ι.
cus spinifer.
galba.
to compressa (common).
any, including :—
inmarchicus (common).
ngiremis (common).
rmata (common).
nus elongatus (common).
es hamatus (few).
(few).
ra patersonii (few).
th, 9 a.m. to 2 p.m.; from 15 miles
r Liverpool Bar. Nets at overflow

unctata (abundant).
ipos (common).
mmon), and *C. furca* (common).
peculum.
us radiatus (common).
bulloides (common).
sp. (common).
y, including :—
narchicus (common).
iremis (abundant).
nata (few.)
us elongatus (abundant).
hamatus (few).
(common).
brevicornis (few).
ollastoni (common).
same time and locality as **XXIII.**

os (abundant).

C. furca, and *C. fusus*.
Coscinodiscus radiatus.
Peridinium divergens.
Dictyocha speculum.
Tintinnus acuminatus.
Codonella campanula.
Halosphæra viridis.
Rotalia beccarii.

Copepoda :—
Calanus finmarchicus (common).
Acartia longiremis (common).
Metridia armata (few).
Pseudocalanus elongatus (few).
Temora longicornis (few).
Centropages typicus (few).
Labidocera wollastoni (common).
Oithona spinifrons (common).

1898

NOTES ON NEW AND OTHER COPEPODA.

By I. C. THOMPSON and ANDREW SCOTT.

The collection comprises 39 species, of which three are described as new to science, as follows :—

LIST.	DISTRIBUTION.
Calanus finmarchicus (Gunner).	General.
C. propinquus, Brady.	Mid-Atlantic.
C. tonsus, Brady.	Mid-Atlantic.
Paracalanus parvus (Claus).	Off British coast.
Pseudocalanus elongatus (Boeck).	General.
Eucalanus attenuatus, Dana.	Mid-Atlantic.
Ætidius armatus, Brady.	Mid-Atlantic.
Euchæta marina (Prestandrea).	Mid-Atlantic
E. philippi, Brady.	Mid-Atlantic.
Scolecithrix danæ (Lubbock).	Mid-Atlantic.

for descriptions of plates
see Herdman, W.A. 1898.

S. minor, Brady.	Mid-Atlantic.
Centropages typicus, Kröyer.	British to Mid-Atlantic.
C. hamatus (Lilljeborg).	General.
Isias clavipes, Boeck.	Off British coast.
Temora longicornis (O. F. Müller).	General.
Eurytemora affinis (Poppe).	In St. Lawrence.
E. herdmani, n. sp.	In St. Lawrence.
Metridia armata, Boeck.	Off British coast.
Pleuromma abdominale (Lubbock).	General.
Heterochæta spinifrons, Claus.	Mid-Atlantic to Canada.
Candace pectinata, Brady.	Off British coast.
Labidocera wollastoni (Lubbock).	Off British coast.
Anomalocera patersonii, Templeton.	Off both coasts.
Parapontella brevicornis (Lubbock).	Off British coast.
Acartia clausii, Giesbrecht.	General.
A. longiremis (Lilljeborg).	General.
Acartia laxa, Dana.	Off Anticosti.
A. denticornis, Brady.	In St. Lawrence.
A. forcipata, n. sp.	In St. Lawrence.
Corynura discaudata, n. sp.	In St. Lawrence.
Oithona spinifrons, Boeck.	General.
Oncæa conifera, Giesbrecht.	In St. Lawrence.
O. venusta, Philippi.	In St. Lawrence.
Ectinosoma sarsii, Boeck.	In St. Lawrence.
E. atlanticum (Brady and Robertson).	All the way.
Longipedia coronata, Claus.	Irish Sea.
Thalestris serrulata, Brady.	Both coasts.
Alteutha interrupta (Goodsir).	Irish Sea.

Calanus finmarchicus has a world-wide distribution, having been recorded from the North Atlantic, Arctic Ocean, and European seas (Brady); Mediterranean, West Coast of South America, and Hongkong (Giesbrecht); Australasia and South Pacific (Brady); Sulu Sea (Dana).

It was found in nearly all the tow-nettings, and although considerable difference in size was noticed between various individuals, they did not appear to be structurally different. The largest specimens observed were in the material collected while traversing the Labrador current.

