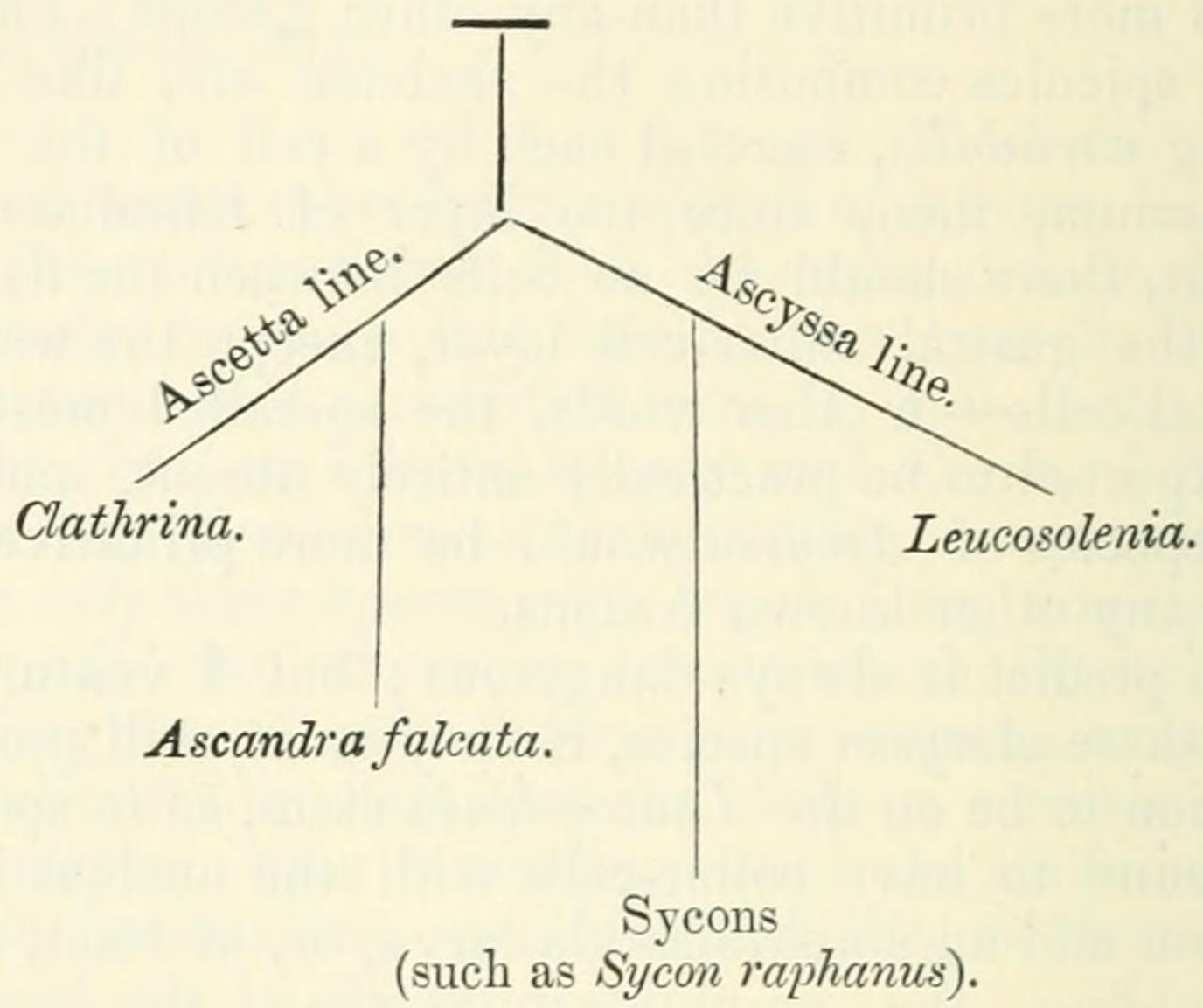
of characters in which *Leucosolenia* approaches *Sycon* seem to me indubitable proof of their genetic relationship, just as the characters of *Ascandra falcata* show it to be on quite a different line. The relations of the genera can best be indicated by the graphic method as a genealogical tree:—



It seems to me an open question, however, whether there may not be amongst the Heterocœla—Sycons or Leucons—forms which are on the Ascetta line and which approach *Clathrina* or *Ascandra* in the same way that *Sycon raphanus* approaches *Leucosolenia*.

Oxford,
October 1896.

LIV.—*On* Scolecithrix hibernica, *a new Species of Copepod, with some Remarks on the Distribution of the Crustacea.*

By Andrew Scott, Fisheries Assistant, University College, Liverpool.

[Plates XVII. & XVIII.]

Description of the Species.—Female. Length, exclusive of caudal setæ, 1·2 millim. ($\frac{1}{20}$ inch). Body moderately robust; cephalothoracic segment large, nearly as long as the combined lengths of the remaining body-segments and abdomen; last segment of the body produced laterally on each side into spine-like processes. Antennules of moderate length, slender,

reaching to near the end of the body, and composed of four joints, the proportional lengths of which are shown by the formula—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	10	6	6	5	5	6	10	6	6	7	7	7	7	7	7	7	8	8	8	6	9	10	4

