

In all Nemertea, to whatever order or genus they may belong, there is one muscular layer that is always present. This layer may, indeed, be looked upon as identical throughout the whole series, and consists of longitudinal muscle-fibres. It is the longitudinal layer of *Cephalothrix*, in which genus definite or conspicuous circular layers sometimes appear to be absent (Pl. XI.); it is the only longitudinal layer of the Carinellidæ—the longitudinal layer of muscle-fibres in the integument of *Carinoma* not being here taken into account, as indeed belonging to another system—and it is the so-called inner longitudinal layer of *Polia*, *Valencinia*, and of all Schizonemertea. In Pl. XI. this layer has uniformly been lettered α . I hold it to be the most primitive of all the Nemertean muscular layers, both on account of its constant presence and on account of the fact that in the posterior region of the body, where growth in length of the animal takes place, it often appears before the other layers that are present in addition to it in the anterior region of the body.

The layer second in importance to it (morphologically speaking) is a layer of circular fibres marked β , of very varying thickness, and which in the Carinellidæ and the Hoplonemertea is immediately subjacent to the basement membrane, and external to the layer α . The very outermost fibres of this circular layer often take a different course, making an angle of about 45° with the longitudinal body axis, instead of being perpendicular to it. This, then, being the case in two directions, a decussation of this exterior portion of the layer, especially in Hoplonemertea and Carinellidæ, is often noticed.

Outside of the circular layer β there is in the Schizonemertea and in *Polia* and *Valencinia* the outer longitudinal layer γ , sometimes exceeding in thickness the two layers just noticed, and offering very varying conditions as to the compactness of its bundles. In most cases it remains entirely distinct from the two thin epiblastic muscular layers (see pp. 57 and 60) that make their first appearance in *Carinoma*, and are very generally present in *Polia*, *Valencinia*, and the Schizonemertea (Pl. VII. figs. 5, 9, *cf*; Pl. XIII. fig. 6, *Ilcm*). In some of the latter, however, a fusion occurs between the outer bundles of the longitudinal muscular layer γ , and those that are decidedly of integumentary origin and significance, as was already noticed in discussing the integument. It needs no explanation that these latter species offer more difficulties in rightly interpreting the relations between muscular system and integument than many others (Pl. X. fig. 7; Pl. XII. fig. 10).

The difference in compactness just alluded to is often dependent upon the degree of development of the deep glandular layers of the integument. Sometimes these glands penetrate the whole depth of the muscular layer, reaching as far down as the nervous stratum (Pl. XII. figs. 2, 10); sometimes the muscles are kept further apart by the gelatinous ground substance, as was more fully discussed in a preceding paragraph. *Eupolia* may on the whole be cited as an example in which the degree of compactness of