Calanus propinquus and *C. tonsus* were observed in a few of the gatherings in mid-ocean, where they appeared to take the place of *C. finmarchicus*.

Paracalanus parvus was found in the tow-nettings taken between Liverpool and the north coast of Ireland, but nowhere else.

Pseudocalanus elongatus, a very common species around our shores, occurred in nearly all the tow-nettings, and was even more numerous than *Calanus finmarchicus*. It is evidently common in the North Atlantic, although it has not hitherto been recorded from any locality outside European seas. In the case of many of the species the present collection has extended the known range of distribution.

Eucalanus attenuatus was observed in one only of the tow-nettings, taken near mid-ocean.

Ætidius armatus occurred in the same collection as *Eucalanus*; it was also taken on the previous day. This species, though widely distributed, was not known to occur in the Atlantic north of the Mediterranean, until quite recently. Mr. T. Scott records it from the Shetland-Faröe Channel. Other records for this Copepod are:—Indian Ocean, Torres Straits, off Port Jackson, and in the Chinese Sea (Brady); off Gibraltar (Giesbrecht), Malta (I. C. Thompson), Gulf of Guinea (T. Scott).

Euchæta marina was found in the majority of the collections taken between mid-ocean and Quebec. This is another species which appears to have a wide distribution, and more especially in tropical seas.

Euchæta philippi occurred sparingly in material collected between lat. 56° 22′ N., long. 18° 43′ W., and lat. 56° 5′ N., long. 12° 30′ W. It has hitherto only been known from the South Atlantic and South Pacific.

Scolecithrix danæ and *S. minor* were observed in material collected in mid-ocean on both traverses, but they occurred very sparingly. *S. minor* has already been recorded from North Atlantic waters, but there does not appear to be any record of *S. danæ* having been found north of the Mediterranean.

Centropages typicus occurred in the majority of the collections taken between the Irish sea and lat. 56° 30′ N., long. 24° 22′ W., to lat. 56° 22′ N., long. 28° 8′ W.

C. hamatus has apparently a more westerly distribution than *C. typicus*, and was found in the majority of the collections. The present collection shows a considerable extension of the distribution of these two species, especially the latter. So far neither of them have been recorded south of the Canary Islands. Mr. I. C. Thompson records *C. typicus* only from these Islands.

Isias clavipes was only found in the collection taken between Ireland and the Isle of Man. It is a common species in the L.M.B.C. district.

Temora longicornis occurred in the majority of the collections. There appears to be little difference between the forms from the British waters and those from the American coast, whereby the American forms could be ascribed to Dana's species, *T. turbinata*. The collection shows a considerable extension of distribution of this species.

The presence of *Eurytemora affinis* in considerable quantity between Quebec and Rimouski suggests a plentiful admixture of fresh water with the St. Lawrence in that neighbourhood, this being usually a brackish water species.

It has already been recorded from Minnesota (U.S.A), by C. L. Herrick, in his report on the Cyclopidæ of Minnesota, so that it would appear to be a widely distributed species. On the Continent of Europe, *E. affinis* sometimes occurs in immense profusion, constituting, it is said, at some seasons, the almost exclusive food of certain fishes, as of the Shad in the Rhine and the Herring in the Baltic.

A striking new species of *Eurytemora*, which is described and figured below as *E. herdmani*, was found in fair numbers in some gatherings in the St. Lawrence.

Pleuromma abdominale occurred plentifully, particularly amongst the plankton collected towards the other side, and in Mid-Atlantic, though sparingly taken in British waters. The distinguishing generic character, the dark coloured pleural eye, though generally present, was certainly entirely absent in many specimens, those with and those without the eye being found in the same gathering. Brady refers to the absence of the eye in many specimens. The nearly allied form, *Metridia armata*, was found generally distributed towards this side of the ocean. It is generally a very noticeable feature in plankton collections taken off the west Irish coast.

Heterochæta spinifrons was found very sparingly in collections taken between mid-ocean and Canada. The collection shows an extension of the distribution of this species in the North Atlantic.

