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X.—*On the Invertebrate Animals of the Baltic.*
By Prof. KARL MÖBIUS.*

FAUNISTICALLY the Baltic is sharply divided into an eastern and a western basin. The western basin is separated from the Kattegat by the Danish islands. I do not include the Belts and the Öresund in the western basin when I speak of the fauna of the latter. The eastern basin meets the western one in the meridian of the west coast of the Isle of Rügen.

Of the 241 invertebrate animals catalogued, 216 species have been found in the western, and hitherto only 69 in the eastern basin.

Besides those mentioned, Acarina, Ostracoda, Infusoria, and Rhizopoda exist in the Baltic; but their enumeration must be postponed until the species have been determined with more certainty, for which purpose further investigations are necessary.

Among the Infusoria, however, I will refer to *Peridinium tripos*, Müll.†, which appears in great abundance during the summer and autumn in the bay of Kiel as a luminous animal, and is of importance as food for Copepoda and the swarming embryos of other Invertebrata.

* Translated by W. S. Dallas, F.L.S., from the concluding remarks appended by the author to the list of the Invertebrata of the Baltic, prepared by him with the assistance of Profs. K. Kupffer, E. Häckel, W. Schmidt, and of Dr. Bütschli, and published as part of the report on the scientific results of the expedition of the steamship 'Pommerania' in 1871 (pp. 138-141).

† Ehrenberg, 'Infusionsthierchen,' p. 255, pl. 22. fig. 18.
Ann. & Mag. N. Hist. Ser. 4. Vol. xii.

remarkable species, the large conical elevations which cover its surface giving it exactly the appearance of an undulating plain covered with numerous small volcanos. Superficially examined, it presents a striking resemblance to many recent sponges; but I have not been able to satisfy myself that the conical elevations just alluded to are really of the nature of oscula. Some of them certainly look as if they were perforated; but most show no signs of any aperture. This may be due to the manner in which the fossil has been preserved; but I cannot speak positively upon this point. The internal structure of all the examples which I possess of this species is much more imperfectly preserved than is the case with the other species here described, and I have simply been able to satisfy myself that it is essentially the same as is characteristic of *Stromatopora* in general. I have seen crusts of this species covering an area of several square feet; but it is by no means common in its occurrence.

Loc. and Form. Rare, in a silicified condition, in the Corniferous Limestone (Devonian) of Port Colborne, on the north shore of Lake Erie, Canada West. Collected by the author.

5. *Stromatopora concentrica*, Goldf.

Besides the preceding three species I have found in the Corniferous limestone of Canada specimens which are undistinguishable from *Stromatopora concentrica*, Goldfuss. As, however, none of these specimens exhibit their surface it cannot be positively asserted that they belong to this familiar Devonian species.

EXPLANATION OF PLATE IV.

Fig. 1. Fragment of *Stromatopora ostiolata*, Nich., natural size.

Fig. 1 a. Fragment of the same, enlarged, to show the oscula on the surface.

Fig. 2. Fragment of *Stromatopora tuberculata*, Nich., natural size.

Fig. 2 a. Lateral view of a fragment of the same, enlarged, to show the reticulate structure.

Fig. 3. Fragment of *Stromatopora granulata*, Nich., natural size, showing the granulated surface.

Fig. 3 a. Lateral view of a fragment of the same, enlarged to show the reticulate structure.

Fig. 4. Fragment of *Stromatopora mammillata*, Nich., natural size.

XII.—*A Sphaeromid from Australia, and Arcturidæ from South Africa.* By the Rev. THOMAS R. R. STEBBING, M.A.

[Plate III. A. figs. 1-3 a.]

THE crustaceans described in this paper presented themselves among the sand and fragments shaken in transit from a variety

of sponges and gorgonias sent me by Mr. Wilson Saunders. The Sphæromid, shown in fig. 1, occurred in a collection from Swan River, S.W. Australia; the Arcturidæ, figs. 2 and 3, in one from Fort Elizabeth, Algoa Bay, South Africa. Fig. 1 appears to be a *Cymodocea*; it has the setose tail and tail-appendages of that genus, the tail-piece terminating in a deep notch, occupied by a produced central plate or lobe. The body is very convex, with the sides parallel; the flagella of both pairs of antennæ are multiarticulate; the branches of the tail-appendages do not close one under the other.

