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HIRUDINEA.

BY

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LITTLE is known of the Hirudinea of the Antarctic and Subantarctic Zones. The leeches collected by the "Terra Nova" Expedition were therefore not likely to be wanting in interest; and in fact, although few in number and representative of but one species, this species proves to be a new one and referable to a new genus of Ichthyobdellidae.

According to information sent with the material this leech is a fish parasite, the seven specimens having been taken at the Winter Quarters, Victoria Land, on two occasions (May 10th and May 16th, 1911), from the gills of fishes of the genus *Trematomus*, probably either *T. hansoni*, or *T. bernacchii*, both of which are widely distributed on the coasts of Antarctica.

I proceed to give a short diagnosis of the new Ichthyobdellid genus together with a description of the new species on which it is founded.

SUB-ORDER RHYNCHOBDELLAE

FAMILY ICHTHYOBDELLIDAE

CRYOBDELLA, gen. nov.

[κρυος, icy cold; βδελλα, leech.]

Small marine leeches parasitic on the gills of fish. Without eyes. Body fusiform, little flattened, smooth. Without pulsating vesicles. "Complete" somite formed of three rings which in the posterior part of the body are sub-divided into six. Last pair of crop caeca partly fused together. Four pairs of testes.

CRYOBDELLA LEVIGATA, sp.n.

Body long, slender and tapering from the slightly swollen middle portion towards either extremity: oval and tending towards the circular in transverse section. The surface is smooth without tubercles or papillae, and the colour, in alcohol, is of a uniform brownish grey, above and below, unrelieved by spots or other special markings.

Anterior sucker small, circular and narrower than half the greatest width of the body. The mouth-opening perforates the upper surface of its interior cup at a point situated about midway between the centre and the somewhat thickened rim.

Posterior sucker large and powerful, slightly oval, centrally attached and broader than the body at its widest part.

There are no eyes and no lateral pulsating vesicles.

A well-marked clitellum is present, its terminal rings being separated from the annuli contiguous to them by exceptionally deep grooves.

There are normally 14 rings between the anterior sucker and the clitellum, but in one individual 15 annuli could be counted, an extra ring apparently having been split off from the anterior sucker.

The clitellum comprises 8 rings and is followed by 39 annuli, each of which is distinctly divided into two by a shallow groove, representing an intermediate stage in ring multiplication not infrequently seen in Hirudinea.

Thus there are, in all, 22 single annuli followed by 39 double ones, behind the anterior sucker.

The anterior half of the 39th (double) ring is the last completely to encircle the body.

In the absence of external metameric features, the ventral ganglia were exposed and the somites plotted out, as seen in Fig. 1, according to the now generally adopted neuromeric standard.

The typical or "complete" somite is composed of three "primary" rings which, as already stated, are sub-divided in the posterior region so that six "secondary" rings can there be counted, a condition similar to that seen in the abdominal "complete" somites of *Calliobdella*. The clitellar somites, as is usual in the Ichthyobdellidae, are modified in response, it would seem, to the comparatively bulky reproductive organs crowded within them, which tend to displace the ventral ganglia involved.

Somite XI contains but two annuli, and the anterior third of Somite XIII (contained within the clitellum) appears to show the final stage in the history of a double ring, the dividing groove, originally shallow, having deepened sufficiently to produce two definitely single rings.

The alimentary tract is shown in Fig. 2. The proboscis is relatively short; the intestine leaves the crop (stomach, thin-walled middle gut) in Somite XIX, tapering gradually to the anus, which opens in the middle of the antepenultimate double ring; and special mention must be made of the last pair of crop diverticula or caeca, which extend posteriorly beneath the intestine throughout nearly the whole of its length.

The extent of fusion, if any, which may exist between these caeca has been regarded by Johansson (1898), in a valuable paper, as of considerable diagnostic importance in the Ichthyobdellidae, and he cites a series of stages ranging from

Abranchus, where the caeca are entirely free, to *Pontobdella*, where the fusion between them is complete and results in a single large caecum. In *C. levigata* the fusion referred to is not quite complete, the ends of the caeca are free for a short distance and there are indications of another gap between them anteriorly.