The joints are only sparingly setiferous, but the twenty-first and twenty-second have each one plumose seta on the distal end of the lower margin; the twenty-third bears two plumose setæ at the distal end—one on the lower and one on the upper margin—while the twenty-fourth joint is furnished with two plumose and two plain apical setæ; two short sensory filaments—one a little longer than the other—spring from the distal end of the upper margin of the second joint. Primary branches of the antennæ very short, two-jointed; secondary branches fully three times the length of the primary ones and composed of six joints, the third, fourth, and fifth joints being very short; both branches are furnished with a number of plumose setæ. Mandibles fairly well developed, the biting-part armed with a number of small teeth; palp small, two-branched, the upper branch very small and composed of two joints, the lower considerably larger and apparently four-jointed. Maxillæ well developed and somewhat similar to those of *S. dancæ*; the foot-jaws also resemble those of that species. The inner branches of the first pair of feet are one-jointed, of the second two-jointed, of the third and fourth three-jointed, while the outer branches of all the four pairs are three-jointed. The female has no fifth pair of feet. Abdomen four-jointed; genital segment as long as the combined lengths of the second and third joints; second, third, and fourth joints of about equal length. Caudal stylets slightly longer than the last abdominal segment, length about equal to twice the breadth.

Male. Somewhat similar to the female, except in the following points:—The proportional lengths of the joints of the antennules differ slightly, as shown by the formula—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	8	7	4	4	4	5	8	7	6	6	7	7	6	6	6	6	7	6	8	6	9	9	4

The mandibles are very small and somewhat rudimentary; the biting-part has apparently no teeth, but consists of an evenly rounded edge; the mandible-palp has the basal part larger than that of the female; the uppermost of the two branches is small and two-jointed, but the lower one is large and composed of three joints. The maxillæ are also very small and somewhat rudimentary. The anterior foot-jaws

ıshed with fewer setæ, but bear a larger number of n-hairs" than those of the female. The fifth feet are developed and form a powerful grasping-organ; they ısist of a large basal part armed with a comb-like row of spines on its left surface and furnished distally with two elongate branches of nearly equal length and of a somewhat complicated structure; the right branch is composed of two joints, the first of which is long and of an irregular outline; the second is considerably smaller and terminates in a finger-and-thumb-like arrangement; the left branch is apparently four-jointed; the second joint, which is slightly longer than the first, is furnished on its outer distal margin with a number of spine-like processes arranged in three tufts; the third and fourth joints are small, the fourth joint, which ends somewhat abruptly, being furnished on its inner margin with one moderately long and two short spines, and also with a few short spines on its surface. The drawing (Pl. XVIII. fig. 7) shows the fifth feet of an immature male; they differ considerably from those of the mature form, as is frequently the case among the Calanidæ. Abdomen apparently five-jointed; first, second, third, and fourth joints subequal in length, fifth very small. Caudal stylets scarcely so long as the fourth segment; length about equal to twice the breadth.

Habitat. In deep water off the County Down coast, between Dundrum and Dundalk Bays, Ireland; common. Also in deep water in upper Loch Fyne and off the coast of Arran, Scotland.

Remarks. This species first became known to me from specimens found in material collected in a tow-net attached to the beam of a fish-trawl and worked close to the bottom of the sea. The material was obtained by Mr. R. L. Ascroft, one of the members of the Lancashire Sea-Fisheries Committee, when on board a trawler that was fishing in deep water (21 to 29 fathoms) in the Irish Sea between the Isle of Man and Ireland in the beginning of February last. Some time afterwards my father, Mr. T. Scott, F.L.S., sent me specimens of a *Scolecithrix* which he had obtained in bottom tow-net material collected in upper Loch Fyne and in the Firth of Clyde in April last; these, on examination, proved to be identical with those from the Irish Sea, and, as all the specimens observed have been obtained in water of considerable depth and where the bottom consists of mud, this would seem to indicate that it is really a deep-water species, and may, perhaps, also explain why it has been so long overlooked.

Scolecithrix hibernica has been carefully compared with

the described species of the genus, to ascertain if it could be assigned to any of them; but it seems to be clearly distinct, and I now describe it as new under the name given.

The occurrence of a representative of *Scolecithrix* in the British seas is of some interest from its bearing on geographical distribution, showing that it is by no means confined to the warmer waters of the globe, and that it is evidently widely distributed. This genus was first described by Professor Brady in his Report on the Copepoda collected during the Voyage of the 'Challenger.'

Recent researches among the Crustacea have brought to light a considerable number of new species, besides adding British stations for species that have been described by continental workers; on the other hand, not a few of the species described by British authors have been discovered in foreign waters.

In a paper "On Free-swimming Copepoda from the West Coast of Ireland," lately published by Mr. I. C. Thompson, F.L.S.*, one of the most successful students of the Copepoda in recent years, he records *Corycæus speciosus*, Dana, for the first time from British waters, and suggests that it may have been carried to the British coasts by the Gulf-stream. That the Gulf-stream has some influence in bringing Copepoda and other Crustacea to our shores whose true habitat is in the warmer waters of the globe, and in enabling them to survive amid the colder waters round our shores, is not doubted. It is a well-known fact that, from some cause not clearly understood, shoals of Crustacea sometimes make their appearance in the waters round our coasts; and a few years ago the north-east coast of England was visited by such numbers of a species of Amphipod (*Euthemisto compressa*, Goes) that the beach in the neighbourhood of Redcar was covered with them. Professor M'Intosh has also recorded the occurrence of *Boreophausia* in immense numbers in St. Andrews Bay within recent years. But, notwithstanding these facts, the explanation suggested by Mr. Thompson, though it may account for some of the additions that have been made to the British Copepod fauna, is scarcely sufficient to explain the occurrence in the British seas of several even of the so-called pelagic Copepods that have been described by foreign authors. Probably a more satistactory explanation may be arrived at if we consider the amount of work that has been done amongst the marine fauna in connexion with the fisheries investigations carried on during recent years and the attention

* Trans. Liverpool Biol. Soc. vol. x. p. 95.