The species would be appropriately named *Cymodocea tuberculosa*; for though the first segment of the pereion is smooth and marbled, the five following segments are adorned and almost covered with rows of shining tubercles. Tubercles can be detected among the matted hairs of the pleon and uropoda; and notably a row of three is conspicuous on the lobe which runs out into the notch at the end of the tail-piece. The branches of the uropoda have a pair of smooth shining tips at the extremity of each. The head, which is nearly as broad as the body, is long and sloping; its frontal border has two small nostril-like prominences in the centre; a lower frontal margin is adorned with ten teeth or turrets, divided into two sets of five, and exhibiting between them a still lower frontal plate with two shining lobes. The colour of the mouth is red, of the claws brown. The length of the animal is rather under half an inch; but, in spite of the small size, the beauty of the details makes it an object of considerable interest.

Fig. 2 represents an animal of still more remarkable appearance, which pretty clearly belongs to the genus *Arcturus* of Latreille, a genus described by Spence Bate and Westwood as "remarkable among the *Isopoda* for its slender cylindrical form, the length of its lower pair of antennæ, and the delicate ciliated structure of the four anterior pairs of legs, whilst the hind ones are short and very robust." Our African species agrees with all these details, except that the bulging character of the fourth segment of the pereion is scarcely consistent with such a description as "a slender cylindrical form." It still seems an open question whether the British *Arcturi* ought not to be separated from *A. Baffini*, the type of the genus, which has the fourth segment of the body scarcely longer than the others, and the lower antennæ terminated by multiarticulate flagella. Were the genus *Leacia* or *Leachia* revived to receive them, the species now under consideration would join them in it, its fourth segment having a very conspicuous development, and the lower antennæ bearing three-jointed incurved flagella like those of our British species. Meanwhile

it may be described as *Arcturus corniger*, taking its specific name from its numerous horn-like protuberances, seven of which surmount as many separate segments; while the fourth segment carries no less than six cone-like swellings, the two largest of which are on the median line of the back, the front one being preceded, and the hinder one in like manner followed, by a smaller flanking pair of heights.

The upper antennæ extend only as far as the second joint of the lower ones; they are slender and apparently three-jointed, the last articulation being the longest and ending obtusely. The lower antennæ are stout, and equal in length to half that of the rest of the animal: the second joint is notched; the fourth joint is considerably the longest; the third and fifth are also long and about equal in size. The eyes are prominent. The marsupial pouch of the fourth segment has a row of tubercles just below the hinge-line; and in the rear of this, three small apertures are visible in the ventral surface.

The Rev. A. M. Norman kindly informs me that the drawing of this species which I sent him comes near to *Leachia nodosa* of Dana, but that he should hesitate to unite the species on the evidence of the figures which he has seen, the spiny processes on the segments being somewhat differently arranged.

Of fig. 3 four specimens occurred, obviously belonging to the same genus as fig. 2. Three of these had masses of red granular matter clinging to the lower surface; but whether this consisted of the eggs or of some extraneous substance it is not easy to say. All these four lie flat, in a posture very different from the strange angularity shown by *Arcturus corniger* in common with our British *Arcturidæ*: neither do they possess any remarkable protuberances; the segmentation, however, is the same. The anterior legs are slender and ciliated, the three hinder pairs being stout by comparison, though not absolutely very robust. The upper antennæ extend beyond the second joint of the lower, and terminate in a point. The lower antennæ display a prominent angle on the second joint; the third and fourth joints are each respectively longer than those which precede them; the fifth is not quite so long as the fourth. The fourth segment of the body, viewed from above, is coffin-shaped, and has two small tubercles on the median line. The eyes are prominent. The whole length, antennæ included, is about half an inch. The colour of the specimens is a more or less purplish brown, closely speckled all over with dark spots. *Arcturus lineatus* may be offered as a specific name for these creatures, as they seem to hold

themselves with body, tail, and antennæ all in one line, instead of assuming the angular prancing attitude of their congeners.

