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## 2. *Nectonemertes japonica*, a new Nemertean.

By Eleanor A. Foshay.

(With 3 figures.)

eingeg. 5. Mai 1912.

In 1906 Dr. Harold Heath secured from Mr. Alan Owston in Yokohama, Japan, six specimens of a new species of the peculiar nemertean genus *Nectonemertes*. Two of these are badly mutilated, but the others, originally preserved in formaldehyde, are in a good state of preservation, and furthermore are so constant in their plan of organisation, and at the same time so distinctly different from other known species that a brief description is given in the following paragraphs. The only other species taken in the Pacific is *N. pelagica*, off the coast of California, and while it bears a superficial resemblance to the species under consideration there are several marked differences that serve to distinguish them.

From the data supplied by several authors it would appear that the members of this genus are free swimming though nothing accurate is known concerning the depth at which they occur. Verrill<sup>1</sup> especially has called attention to the fish-like shape of the body that appears to be an adaption to a pelagic existence; Joubin<sup>2</sup> speaks of one captured in a vertical net; and the one described by Cravens and Heath<sup>3</sup> gives evidence of living between intermediate depths and the surface. The species under consideration was taken in the vicinity of Misaki, Japan, but no depth is recorded, and accordingly we are left in ignorance concerning their mode of capture and their habitat. It is interesting to note however that they were associated with several hydro-medusae and pteropods, and consequently appear to have been captured with some close mesh net and not with a dredge, but such indications are a slender reed to rest upon in deciding whether the species is truly pelagic.

<sup>1</sup> The Marine Invertebrates of New England. Trans. Conn. Acad. Vol. 8. 1892.

<sup>2</sup> Note sur une nouvelle Némerte pélagique (*Nectonemertes grimaldi*). Bull. Mus. océanograph. Monaco. No. 20. 1904.

<sup>3</sup> A new species of *Nectonemertes*. Zool. Jahrb. Abt. f. Anat. u. Ontog. Bd. 23. 1906.

In a preserved state the specimens are yellowish white and sufficiently translucent to enable one to distinguish the more important systems of organs. The chief measurements are, total length of body 2.3 cm, length of head at level of cirri 5 mm, greatest width of head 5 mm, greatest width of body 7 mm, length of cirri 4 mm, thickness of head and body 2 mm.

The epithelial covering of the body was entirely lacking, having become dislodged probably as it was brought to the surface. The stratified basement membrane exists with essentially the same characteristics that are met with in *N. pelagica*. The body wall, with its outer circu-

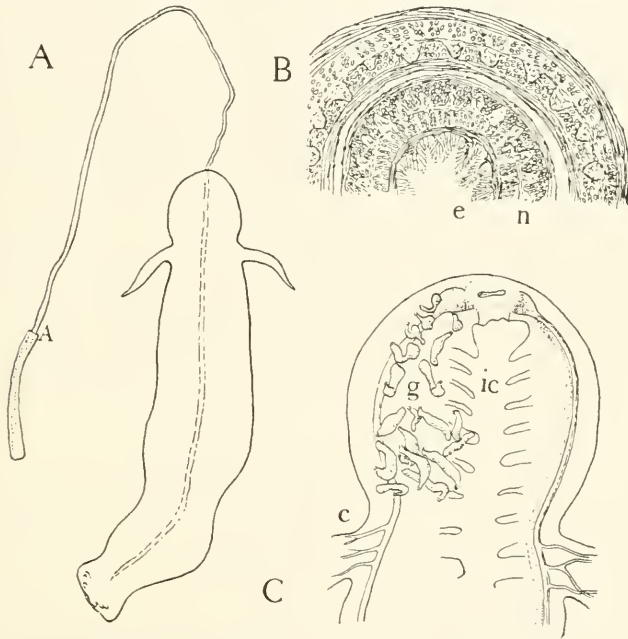


Fig. 1 A. *Nectonemertes japonica*  $\times$ . — B. Section through partially evaginated proboscis (terminal portion in A). *e* glandular epithelium with connective tissue layer beneath, outside of which are longitudinal muscles divided by nerve plexus (*n*); beyond this is the circular layer covered by epithelium. In the outer proboscis tube the layers occur in inverse order. — C. anterior end of body, showing mouth, coecum (*ic*), reproductive glands (*g*), blood vessel (stippled out line), brain and ganglionic cords some of whose fibers enter the cirri (*c*).

lar and inner longitudinal and indistinct diagonal sheet of muscles, is likewise similar in the two species.

