ON THE STRUCTURE OF THE MARINE ISOPOD *MESIDOTEA SIBIRICA* (BIRULA), WITH SOME REMARKS UPON ALLIED GENERA.

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With Plate V.

So far as I am aware no complete description has yet been published of the Isopod known as *Glyptonotus sibiricus*, Birula, and no complete account or figures have been given of its structure. Professor D'Arcy W. Thompson, F.R.S., having very kindly placed a specimen at my disposal, in addition to many other allied species, I have endeavoured in the following pages to redescribe Birula's species, and figure and describe the leading structural characters, and also to give some notes on the allied species and genera.

The genus *Glyptonotus* was originally described by Eights (2) with the *G. antarcticus*, Eights, as the type. This species is the largest of those forms included in the subfamilies Glyptonotinae, Miers, and Mesidoteinae, Racovitza and Sevastos, attaining a length of nearly 90 mm.

In 1878 Harger (4) described the new genus *Chiridotea*, in which he placed the *Idotea caeca* of Say, and the *Idotea tuftsii* of Stimpson, both species being characterized by having the coxal plates distinctly separated from the segments of the mesosome; a 3-jointed palp on the maxillipedes; and a metasome composed of four segments.

Sars, in 1885 (12), described and figured *Glyptonotus megalurus*, having previously (10) first regarded it as a variety of *G. sabini* (Krŏyer), and later (11) as a new species of *Chiridotea*, Harger.

Miers (6), in 1881, placed all the known species, viz., *antarcticus*, Eights, *entomon* (Linn.), *sabini* (Krŏyer), *caecus* (Say), and *tuftsii* (Stimpson), in the genus *Glyptonotus*. Sars' *G. megalurus* he regarded as synonymous with *G. sabini*.

In 1887 Hansen (3) gave an account of the maxillae and maxillipedes of *G. entomon* (Linn.) from the Kara Sea, but, he informs me (*in litt.* Dec. 7th, 1915) that all his specimens were really referable to *G. sibiricus*, Birula, an "allied but certainly valid species." In this

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paper Hansen discussed the structure of the 1st and 2nd maxillae and the maxillipede, and gave figures of the 1st maxilla and the maxillipede. In the former the setules are not shown, and there are some slight differences from the figure given on Pl. V, fig. 6, in the maxillipede.

In 1896 Birula (1) described *G. sibiricus* from the Kara Sea. The description is very brief and no figures are given of the animal or its structure.

Richardson, in 1904 (8), described the genus *Symmius* for a small but interesting species collected at a depth of 60 to 70 fathoms at Ose Zaki, Japan. This genus differs from *Glyptonotus*, Eights, in the following characters :—The lateral margins of the cephalon are entire; the eyes are situated on the lateral lobes of the cephalon; the flagella of the antennae are each composed of a single joint; the metasome is composed of three segments; there is a 3-jointed palp to the maxillipedes, and the uropoda each consist of a single piece.

In 1905 Richardson (9) separated *Glyptonotus entomon* (Linn.) and *G. sabini* (Krōyer), placing them in a new genus—*Mesidotea*, both species possessing a 5-jointed palp on the maxillipedes. The former species, under various generic names, had previously been described and figured by Pallas, Klein, De Geer, Latreille, Rathke, Kowalevsky, and others; whilst Krōyer (5) described and figured the latter species in 1847.

In 1910 (7) Racovitza and Sevastos described a new fossil species, for which they erected the genus *Proidotea*, which, together with *Chiridotea*, Harger, and *Mesidotea*, Richardson, they placed in a new subfamily—*Mesidoteinae*.

The list of species of the two above-mentioned subfamilies, known up to the present time is as follows :—

Family IDOTEIDAE.

Subfamily GLYPTONOTINAE, Miers.

Genus **Glyptonotus**, Eights.

1. *G. antarcticus*, Eights,

Genus **Symmius**, Richardson.

2. *S. caudatus*, Richardson.

Subfamily MESIDOTEINAE, Racovitza and Sevastos.[1]

Genus **Chiridotea**, Harger.

3. C. *caeca* (Say).
4. *C. tuftsii* (Stimpson).

[1] Ohlin's *Macrochiridothea* may possibly come in under this subfamily. As yet I have not been fortunate enough to examine specimens.

