

Here, again, its generally homogeneous character, with the addition of the same cellular and fibrous inclusions (intermediate stages between the two being similarly represented) as were noticed above, gives it an aspect similar to the corresponding tissue in the other groups of Nemertea.

It cannot be denied, and has been already noticed above, that from a morphological point of view there are certain strong points of resemblance between the gelatinous tissue of the Nemertea and the jelly of the Medusæ. I was very desirous to know whether this would also apply to the chemical constitution, and owing to Professor Krukenberg's kind aid I am now able to make definite statements on this head. Having sent him a small quantity of the Nemertean jelly, he kindly examined it and writes as follows:—

“In accordance with your desire I have attempted, as far as it is possible, chemically to solve the question, whether the jelly of the Nemertea is more closely allied to that of the Medusæ or to the collagenous substances, such as I have with certainty demonstrated in *Sipunculus nudus*. (Vergl. physiol. Studien., i. 1882). As collagenous tissue is digested by trypsin, *only* in case of its having before been treated with acids or been boiled with water (Ewald and Kühne), I tested the reaction of the Nemertean jelly towards this ferment. It proved to be very easily digested by trypsin, and would thus have to be regarded as a true proteid substance. Wholly in accordance with this result is the intense red colour which the tissue acquires when boiled with Millon's reagent; whereas, on the contrary, tissues that contain more collagen are only faintly stained, and pure collagen is not stained at all by Millon's reagent. Moreover, the Nemertean jelly is not acted upon as are the collagens ('leimgebendes Gewebe') by boiling water, nor does it furnish, when treated with diluted acids and soda, such reducing solutions as are the so-called mucins (Hyalogene, mihi). The Medusa-jelly consists of true proteid bodies.¹ A similar substance is the vitreous body of the eye of vertebrates, and I am thus fully prepared, after the experimental results obtained, to agree with you in regarding the Nemertean jelly as an analogous product to the jelly of the Medusæ, and similarly of an albuminoid nature.”

We now pass to a discussion of the muscular layers. We will first discuss the general distribution of muscular tissue, and reserve histological remarks for the conclusion.

In discussing the muscular layers of the body-wall of the Nemertea, considerable confusion still obtains in the writings of most of the older authors, and I must confess that it took me a long time to see my way to a safe basis of comparison of the layers, that may sometimes be only one, sometimes no less than five in number, three or two being also very common occurrences. An outline of the homologies of the muscular layers was given by myself in the article Nemertea in the recent edition of the Encyclopædia Britannica, and in the views there propounded I have no changes to make, only certain further additions have been rendered possible by the aid of the Challenger material.

¹ Krukenberg, Vergl. physiol. Studien., ii., 1 Abth., pp. 23–34.