A fifth specimen differs from the other four in having the head wider and the fourth segment of the body much narrower, and in being without any dark markings on the skin. This is probably the male.

EXPLANATION OF PLATE III. A. figs. 1-3 a.

Fig. 1. *Cymodocea tuberculosa*; 1 a, underside of tail-piece; 1 b, leg.

Fig. 2. *Arcturus corniger*.

Fig. 3. *Arcturus lineatus*; 3 a, one of the upper antennæ.

XIII.—On a new *Species of Cellepora*.

By EDWARD PARFITT, Esq.

[Plate III. B. figs. 1-6.]

To the Editors of the *Annals and Magazine of Natural History*.

GENTLEMEN,

I beg to introduce to you a new species of *Cellepora* discovered by me at Exmouth in the autumn of 1872, a description and figures of which I enclose. I have named it *Cellepora hemisphærica*, from the cells forming little hemispherical masses. It appears to be perfectly distinct from any thing I can find, either amongst the fossil or recent species.

I am, Gentlemen,

Yours obediently,

EDWARD PARFITT.

Exeter, June 11, 1873.

Cellepora hemisphærica, n. sp.

Cells heaped together irregularly into, generally speaking, hemispherical masses; mouth simple, elliptical; cells variously formed, but generally ovate, white, shining, and thickly perforated; sometimes they are very much inflated, and in other specimens they are more or less depressed; many of the cells are mouthless, or open into other contiguous cells. Avicularium or vibraculum very rarely developed: I have only seen one; and this, I think, was abnormal, as it was in the back of the cell. Ovicell —? Animal —?

The minute masses of cells are attached by the somewhat flattened underside to the branches of *Sertularia abietina*: the edges of the mass slightly curve, so as to fix themselves firmly to the branch; they measure generally about one 25th of an inch in diameter.

The mouths of the cells are generally placed so as to come between two other cells, and they are so pressed down as to be discovered with difficulty; and it frequently happens that no mouth can be discovered over the whole upper surface, but one or two may be found on the edge of the mass.

The arrangement of the cells, if arrangement it can be called, reminds me more of *Cellepora informata*, a Miocene species described by Lonsdale in the first volume of the 'Quarterly Journal of the Geological Society,' p. 506. The form of the cells, and their heaping together and being foraminated, gives a certain resemblance to them; but in the fossil rather regular layers of cells can be traced, similar to those in old specimens of *C. pumicosa*, while in the recent species we have in view they are so minute that I cannot satisfy myself on this point.

Large masses of *Sertularia* were cast ashore last autumn and winter on the beach at Exmouth. I collected a good many of them, and on some I discovered this species; they are principally on the lower branches of the Sertularian. I shall send specimens to the British Museum.

EXPLANATION OF PLATE III. B. figs. 1-6.

Fig. 1. Groups of cells, natural size.

Fig. 2. Enlarged.

Fig. 3. Removed from the Sertularian.

Figs. 4, 5. Front and lateral views of cells.

Fig. 6. The beginning of a group with four cells, mouthless, or opening into a common elongated cell.

XIV.—*Descriptions of new Species of Fossorial Hymenoptera in the Collection of the British Museum.* By FREDERICK SMITH, Assistant in the Zoological Department, British Museum.

[Continued from p. 55.]