Candace pectinata only occurred in a single gathering, the one taken between Rockall and the north coast of Ireland. North of the Mediterranean this species does not appear to have been taken anywhere else except round the British coasts, in several parts of which it has been recorded since Brady first described it from specimens collected at the Scilly Islands.

Labidocera wollastoni occurred in the collections made

in the Irish Sea on the homeward journey. It has already been recorded from this neighbourhood and about Puffin Island by Mr. Thompson.

Anomalocera patersonii was found rather plentifully in a gathering taken off the south of Rockall Bank, and again in one taken off the south-east end of the Island of Anticosti. This species, though generally distributed in the waters of the North Atlantic, North Sea, and Mediterranean, does not appear to have been recorded from any locality south of the Mediterranean. Its northern limit is Greenland.

Parapontella brevicornis was found only once, in the collection between the Isle of Man and Liverpool.

Acartia clausii occurred in nearly all the collections made between Liverpool and lat. 56° 8′ N., long. 38° 6′ W. In a few of the gatherings it was by far the most common species. Between lat. 56° 8′ N., long. 38° 6′ W., and lat. 49° N., long. 67° 45′ W., not a single specimen was observed, but in the collection made from the latter position to 90 miles from Quebec, it was again fairly common; this so far appears to be the western limit of its distribution.

Acartia longiremis is also apparently a widely distributed species, and was found in many of the collections.

Acartia laxa, easily distinguished from both the above species by the presence of spines on the posterior lateral angles of the cephalothorax, was taken in the Gulf of St. Lawrence, opposite the Island of Anticosti, but in no subsequent gathering. North of the latitude of the Cape Verde Islands this species has not been previously recorded, so that the present collection shows a considerable extension of its distribution. A fourth species of *Acartia*, found in the St. Lawrence, appears to be new, and is described below as *A. forcipata*, n. sp.

A species of *Corynura*, from the St. Lawrence, also appears to be new, and is described as *C. discaudata*, n. sp. It was also found in Puget Sound (see Appendix, p. 84).

Oithona spinifrons occurred in considerable numbers almost throughout the collections. All the specimens of *Oithona* observed have been ascribed to this species, although their mutilated condition rendered identification somewhat difficult. Clusters of ovisacs belonging to this species were found in many of the collections.

Oncæa conifera occurred sparingly in the collection made between Quebec and 30 miles west of Rimouski. The present record is a considerable extension of its limit of distribution.

Oncæa venusta also occurred sparingly in the collection made between lat. 56° 30′ N., long. 18° W., and lat. 56° 30′ N., long. 24° 22′ W., which is an extension of its limit of distribution in the North Atlantic.

Ectinosoma sarsii occurred in the last of the outward and first of the homeward collections made between Rimouski and Quebec. The species does not appear to have been previously recorded from the American coasts, so that the present collection shows a considerable extension of its distribution.

Ectinosoma atlanticum has a world-wide distribution; it occurred in several of the gatherings, but only sparingly.

Longipedia coronata was only observed in the collection made between Liverpool and the north of Ireland.

Thalestris serrulata occurred sparingly in three collections, those between Liverpool and the north of Ireland, in the Straits of Belle Isle, and between Rimouski and Anticosti. Out of British seas this species has not hitherto been recorded, so that the present collection shows a considerable extension of distribution of the species, which is apparently one of the pelagic Harpacticidæ.

Alteutha interrupta occurred sparingly in the collection made between Liverpool and the north of Ireland.

One specimen of an interesting parasitic species, *Nogagus borealis*, was found in one of the mid-Atlantic collections. It was first recorded by Steenstrup and Lütken in 1861, from a specimen found free swimming in the South Atlantic. Other members of the genus *Nogagus* are known to be parasitic upon sharks. This was the only parasitic form found in the collections.

The description of the three new species* is as follows:

Eurytemora herdmani, n. sp. (Pl. V., figs. 1—11.)

Length (exclusive of tail setæ), 1·6 mm. Body ovate anteriorly, the posterior angles being produced in the female into large conspicuous wing-like expansions (fig. 1).

