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AUSTRALASIAN ANTARCTIC EXPEDITION
1911-14.

UNDER THE LEADERSHIP OF SIR DOUGLAS MAWSON, D.Sc., B.E.

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COPEPODA

BY

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WITH FIFTEEN PLATES

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Plates I–XV.

COPEPODA.

By G. STEWARDSON BRADY, M.D., LL.D., D.Sc., F.R.S.

(Plates I-XV.)

THE material submitted to me for investigation was unsorted, and was contained in a series of tubes, the contents of which were collected in the Antarctic and Sub-Antarctic areas between the dates of 21st June, 1912, and 2nd February, 1914. There was no dredged material, all the collections being tow-nettings, and some few of the tubes contained no recognisable copepoda. The number of species noted in this report is fifty-three, twenty-five of which appear to have been hitherto undescribed. Among these are six new genera, of which the descriptions I have been able to give are not always full enough to be quite satisfactory, owing to the paucity or poor condition of the specimens available. Several of the more prevalent Antarctic forms were previously known only from the descriptions of Dr. Giesbrecht in his report on the voyage of s.s. "Belgica." These seem to be purely Antarctic species, while, on the other hand, a few seem to be almost cosmopolitan in distribution, as for instance *Calanus propinquus*, *Rhincalanus gigas*, and *Microsetella atlantica*, while one or two, such as *Calanus finmarchicus* and *Oncaea conifera* would appear to be more especially denizens of the far North and far South—Arctic and Antarctic—although the last-named species is likewise recorded by Giesbrecht in his work on the Neapolitan Copepoda.

The new genera here described are :—

Diarthropus.
Streptocalanus.
Euchaetopsis.
Pseudocöthrix.
Plagiopus.
Mawsonella.

The new species are :—

Calanus aculeatus.
Diarthropus torticornis.
Paracalanus Mariae.
Streptocalanus typicus.

Gaetanus antarcticus.

Gaidius glacialis.

Euchirella plumosa.

„ *tumida.*

Paraeuchaeta plumifera.

Euchaetopsis Haswelli.

Pseudoöthrix anatinus.

Plagiopus australis.

Stephos simillimus.

Metridia Andrawana.

„ *trispinosa.*

Pleuromamma Wolfendeni.

Heterorhabdus Farrani.

„ *nigrotinctus.*

Mawsonella typica.

Amphiascus elegans.

„ *ignotus.*

Stenhelia glacialis.

Laophontodes latissimus.

„ *antarcticus.*

„ *echinatus.*

LIST OF STATIONS FROM WHICH COPEPODA ARE HERE RECORDED.

1. Off Macquarie Island, tow-net, 2 fathoms. (21st June, 1912.)
2. Off Maria Island, Tasmania, surface tow-net.
3. From Macquarie Island.
4. Off Macquarie Island, tow-net at night. (11th June, 1912.)
5. „ „ at sunrise. (11th June, 1912.)
6. „ „ all night. (11th June, 1912.)
7. Tow-net, 45 fathoms among pack-ice, Lat. $64^{\circ} 18' S.$; Long. $132^{\circ} 24' E.$; Temp. $5^{\circ} C.$ (4th January, 1914.)
8. „ 50 fathoms, Lat. $64^{\circ} 34\frac{1}{2}' S.$; Long. $127^{\circ} 8' E.$ (6th January, 1914.)
9. „ 100 fathoms. „ „
10. „ 25 fathoms, Lat., $64^{\circ} 34' S.$; Long., $117^{\circ} 1' E.$ (10th January, 1914.)
11. „ 100 fathoms, Lat., $64^{\circ} 34' S.$; Long., $117^{\circ} 1' E.$ (10th January, 1914.)
12. „ 100 fathoms, Lat., $64^{\circ} 50\frac{1}{2}' S.$; Long., $113^{\circ} 16' E.$ (9th January, 1914.)
13. „ 50 fathoms, Lat., $63^{\circ} 15' S.$; Long., $101^{\circ} 42' E.$ (9th January, 1914.)
14. „ 100 fathoms, Lat., $64^{\circ} 37' S.$; Long., $108^{\circ} 50' E.$ (12th January, 1914.)
15. „ 20 fathoms, Lat., $64^{\circ} 32\frac{1}{2}' S.$; Long., $91^{\circ} 20' E.$ (21st January, 1914.)
16. „ 25 fathoms, Lat., $63^{\circ} 28\frac{1}{2}' S.$; Long., $90^{\circ} 22' E.$ (7th February, 1914.)
17. „ Carnley Harbour, Auckland Islands.
18. „ 2 fathoms, all night, Lusitania Bay, Macquarie Island.
19. „ 100 fathoms, Lat., $63^{\circ} 15' S.$; Long., $101^{\circ} 42' E.$; Temp. $1.4^{\circ} C.$
20. „ Surface, Macquarie Island. (6th June, 1912.)

LIST OF STATIONS AT WHICH COPEPODA WERE TAKEN, WITH NAMES OF THE SPECIES.

The descriptions of the various stations are those officially supplied to me— but the numbers are such as I myself found convenient in working at the material, and do not entirely correspond with those given in the official list. Such stations as are omitted in the lists of species did not yield any recognizable specimens.

STATION 20.

Surface off Macquarie Island. 6th June, 1912.

Clausocalanus furcatus.

STATION 1.

Macquarie Island, tow-net, 2 fathoms. 21st June, 1912.

Calanus propinquus.

„ *tonsus.*

Clausocalanus furcatus.

Aetideus armatus.

Scolecithrix Römeri.

Metridia Gerlachei.

Pleuromamma Wolfendeni.

Heterorhabdus austrinus.

Plagiopus australis.

Microsetella atlantica.

Machairopus Sarsi.

„ *turgidus.*

Dactylopusia brevicornis.

Laophontodes latissimus.

STATION 2.

Tow-net off Maria Island, Tasmania, surface.

Calanus finmarchicus.

„ *propinquus.*

„ *tonsus.*

„ *aculeatus.*

Diarthropus torticornis.

Parucalanus Mariae.

Clausocalanus furcatus.

Gaetanus antarcticus.
Paraeuchaeta antarctica.
Metridia Gerlachei.
Oithona frigida.

STATION 3.

From Macquarie Island.

Boeckella brevicaudata.
Stenhelia glacialis.
Streptocalanus typicus.

STATION 4.

Off Macquarie Island, tow-net at night. 11th June, 1912.

Actideus armatus.
Metridia Gerlachei.
Haloptilus ocellatus.

STATION 5.

Off Macquarie Island, tow-net at sunrise. 11th June, 1912.

Calanus propinquus.
Clausocalanus furcatus.
Plagiopus australis.
Actideus Bradyi.
Metridia Gerlachei.
Spinocalanus Giesbrechti.
Euchirella plumosa.
Oithona frigida.
Harpacticus pulvinatus.
Laophontodes latissimus.

STATION 6.

Off Macquarie Island, tow-net all night. 11th June, 1912.

Calanus aculeatus.
Diarthropus torticornis.
Euchaetopsis Haswelli.
Stephos simillimus.
Boeckella brevicaudata.
Metridia andreaana.
Pleuromamma Wolfendeni.
Scolecithrix Römeri.
Oithona frigida.

STATION 7.

Tow-net, 45 fathoms among pack-ice, Lat., 64° 18' S.; Long., 132° 24' E.;
Temp., 5° C. 4th January, 1914.

Calanus propinquus.
 „ *tonsus.*
Rhincalanus gigas.
Paraeuchaeta antarctica.
Euchaetopsis Haswelli.
Streptocalanus typicus.
Metridia Gerlachei.
 „ *Andræana.*
Haloptilus ocellatus.
Amphiascus elegans.
Microsetella atlantica.
Dactylopusia brevicornis.
Mawsonella typica.
Laophontodes antarcticus.
 „ *echinatus.*
Oncaea conifera.

STATION 8.

50 fathoms, Lat., 64° 34½' S.; Long., 127° 8' E. 6th January, 1914.

Calanus propinquus.
Paracalanus parvus.
Clausocalanus furcatus.
Euchirella tumida.
Euchaetopsis Haswelli.
Streptocalanus typicus.
Scolecithrix Römeri.
Stephos longipes.
Metridia Andræana.
 „ *Gerlachei.*
Haloptilus ocellatus.
Microsetella atlantica.
Amphiascus ignotus.
Oncaea conifera.

STATION 9.

Tow-net, 100 fathoms, Lat., 64° 34½' S.; Long., 127° 8' E. 6th January, 1914.

Calanus finmarchicus.
 „ *tonsus.*
 „ *propinquus.*

Rhincalanus gigas.
Paraeuchaeta antarctica.
 „ *plumifera*.
Gaetanus antarcticus.
Pseudoöthrix anatinus.
Metridia Gerlachei.
Heterorhabdus austrinus.
 „ *Farrani*.
 „ *nigrotinctus*.
Racovitzanus antarcticus.
Metridia Gerlachei.

STATION 10.

25 fathoms, Lat., 64° 34' S.; Long., 117° 1' E. 10th January, 1914.

Calanus tonsus.
Rhincalanus gigas.
Gaetanus antarcticus.
Paraeuchaeta antarctica.
Streptocalanus typicus.
Metridia Gerlachei.
 „ *trispinosa*.
Amphiascus elegans.

STATION 11.

100 fathoms, Lat., 64° 34' S.; Long., 117° 1' E. 10th January, 1914.

Calanus propinquus.
 „ *aculeatus*.
Paraeuchaeta antarctica.
Euchaetopsis Haswelli.
Plagiopus australis.
Streptocalanus typicus.
Pseudoöthrix anatinus.
Scolecithrix Römeri.
Racovitzanus antarcticus.
Boeckella brevicaudata.
Metridia Gerlachei.
 „ *trispinosa*.
 „ *andreaana*.
Heterorhabdus austrinus.
 „ *Farrani*.
Oncaea conifera.

STATION 12.

100 fathoms, Lat., $64^{\circ} 50\frac{1}{2}'$ S.; Long., $113^{\circ} 16'$ E. 9th January, 1914.

Paraeuchaeta antarctica.
Plagiopus australis.
Heterorhabdus austrinus.

STATION 13.

50 fathoms Lat., $63^{\circ} 15'$ S.; Long., $101^{\circ} 42'$ E. 9th January, 1914.

Calanus propinquus.
 „ *aculeatus.*
Rhincalanus gigas.
Paracalanus parvus.
Euchirella tumida.
Scotceithrix Römeri.
Haloptilus ocellatus.

STATION 14.

100 fathoms, Lat., $64^{\circ} 37'$ S.; Long., $108^{\circ} 50'$ E. 12th January, 1914.

Rhincalanus cornutus.
Gaetanus antarcticus.
Gaidius glacialis.
Paraeuchaeta plumifera (?).

STATION 15.

20 fathoms, Lat., $64^{\circ} 32\frac{1}{2}'$ S.; Long., $91^{\circ} 20'$ E. 21st January, 1914.

Calanus propinquus.
Longipedia Scotti.

STATION 16.

25 fathoms, Lat., $63^{\circ} 28\frac{1}{2}'$ S.; Long., $90^{\circ} 22'$ E. 7th February, 1914.

Rhincalanus gigas.
 „ *cornutus.*
Paraeuchaeta antarctica.
Metridia Gerlachei.
Heterorhabdus austrinus.

STATION 17.

Carnley Harbour, Auckland Islands, tow-net.

Paracalanus parvus.
Acartia ensifera.

STATION 18.

“Aurora,” sub-antarctic, Lusitania Bay, 2 fathoms, tow-net all night.

Calanus aculeatus.

Paracalanus parvus.

Clausocalanus furcatus.

Oithona sp.

Tisbe tenuimana.

Machairopus Sarsi.

„ *digitatus.*

STATION 19.

Tow-net 100 fathoms, Lat., 63° 15' S.; Long., 101° 42' E.; Temp. 1°—4°C.

Calanus tonsus.

Paraeuchaeta antarctica.

AMPHASCANDRIA.

Family CALANIDÆ.

Genus CALANUS Leach, 1816.

1. CALANUS FINMARCHICUS (*Gunnerus*).

Calanus finmarchicus Sars, 1901, Vol. IV, p. 9, plates I, II, III.

A few examples, which are indistinguishable from this northern species, except in point of size, were found in gatherings taken by the tow-net off “Maria Island, Tasmania.” Southern specimens (females only) are a little over 3 mm. in length, the normal length of the Norwegian animal, according to Professor G. O. Sars, being 4 mm., and of the largest Arctic specimens 5 mm. It is quite likely, however, that many other examples of the species may have been overlooked, it being impossible accurately to separate the various species without careful examination of each individual.

2. CALANUS PROPINQUUS *Brady*.

Calanus propinquus Brady, 1883, p. 34, plate II, figs. 1-7; plate XIV, figs. 10, 11.

„ „ Giesbrecht, 1902, p. 26, Taf. 1, figs 1-8.