The reproductive organs (see Fig. 2) are of fairly simple structure. The large and globular terminal portions of the ejaculatory canals open into a short bursa which ends exteriorly in the male orifice; and a curious feature consists in the reduction of the number of testes to four pairs.

The male genital orifice is situated in the middle of ring 18, that is, in the first ring of Somite XII. The female orifice lies between rings 19 and 20, which form respectively the second and third rings of the same somite. There is no copulatory area of the kind described by Brumpt (1901) in *Piscicola* and *Cystobranchus*, and the female organs bear a general resemblance to the *Glossosiphonid* type.

The coelomic system shows the simplification associated with the absence of lateral pulsating vesicles. As far as could be ascertained, there are no lateral sinuses or segmentally recurring communications between the dorsal and ventral sinuses. A more definite pronouncement would be unwise in view of the limitations of the material.

Of the nephridial system for the same reason, little can be said. No internal openings could be detected and no information could be gathered regarding the type of nephridial network, of which some indications were apparent.

Size. The following measurements were taken from the largest individual in the collection.

Total length 29 mm; greatest width of body 3·5 mm; diameter of anterior sucker 1·5 mm; length of posterior sucker 4·5 mm; width of posterior sucker 4 mm.

Our knowledge of the Ichthyobdellidae is still in an unsatisfactory state.

In this family of Hirudinea perhaps more than in any other, an analysis of the external characters alone has been found to be insufficient for the discrimination of genera, and many of its more delicate members are extraordinarily difficult to preserve with all their diagnostic features intact.

There are a number of Ichthyobdellid genera which have not been fully investigated, and although *Cryobdella levigata* presents a group of features hitherto undescribed, it is not without hesitation that I have called into being another new genus in which the internal structure has not been completely worked out.

LITERATURE.

JOHANSSON, L.—1898. "Einige systematisch wichtige Theile der inneren Organisation der Ichthyobdelliden."—Zool. Anz., XXI, p. 581.

BRUMPT, E.—1901. "Réproduction des Hirudinées."—Mém. Soc. Zool. de France, XIII, p. 286.

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EXPLANATION OF PLATE.

FIG. 1.—*Cryobdella levigata*, from an example preserved in alcohol, × 3. The body has been twisted so as to show part of the ventral surface anteriorly and part of the dorsal surface posteriorly.

FIG. 2.—Outline drawing of the same, life size.

FIG. 3.—*Cryobdella levigata*. Diagram showing external features and ventral nerve-ganglia. Somites numbered in Roman, and rings in ordinary figures. *an.* Anus. *clit.* Clitellum. *c.oe.g.* Circumoesophageal ganglionic mass. *mth.* Mouth. *p.g.* Posterior ganglionic mass. *v.g.* Ventral ganglion.

FIG. 4.—The same. Diagram showing the reproductive and alimentary systems. *an.* Anus. *cae.* Caeca. *clit.* Clitellum. *cr.* Crop. *ej.c.* Ejaculatory canal. *int.* Intestine. *mth.* Mouth. *ov.* Ovary. *prb.* Proboscis. *te* 1, *te* 4. First and fourth pairs of testes. *tp.* Terminal portion of ejaculatory canal.