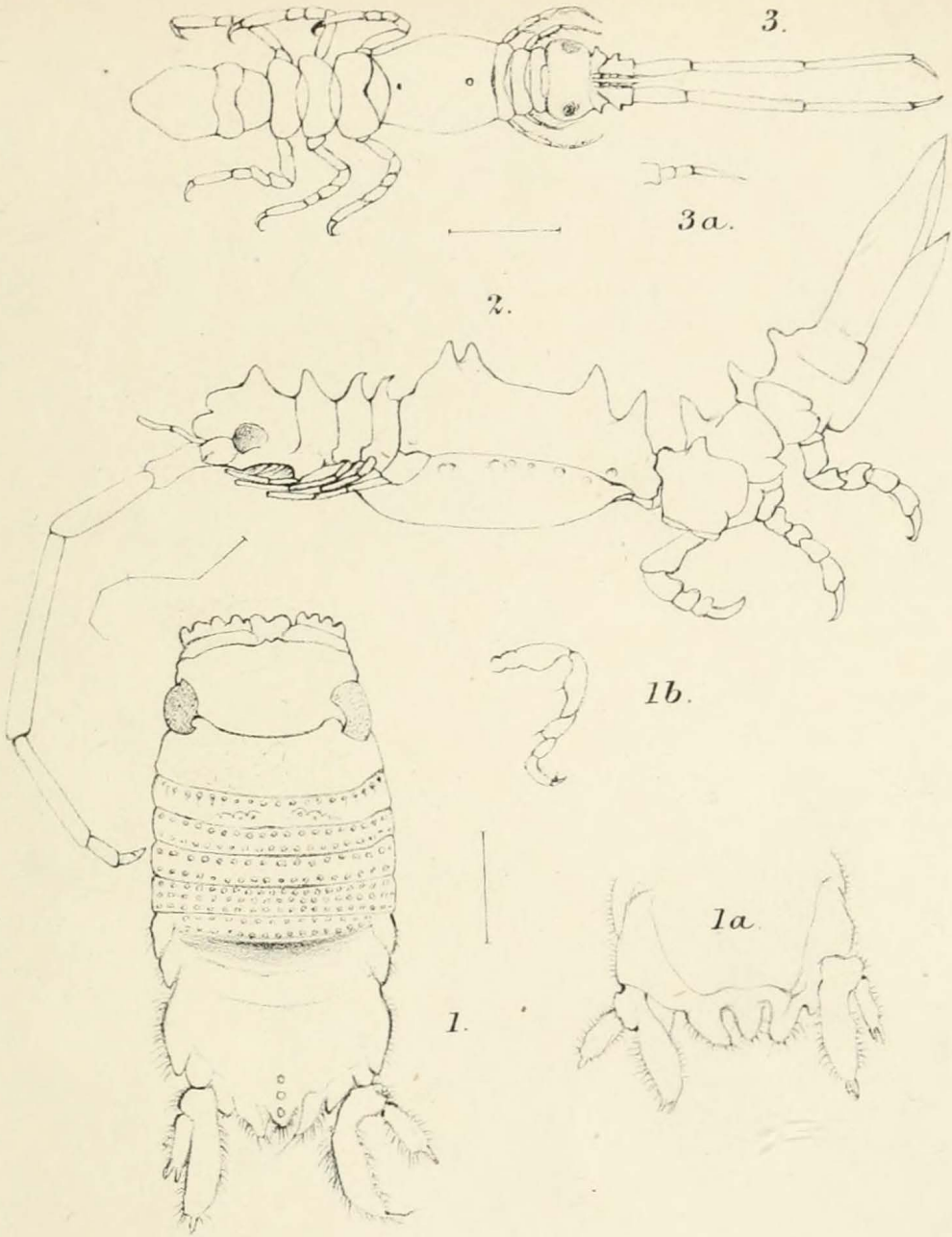
Family **Crabronidæ.**

Genus **TRYPOXYLON**, Latr.

Trypoxylon vagum.

Female. Length $5\frac{1}{2}$ lines. Black, adorned with golden pubescence; abdomen pale testaceous at the base. Head opaque; the face and clypeus with silvery pubescence, that above the insertion of the antennæ and in the sinus of the eyes has a golden lustre; the cheeks silvery; the mandibles and the apex of the scape ferruginous. Thorax: the antero

A



B