This is by much the most abundant of all the Copepoda in the collections submitted to me. Scarcely any of the tubes were without examples of it, and in very many it constituted the greater part of the gathering. The following list indicates the localities in which I have notes of its occurrence.

STATIONS 1, 2, 5, 7, 8, 9, 11, 13, 15.

I do not doubt that many specimens here referred to *C. propinquus* might properly be identified with *C. simillimus*, as defined by Dr. Wolfenden in his report on the Copepoda of the Antarctic expedition, and accepted by Dr. Giesbrecht in the "Belgica" report, though apparently only as a variety. But the variations as seen amongst the very numerous specimens are so interminable that I prefer to leave them as being simply indications of the latitude which, in this respect must be allowed to a widely distributed and evidently very prolific species.

3. *CALANUS ACULEATUS* *sp. nov.*

(Plate IX, figs. 19-23).

(?) *Calanus simillimus* Giesbrecht, 1902, plate I, fig. 9.

Female.—Length, 2.5 mm. Anterior division of the body seen dorsally, compressed, ovate, rounded in front, tapered rather abruptly behind, the last thoracic segment produced backwardly into two sharply aculeate spines; abdomen comparatively short, less than one-half the length of the cephalothorax; caudal laminae twice as long as broad, equal in length to the last abdominal segment, the second caudal seta very much longer than the others. Anterior antennae much longer than the body, reaching when reflexed beyond the extremities of the tail setae. The two apical antennal setae bear long hairs on the outer margins. The teeth of the mandibles are abnormally short and blunt. The basal joint of the palp is distorted, its distal end dilated into a prominent marginal nodule. The mouth organs and natatory feet are of the usual type; the basal joint of the fifth pair is serrated on its inner margin, the three or four distal spines slightly separated from the rest, very prominent, and much stronger in build.

The only gatherings in which this species occurred were from Stations 13 and 18—Lusitania Bay, tow-net all night, 2 fathoms; and off Maria Island, Tasmania, Station 2. Many specimens were found.

Though the marginal spines of the fifth feet are to some considerable extent different from those of *C. propinquus*, they scarcely form in themselves sufficient basis for a distinct species; but the very well-marked spinous extremity of the metasome, together with the characters of the mandibles and anterior antennae, seem to preclude a reference to *C. propinquus*, the only closely-allied species.

4. *CALANUS TONSUS* *Brady*.

Calanus tonsus Brady, 1883, p. 34, plate IV, figs. 8, 9.

The description and figures of this species given in the "Challenger" report are scarcely sufficient for accurate diagnosis, but on reference to actual specimens from one of the "Challenger" gatherings, I think that in many of the Antarctic collections there

are examples which may fairly be referred to the same species. They are at once distinguishable from *C. finmarchicus* and *C. propinquus* by the absence of spinous armature on the basiopodites of the fifth pair of feet. I have noticed also that in some cases both branches of the fifth pair are only bi-articulate, and I find a similar state of things in some of the "Challenger" specimens—possibly a character of immaturity. But since the foregoing paragraph was written I have received from my old friend and pupil, Miss Marie V. Lebour, an extremely interesting paper on the life history of *Calanus finmarchicus*, which entirely confirms my suspicions of immaturity of the bi-articulate fifth pair of feet. The research on the development of this *Calanus* was begun by Mr. L. R. Crawshay in the Plymouth Laboratory, and completed by Miss Lebour after the original author had left for the war. It embraces a complete account of the development of all the limbs and appendages from the nauplius stage onwards, and finally sets at rest any doubt as to the meaning of the bi-articulate fifth foot.* The form described by Dr. Giesbrecht in his "Belgica" report, under the specific name *acutus*, may perhaps belong to the present species. The stations in which *C. tonsus* occurred are as follows:—

Stations 1, 2, 7, 8, 9, 12.

Genus DIARTHROPUS *gen. nov.*

Four pairs of feet in the female, five in the male; exopodite and endopodite uniformly bi-articulate, except as to the fifth pair of the male, both branches of which are one-jointed. Abdomen of the male three-jointed; of the female two-jointed.

DIARTHROPUS TORTICORNIS *sp. nov.*

(Plate VI, figs. 11–19.)

Length, 1.6 mm. Anterior antennæ twenty-four jointed, stout, almost without marginal setæ, except the three terminal joints, each of which bears a long hair. The antennæ, in all the full-grown specimens which I have seen, are bent so as to form a sub-circular loop, the apical joints coming almost in contact with the base of the limb. There are two frontal tentacular filaments. Mandibular palp small, consisting of a rather bulky base from which arise two short branches, of one and two joints respectively. Both branches of the first four pairs of feet are bi-articulate; those of the fifth pair in the male consist of one joint only.

Only few specimens of this species were found, but among the profusion of small fry, from which they are not readily distinguishable, doubtless more are to be detected by careful search. The only localities in which they were found are Station 2, off Maria Island, Tasmania, and Station 6, off Macquarie Island.

*Stages in the Life History of *Calanus finmarchicus* (Gunnerus). Reared by Mr. L. R. Crawshay in the Plymouth Laboratory, by Marie V. Lebour, M.Sc.

Family EUCALANIDÆ.*Genus* RHINCALANUS Dana, 1852.

1. RHINCALANUS GIGAS Brady.

(Plate I.)

Rhincalanus gigas Brady, 1883, p. 42, plate VIII, figs. 1-11.*Rhincalanus nasutus* Giesbrecht, 1893, p. 152, plates 3, 9, 12, 35.,, *grandis* Giesbrecht, 1902, p. 18, Taf. 1.

There are no points of difference, so far as appears from the published descriptions and drawings, between the species named above. The feet of the fifth pair in the female (Plate I., fig. 7) are quite characteristic, and, so far as I know, are unlike those of any other species.

Drawings of some of the more interesting details of the male animal are here given. The head and rostral filaments are rather deeply pigmented, and in one of the specimens there is a circular black pigment spot in the median line at the back of the head. The proximal joints of the anterior antennæ—at least seven or eight of them—bear club-shaped sensory setæ as well as fascicles of branched and simple hairs. The outer branch of the posterior antennæ is eight-jointed, nodose, and is much the shorter of the two branches. The foot of the right side in the fifth pair is simple, three-jointed, with a very long falciform apical claw near the base of which are two or three short spine-like setæ; the foot of the left side consists of a stout basal joint, from which spring a bi-articulate endopodite and a single-jointed exopodite, both of which are finely setiferous; the abdomen is 4-articulate.

R. gigas occurred plentifully in gatherings from the following Stations:—

7, 8, 9, 13, 14, 16.

Three or four specimens of more than the usual size were also found washed up on a sandy beach after a storm at Macquarie Island.

2. RHINCALANUS CORNUTUS Dana.

Rhincalanus cornutus Dana, 1852, p. 1083, plate 77, figs. 2-a-d.

,, Brady, 1883 p. 41, plate VII, figs. 1-10.

,, Giesbrecht 1893, p. 153, plates XII and XXXV.

Two examples only of this species were observed, from Stations 14 and 16.

Family PARACALANIDÆ.*Genus* PARACALANUS Boeck, 1864.

1. PARACALANUS PARVUS Claus.

Calanus parvus Claus, 1863, p. 173, plate XXVI, figs. 10-14, plate XXVII,—figs. 1-4.*Paracalanus parvus*, G. O. Sars, 1901, p. 17, plates VIII and IX.

Fairly common at Stations 8, 13, and 18, and almost the only recognisable species a gathering from Carnley Harbour, in the Auckland Islands—Station 17.

2. PARACALANUS MARLÆ *sp. nov.*

(Plate I, figs. 9-14.)

Male.—This species, of which two males and two females only have been observed, differs from the foregoing in several rather important points. The proportionate lengths of the abdominal segments, which in *P. Marlæ* are as follows:—
 $\frac{1, 2, 3, 4.}{1, 1\frac{1}{2}, 1, 3.}$ The fourth segment, however, shows an apparently incomplete line of division. The basal joint of the posterior maxilliped is produced in a mamilliform fashion and is covered with three rather large setæ, more conspicuously than in *P. parvus*. The third and fourth pairs of swimming feet have the distal portion of the last joint of the exopodite armed with a series of very minute spines; the other swimming feet are entirely devoid of spines. The feet of the fifth pair are similar to those of the male *P. parvus*, except that the joints of the longer branch are nearly equal in length instead of being very unequal, as in *P. parvus*.* The specimens on which this description is based were taken at Station 2—off Maria Island, Tasmania.

Family PSEUDOCALANIDÆ.*Genus* CLAUSOCALANUS *Giesbrecht*, 1888.CLAUSOCALANUS FURCATUS (*Brady*).

Drepanopus furcatus *Brady*, 1883, p. 77, plate IV, figs. 1, 2; plate XXIV, figs. 12-15.

This species, which seems to me indistinguishable from *C. arcuicornis* *Giesbr.*, was found in two nettings from Stations 2, 5, 8 and 18. I find it impracticable on the strength merely of the segmental lengths of the abdomen and furca, which are chiefly relied upon by *Dr. Giesbrecht* and *Andrew Scott*, to diagnose the two species with any reasonable accuracy.

Genus SPINOCALANUS *Giesbrecht*, 1888.SPINOCALANUS GIESBRECHTI *sp. nov.*

(Plate VIII, figs. 21-25.)

Male.—Anterior antennæ comparatively short, reaching to the level of the second pair of natatory feet; endopodites of the third and fourth pairs of feet in the male armed with spines as in the type species, the exopodites bearing on the distal segment three sets of very minute spines, about three or four spines in each group; fifth pair of feet imperfectly seen, the foot of each side made up apparently of three linear joints with three terminal setæ; abdomen composed of four nearly equal segments.

Female.—Abdomen of three segments, third more than equal in length to the combined anterior segments; fifth pair of feet rudimentary, composed of two or three stout joints with a minute inner branch.

*The fifth pair of the female similar to those of *P. parvus*.

There seems little reason to doubt that the two specimens on which the foregoing description is founded represent the two sexes of the same species; that which I take to be the female, possesses however, no spinous armature on any of the limbs, and the fifth pair of feet may perhaps be immature.

The species here described I very doubtfully refer to the genus *Spinocalanus* of Giesbrecht. The fifth pair of feet, according to Sars, are absent in the female, whereas in the present species they are present in a very rudimentary form, unless indeed, the figure here given be taken to be an immature male. Moreover, the third and fourth pairs of feet of *S. Giesbrechti* are by no means so profusely spiniferous as in the typical form, agreeing more closely with those of *Racovitzanus* Giesbrecht.

The specimens were taken by the tow-net at sunrise, Station 5, off Macquarie Island.

Genus STREPTOCALANUS *gen. nov.*

Anterior antennæ 23 jointed not geniculated, the internodes of most of the median joints constricted, the joints about as long as broad, except the eighth which is much longer; mandibles well developed as regards the palp, but wanting as to the cutting blade which is altogether absent or remains as a mere nodule; fifth pair of feet in the male two branched, the branches simple but very unequal in length.

STREPTOCALANUS TYPICUS *sp. nov.*

(Plate V, figs. 1-9.)

Pseudocalanus psgmæus, Mrázek, p. 508, Plate V, figs. 2-7, 7a.

The peculiar curve of the fifth foot when seen laterally, together with the conspicuously beaded character of the anterior antennæ are sufficient to indicate this species at a glance. The biting plate of the mandible seems to be usually absent, but in some specimens there is an amorphous process which represents that part of the limb; the exopodites of the swimming feet are all three-jointed, the endopodites of the first pair one-jointed (incompletely divided), the second pair two-, the third and fourth three-jointed. The fifth pair is two-branched, the larger right branch made up of five digitiform subovate segments, the smaller branch of two similar segments. Outer branch of the posterior antenna much longer than the inner. Length of male 1.075 mm. Female unknown. Found very sparingly in Stations 3, 7, 8, 10, 11.

The swimming feet resemble rather closely those of *Spinocalanus*, but are altogether without spines, and in other respects there is little in common between the two. But it is evident that the species referred doubtfully by Dr. Mrázek (*loc. cit.*) to *Pseudocalanus pygmaeus* G. O. Sars, is closely allied to the *Streptocalanus* here described.

The admirable figures given in "Arktische Copepoden," leave little or no doubt on the matter. Perhaps I may be forgiven if I suggest that the figure of the mandible of "*Spinocalanus Schaudinni*" may have been accidentally transferred from "*Pseudocalanus pygmaeus*." It is wholly unlike the mandible of a typical *Spinocalanus*, and might very well stand for that of *Streptocalanus*.

Family AETIDEIDÆ.*Genus* AETIDEUS *Brady*, 1883.AETIDEUS BRADYI *A. Scott*.

(Plate VIII, figs. 19, 20.)

Aetideus Bradyi *A. Scott*, 1909, p. 38, plate 5, figs. 1-12.

A single specimen agreeing in all respects with the species described by Mr. Andrew Scott, was found in a tow-net gathering taken off Macquarie Island at sunrise. Station 5.

AETIDEUS ARMATUS *Boeck*.