Plate XVIII.

Fig. 1. Antennule, male. × 126.
Fig. 2. Mandible and palp, female. × 127.
Fig. 3. Mandible and palp, male. × 253.
Fig. 4. Maxilla, male. × 253.
Fig. 5. Anterior foot-jaw, male. × 253.
Fig. 6. Fifth pair of feet, male. × 127.
Fig. 7. Fifth pair of feet, immature male. × 190.
Fig. 8. Abdomen, male. × 84.
Fig. 9. Abdomen, female. × 84.

LV.—*Natural History Notes from H.M. Indian Marine Survey Steamer 'Investigator,' Commander C. F. Oldham, R.N.*—Series II., No. 22. *Descriptions of new Deep-sea Mollusca.* By Edgar A. Smith.

Of the twelve new species about to be described I regret to say that, with one exception, all are based upon single examples which have to be returned to the Indian Museum at Calcutta. Dr. Alcock, the Superintendent of that institution, kindly promises, however, to send to the British Museum any duplicates which may eventually be obtained. The species are to be figured in the "Illustrations of the Zoology of the 'Investigator'."

Some of them are extremely interesting on account of their remarkable form and surface ornamentation, whilst others are peculiar on account of their close similarity to species which occur in the North Atlantic. In one instance, *Puncturella asturiana*, I can find no distinguishing features between the Atlantic and Indian Ocean specimens.

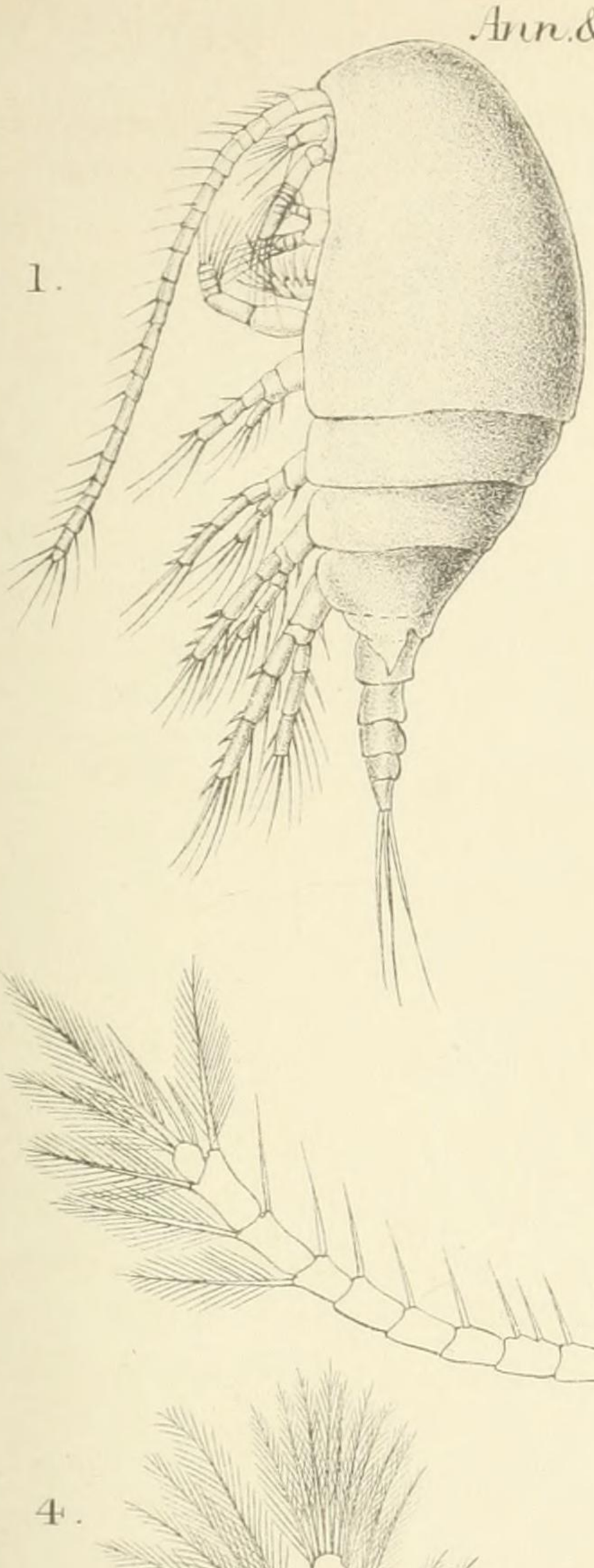
Pleurotoma Kieneri, Doumet.

Pleurotoma Kieneri, Doumet, Mag. de Zool. 1840, pl. x.
Pleurotoma carinata, Reeve (non Gray), Con. Icon. fig. 56; Tryon, Man. Conch. vol. vi. p. 173, pl. iv. fig. 49; Weinkauff, Jahrbuch. deutsch. mal. Gesell. vol. ii. p. 288, pl. ix. fig. 2; Conch.-Cab. p. 15, pl. iii. fig. 1.