Genus **Mesidotea,** Richardson.

5. *M. entomon* (Linn.).
6. *M. sabini* (Kröyer).
7. *M. megalura* (G. O. Sars).
8. *M. sibirica* (Birula), em. Collinge.

Genus **Proidotea,** Rac. & Sev.

9. *P. haugi,* Rac. and Sev.

KEY TO THE GENERA.

Subfamily GLYPTONOTINAE, Miers.

I.—Coxal plates distinct on the three posterior mesosomatic segments.

a. Lateral margins of cephalon cleft.

i. Metasome composed of 5 segments.

ii. Maxillipede with a 3—5-jointed palp.

Glyptonotus, Eights.

b. Lateral margins of cephalon entire.

i. Metasome composed of 3 segments.

ii. Maxillipede with a 3-jointed palp.[1]

Symmius, Richardson.

Subfamily MESIDOTEINAE, Rac. and Sev.

II.—Coxal plates distinctly separated on 2nd—7th mesosomatic segments.

a. Lateral margins of cephalon cleft.

i. Metasome composed of 4 segments.

ii. Maxillipedes with a 3-joined palp.

Chiridotea, Harger.

i. Metasome composed of 5 segments.

ii. Maxillipedes with a 5-jointed palp.

Mesidotea, Richardson.

b. Lateral margins of cephalon partly cleft.

i. Metasome composed of 5 segments.

Proidotea, Rac. and Sev.

Mesidotea sibirica (Birula), em. Collinge.

Pl. V, figs. 1-11.

Glyptonotus entomon, Hansen. Dijmphna-Togtet, 1887. p. 188, T.xx, f. 1, 1*b*.

——— *sibiricus*, Birula. Ann. Mus. Imp. Acad. Sci. St. Petersb., 1896, i, p. viii.

(?) Mesidotea sibirica, Racovitza and Sevastos. Arch. Zool. exp. et. gén., 1910, xlvi, p. 195.

[1] According to Miss Richardson, but I very much question the accuracy of her figures (8, p. 41, fig. 13*a*. & *b*.). The short, first joint is not shown, and I know of no genus or species of this family in which it is absent, or where the basal plate (basipodite) and epipodite are united.

Body (fig. 1) oblong oval, convex dorsally, slightly wider anteriorly, narrowing beyond the 4th mesosomatic segment. Cephalon (fig. 1) elongate, deeply excavate between the lateral lobes, with small median excavation also, on either side of which is a rounded eminence. Margins of lateral lobes cleft, divisions almost subequal, the anterior one being rounded in outline and the posterior one more acute. Eyes distinct, small and round, situated dorsally, lateral to the eminences bounding the median excavation of the anterior margin. Faintly marked posterior transverse furrow. Antennulae (fig. 3) with the 1st joint expanded and somewhat conical, 2nd joint small, 3rd joint longer, and wider distally; flagellum elongated single joint, with numerous spatulate setae and longer terminal setae. Antennae (fig. 4) extending to the postero-lateral border of the 1st mesosomatic segment; 1st joint very small, 2nd, 3rd and 4th joints expanded, and almost subequal; 5th joint elongated and slightly keeled on the dorsal side; flagellum with 9-10 joints and short terminal style. First maxillae (fig. 5) stout, outer lobe terminating in ten stout, curved spines, setose on the inner lateral margin; inner lobe terminating in three setose spines, and two setules on the ventral face. Maxillipedes (fig. 6) short and broad, basal plate thickened, short and almost square, palp 5-jointed, epipodite almost circular, with closely set fringe of fine setae on the anterior and outer border, inner distal lobe thickened, terminally sloping inwards, with plumose setae terminally. Segments of the mesosome (fig. 1), excepting the 1st, almost subequal, 1st with widely expanded pleural plates which flank the cephalon, anterior angle rounded, posterior acutely pointed. Coxal plates (fig. 1) well developed on the 2nd to 7th segments, smallest on the 7th, posterior angles acutely pointed and directed backwards. Thoracic appendages (figs. 7-9), 2-4 small and directed forwards, 5-8 considerably larger and directed backwards. Metasome (figs. 1 and 2) composed of five segments, 1-4 short, terminal segment elongated, with lateral margins slightly incurved anteriorly, beyond the middle expanded and then tapering to an obtuse, upturned point; anteriorly the terminal segment has a somewhat prominent median boss, and two smaller lateral ones. Uropoda (figs. 10 and 11) small, wider anteriorly than posteriorly, with strongly marked, raised longitudinal line towards the inner border, endopodite obtusely pointed, exopodite very small, situated on the inner side.