Taken in gathering from off Macquarie Island. Stations 1 and 4.

Specimens which I refer with some little doubt to this species, seem to agree entirely with the descriptions and figures given by Professor G. O. Sars.

The Macquarie specimens are very few in number and the mutilated condition of most of them renders the identification difficult.

Genus GAETANUS *Giesbrecht*, 1888.GAETANUS ANTARCTICUS *sp. nov.*

(Plate III, figs. 1-6 and fig. 19.)

Female.—Apparently more closely related to *G. armiger* than to any other species, but larger. The metasome is much more robust and the spinous processes of the posterior segment are not nearly so well developed; rostrum small and inconspicuous; abdomen short and stout, the first (genital) segment equal in length to the following three; median joint of external ramus of posterior antenna large, and bearing a conspicuous marginal protuberance; marginal processes of the posterior maxillipeds strongly developed, that of the right side forming a sharply pointed dagger-like hook, that of the left side smaller and blunt; apical spines of the swimming feet with very strong sharp marginal teeth.

The mamilliform protuberances of the posterior antennæ and the lamellar outgrowths of the posterior maxillipeds vary very considerably in character, and, as has been remarked by Mr. Andrew Scott, as regards the maxillipeds, may perhaps be more than usually subject to distortion by pressure or other mechanical causes. Length 5 mm. Found only at Stations 2, 10 and 14, sparingly.

Genus GAIDIUS *Giesbrecht*, 1895.GAIDIUS GLACIALIS *sp. nov.*

(Plate VII, figs. 12-18.)

Length of female 2.85 mm. Body moderately robust, metasome seen dorsally thrice as long as broad, last segment truncated, with two short sharp spines at the

angles; rostrum short and undivided; abdomen composed of four nearly equal segments, scarcely one-fourth as long as the metasome; furcal plates about as long as the last abdominal segment. Inner branch of the posterior antenna shorter than the outer branch; which bears on the inner side of its first joint a rather conspicuous hook-like process. The feet consist on each side of a stout basal joint at the free end of which are attached an endopodite and exopodite, each of a single joint, the outer about three times as long as the inner, dagger-like with three small apical spines; the inner branch small and bulbous in shape.—One specimen only seen, from 100 fathoms. Station 14.

The fifth pair of feet agree very closely with figures of the same limb of *Aetideus armiger* given by Dr. T. Scott in his paper on Entomostraca from the Gulf of Guinea, but otherwise there seems to be little or no similarity between the two species. This single specimen was very imperfect, all the swimming feet being fragmentary; possibly it may represent an immature state of a *Gaetanus*.

Genus EUCHIRELLA Giesbrecht, 1888.

EUCHIRELLA PLUMOSA sp. nov.

(Plate II, figs. 14–19.)

As regards the basal spines of the fourth feet this species is somewhat like *E. maxima*, Wolfenden, as figured by Mr. Andrew Scott, but has two conical processes instead of the single one of *E. maxima*; the abdomen of the female is also quite dissimilar in the two species, being in *E. plumosa* quite without marginal serratures. The apical spines of the swimming feet are longer than the last joint of the exopodite, very strongly toothed on the outer and densely ciliated on the distal half of the inner margin; the basal joints of the first pair of feet bear dense fascicles of setæ internally; the furcal setæ and those of the several appendages are finely plumose. The locality of the specimens has been lost (Station 5.).

EUCHIRELLA TUMIDA sp. nov.

(Plate III, figs. 7–12.)

Length of female, 2.2 mm. Branches of the fifth pair of feet in the male of equal length, apical joint of the exopodite curved and crenulated on its outer margin; apical spines of the swimming feet barely as long as the last joint of the exopodite, the outer margins finely pectinated. The female specimen here figured was very much damaged, and the feet of the fourth pair could not be found. Taken at Stations 13 and 8.

Genus PARAEUCHÆTA A. Scott, 1909.

This genus was proposed by A. Scott to comprise those Euchætiform species which differ from the typical form in having the terminal setæ of the anterior maxillipeds minutely pectinated in lieu of bearing long bristles, the males also being slightly different as to the fifth pair of feet.

PARAEUCHÆTA ANTARCTICA *Giesbrecht*.

Euchæta antarctica Giesbrecht, 1902, plate III, figs. 1-5.

Specimens which may fairly be referred to this species were taken at Stations 2, 7, 9, 10, 11, 16, 19; but the differences between this and *Euchæta austrina*, described also by Dr. Giesbrecht in the same paper, are so slight as to seem almost negligible. Both *E. austrina* and *E. antarctica* are referable to the genus *Paraeuchæta* as defined by Mr. A. Scott.

PARAEUCHÆTA PLUMIFERA *sp. nov.*

(Plate XIV, figs. 7-11.)

Only one imperfect specimen of this species was found, but the profusely plumose character of the limbs and appendages, except the anterior antennæ, which are of the usual *Euchæta* type, seems to separate it from any hitherto described species. It was found in the proceeds of the tow-net from Station 9, at a depth of 100 fathoms. Another specimen, which may possibly belong to the same species, occurred in the gathering from Station 14, but is not sufficiently developed to name with certainty.

Genus EUCHÆTOPSIS *nov. gen.*

Like *Euchæta*, except that the abdomen (of the female) consists of only two segments, and that both branches of the natatory feet are of one joint only, except in the fourth pair, the exopodite of which is bi-articulate.

EUCHÆTOPSIS HASWELLI *sp. nov.*

(Plate IX, figs. 1-7.)

Female.—Length 2.5 mm.; body somewhat compressed, urosome, including the caudal laminae, one-third the length of the metasome. Rostrum short and sharp, only slightly prominent, antennæ reaching to the hinder extremity of the animal, and bearing long, slender setæ, as in the typical *Euchæta*. Second segment of the abdomen twice as long as the first; caudal laminae about half as long as the preceding segments. Second seta of the tail very long, as in *Euchæta*. Exopodite of the first foot slightly sinuated, its outer margin with a small angular prominence which bears a rigid spine-like seta; terminal spines of the exopodites long, slender, and finely pectinated. The apical setæ of the first pair of maxillipeds are very finely and closely ciliated, as described by Mr. Andrew Scott in the case of *Paraeuchæta*.

A few specimens of *Euchætopsis* occurred in the tow-net collection from Stations 6, 7 and 11.

It seems possible that the specimens here referred to a new genus—*Euchætopsis*—may perhaps represent only a stage of development of *Euchæta*, or some allied form, but in the absence of certain knowledge as to this matter I have proposed an altogether new generic name.

Genus PSEUDOÖTHRIX *nov. gen.*

(Oothrix Farran, 1905.)

This proposed new genus differs from *Oothrix* as described by Farran in having swimming feet with bi-articulate exopodites in the absence of "sausage-shaped sensory filaments" on the first maxillipedes, and in the bifurcate fifth pair of feet, with rudimentary exopodite and endopodite.

PSEUDOÖTHRIX ANATINA *sp. nov.*

(Plate VII, figs. 1-11.)

Female (?).—Length 1.55 mm. Anterior antennæ jointed, reaching to third thoracic segment; rostrum short and thick, duck-bill shaped. Outer branch of the posterior antenna slightly longer than the internal. First pair of maxillipeds short and stout, with three long distal setæ arising from thick, digitiform, much-swollen bases; posterior maxillipeds of the usual type; exopodites of the first pair of feet bi-articulate endopodites of one joint only; the second, third, and fourth pairs of feet have both endopodites and exopodites bi-articulate, the exopodite much the longer of the two; terminal spines as long as the foregoing joint, with finely pectinated outer margin; fifth pair of feet very short and stout, each composed of a thick bi-articulate base, from which spring two very short subovate digits, representing the exopodite and endopodite. Four individuals of this species were observed, one or two of them very deeply pigmented. They were taken at Station 11, at a depth of 100 fathoms; one specimen from Station 9.

These specimens agree in most respects so completely with Farran's description of the genus *Oothrix* that I am disposed to doubt whether they might not properly be referred to that genus. The differences, however, as to the fifth pair of feet are remarkable, as also the jointing of the various swimming feet. Moreover, the "sausage-shaped sensory filaments" of the first maxillipeds, on which Dr. Farran lays special stress, are not present in the Antarctic specimens, unless it may be supposed that they are represented by the much-dilated bases of the terminal hairs. It is noteworthy that Farran's description rests upon only one undoubted specimen, and it seems not at all unlikely that this may have suffered loss of hairs originally attached to the sausage-shaped structures. The size of *Oothrix bidentata* is given as 3 mm., more than twice that of the present species.

Genus PLAGIOPUS *nov. gen.*

Anterior antennæ having twenty joints, long, slender, and very flexuous. Exopodites of the first four feet bi-articulate; endopodites uni-articulate, that of the second pair deeply and angularly emarginate, as in the second exopodite of *Undina vulgaris*; fifth pair simple, each branch composed of a single joint.

PLAGIOPUS AUSTRALIS *sp. nov.*

(Plate VIII, figs. 1-9.)

Female.—Length 1.3 mm. Anterior antennæ indistinctly jointed at the base, terminal joints long and slender, with a distinct bend between the fourteenth and

fifteenth, and fifteenth and sixteenth joints, but no perceptible geniculated hingement. Anterior maxilliped short and stout, with five setiferous digits on the anterior margin; posterior maxilliped five-jointed, the terminal lash composed of only three joints; endopodite of the second pair of feet having a deeply excavated fossa on the inner margin, which is protected by a spine both above and below; terminal spines of the exopodites linear, long and slender, very finely pectinated on the outer edge. Fifth pair of feet consisting of a simple wedge-shaped uni-articulate (or very indistinctly divided) branch on each side, very broad at the base, much narrowed distally, and bearing at the apex two short spines. Abdomen of two segments, the second twice as long as the first and rather tumid; furcal plates twice as long as broad. *Male* unknown.

Two specimens have been detected, from Stations 11 and 12 respectively, depth 100 fathoms; also one from Station 1, off Macquarie Island, 2 fathoms, and others from Station 5.

Family SCOLECITHRICIDÆ.

Genus SCOLECITHRIX *Brady*, 1883.

SCOLECITHRIX RÖMERI *Mrázek*

(Plate II, figs. 8–13).

Scolecithrix Römeri Mrázek, 1902, p. 513, plate VI and text, figs. 10–12.

„ *glacialis* Giesbrecht, 1902, p. 25, plate IV, figs. 1–7.

The specimens here figured are undoubtedly identical with the species named by Mrázek *Scolecithrix Römeri*. It seems doubtful, however, whether the species can be rightly referred to that genus. The group of vermiform hairs on the posterior maxillipeds, which are faintly indicated in Mrázek's figures, are barely perceptible in the Antarctic specimens, and are scarcely recognisable as the structures from which the generic name of the "Challenger" specimens was derived. But the generic reference may stand, at any rate provisionally. The female only is described and figured by Dr. Giesbrecht, and is evidently identical with Mrázek's species. The date of publication is the same in both cases—1902. The Mawson expedition specimens are from Stations 1, 6, 8, 11 and 13.

Genus RACOVITZANUS *Giesbrecht*, 1902.

RACOVITZANUS ANTARCTICUS *Giesbrecht*.

Racovitzanus antarcticus Giesbrecht, 1902, p. 26, plate IV, figs. 8–13; plate V, figs. 1–5.

(Plate III, figs. 13–18.)

Two or three specimens found at a depth of 100 fathoms. Stations 9 and 11.

Family STEPHIDÆ.*Genus* STEPHOS *Scott*, 1892.STEPHOS LONGIPES *Giesbrecht*.

(Plate II, figs. 1-7.)

Stephos longipes *Giesbrecht*, 1902, p. 20, plate II, figs. 6-14.

Two specimens of *S. longipes* occurred in the gathering from Station 8. Judging from Dr. Giesbrecht's illustrations one of these would seem to belong to an immature male, the other possibly to an adult female (fig. 1). There is a short and stout bifid rostrum, the posterior maxillipeds are very much elongated and slender, the swimming feet agree accurately with those limbs as figured by Dr. Giesbrecht.

STEPHOS SIMILLIMUS *sp. nov.*

(Plate IX, figs. 12-18.)

Female.—Length 1.2 mm. This species, of which several examples occurred in the tow-net gathering from Station 6, agrees in most respects with the description and figures of *S. lamellatus* given by Professor G. O. Sars in vol. 5 of his work on the Crustacea of Norway, the most important distinctive characters belonging to the third, fourth and fifth pairs of feet. The basal joint of the fourth pair has three spine-like hairs on its inner margin and one or two similar hairs arising from a not very clearly defined laminar expansion on its front surface; the terminal joint of the third exopodite has on its anterior surface three crescentic groups of very minute spines; the fifth pair is simple, each branch consisting of three linear joints without spinules or marginal cilia. Posterior maxillipeds long and slender, the internodes scarcely at all constricted. Of the *male* I have seen no examples.

HETERARTHRODRIA.

Family CENTROPAGIDÆ.*Genus* BOECKELLA *de Guerne and Richard*.BOECKELLA BREVICAUDATA *Brady*.