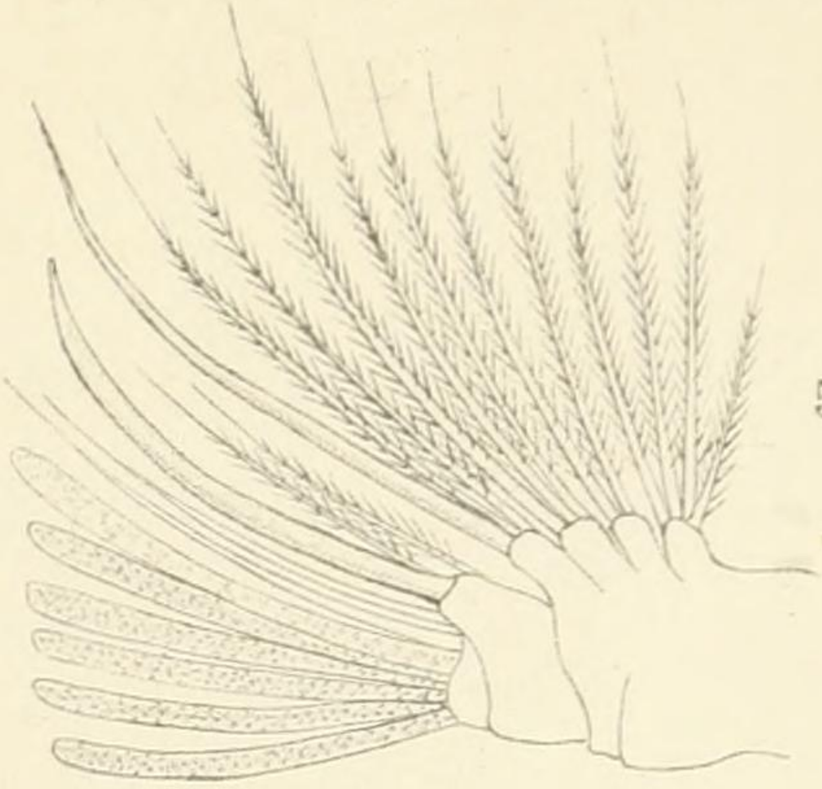
Hab. ? (*Rve.*, *Tryon*, *Weinkauff*); China (*Brit. Mus.*); off Ceylon, lat. N. 6° 50′ 20″, long. E. 79° 36′ 20″, in 180–217 fathoms ('*Investigator*').

Only a single specimen was obtained. The colour is normal, except that the keel below the suture is rather redder than usual and the spotting or dotting upon the ridges encircling the body-whorl is rather fine and inconspicuous.

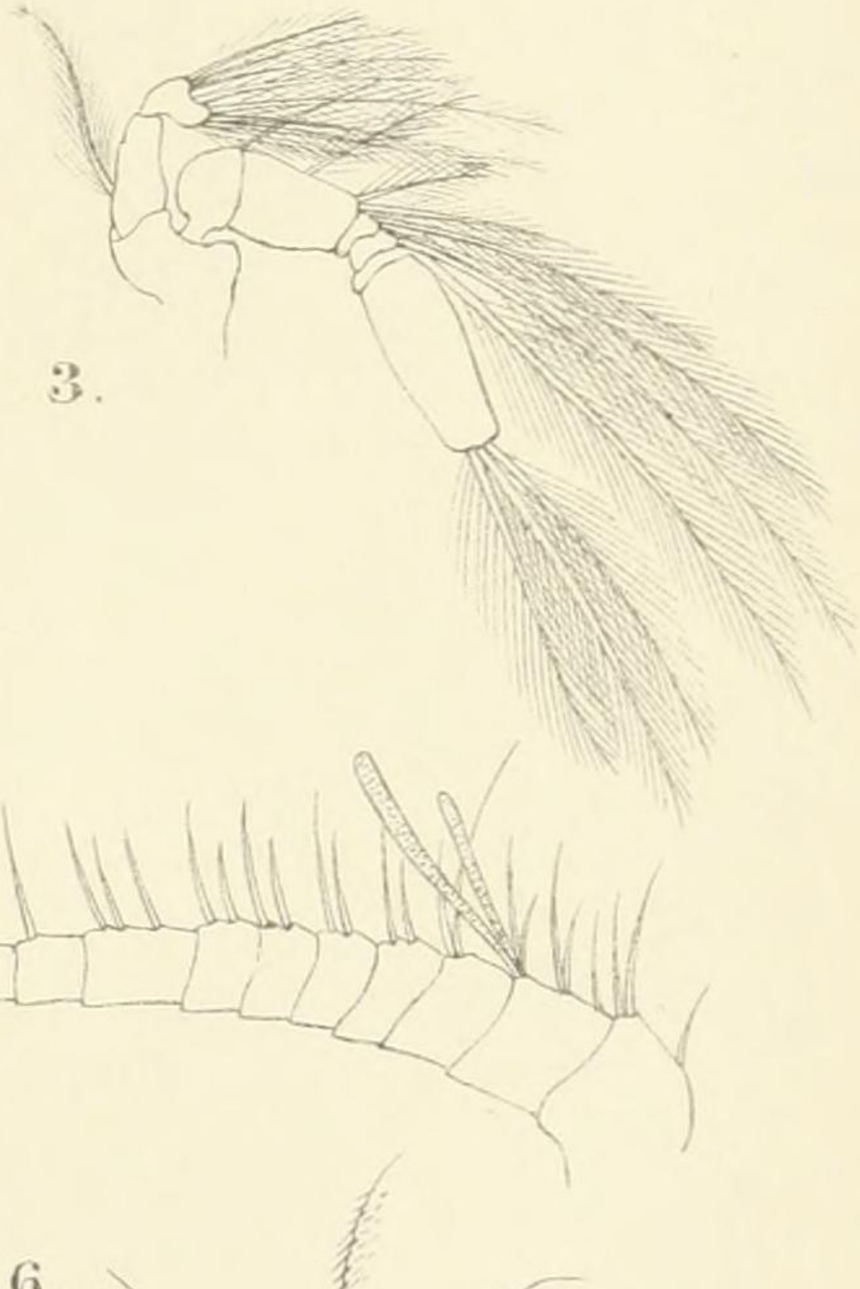
1.