Anterior antennæ (fig. 2) about as long as the cephalothorax; 24-jointed in the female, 21-jointed in the male right antenna (fig. 9). The proportional lengths of the joints in the female antennæ are as follows:—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
36	10	8	8	8	6	7	5	6	5	5	8	13	14	15	16	17	18	18	18	16	16	19	26

Each joint bears one or more setæ on the upper surface. The 17th and 18th joints of the right male antenna (fig. 9) are finely denticulated on the upper edge; a geniculation being between the 18th and 19th joints. The apical joint is very small, the previous joints being much longer than any of the others. Posterior antenna (fig. 3) similar to that of *E. clausii*, with the exception of the setæ being non-plumose.

The mouth organs follow the general character of the Calaninæ. The mandibles (fig. 4) are large and powerful,

* See also description of a new species from Puget Sound in Appendix, p. 87.

the seven teeth being bifid, a curved claw-like spine forming the apex of a separate lobe. Basal portion of the palp large, the two setose branches being 2 and 4-jointed respectively.

The posterior foot jaws (fig. 5) are stouter than in most of the Calaninæ; the fine smaller terminal joints are densely setose. The second joint has four non-plumose setæ, and the basal joint three pairs of plumose setæ. Inner branch of 1st pair of swimming feet is 1-jointed, that of the 2nd, 3rd, and 4th 2-jointed (figs. 6 and 7). The 5th feet are jointed similarly to *E. affinis*. The penultimate joint in the female is much the longest, and is produced on the inner side downwards into a long spear-like spine extending beyond the spine of the terminal joint, and provided with short sharp teeth on each side (fig. 8).

The 5th feet of the male (fig. 10) are less robust than in *E. affinis*, the joints being more slender. The abdomen is 3-jointed in the female and 5 in the male (fig. 11); the first segment in the female has a conspicuous obtuse projection on each side posteriorly. Caudal stylets, long and narrow, with one lateral seta and four terminal setæ on each stylet, all finely plumose.

Males and females of this new species were found plentifully in association with *E. affinis* in the St. Lawrence, between Quebec and Rimouski. The penultimate joint of the abdomen in the female readily distinguishes it from the other species of the genus.

It is with peculiar pleasure that I. C. Thompson and A. Scott associate with this striking Copepod the name of Prof. Herdman, who collected the material upon which this paper is based.

Corynura discaudata, n. sp. (Pl.VI., figs. 1—11, Pl. VII., figs. 1, 2.)

Length (female, exclusive of tail setæ), 2·25 mm. Anterior antennæ long and slender, about the length of the entire animal, exclusive of the caudal segments (fig. 1); 18-jointed in the female (fig. 2), and 19 or 20 in the male, right (fig. 10), the former having six long setæ and several short spinous ones on the upper surface, and several long plumose setæ at the apex and shorter ones on the 1st and 2nd joints.

The right antenna (fig. 10) of the male is geniculated between the 14th and 15th joints, and is profusely clothed with short setæ on the upper surface, the apical setæ only being finely plumose. The proportional lengths of the joints in the female antennæ are as follows:—

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

Both branches of the posterior antennæ (fig. 3) are 2-jointed, those of the outer joint being of about equal length. The basal joint of the inner branch is very short, and the apical joint considerably larger than those of the outer branch.

The mouth organs are similar to those of *C. gracilis* with the exception of the mandible palp (fig. 4), the branches of which, in the present species, are respectively 2 and 3-jointed.

Both branches of the first pair of swimming feet (fig. 8) are 3-jointed; the inner branch of pairs 2, 3, and 4 (fig. 9) are 2-jointed, all bearing densely plumose setæ. Fifth pair in the female (Pl. VII., fig. 1) are simple, 2-jointed, similar to those of *C. gracilis*, but without any dentation at the apex. In the male (Pl. VII., fig. 2) the 5th pair is strongly hooked and prehensile.

Abdomen 3-jointed in the female and 5 in the male (fig. 11). The second joint of the male is drawn down posteriorly forming a blunt tooth with minute setæ at the apex.

The two last joints are slightly twisted laterally, the caudal segments, which are about three times as long as broad, being further curved round from the perpendicular. The right stylet is considerably larger than the left, and has on the outer side a strong prominent spine more than double the size of that on the other segment. Each segment bears five terminal plumose setæ.