(Plate V, figs. 10-18).

Centropages brevicaudatus *Brady*, Ann. and Mag. Nat. Hist., ser. 4, September, 1875; vol. XVI, p. 162, and Phil. Trans, vol. 168, p. 215, plate XII, figs. 11-19.

Boeckella vexillifera *Ekman*, 1905, p. 16, plate I, figs. 7-12

Female.—Length 1.75 mm. Seen dorsally the metasome is of nearly equal width throughout, the width equal to about one-third of the entire length, the hinder part expanded so as to form two large acutely pointed lateral wings, the head very wide

in front, almost subtruncate; abdomen very short, 3-segmented, the first (genital) segment much the largest. Anterior antennæ 24-jointed, the joints of nearly equal size, but increasing somewhat in length beyond the middle, and reaching nearly to the hinder extremity of the metasome. Furcal laminae as long as the last abdominal segment, each bearing five short setæ. The ovarian masses are very large, containing a variable number of eggs—5 to 20. Posterior maxillipeds short and stout, with two long basal joints and a terminal portion of four small joints. Exopodites and endopodites of all the swimming feet three-jointed—the endopodite of the first pair indistinctly; middle joint of exopodite of fifth pair produced internally into a long spine, which is strongly pectinated on the distal margin.

Male.—Right anterior antenna of the male strongly geniculated; the penultimate joint giving attachment marginally to the small terminal joint. Fifth pair of feet strongly clawed, that of the right side without an endopodite, that of the left side with a small 3-jointed endopodite. This was the principal constituent of a gathering from Macquarie Island—Station 3—and from one marked C. 17; single specimens were also found in the proceeds of Station 11, 100 fathoms; and from the night tow-net off Macquarie Island, but these latter were doubtless interlopers from some littoral locality.

The species was first described (*loc. cit.*) from specimens taken in the fresh-water lakes of Kerguelen Island, and was assigned erroneously to the genus *Centropages* under the impression that the specimens were oceanic. Several allied forms more recently discovered in widely different areas have been ascribed to the same or newly-named genera, but all seem to be inhabitants of fresh or brackish water. Dr. Ekman's specimens were from fresh water in the Falkland Islands and Tierra del Fuego.

Family METRIDIIDÆ.

Genus METRIDIA Boeck, 1864.

METRIDIA GERLACHEI Giesbrecht.

(Plate IV, figs. 19–23.)

Metridia Gerlachei Giesbrecht, 1902, p. 27, plate 5, figs. 6–14.

The characters of this species, based chiefly on the comparative lengths of the abdominal segments and on the fifth pairs of feet in both sexes, are practically identical with those of *Metridia longa*, as given by Dr. Giesbrecht in his great work on the Copepoda of the Gulf of Naples. I give here figures of some of the more important parts of *M. Gerlachei*, drawn from Antarctic specimens. The species occurred commonly in gatherings from Stations 2, 4, 5, 7, 8, 9, 10, 11, 16.

METRIDIA ANDREANA *sp. nov.*

(Plate IX, figs. 8–11.)

A few specimens which I was at first disposed to refer to *M. Boeckii*, Giesbrecht, I now take to belong to a different species hitherto undescribed. The fifth feet in the

female are exactly like those of *Boeckii* as figured by Dr. Giesbrecht, but the segmentation of the abdomen is in both sexes entirely distinct, if I am right in assigning the two forms here figured to the two sexes of one and the same species. The fifth pair in the male are more simple than in the recognised *Metridia*, and indeed do not much differ from those of the female except as to size. Abdomen in both sexes four-jointed, the first three segments nearly equal in size; fourth nearly twice as long as either of the preceding segments; caudal laminae about twice as long as broad, more than half as long as the last abdominal segment. The specific name *Andræana* is adopted in recognition of the assiduous study which Mr. Andrew Scott has for many years devoted to the Copepoda, both British and foreign.

The specimens here noted occurred in gatherings from Stations 6, 7, 8 and 11.

METRIDIA TRISPINOSA *sp. nov.*

(Plate XIV, figs. 12-17.)

Male.—Length 3 mm. (*circa*.) The anterior antennae are very slender and almost destitute of marginal setae, except towards the base; the basal joints have not the rugose aspect which characterises most species of this genus, but the second, fourth and sixth segments have each a sharp spine at the distal extremity; the hooks at the base of the second endopodite are strong and well developed; the first (genital) segment of the abdomen is equal in length to the combined length of the two following segments, but shows an imperfect division in the middle, the last segment has two sharp backwardly-directed spines on its anterior surface; furcal laminae three times as long as broad. Fifth pair of feet in the male very stout, the basal portion three-jointed, with prehensile apical processes; (mutilated in these specimens).

Two specimens only have been seen, both of them imperfect—taken at Stations 10 and 11.

Genus PLEUROMAMMA Giesbrecht, 1898.

PLEUROMAMMA WOLFENDENI *sp. nov.*

(Plate VIII, figs. 10-18.)

Female.—Basal joints of the anterior antennae strongly spined marginally; exopodites of all the swimming feet bi-articulate, endopodites one-jointed; endopodites of the second pair slightly emarginate at the base, with a small subjacent spine; first joint of the fourth exopodite much produced externally, forming a prominent hook-like projection which ends in a sharp spine; fifth pair of feet somewhat like those of *P. gracile*, the terminal joints not cleft but bearing irregular fascicles of short bristles; abdomen stout, composed of three segments, the third equal in length to the combined anterior segments; "eye spot" situated on the right side of the thorax, circular, composed of three coalescent pigment cells. Apical spines of the exopodites lancet shaped, scarcely half as long as the last joint.

Two specimens only of this species were seen; both of them taken in the tow-net at a depth of two fathoms off Macquarie Island.

Family HETERORHABDIDÆ.

Genus HETERORHABDUS Giesbrecht, 1898.

HETERORHABDUS AUSTRINUS *Giesbrecht*.

(Plate IV, figs. 1-9.)

Heterorhabdus austrinus Giesbrecht, 1902, p. 28, Plate 6, figs. 1-9.

This species is closely allied to *H. Clausi* Giesbrecht, the chief difference being the absence of a hook-like spine on the first joint of the fifth exopodite of the female; the fifth foot of the male is more robust and massive than that of *H. Clausi*—especially as to the terminal claws, but is otherwise similar. *H. norvegica* Boeck, as figured by G. O. Sars, differs only very slightly from the other two.

H. austrinus was taken sparingly in 100 fathoms—Stations 9, 11, 12, and one specimen only at Station 1.

HETERORHABDUS FARRANI *sp. nov.*

(Plate IV, figs. 10-18.)

H. Farrani may be distinguished from the foregoing species by the serrated posterior margins of the abdominal segments, by the distichously spinous character of the two median tail setæ, and by the absence of the usual long falciform spine of the basal joint of the posterior maxilliped. The fifth pair of feet in the male is comparatively short and stout and its apical joints do not bear the long curved spines generally characteristic of the genus. The fifth pair in the female is much stouter than in *H. austrinus*, and the terminal spine of the exopodite is larger. *H. Farrani* was found only in 100 fathoms at Stations 9 and 11. Not more than two or three specimens were seen.

HETERORHABDUS NIGROINCTUS *sp. nov.*

(Plate VI, figs. 1-8.)

I refer this doubtfully to the genus *Heterorhabdus*, with which it appears to agree in all respects except in the absence of the peculiar excurrent tooth of the mandibles which is generally so conspicuous in that genus. The anterior antenna of the right side of the only specimen seen was imperfect, and may perhaps have a geniculating joint. The maxilla has the well-marked distinctive characters of the genus; so also has the fifth pair of feet. Length, 5 mm.

The long setæ with which the mouth-organ and limbs are clothed are mostly plumose and deeply tinged with black pigment. One specimen only was seen in the gathering from Station 9; depth, 100 fathoms.

Family AUGAPTILIDÆ.*Genus* HALOPTILUS *Giesbrecht*, 1898.HALOPTILUS OCELLATUS *Wolfenden*.

(Plate VI, figs. 9, 10.)

Haloptilus ocellatus *Wolfenden*, 1908, p. 42, Plate 3, figs. 1, 2.

The long and very sharp median frontal spine and the very conspicuous ocellar patches sufficiently distinguish this species from any other. Several specimens occurred in the gatherings of the Mawson Expedition, at Stations 4 and 8, and three from Station 7.

The very remarkable transparency of the animals belonging to this genus, together with the elongated aculeate or hooked rostrum sufficiently distinguish it from all others.

Family ACARTIIDÆ.*Genus* ACARTIA *Dana*, 1846.ACARTIA ENSIFERA *Brady*.

(Plate XIV, figs. 1-6.)

Acartia ensifera *Brady*, 1889, p. 33, Plate IX, figs. 8-15.

Two imperfect specimens—male and female—were found in the tow-net gathering from Station 17. Some of the limbs were apparently distorted, and though they do not altogether agree with those of the New Zealand specimens here referred to, one would scarcely be justified in assigning to them a new specific name.

AMPHARTHANDRIA.

Family OITHONIDÆ.*Genus* OITHONA *Baird*, 1843.OITHONA FRIGIDA *Giesbrecht*.

(Plate X, figs. 18-20.)

Oithona frigida *Giesbrecht* 1902, p. 29, Plate VI, figs. 10-16.

Female.—Length 1.3 mm. Seen dorsally, the anterior portion of the body is compressed, ovate, with a short, acute rostrum; abdomen very long and slender, nearly as long as the cephalothorax; anterior antennæ reaching as far as the middle of the abdomen. The appendages of the mouth and the swimming feet agree, so far as I have been able to make them out, with *Giesbrecht's* descriptions.

The Stations at which it occurred are 2, 5 and 6.

Most of the gatherings contained specimens belonging to the genus *Oithona*, but I am unable certainly to identify them except in the cases mentioned above. Most of the specimens may, I think, be referred to *O. frigida*.

Family LONGIPEDIIDÆ.

Genus LONGIPEDIA *Claus*, 1863.

LONGIPEDIA SCOTTI *G. O. Sars*.

Longipedice Scotti, *G. O. Sars*, 1903, vol. v, p. 11, Plate 5.

A single specimen agreeing in every respect with Professor Sars' description and figures of *L. Scotti* occurred in the tow-net gathering from Station 15.

Family ECTINOSOMIDÆ.

Genus MICROSETELLA *Brady and Robertson*, 1873.

MICROSETELLA ATLANTICA *B. & R.*

(Plate XIII, figs. 9-12.)

Microsetella atlantica, *B. & R.*, 1873, p. 130, Plate IX, figs. 11-16.

Specimens which are indistinguishable from the typical *M. atlantica* were found among the tow-net proceeds of Stations 1, 7 and 8.

M. atlantica, however, is considered by Professor Sars to be identical with *Setella norvegica* Boeck, and the earlier specific name has therefore been adopted by him. If this view is accepted the species must of course be named *Microsetella norvegica*. I give in Plate 13 figures of some details from Antarctic specimens, of which females only have been seen—length 0.47 mm. Length stated by Professor Sars, 0.46. Length originally given for *M. atlantica*, $\frac{1}{60}$ of an inch.

Family HARPACTICIDÆ.

Genus HARPACTICUS *Milne-Edwards*, 1838.

HARPACTICUS PULVINATUS *Brady*.

Harpacticus pulvinatus *Brady*, 1910, p. 550, fig. 39.

A single specimen which seems to be referable to this species was found in the tow-net gathering from Station 5, but was so profusely infested with an infusorian parasite that it was impossible so make out accurately all the structural details.

Family THALESTRIDÆ.

Genus DACTYLOPUSIA *Norman*, 1903.

DACTYLOPUSIA BREVICORNIS (*Claus*).

One specimen of this well-known northern species occurred in the tow-netting from Station 1, and a few in that from Station 7.

Genus MAWSONELLA nov. gen.

In outward appearance like *Dactylopusia* or other *Thalestridæ*. Anterior antennæ eight-jointed (?), endopodite of the first pair of feet longer than the exopodite, three-jointed, exopodite of two joints; both branches of the three following pairs two-jointed; fifth pair foliaceous, minute and stunted. Mouth organs as in normal *Thalestridæ*.

MAWSONELLA TYPICA, *sp. nov.*

(Plate XIII, figs. 13-20.)

Female.—Anterior antennæ eight-jointed; the first three joints much stouter than the following ones; posterior antennæ short and stout, the proximal joint undivided, outer ramus small, bi-articulate; endopodite of the first pair of feet elongated, three-jointed, the first joint short and stout, middle joint long and bearing a single marginal seta at its apex, third joint half as long as the preceding one, and armed at the extremity with two rather stout setæ; exopodite scarcely more than half as long as the endopodite, its marginal spines rather long and slender, external margin ciliated, except on the distal half of the second joint; second, third and fourth pairs with both branches bi-articulate, distal joint much longer than the proximal one; external margins of the exopodites spinous and ciliated as in the first foot; fifth pair very short, the two laminæ, subrotund, equal in length and breadth, the external branch with four short setæ, the internal with only one seta; furcal joints of the abdomen extremely short, scarcely as long as broad, only about one fourth as long as the last abdominal segment. Only one specimen of this species was found—taken at Station 7, “45 fathoms in pack-ice.” Its nearest allies would seem to be *Tydmannella*, A. Scott, and *Dactypodella*, G. O. Sars, but the structure of the swimming feet alone suffices to distinguish it. The anterior antenna as shown in the Plate is almost certainly imperfect—the apical joint being lost.

