal labial tentacles[2] (which does not represent, it is true, the whole brachial ganglion of a Dibranchiate, but nevertheless corresponds to a part of it) has also no cerebral connective. It might possibly be said, then, that the cerebro-brachial connective of the Dibranchia is only an adventitious arrangement.

(ii.) This connective may, however, be a primitive structure, and represent an anterior part of the original cerebro-pedal connective, which the brachial ganglion has carried along with it on its separation from the pedal ganglion.

Grobben[3] regards this connective as a detached part of the primitive cerebro-pedal connective, and I share his opinion; but I may remark that there is a contradiction in Grobben's view, according to which the brachial ganglion should be a detached part of the cerebral ganglion, since then two parts of the cerebral ganglion would be joined by a *cerebro-pedal* connective.

If, however, I regard the union of the brachial and cerebral ganglia of a Dibranchiate as primitive in the same way as the union of the brachial and pedal ganglia, I must remember that the first union is brought about by a simple connective and the second by the central ganglionic substance, which is a very different matter.

VI. Great importance has been attributed to the supraœsophageal commissure which connects the two brachial ganglia in *Eledone*,[4] and it has been regarded as a clear proof that the brachial ganglia were primitively supraœsophageal.[5]

This commissure has only been recorded by Dietl, and only in *Eledone*. I have seen it neither in *Sepia*, *Loligo*, nor other Decapods; and I may further remark that the infra-œsophageal commissure between the brachial ganglia existing in *all* Cephalopods is much

[1] Spengel, Die Geruchsorgane und das Nervensystem der Mollusken, *Zeitschr. f. wiss. Zool.*, Bd. xxxv. pl. xvii. fig. 4, *s*.

[2] Owen, Memoir on the Pearly Nautilus, pl. vii. fig. 1, *8*.

[3] Zur Kenntniss der Morphologie und der Verwandtschaftsverhältnisse der Cephalopoden. *Arb. Zool. Inst. Wien*, Bd. vii. p. 69.

[4] Dietl, Untersuchungen über die Organisation des Gehirns wirbelloser Thiere, *Sitzungsb. d. k. Akad. Wiss. Wien*, Bd. lxxvi. pl. v. fig. 23, *ctr*.

[5] Grobben, *loc. cit.*, p. 69.