The male is at once recognisable by the posteriorly produced tooth on the second joint of the abdomen and by the caudal stylets.

A number of specimens, both male and female, were taken in the nets on the 12th August, about the mouth of the St. Lawrence, near the Island of Anticosti, and the species was subsequently found plentifully in the plankton collected by Prof. Herdman in Puget Sound, on the Pacific Coast.

Acartia forcipata, n. sp. (Pl. VII., figs. 3—10.)

Length (exclusive of tail setæ), 2·35 mm. Body (fig. 3) similar in shape and appearance to the other members of the genus *Acartia*. Outer branch of posterior antennæ (fig. 4) 2-jointed; inner branch 3-jointed, the apical and penultimate joints being very short. Terminations of both joints bear a large number of long setæ; the basal joint of outer branch has seven spinous setæ on outer side. Mandible palp (fig. 5) has two short branches, 1- and 4-jointed respectively, both with long setæ, some of them plumose. Anterior foot jaw (fig. 6) 3-jointed, bearing numerous long uncinate and plumose setæ. Posterior foot jaw (fig. 7) composed of broad basal portion bearing long setæ, and a spinous 3-jointed branch.

Swimming feet, 1st to 4th pair (figs. 8 and 9) 2-jointed

on the inner branches, 3-jointed on the outer, the setæ of first foot (fig. 8) being non-plumose, the others (fig. 9) densely plumose, and having the characteristic *Acartia* spinal termination to outer branch.

The female 5th feet (fig. 10) of this species differ from the general character of the other known species of *Acartia* in being 2-jointed, whereas, in the other species, they are rudimentary. The stout basal joints bear a long plumose seta on each outer side. The terminal joints, which are about three times as long as broad, have a short central spine on the outer side, and a very long gracefully curved spine placed centrally on the inner side, also two short terminal spines.

Three specimen only of this evidently quite distinct species were taken in the St. Lawrence, about 100 miles from Quebec. The unfortunately mutilated condition of the anterior antennæ renders any accurate description of them impossible, but the 5th pair of swimming feet are sufficiently diagnostic of the species.

Conclusion.

By W. A. Herdman.

This method of collecting samples of the surface fauna, from an ocean liner going at full speed, in any required number and quantity per day or hour, was first practised, I believe, by Dr. John Murray, in a traverse of the Atlantic from Glasgow to New York in 1892, and afterwards in a trip through the Bay of Biscay, and the Mediterranean. From my experience I can entirely confirm the opinion expressed to me by Dr. Murray, that this plan of collecting is simple, effective, and inexpensive. It requires no complicated apparatus; there is no difficulty in the manipulation, and no trouble to speak of need be given to any

of the ship's company. By this method naturalists can now obtain, at very slight expense, a series of gatherings across the great oceans in every direction traversed by passenger or cargo steamers. The ship's surgeon, or any other officer with a taste for natural history, or who is willing to take a very little trouble to help in advancing scientific enquiry into the life of the ocean can, by taking charge of a tow-net and a set of collecting bottles for a marine biologist, help in making an interesting series of observations which may lead to important conclusions.*

As Copepoda are edible, and can be obtained from the sea-water tap, the cook at sea has a new dish or, at the least, a sauce to add to the bill of fare, and all sailors ought to know, as was first pointed out by the Prince of Monaco, that they have a possible food supply, easily caught, in the sea around them. A tow-net should form part of the equipment of every ship's boat, ready for use in case of shipwreck; and every ship ought to carry a set of tow-nets, and collect material daily in order that the biologist may more accurately map out the exact distribution of organisms over the high seas, and determine the characteristics of the different oceanic currents throughout the year.