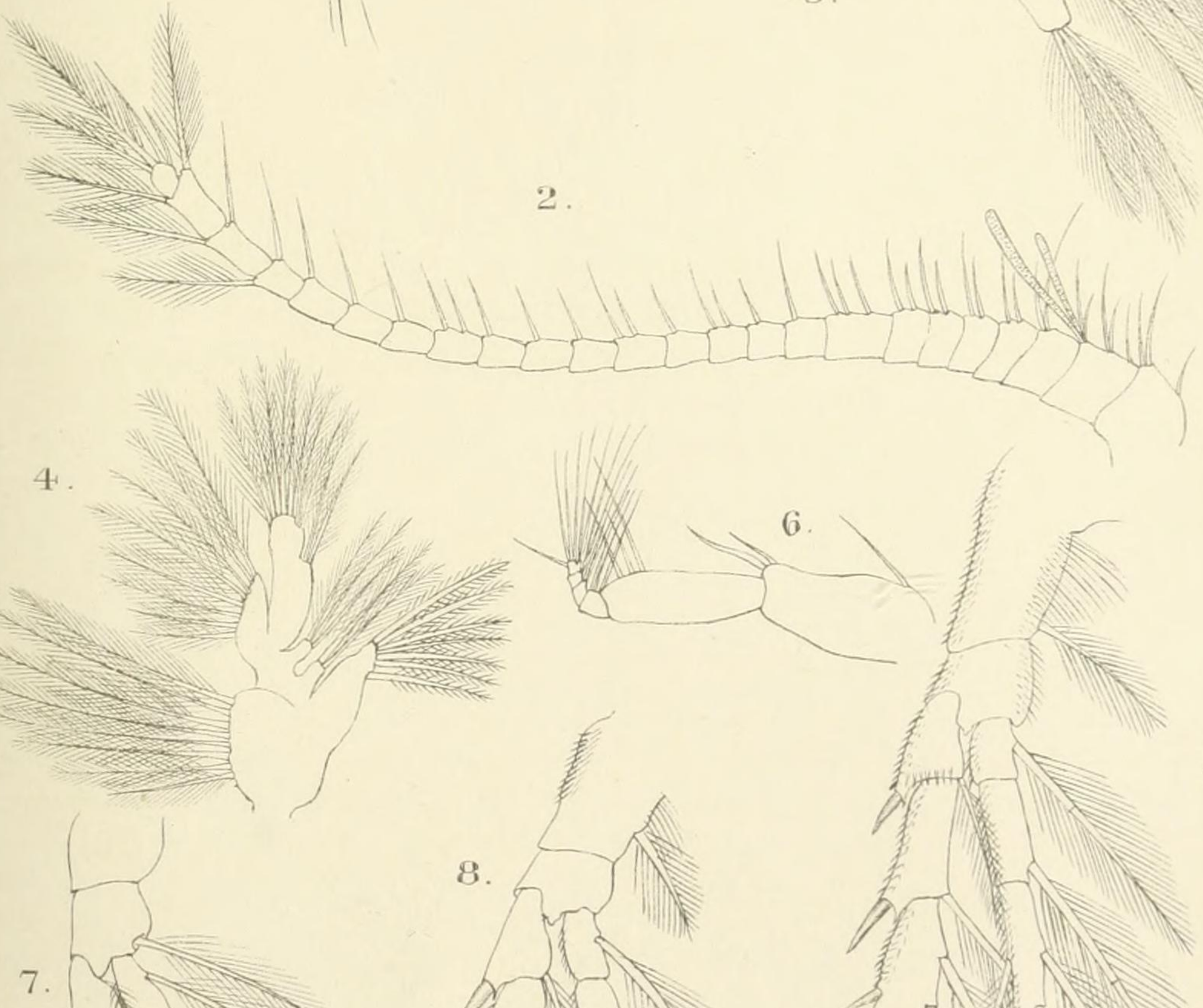
5.



