

situated of the two latter layers of similar though much shorter glandular cells (Pl. IV. fig. 1 ; Pl. VI. fig. 2, *E*), immediately contiguous with others of a larger size, makes it a subject for inquiry whether these are connected by transitional forms to those larger ones which form the layer we are now describing. This involves the not unimportant question, whether the glands constituting this layer are or are not unicellular. While I am inclined to accept the latter proposition, I feel that the question can only be solved by the aid of a careful inquiry into fresh specimens.

The layer external to the glandular is one in which very numerous and deeply stained nuclei are heaped together. These nuclei occupy several rows in one section. The same may be said to apply, as will be indicated further on, to the corresponding layer of deeply staining nuclei in the integument of the Hoplonemertea.

The very outermost layer bearing the cilia clearly contains, in *Carinina*, the same elements as will be described more in detail (*vide infra*, pp. 58, 61) for the Schizonemertea, *i.e.*, nervous end-cells, alternating with supporting cells, "Stützzellen."

This layer, containing fewer nuclei and less granular protoplasm, is more transparent in transverse sections, and distinguished by fine radial striæ, indicating the boundary lines between the contiguous cells. The four layers here described are not equally distinct in all sections, nor are they equally well marked in all the sections figured. Thus, for example, in fig. 4 of Pl. III. the glandular layer is feebly developed, and the two external layers are so indifferently preserved that their distinctive character, just described, fails to attract attention. The chief points enumerated can, however, even there, be easily ascertained. The partial absence, or, at any rate, temporary indistinctness of these gland-cells in certain portions of the integument can also be observed in tangential sections, such as the one of Pl. III. fig. 8. There, too, the groups of glandular cells to the right and the left are separated by a band of integument, in which they are decidedly absent. The same figure shows the different ways in which the contents of these gland-cells react on staining agents ; those to the right in this section have decidedly yellowish contents, whereas the contents of the group on the left had a deep carmine tint.

This description of the integument of *Carinina* must now be followed by that of *Eupolia*, the only other genus of Palæonemertea contained in the Challenger collection. The interesting genera *Carinella*, *Cephalothrix* and *Carinoma*, are not represented in those collections and certain intermediate characters displayed by these genera, which serve to justify the identification of the different layers, which as I am going to propose can only be touched upon as far as they elucidate the phenomena. This I will defer till after the detailed description of the integument of *Eupolia*.

Instead of four layers it would not be difficult to distinguish eight in the integument of this genus, not all of them separately and clearly represented in every section, but sometimes (*e.g.* Pl. VII. fig. 5, 9) sufficiently distinct. This arrangement may be looked upon as a further differentiation of an earlier phase, corresponding to that of *Carinina*,