*Family IDYIDÆ.**Genus TISBE Lilljeborg, 1853.*TISBE TENUIMANA (*Giesbrecht*).*Idya tenuimana* Giesbrecht, 1902, p. 38, Plate XI, figs. 8-13.*Tisbe tenuimana* Brady, 1910, p. 560, Plate LIV, fig. 2, and Text fig. 47.

One specimen from Station 18.

Norman and Scott in their work on the “Crustacea of Devon and Cornwall,” point out that the generic name *Idya* instituted by Phillippi in 1843 is invalid, the name being preoccupied, and they revert to the term *Tisbe*, used by Lilljeborg in 1853.

*Genus MACHAIROPUS Brady, 1883.*MACHAIROPUS SARSI *Brady*.

(Plate XIII, figs 1-8.)

Machairopus Sarsi Brady, 1910, p. 558, Text fig. 46.

A few specimens—not more than three or four—of *Machairopus Sarsi* were found in the proceeds of Stations 1 and 18. The species was previously known only

from two examples taken at New Amsterdam, and described by me in the Report on the *Harpacticoidea* of the German South Pole Expedition. I have thought it desirable to give further figures of some of the more important structural details which I was able to examine more fully in the specimens here referred to. The only discrepancy of any moment is the absence of a secondary branch in the posterior antennæ, but this may very likely have been lost in the processes of collecting and preservation.

MACHAIROPUS DIGITATUS *Brady*.

Machairopus digitatus Brady, 1910, p. 559, Plate LVI, figs. 1-9.

A single specimen, doubtfully referable to this species, occurred in the tow-net gathering from Station 18.

Family DIOSACCIDÆ.

Genus AMPHIASCUS *G. O. Sars*, 1905.

AMPHIASCUS ELEGANS *sp. nov.*

(Plate X., figs. 1-12.)

Length 0.87 mm.

Female.—Body rather slender, the anterior portion scarcely broader than the posterior; cephalic segment about as long as the remaining four segments of the cephalothorax; rostrum very stout and prominent, reaching as far as the first two joints of the anterior antennæ. Urosome barely as long as the metasome, and scarcely at all tapering backwards; caudal rami irregularly quadrangular, dilated basally, about as broad as long. Anterior antennæ slender, eight-jointed, the first two joints much the largest, the terminal four jointed each about half as long as the proximal portion; the following formula indicates approximately the proportionate lengths of the joints; 1, 2, 3, 4, 5, 6, 7, 8, $3\frac{1}{2}$, $3\frac{1}{2}$, $1\frac{1}{2}$, 3, $1\frac{1}{2}$, 1, 1, $1\frac{1}{2}$; posterior antenna stout, strongly spiniferous, middle joint of the outer branch very small; outer branch of the first pair of legs three-jointed, about half the length of the inner branch, the three joints equal in length; inner branch three-jointed, the median joint very short, distal joint more than twice as long and bearing two strong apical setæ. Last pair of legs foliaceous, the two laminae of nearly equal length, the outer one ovate, the inner sub-cuneate, tapering to the distal end, both branches bearing several marginal setæ.

Male.—Anterior antennæ geniculated and irregularly nodose as usual, the posterior maxilliped slender, elongated, rather strongly clawed, but almost destitute of setæ; endopodite of the second pair of feet much modified, the distal joint carrying two strong apical spines, the inner one long, the outer very short, also two long apical setæ, one of which is dilated at the base; fifth pair of legs short, the basal lamina broad, with a truncated and strongly ciliated distal extremity, the distal outer lamina small, broadly ovate, with five strong marginal setæ.

Taken at Stations 7 and 10 sparingly.

AMPHIASCUS IGNOTUS sp. nov.

(Plate X, figs. 13-17.)

Male.—Length, 0.9 mm. In general form much like the preceding species, the urosome somewhat more tumid; anterior antennæ more slender, with the median joints less swollen; the two terminal joints of the endopodite of the first foot are nearly alike in length, and the whole limb is rather profusely ciliated; feet of the fifth pair foliaceous, short, the outer and inner segments of nearly equal length, and bearing numerous long marginal setæ, the outer one broadly ovate, the inner subquadrate, with an irregularly truncate distal extremity which bears three long terminal setæ, its outer margin densely ciliated. One specimen only was seen; female unknown. Taken in the tow-net at 50 fathoms depth, Station 8.

*Genus STENHELIA Boeck, 1864.*STENHELIA (?) GLACIALIS *sp. nov.*

(Plate XII, figs. 9-14.)

Female.—Length 0.55 mm. Metasome and urosome nearly equal in length and thickness; anterior antennæ short and stout, seven-jointed, the four proximal joints much stouter than the distal ones; endopodite of the first pair of feet much longer than the exopodite, three-jointed, basal joint short and tumid, second joint nearly thrice as long, bearing a long seta and a few short ones on its internal margin, the distal joint small, with two long apical setæ; exopodite three-jointed; second, third and fourth pairs of feet having both branches three-jointed, the outer branch rather densely setose; fifth pair foliaceous, the two segments of nearly equal length; caudal laminæ short, and distant, about equal in length to the last abdominal segment.

One specimen from Macquarie Island, Station 3.

This species is referred with some doubt to the genus *Stenhelia*, some of the more characteristic structures being invisible in the dissected preparation.

*Family LAOPHONTIDÆ.**Genus LAOPHONTODES Scott, 1894.*LAOPHONTODES LATISSIMUS *sp. nov.*

(Plate XI, figs. 1-9.)

Female.—Length 1.1 mm. Seen dorsally the cephalic segment is much wider than the following portion of the body, which tapers gradually backwards, the constrictions between the various segments being well marked but quite destitute of spines, the penultimate and antepenultimate segments protuberant laterally; the lateral margins of the last segment are produced backwards, forming sharply spined angles, the median portion also produced backwards, arcuate, and minutely crenulated;

furcal laminæ about twice as long as broad. Anterior antennæ five-jointed; posterior simple, bearing a stout apical claw and several short spine-like setæ; endopodite of the first foot much longer than the three-jointed exopodite; second, third and fourth pairs of feet with three-jointed exopodites and short, slender endopodites of one joint; fifth pair foliaceous, imperfectly divided into an outer and inner segment; maxillipeds and mandible normal. Male unknown.

Only two examples of this species have been seen, taken off Macquarie Island at Stations 1 and 5.

LAOPHONTODES ANTARCTICUS sp. nov.

(Plate XI, figs. 10-17.)

Female.—Length 0.87 mm. Seen laterally the abdomen is nearly equal in width to the cephalothorax, the dividing lines between the various body segments are sharply constricted, and the dorsal surfaces of the segments bear tufts of short setæ; the furcal laminæ are distant one from the other, linear and equal in length to the last abdominal segment; seen dorsally the abdominal segments are much constricted in front, rounded off and dilated behind. Anterior antennæ five jointed, much more slender than those of the preceding species, terminal joint three times as long as broad, about equal in length to the second and third joints; the swimming feet are of the normal type; fifth pair simple bi-articulate; the first joint wedge-shaped, expanded distally and bearing a single rather stout seta, second joint smaller and bearing two marginal and two apical setæ.

One specimen only was observed, from a depth of 45 fathoms, among pack-ice, Station 7.

LAOPHONTODES ECHINATUS sp. nov.

(Plate XII, figs. 1-8.)

Female.—Length 0.87 mm. Cephalic segment wide and subtruncate in front, from which the body gradually tapers backwards; seen dorsally or ventrally the cephalic and the anterior thoracic segments are produced laterally forming strong spinous processes directed backwards, and in a similar manner the first three segments of the urosome are armed with strongly-curved spines, which are marginally ciliated; the caudal rami slender, ciliated and equal in length to the two preceding segments of the urosome; ovisacs large and containing numerous ova. Anterior antennæ slender five (or six?) jointed, the two proximal joints much longer than the distal ones; posterior of the usual type, unbranched; posterior maxilliped normal, much attenuated; first pair of natatory feet not seen; second, third and fourth pairs normal, fifth pair composed of a wide basal joint with two branches, one of which is bi-articulate. One imperfect specimen was found (Station 7) and some important parts—notably the first pair of feet and the anterior antennæ—were either wanting or incomplete, so that the generic reference must for the present be looked upon as merely provisional.

ISOKERANDRIA.

Family ONCAEIDÆ.*Genus* ONCAEA *Philippi*, 1843.ONCAEA CONIFERA *Giesbrecht*.

(Plate XII, figs. 15-20.)

Oncaea conifera Giesbrecht, 1891, p. 477.

" " 1892, p. 591, Plates 2 and 47.

" " 1902, p. 41, Plate 13.

This species occurs rather plentifully in most of the tow-net gatherings—notably from Stations 7 and 9, but it certainly occurs not uncommonly amongst the crowd of minute species from other localities. The specimens here noted agree in all respects with those described and figured by Dr. Giesbrecht, except perhaps as to the endopodites of the swimming feet which are represented by that author as having profusely setiferous margins. None of those examined by me seem to bear any marginal setæ whatever.

SUPPLEMENTARY.

MICROCHELONIA GLACIALIS *nov.*

(Plate XV, figs. 1-6.)

It seems desirable to give some account of a very remarkable minute species of which one specimen only could be found in a gathering from Macquarie Island, marked C. 17. I give outline drawings of the entire animal, and of such of the appendages as could be seen after dissection. But the creature was so excessively tough and pachydermatous, and likewise so opaque, that I found it impossible to do more than tear it roughly to pieces. It would seem, however, to form the type of an entirely new division of the Copepoda, and future collectors in the Macquarie area would do well to look out for it. My impression is that it, and probably many other interesting forms would probably be found by washing the fronds and roots of sea-weeds—especially Laminariæ. Length, 0.46 mm.

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EXPLANATION OF PLATES.

PLATE I.

Rhincalanus gigas.

- Fig. 1. Female seen from right side. $\times 16$.
 2. Posterior thoracic segments and abdomen of same seen dorsally. $\times 16$.
 3. Head, rostrum, and base of anterior antennæ of male with sensory filaments. $\times 25$.
 4. Abdomen of female, seen dorsally. $\times 40$.
 5. Posterior antenna. $\times 84$.
 6. „ outer branch only. $\times 100$.
 7. Fifth pair of feet of female. $\times 84$.
 8. „ „ male. $\times 84$.

Paracalanus Mariae ♂.

9. Abdomen, seen laterally. $\times 140$.
 10. Mandible and base of palp. $\times 240$.
 11. Posterior maxilliped. $\times 240$.
 12. Foot of fourth pair. $\times 240$.
 13. Foot of fifth pair of male. $\times 300$.
 14. „ „ female. $\times 300$.

PLATE II.

Stephos longipes.

- Fig. 1. Female (?), seen from right side. $\times 40$.
 2. Forehead, rostrum, and posterior antenna. $\times 140$.
 3. Posterior maxilliped. $\times 140$.
 4. Foot of first pair. $\times 240$.
 5. „ second pair. $\times 140$.
 6. „ fourth pair. $\times 115$.
 7. Fifth pair of feet (immature male). $\times 240$.

Scolecithrix Römeri ♂

8. Basal joints of right anterior antenna. $\times 140$.
 9. Left anterior antenna. $\times 84$.
 10. Foot of first pair. $\times 140$.
 11. „ fourth pair. $\times 140$.
 12. Fifth pair of feet. $\times 110$.
 13. Abdomen and furca. $\times 84$.

Euchirella plumosa.

14. Posterior antenna. $\times 40$.
 15. Mandibular plate. $\times 84$.
 16. Basiopodite of first foot. $\times 50$.
 17. „ fourth foot of female. $\times 40$.
 a Spines more highly magnified.

18. Abdomen of female. $\times 40$.
 19. Apical spines of fourth foot. $\times 84$.

PLATE III.

Gaetanus antarcticus. ♀

- Fig. 1. Female, seen dorsally. $\times 25$.
 2. Posterior antenna. $\times 40$.
 3. Maxilliped (posterior) of right side. $\times 40$.
 4. " " left side. $\times 40$.
 5. Foot of third pair. $\times 40$.
 6. " terminal spines. $\times 84$.
 19. Basal joints of fourth foot. $\times 50$.

Euchirella tumida.

7. Female, seen dorsally. $\times 40$.
 8. Abdomen of male. $\times 84$.
 9. Mandible. $\times 120$.
 10. Biting plate of same. $\times 300$.
 11. Fifth pair of feet of male. $\times 84$.
 12. Apical spine of swimming foot. $\times 240$.