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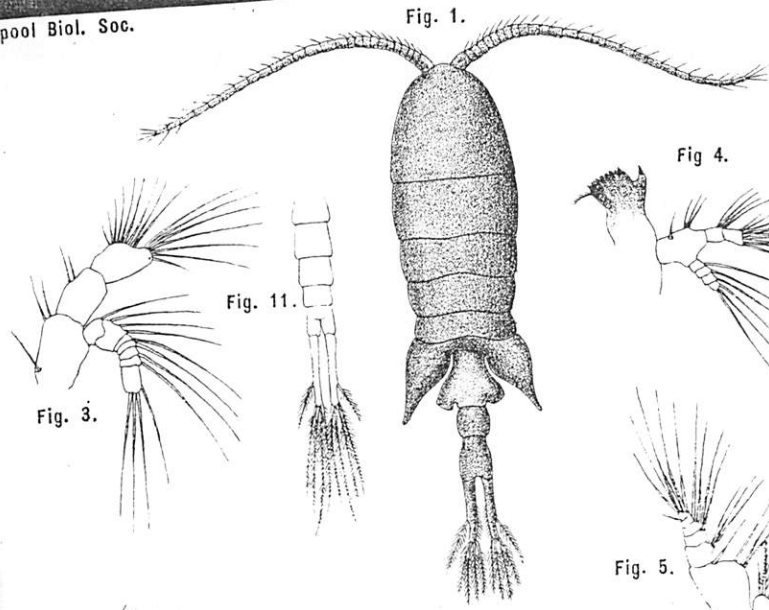
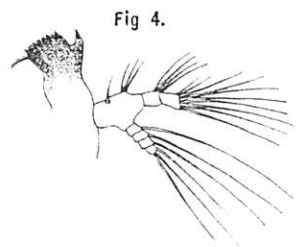
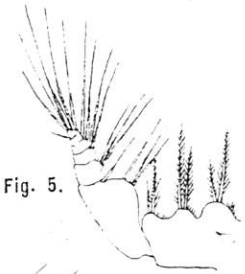
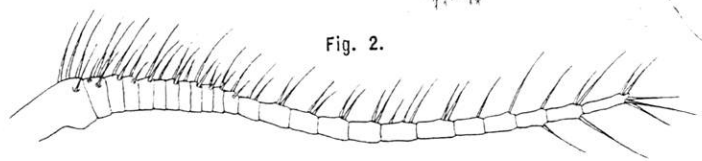
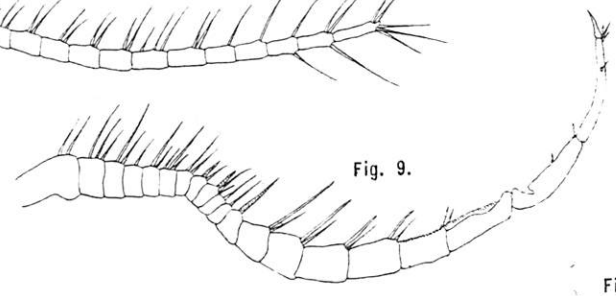
* If there are any such gentlemen sailing from the port of Liverpool, I hope they will place themselves in communication with me by calling at my laboratory in University College. I shall be glad at any time to supply the necessary nets and collecting bottles, and to give the simple instructions required.