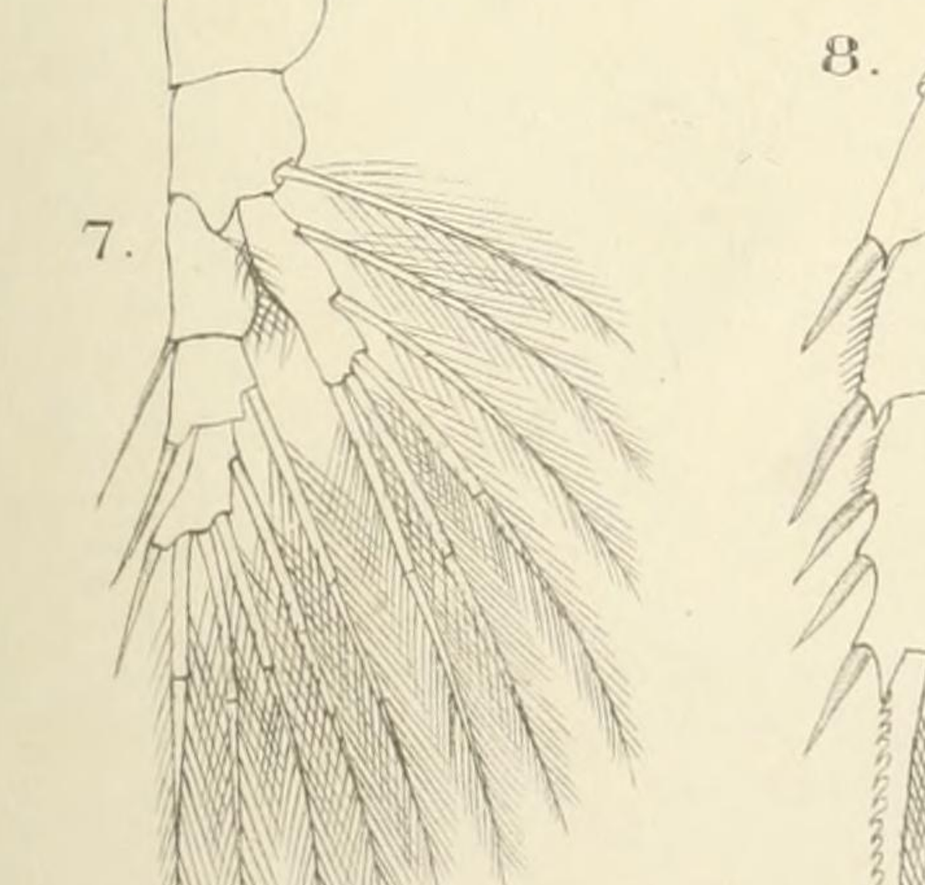
3.



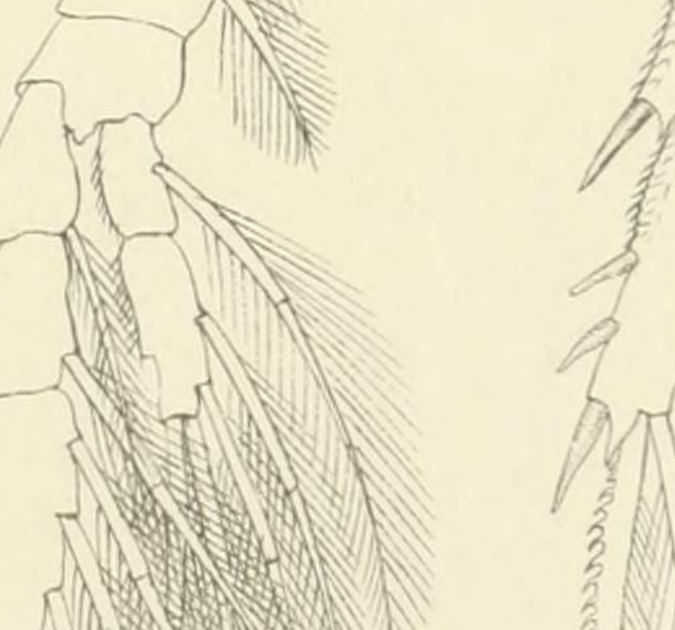
2.



4.



6.



9.

7.

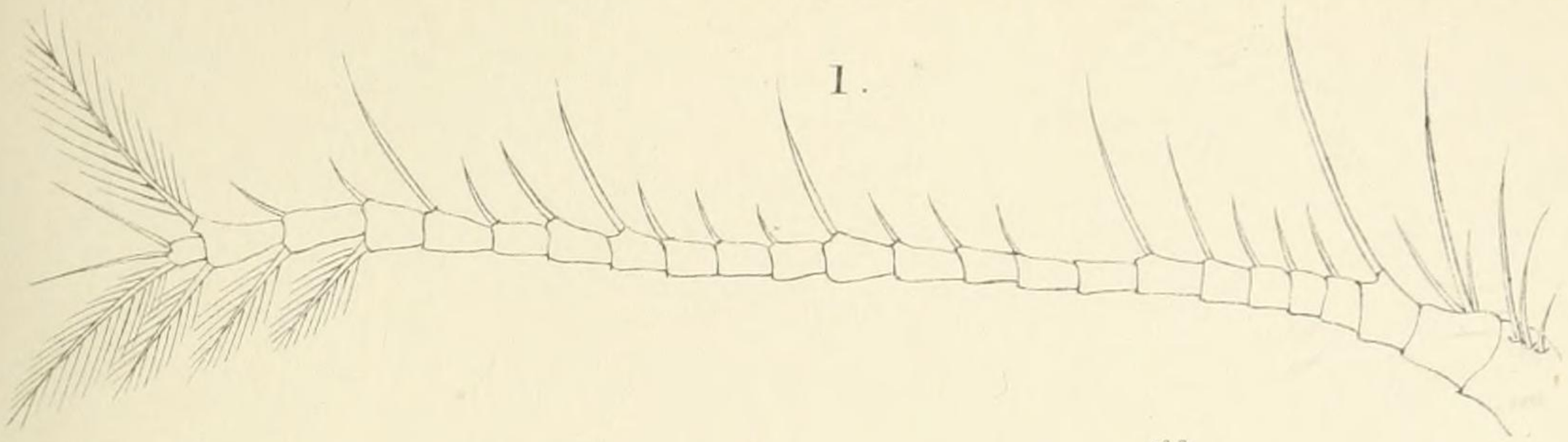
8.