Racovitzanus antarcticus. ♂

13. Anterior antennæ. $\times 84$.
 14. Mandibular plate. $\times 400$.
 15. Foot of first pair. $\times 140$.
 16. " third pair. $\times 140$.
 17. Fifth pair of feet. $\times 240$.
 18. Abdomen, seen dorsally. $\times 84$.

PLATE IV.

Heterorhabdus austrinus.

- Fig. 1. Basal joints, anterior antenna. $\times 84$.
 2. Genucation, anterior antenna. $\times 84$.
 3. Posterior antenna. $\times 84$.
 4. Biting plate of mandible, right. $\times 84$.
 5. " " left. $\times 84$.
 6. Maxilla. $\times 84$.
 7. Posterior maxilliped. $\times 150$.
 8. Foot of third pair. $\times 45$.
 9. Fifth pair of feet. $\times 84$.

Heterorhabdus Farrani. ♂

10. Anterior antenna, right side. $\times 40$.
 11. Abdomen. $\times 40$.
 12. Furcal plate with setæ. $\times 84$.

13. Mandible of left side. $\times 40$.
14. Anterior maxilliped. $\times 40$.
15. Basal joints, posterior maxilliped. $\times 84$.
16. Foot of third pair. $\times 40$.
17. Fifth pair of feet. $\times 50$.
18. „ (female). $\times 84$.

Metridia Gerlachei.

19. Right anterior antenna, male. $\times 84$.
20. Abdomen, seen dorsally (female). $\times 25$.
21. „ „ (male). $\times 40$.
22. Fifth pair of feet of male. $\times 100$.
23. Foot of fifth pair, female. $\times 100$.

PLATE V.

Streptocalanus typicus. ♂

- Fig. 1. Male, seen laterally. $\times 84$.
2. Anterior antenna. $\times 140$.
 3. Posterior antenna. $\times 140$.
 4. Mandible. $\times 240$.
 5. Posterior maxilliped. $\times 240$.
 6. Foot of first pair. $\times 240$.
 7. „ second pair. $\times 240$.
 8. „ fourth pair. $\times 200$.
 9. Fifth pair of feet. $\times 320$.

Boeckella brevicaudata.

10. Female, seen ventrally. $\times 40$.
11. Right anterior antenna of male. $\times 84$.
12. Posterior antenna. $\times 84$.
13. Anterior maxilliped. $\times 120$.
14. Exopodite, first pair of feet. $\times 140$.
15. Posterior thoracic segment and abdomen of female. $\times 40$.
16. Foot of fifth pair of female. $\times 140$.
17. „ „ male. $\times 84$.
18. Abdomen of male. $\times 60$.
19. Mandible. $\times 140$.

PLATE VI.

Heterorhabdus nigrotinctus. ♂

- Fig. 1. Left anterior antenna. $\times 16$.
2. Posterior antenna. $\times 40$.
 3. Maxilla. $\times 84$.
 4. Anterior maxilliped. $\times 40$.
 5. Right mandible. $\times 150$.

6. Left mandible. × 150.
7. Fifth pair of feet. × 40.
8. Abdomen, seen dorsally. × 40.

Haloptilus ocellatus.

9. Animal, seen dorsally. × 40.
10. Abdomen and furca. × 40.
- 10a. Foot of fifth pair. × 84.

Diarthropus torticornis.

11. Male, seen from right side. × 40.
12. Female, seen from right side. × 40.
13. Forehead with tentacles. × 40.
14. Abdomen of male. × 84.
15. „ female. × 84.
16. Mandible. × 84.
17. Posterior maxilliped. × 84.
18. Foot of fourth pair. × 84.
19. „ fifth pair, male. × 84.

PLATE VII.

Pseudoöthrix anatina. ♀

- Fig. 1. Female, seen from left side. × 84.
2. Rostrum, lateral view. × 240.
 3. Posterior antenna. × 240.
 4. Mandible. × 240.
 5. Maxilla. × 240.
 6. Anterior maxilliped. × 240.
 7. Posterior maxilliped. × 140.
 8. Foot of first pair. × 140.
 9. „ fourth pair. × 140.
 - 10, 11. Fifth pair of feet, two forms. × 240.

Gaidius glacialis.

12. Female, seen laterally. × 40.
13. Rostrum. × 40.
14. Posterior antenna. × 84.
15. Mandible. × 84.
16. Anterior maxilliped. × 84.
17. Posterior maxilliped. × 84.
18. Foot of fifth pair. × 150.

PLATE VIII.

Plagiopus australis.

- Fig. 1. Female, seen laterally. × 80.
2. Mandible blade. × 240.

3. Anterior maxilliped. $\times 140$.
4. Posterior maxilliped. $\times 140$.
5. Foot of first pair. $\times 140$.
6. „ second pair. $\times 115$.
7. „ fourth pair. $\times 140$.
8. Fifth pair of feet. $\times 300$.
9. Apical spine of exopodite. $\times 240$.

Pleuromamma Wolfendeni. ♀

10. Abdomen, seen ventrally. $\times 84$.
11. Basal joints, anterior antenna. $\times 84$.
12. Posterior antenna. $\times 84$.
13. Mandible, biting edge. $\times 240$.
14. Foot of second pair. $\times 84$.
15. „ fourth pair. $\times 84$.
16. Fifth pair of feet. $\times 140$.
17. Apex of right fifth foot. $\times 300$.
18. Apical spine of exopodite. $\times 240$.

Aetideus Bradyi.

19. Female, seen dorsally. $\times 65$.
20. Rostrum, lateral view. $\times 65$.

Spinocalanus Giesbrechti.

21. Abdomen of male. $\times 50$.
22. „ female. $\times 50$.
23. Foot of first pair, male. $\times 140$.
24. „ fourth pair, male. $\times 140$.
25. „ fifth pair, male. $\times 300$.

PLATE IX.

Euchatopsis Haswelli. ♀

- Fig. 1. Female, seen dorsally. $\times 40$.
2. Posterior antenna. $\times 240$.
 3. Mandible. $\times 240$.
 4. Foot of first pair. $\times 110$.
 5. „ fourth pair. $\times 84$.
 6. Apical spines of exopodite. $\times 240$.
 7. Portion of apical seta of first maxilliped. $\times 440$.

Metridia Andræana.

8. Abdomen, last thoracic segment and fifth pair of feet (female). $\times 84$.
9. The same parts of the male. $\times 84$.
10. Abdomen of male, seen dorsally. $\times 84$.
- 10a. Foot of fifth pair. $\times 240$.
11. Basal joints of anterior antenna of female. $\times 84$.

Stephos simillimus. ♀

12. Female, seen laterally. × 65.
13. Posterior antenna. × 100.
14. Mandible. × 300.
15. Posterior maxilliped. × 240.
16. Last joint of third exopodite. × 240.
17. Basal joint of fourth foot. × 440.
18. Last thoracic segment and abdomen. × 140.

Calanus aculeatus. ♀

19. Last thoracic segment and abdomen. × 65.
20. Apical joints and setæ of anterior antenna. × 65.
21. Mandible and palp. × 140.
22. Blade of mandible. × 140.
23. Basal joint and serratures of fifth foot. × 240.

PLATE X.

Amphiascus elegans.

- Fig. 1. Female, seen laterally. × 84.
2. Anterior antenna and rostrum, female. × 200.
 3. Anterior antenna of male. × 240.
 4. Posterior antenna. × 240.
 5. Posterior maxilliped. × 350.
 6. Foot of first pair. × 200.
 7. „ third pair. × 140.
 8. Endopodite of second foot of male. × 300.
 9. Foot of fifth pair, female. × 200.
 10. „ „ male, × 240.
 11. Posterior abdominal segments, female. × 140.
 12. Basal spines of first foot.

Amphiascus ignotus. ♂

13. Anterior antenna. × 240.
14. Mandible. × 320.
15. Foot of first pair. × 240.
16. „ second pair. × 240.
17. Fifth pair of feet. × 240.

Oithona frigida.

18. Female, seen dorsally. × 65.
19. Anterior maxilliped. × 320.
20. Posterior maxilliped. × 180.

PLATE XI.

Laophontodes latissimus. ♀

- Fig. 1. Female, seen dorsally. × 84.
 2. „ laterally. × 84.
 3. Abdomen and furca. × 240.
 4. Anterior antenna. × 300.
 5. Posterior antenna. × 300.
 6. Posterior maxilliped. × 240.
 7. Foot of first pair. × 240.
 8. „ third pair. × 240.
 9. „ fifth pair. × 300.

Laophontodes antarcticus. ♀

10. Female, seen dorsally. × 115.
 11. „ laterally. × 115.
 12. Anterior antennæ. × 300.
 13. Posterior antennæ. × 320.
 14. Posterior maxilliped. × 240.
 15. Foot of first pair. × 300.
 16. „ third pair. × 300.
 17. „ fifth pair. × 320.

PLATE XII.

Laophontodes echinatus. ♀

- Fig. 1. Female, seen ventrally. × 84.
 2. „ laterally. × 84.
 3. Abdomen and furca, dorsal view. × 84.
 4. Anterior antenna. × 240.
 5. Posterior antenna. × 240.
 6. Posterior maxilliped. × 240.
 7. Foot of third pair. × 140.
 8. „ fifth pair. × 150.

Stenhelia (?) glacialis.

9. Female, seen laterally. × 150.
 10. Anterior antenna. × 320.
 11. Foot of first pair. × 440.
 12. „ third pair. × 440.
 13. „ fifth pair. × 440.
 14. Posterior segments of abdomen. × 240.

Oncaea conifera. ♀

15. Female, seen dorsally. × 84.
 16. Anterior antenna. × 140.
 17. Posterior antenna. × 140.

18. Anterior maxilliped. $\times 300$.
19. Posterior maxilliped. $\times 140$.
20. Foot of fourth pair. $\times 140$.

PLATE XIII.

Machairopus Sarsi. ♀

- Fig. 1. Female, seen dorsally. $\times 84$.
2. „ with ovisac. $\times 65$.
 3. Anterior antenna. $\times 240$.
 4. Posterior antenna. $\times 300$.
 5. „ maxilliped. $\times 300$.
 6. Foot of first pair. $\times 240$.
 7. „ fourth pair. $\times 240$.
 8. „ fifth pair. $\times 240$.

Microsetella atlantica. ♀

9. Female, seen laterally. $\times 140$.
10. Anterior antennæ. $\times 240$.
11. Foot of third pair. $\times 240$.
12. „ fifth pair. $\times 240$.

Mawsonella typica. ♀

13. Anterior antenna (imperfect). $\times 300$.
14. Posterior antenna. $\times 300$.
15. Posterior maxilliped. $\times 300$.
16. Foot of first pair. $\times 240$.
17. „ second pair. $\times 240$.
18. „ third pair. $\times 240$.
19. Fifth pair of feet. $\times 240$.
20. Posterior abdominal segments and furca. $\times 84$.

PLATE XIV.

Acartia ensifera ?

- Fig. 1. Anterior antenna of female. $\times 140$.
2. Front of head and rostrum, seen dorsally. $\times 150$.
 3. Posterior antenna. $\times 150$.
 4. Abdomen of female, seen laterally. $\times 240$.
 5. „ male, seen dorsally. $\times 240$.
 6. Fifth pair of feet of male. $\times 320$.

Paraeuchæta plumifera.

7. Anterior antenna. $\times 30$.
8. Posterior antenna. $\times 84$.
9. Exopodite of first foot. $\times 84$.
10. Abdomen. $\times 31$.
11. Last joint of abdomen and furca. $\times 22$.

Metridia trispinosa. ♂

12. Anterior antenna. × 40.
13. „ „ proximal joints. × 100.
14. Basal joint of endopodite of second foot. × 100
15. Fifth foot (imperfect). × 65.
16. Abdomen. × 40.
17. Spines of last abdominal segment. × 84.

PLATE XV.

Microchelonia glacialis.

- Fig. 1. Male (?), seen dorsally. × 150.
 2 „ „ laterally. × 150.
 3. Abdomen and furca. × 240.
 4. Anterior antenna. × 240.
 5. Posterior antenna. × 240.
 6. Maxilliped. × 240.