In Verrill's specimens of *N. mirabilis* mention is made of the proboscis, and it is represented in his figures, but no mention has ever been made regarding its histological characters. In other species captured

subsequently there is likewise no description bearing on the subject. In some instances, at least, this has been due to the fact that this organ has been dislodged, owing possibly to rough handling in the trawl or dredge or to violent muscular contractions on the way to the surface. In two of the specimens in hand the proboscis is intact, and in one case is almost completely extended. This last named example was carefully cleared, and subsequently the proboscis was completely sectioned, but there is absolutely no trace of any stylet. It is possible that such a structure may have disappeared, owing to decomposition of the formaldehyde, but this would not remove the muscular or connective tissue to which it is attached in other metanemertean. From first to last the proboscis is a circular tube, without special modifications.

In cross sections the proboscis conforms closely to the metanemertean type. The external epithelial covering is faintly distinct here and there as an excessively thin sheet, but its finer details are not sufficiently marked to warrant a description. Beneath this layer is the longitudinal set of muscles separated into two divisions by the nervous layer. The outermost division stains more darkly than those of the outer division, but otherwise there appears to be no essential difference between them. The proboscicial nerves, numbering approximately 22, are fairly well defined in certain localities, and the fibers passing from them form the usual plexus. The inner layer of circular muscles is well defined in the forward division of the proboscis, but in the succeeding glandular section it is absent or reduced to a very few fibers more or less buried in the connective tissue stroma that supports the lining, glandular epithelium. This last named layer has been dislodged in most places, and the component cells are accordingly ill-defined. They agree however in being slender elements, with sub-central nuclei, and distally contain quantities of a darkly staining secretion after treatment with Delafield's haematoxylin. The lining epithelium of the anterior, non-glandular section of the proboscis consists of a thin sheet of cells, without distinct boundaries, resembling closely those bounding the outer proboscicial surface.

As in other species of the genus the digestive tract conforms to the metanemertean type. The mouth is distinct from the proboscis, but in the position of the stomach, pylorus and intestine with its anterior coecum the resemblance is decided. The mouth cavity is comparatively large, though its highly folded walls obliterate the lumen to some extent, while the oesophagus is extremely limited in length. Posteriorly this leads into a stomach of slender outline that about opposite the level of the posterior border of the cirri unites with the intestine. This last named organ bears a close resemblance to what exists in *N. pelagica*,

the most apparent difference being that the coecum bears eight pairs of diverticula while there are six in *N. pelagica*.

The nervous and circulatory systems resemble very closely the California species and demand no especial description.

Concerning the reproductive system there are some features that appear to be of specific value. Heath and Cravens have shown that the so-called cephalic glands are in reality reproductive organs, and in every specimen examined by them they proved to be testes. The same is true in the present instance. Every one of the six specimens are males, and we are left to imagine the habits and the habitat of the females which appear to be considerably different from those of the male. Each testis is a sac with a short neck communicating with the exterior. The developing sex products have the same origin as in *N. pelagica* and are seemingly as abundant, but in every individual the outline of every one of the glands presents an irregular, shrunken appearance and highly different from the globular type occurring in other species.

*Nectonemertes japonica* is more closely related to *N. pelagica* than to any other species of the genus now known, but comparing carefully examples of each several minor differences appear. Whether these are of specific value cannot be decided without a larger series of specimens, but for the present the shape of the gonads, their smaller number and the number of diverticula on the intestinal coecum are sufficiently constant and well marked to separate the species.

### 3. Parasitische Copepoden auf Coregonen.

Ein Beitrag zur Kenntnis der parasitischen Copepoden  
der Schweiz.

Von Dr. F. Baumann, Bern.

(Mit 2 Figuren.)

eingeg. 7. Mai 1912.

Die vorliegende Mitteilung bezieht sich auf parasitische Copepoden, die in den Kiemen und auf der Haut von Coregonen aus Schweizer Seen beobachtet worden sind. Es handelt sich um drei Arten, von denen zwei neu und die dritte auch erst im Jahre 1908 durch Neresheimer näher bekannt wurde.

#### 1. *Ergasilus surbecki* n. sp.

Die Exemplare dieser Art stammen z. T. aus dem Zugersee, z. T. aus dem Neuenburgersee und wurden mir von den Herren Dr. G. Surbeck, eidgenössischer Fischereiinspektor in Bern, und Prof. Dr. O. Fuhrmann in Neuenburg zur Bearbeitung überlassen. Die Tiere traten nur im Zugersee epidemisch auf, wo sie in den Kiemen der Wirtstiere

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