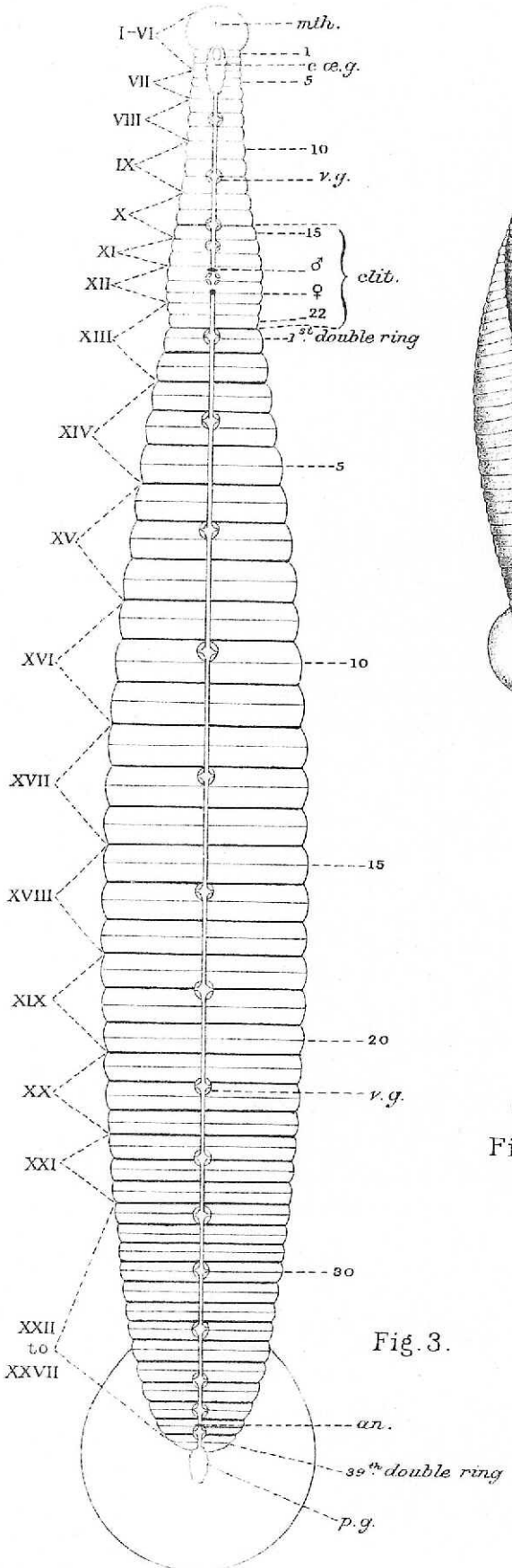

Fig. 3.

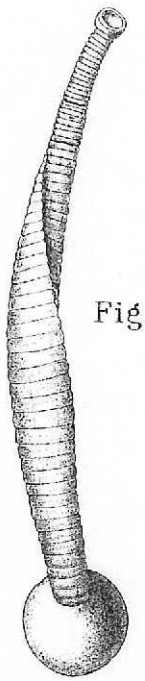

Fig. 1.

Fig. 2.

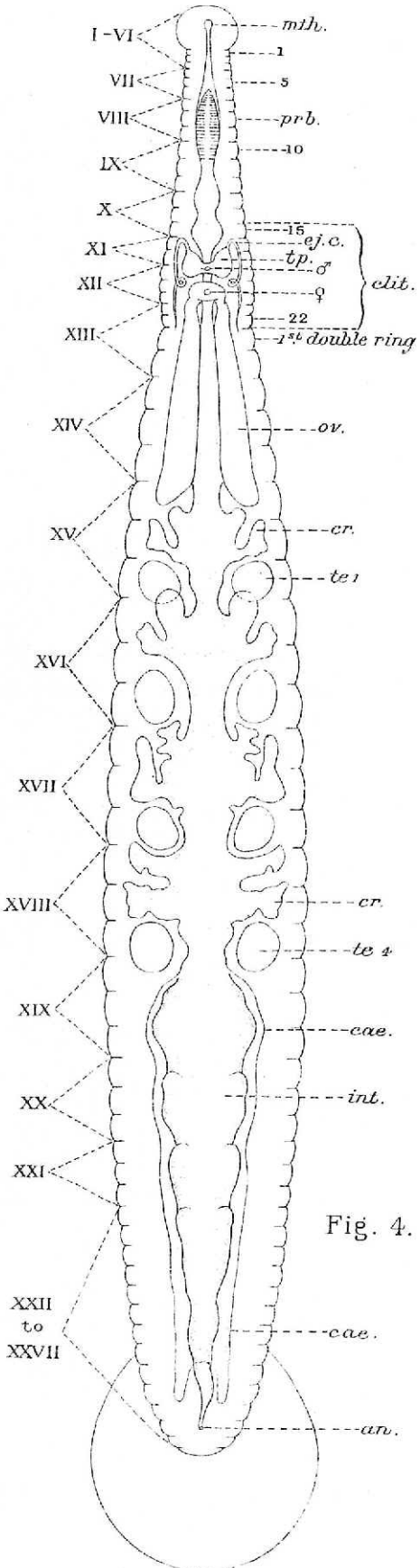

Fig. 4.

CRYOBDELLA LEVIGATA.