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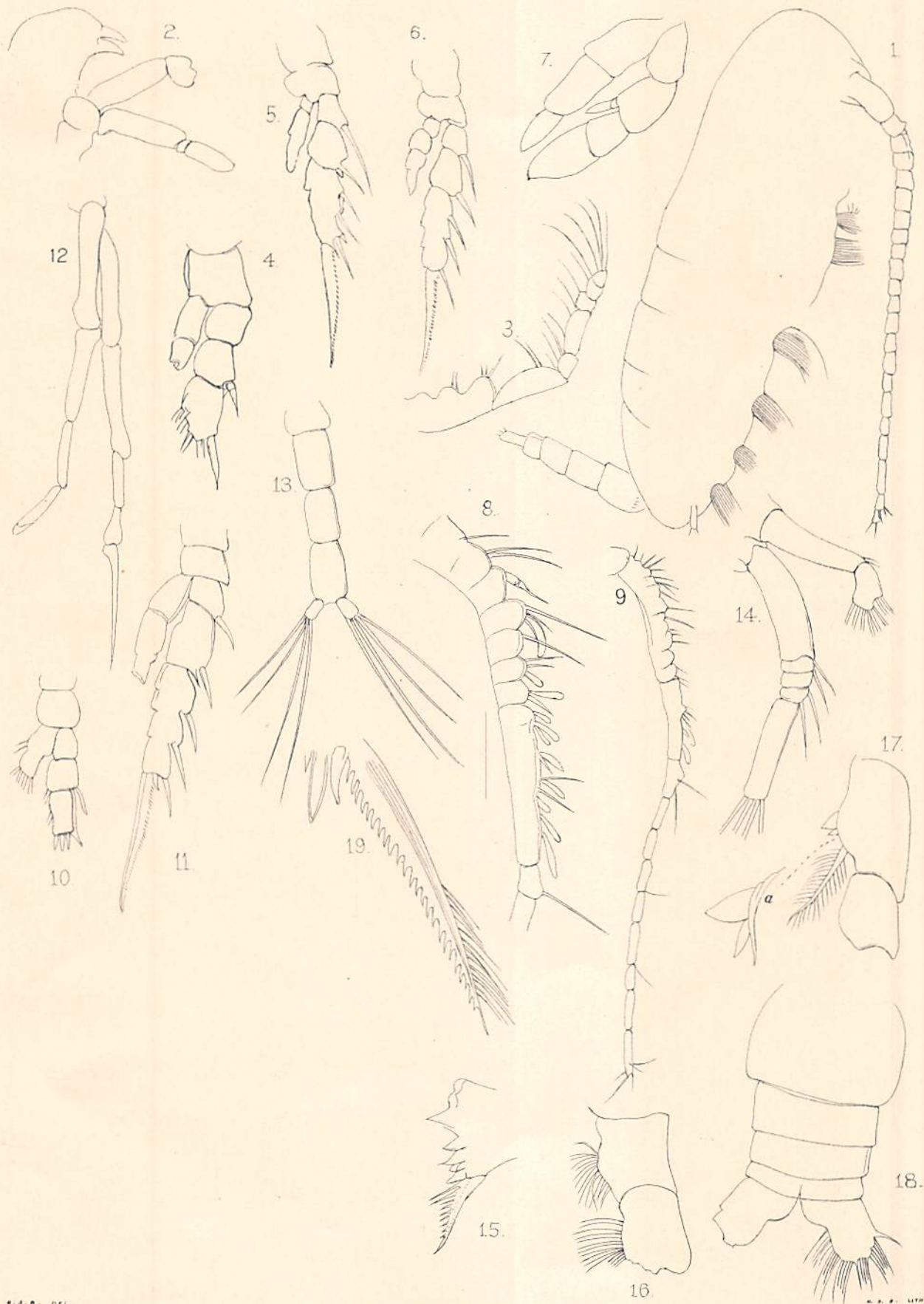
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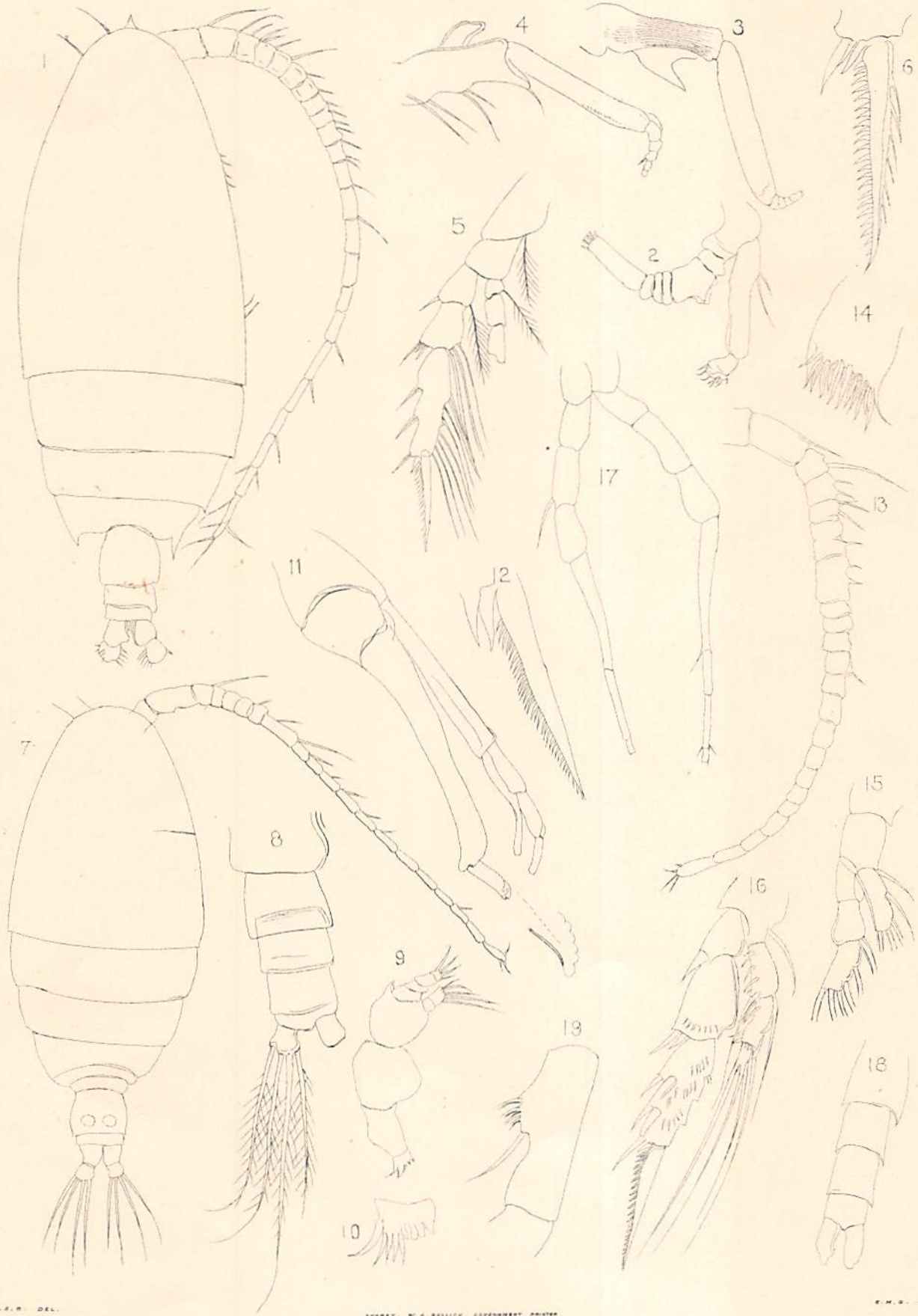
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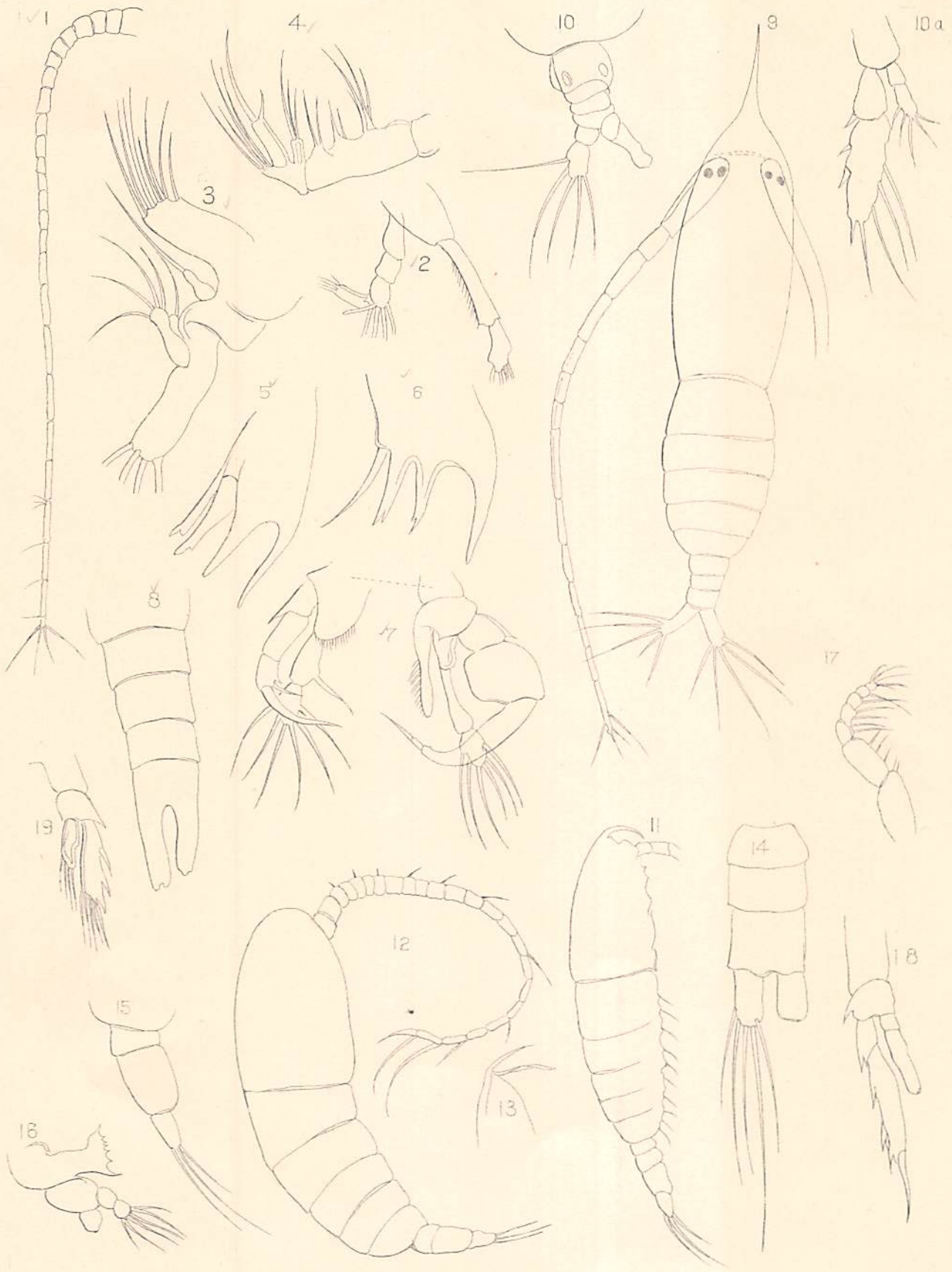