Length 79 mm., width 30 mm. Colour (in alcohol) yellowish-brown.

Habitat.—Kara Sea.

Remarks.—This interesting species may at once be separated from either *M. entomon* (Linn.) or *M. sabini* (Kröyer) by the shape of the cephalon and antennae, it further differs from *M. sabini* in the form of the 1st maxilla and maxillipedes. In this species the inner lobe of the 1st maxilla has three setose spines and two setules, whereas in *M. sabini* there are only two spines and one setule. In neither *M. entomon* or *M. sabini* are the lateral lobes of the cephalon so well developed as in *M. sibirica*.

Birula (1) mentions that his specimen was 70 mm. long and 28 mm. wide.

Hansen's figure of the maxillipede is, I believe, slightly inaccurate, in that it shows the coxopodite as a single large division at the base of the basipodite and epipodite, and a very small lateral nodule on the inner margin. In the specimen I have examined, the epipodite articulates with the large outer division of the coxopodite and the basipodite with a smaller inner division (Pl. V, fig. 6).

The appendages (2-8) of the mesosome readily lend themselves for separation into two distinct sets, viz., those of segments 1-3, which are small and directed forwards, and those of segments 4-7, which are considerably larger and directed backwards.

The segments of the mesosome are almost smooth; they are marked by numerous tiny pits and are fairly convex throughout. Laterally there is a raised boss on each side, and one in the median line on the four anterior segments. The pleural plates of the 1st segment partly flank the cephalon, their anterior margin is rounded, and the posterior angle pointed. The coxal plates are large and occupy the whole of the lateral margins; those on segments 2-4 are rounded in front and posteriorly produced backwardly as a sharp spine, those of segments 5 and 6 are more cut away anteriorly and have the spines more produced; the spines of the seventh segment are similar in shape, only much smaller.

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DESCRIPTION OF PLATE V,

Illustrating Dr. Walter E. Collinge's paper "On the Structure of the Marine Isopod *Mesidotea sibirica* (*Birula*)."

Mesidotea sibirica (Birula), em. Cllge.

Fig. 1. Dorsal view of male. × 1.

Fig. 2. Lateral view of metasome. × 1.

Fig. 3. Left antennule, dorsal side. × 3.

Fig. 4. Left antenna, dorsal side. × 3.

Fig. 5. Ventral side of the terminal portions of the inner and outer lobes of the left 1st maxilla. × 20.

Fig. 6. Ventral side of the left maxillipede. × 6.

Fig. 7. Ventral side of the 2nd thoracic appendage. × 4.

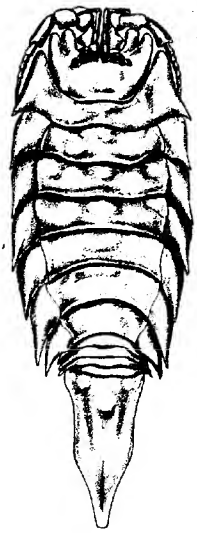
Fig. 8. Ventral side of the 8th thoracic appendage. × 2.

Fig. 9. Spines on the protopodite of the 2nd thoracic appendage, greatly enlarged.

Fig. 10. Right uropod.

Fig. 11. Portion of the left uropod seen from the inner side and showing the exopodite. × 8.

I desire to express my thanks to the Executive Committee of the Carnegie Trust, for a Grant to defray the artist's charges for the above figures.



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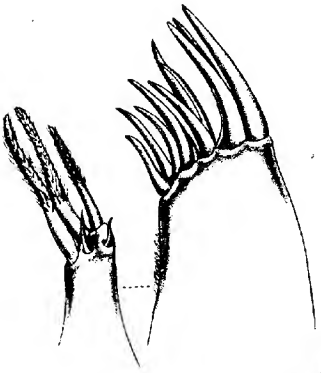

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H.G.K. del. ad. nat.

Huth, Lon.

MESIDOTEA SIBERICA *(Birula)*.