A. Scott del. ad nat.

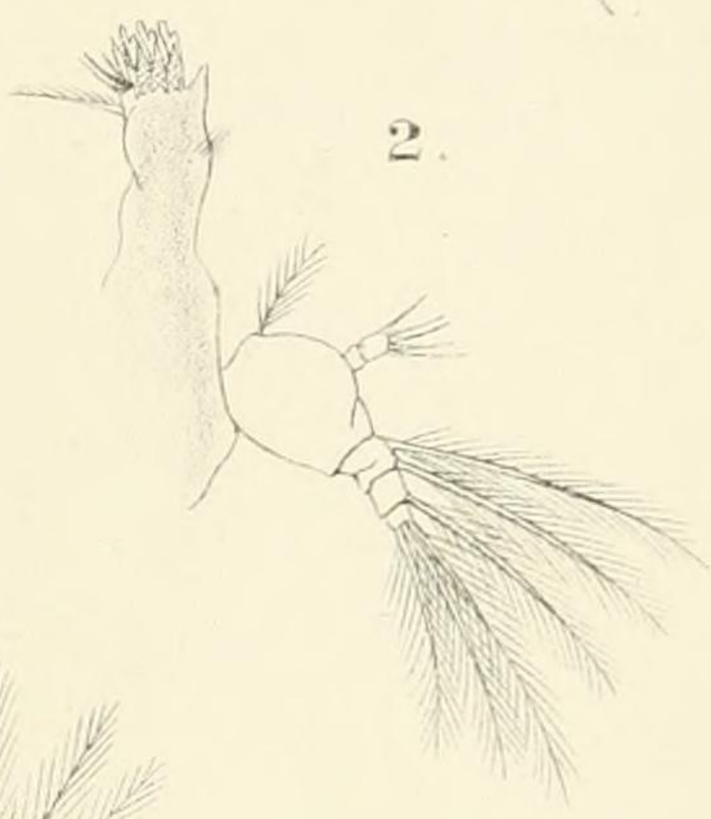
Mintern Bros. lith.

SCOLECITHRIX HIBERNICA. n. sp.

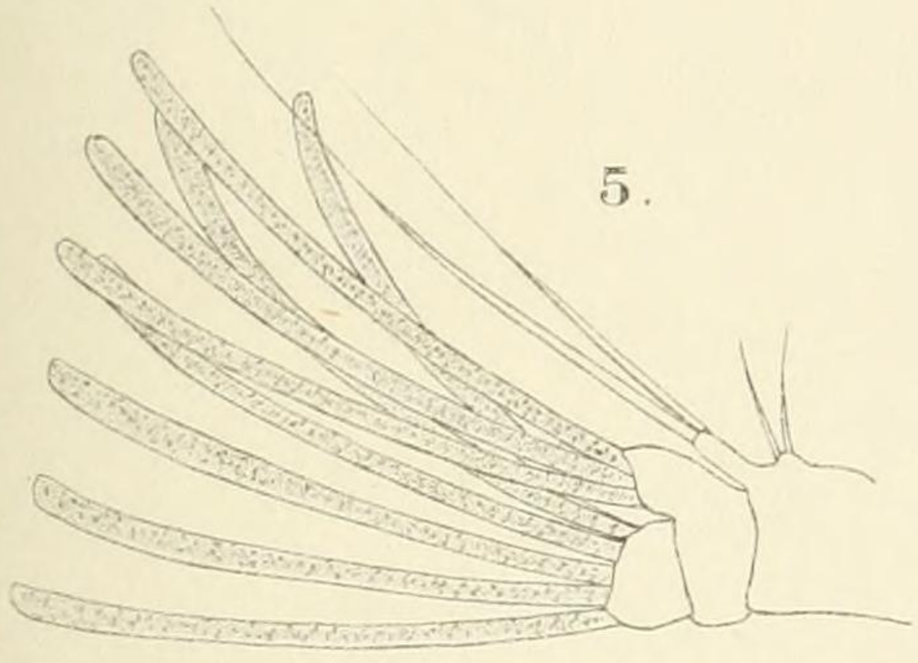
1.

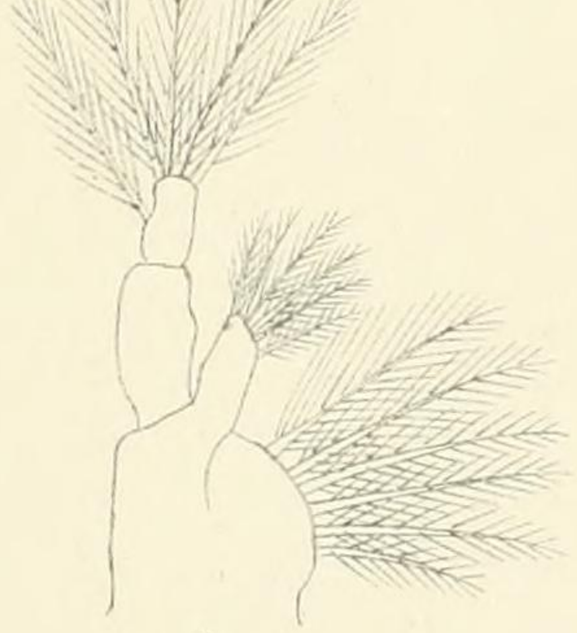


2.

