

This nerve is furnished with fibres directly passing downwards out of the medullary nerve (Pl. XII. fig. 9; Pl. XV. fig. 1); it is situated below this, and is entirely parallel to it.

In one case of a very large specimen of *Cerebratulus* it appeared in its turn to be splitting up into two parallel nerve-stems. This proboscidian sheath-nerve more especially deserves its name because of its situation immediately above the muscular wall of the proboscidian sheath, into which it may be seen to give off fibres. It is not noticed in *Carinina*, *Carinella*, or the Hoplonemertea, but it is in *Carinoma*, *Eupolia*, and all the Schizonemertea. Its absence in the two first-named genera would appear unaccountable if we did not remember that in both of them the proboscidian sheath is of hardly any importance, being extremely thin-walled (*cf.* Pl. II. figs. 4-7). And in this case it is all the more natural that in the œsophageal region of *Carinoma* it has become specially developed, being here even thicker than the medullary nerve, and about as thick as the lateral nerve-trunks of this species (Pl. XI. fig. 6). This is another example of sudden increase of a portion of the nervous system, and at the same time of the existence of a very marked degree of supremacy to which certain apparently subordinate parts of the organism may all at once attain. This unexpected change of size of the proboscidian sheath-nerve in one species is certainly a valuable fact for a hypothesis that will in a further chapter be enunciated (p. 133), according to which the possibility of a decrease in size of the lateral nerve-trunks is supposed to have been accompanied by an increase in significance of the medullary nerve.

The fact that in this region of *Carinoma* the proboscidian sheath-nerve comes into the foreground so strongly that it might easily be mistaken for the medulla, may probably be ascribed to the massive development of the inner circular muscular layer δ , which in *Carinina*, *Carinella* and *Carinoma* acts at the same time as part of the wall of the proboscidian sheath. The fact was already noticed as a peculiar feature of the species by M'Intosh (XXIV), when he first described *Carinoma* (under the name of *Valencinia armandi*).

That a proboscidian sheath-nerve is wholly absent in the Hoplonemertea is still more easily accounted for. From the moment the brain and longitudinal trunks of the ancestral Hoplonemertea were no longer lodged in the midst of the muscular tissue of the body-wall, but have come to be situated within the gelatinous tissue that fills up the space inside this muscular body-wall, not only has the plexus disappeared and been replaced by the remaining metameric nerves described above, but at the same time the innervation of the proboscidian sheath has altered. This innervation is now brought about by the peripheral and metameric nerves, which, in favourable cases (*Pelagonemertes*, &c.), may be seen to send fine twigs into the muscular tissue of that wall. With this freer development of the peripheral nerve-system, the special arrangement by which the innervation of the proboscidian sheath is brought about, as long as the nerve-sheath is the source from which all peripheral nerve-fibres take their origin, has at the same time disappeared.