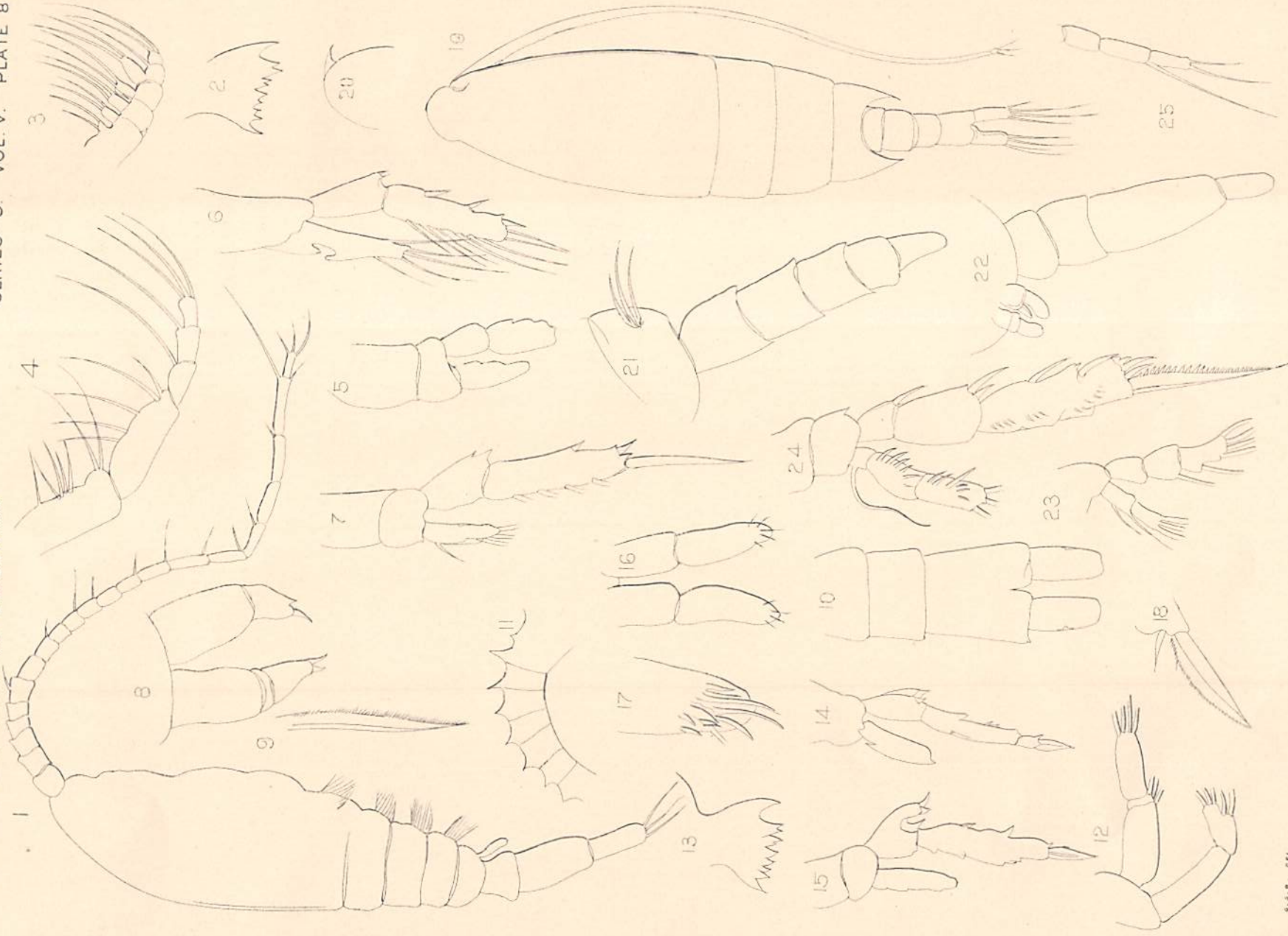




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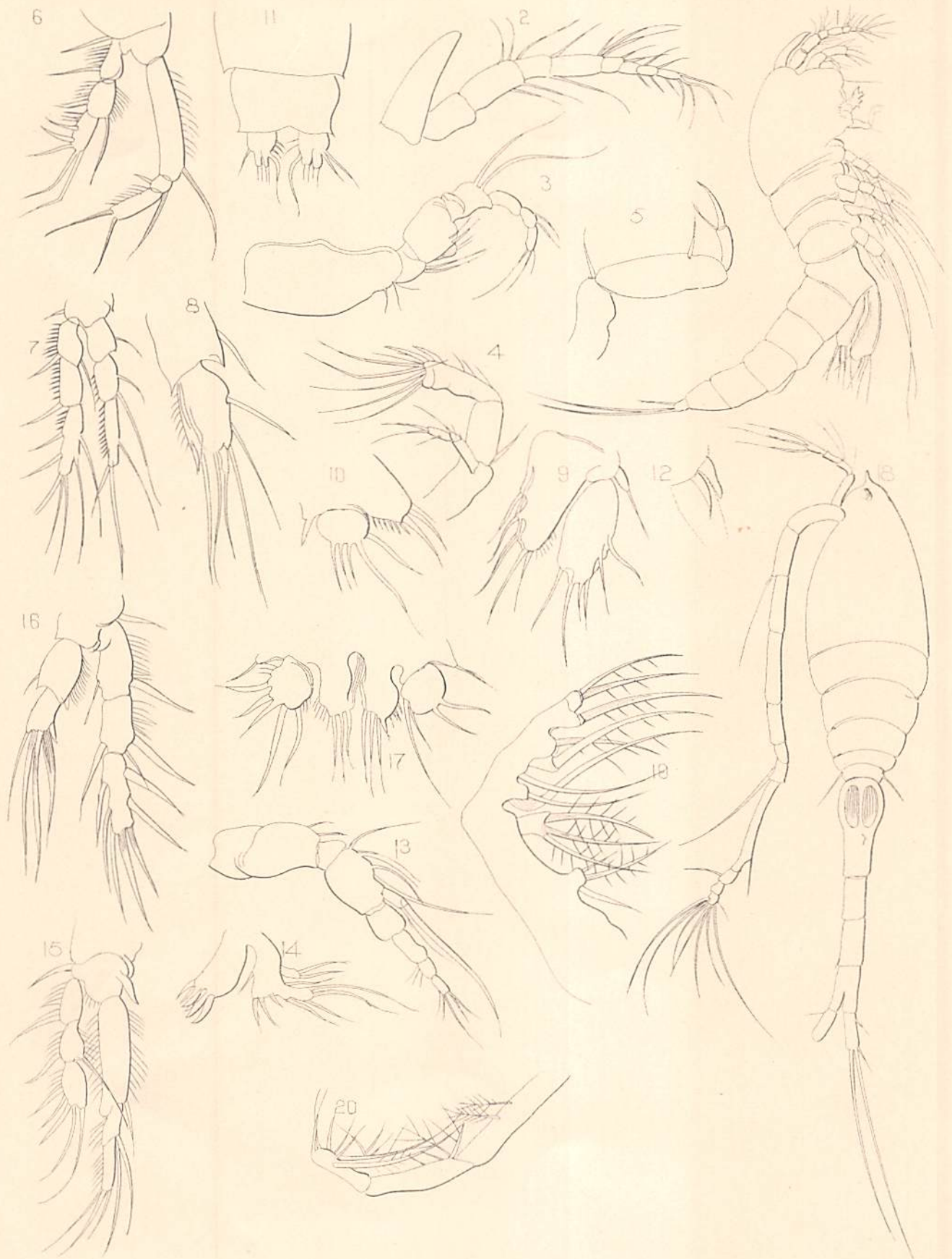




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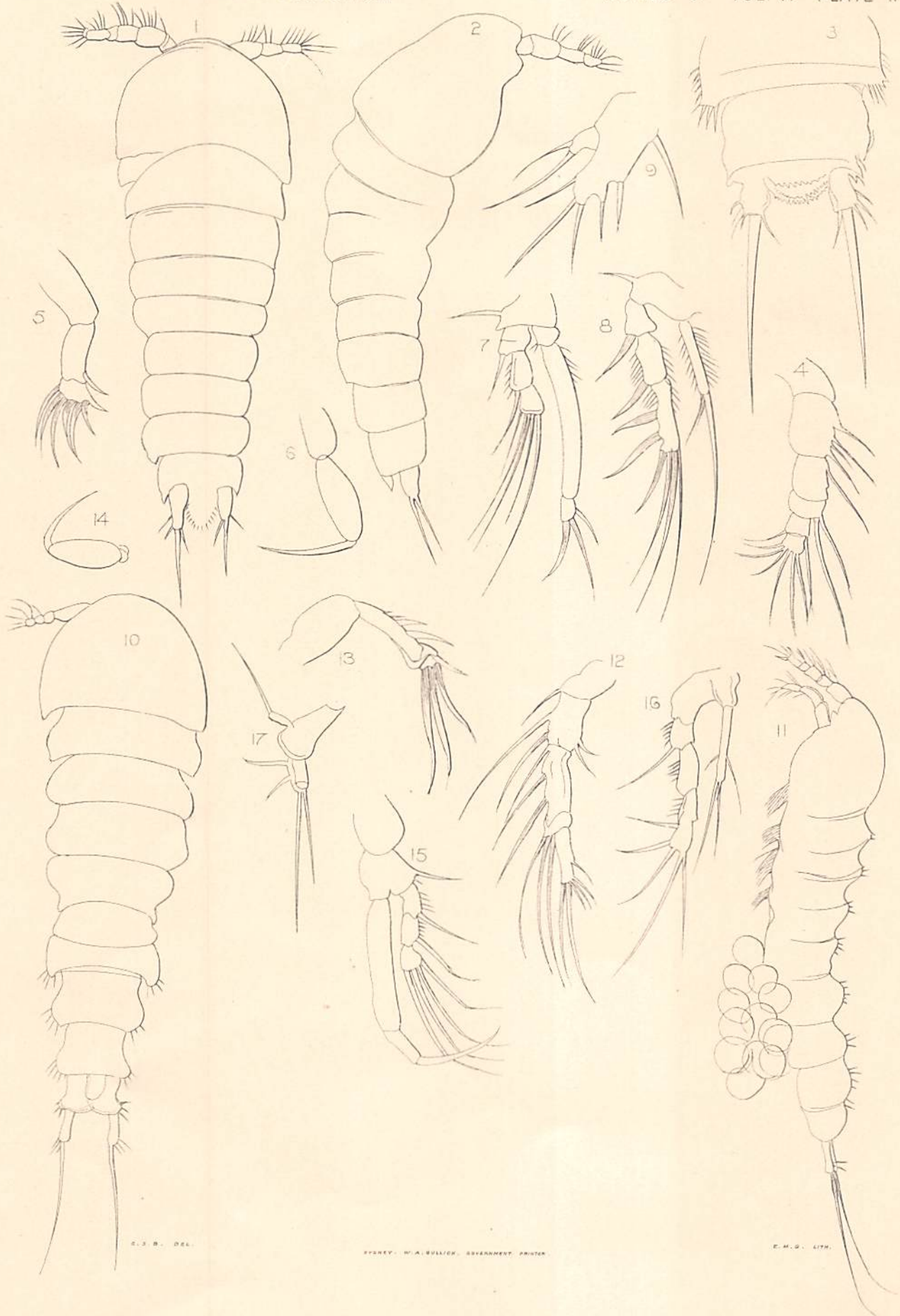
PLATE 9



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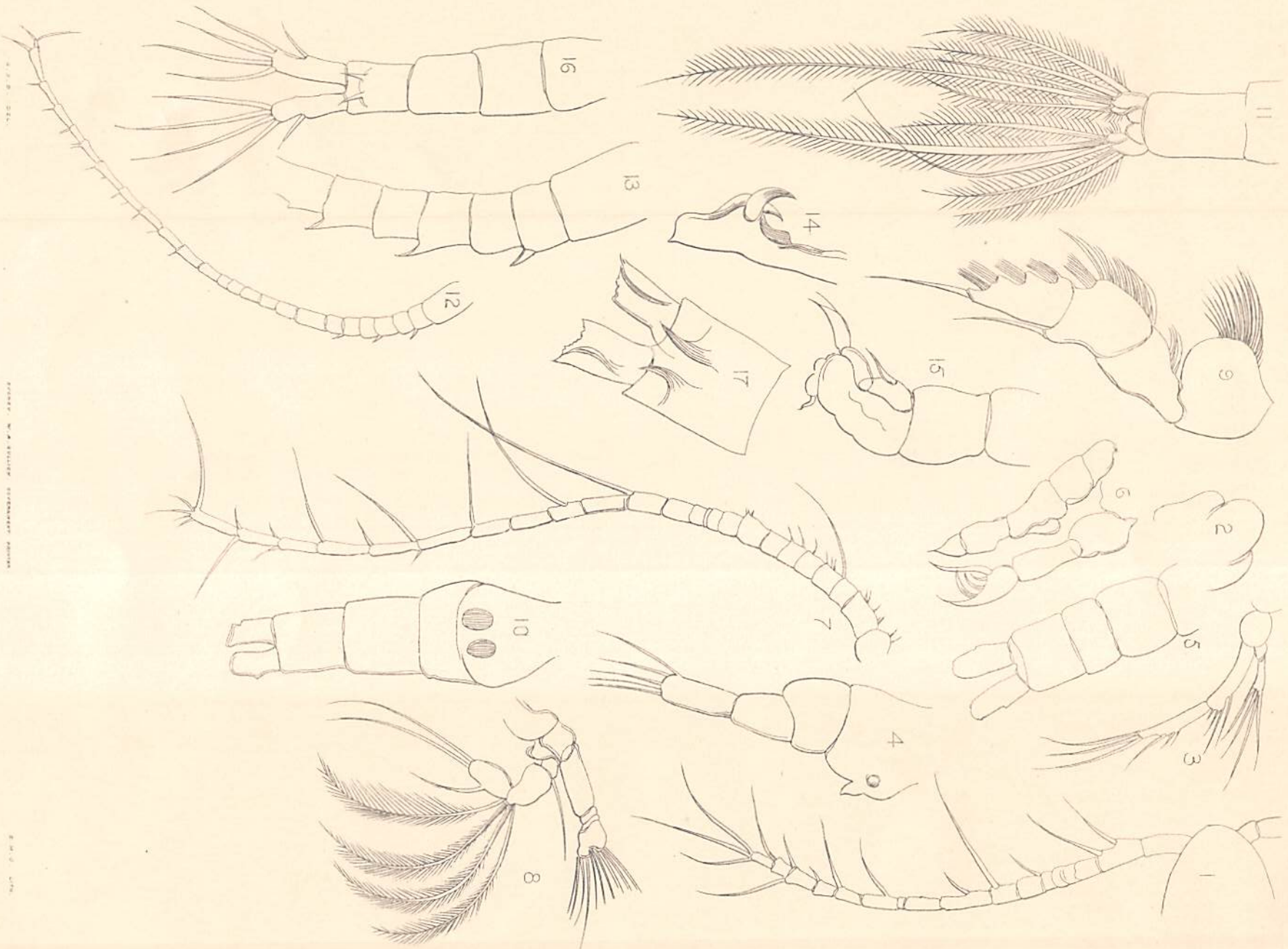
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