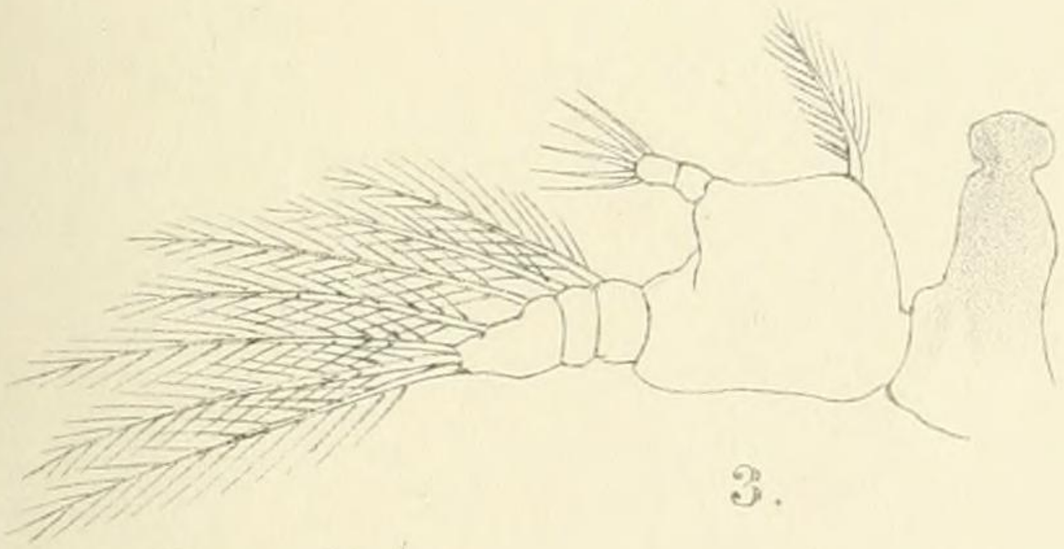


5.



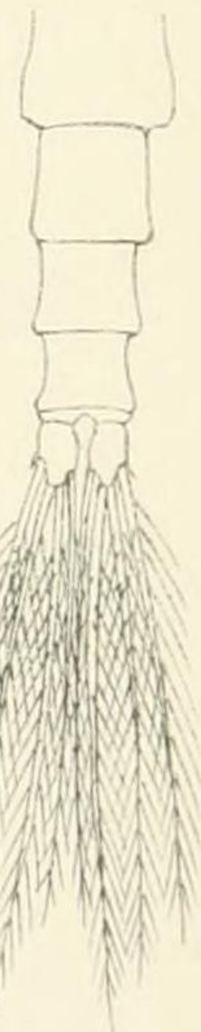


3.



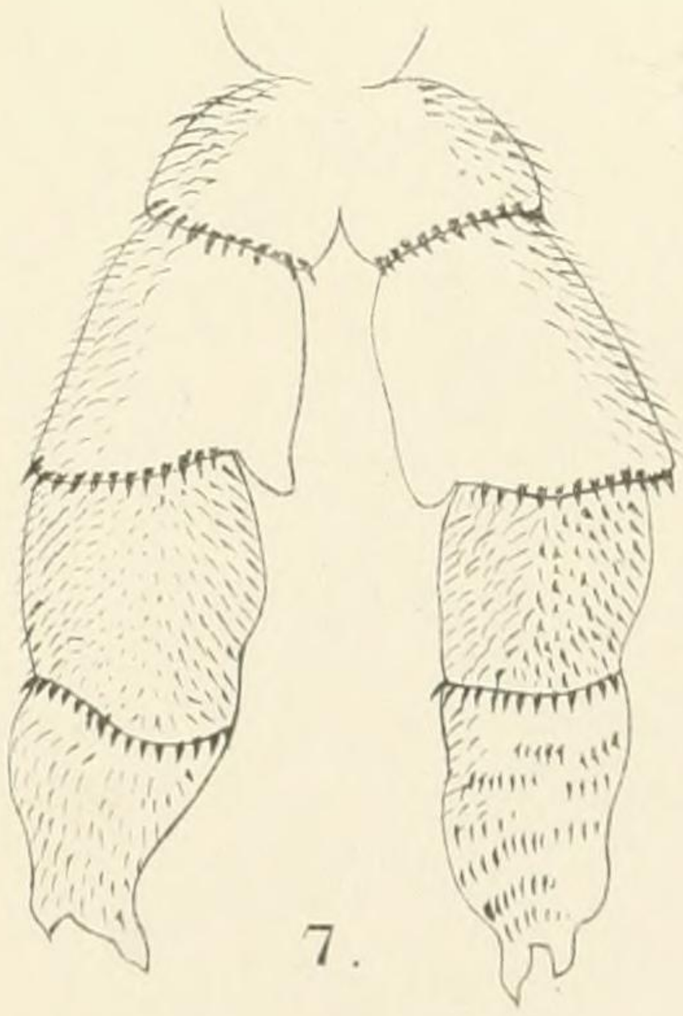
4.

8.

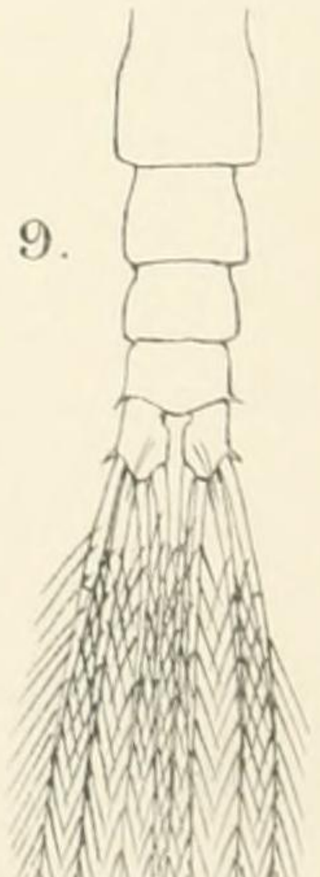


6.

7.



9.



A. Scott del. ad nat

SCOLECITHRIX HIBERNICA. n. sp.

Mintern Bros. lith.