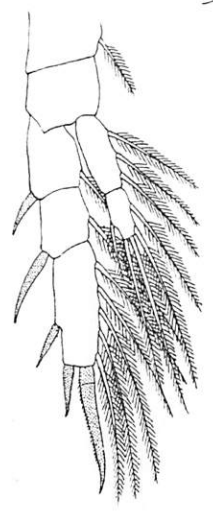


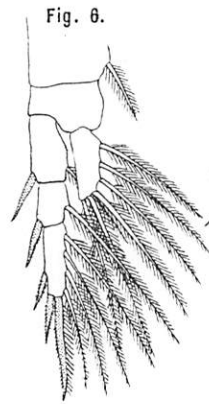


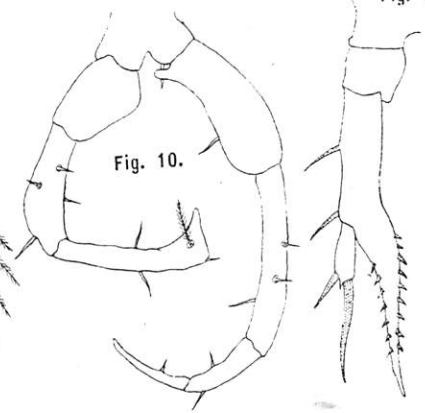












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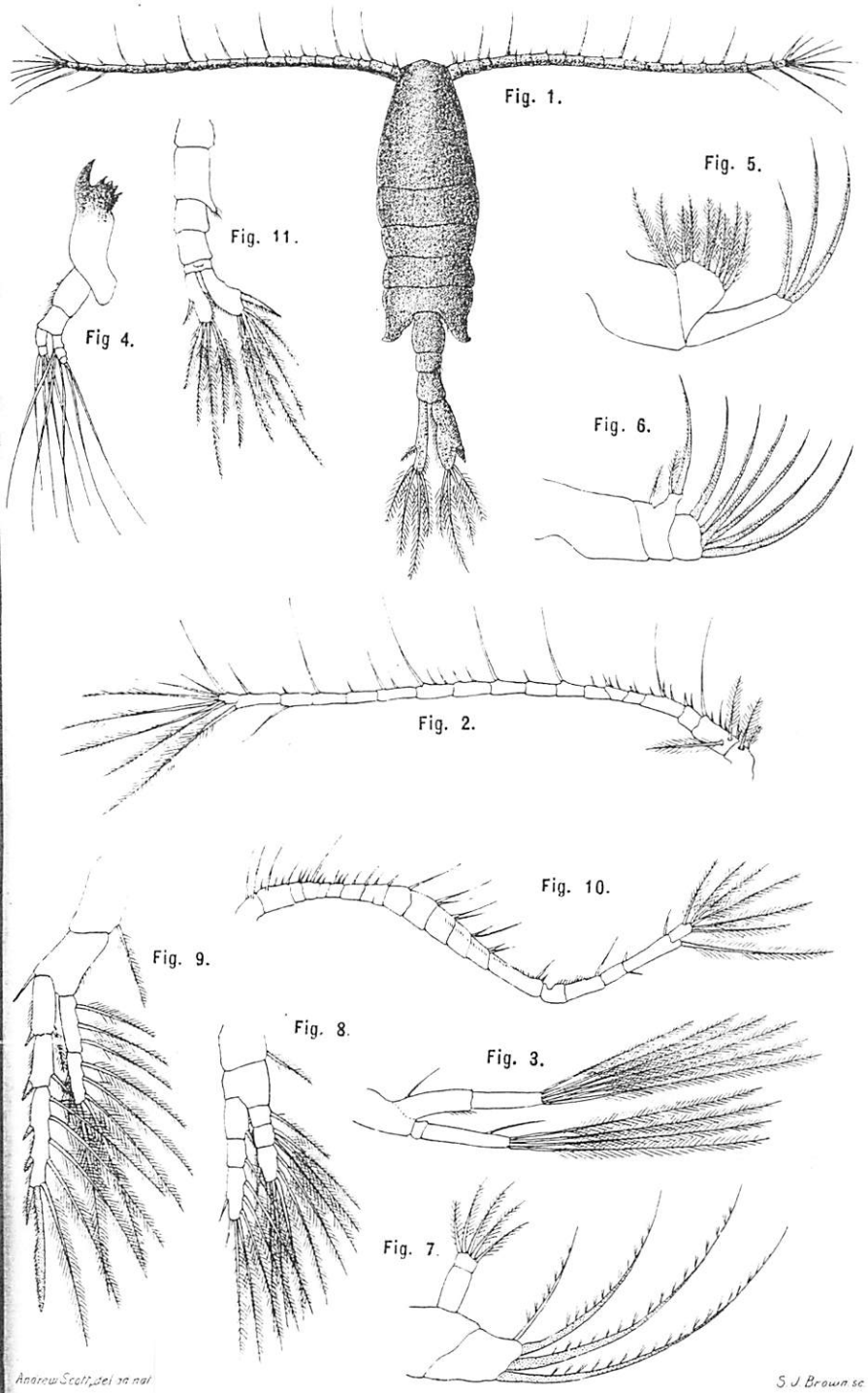
EURYTEMORA HERDMANI, n. sp.



CORYNURA DISCAUDATA, n. sp.

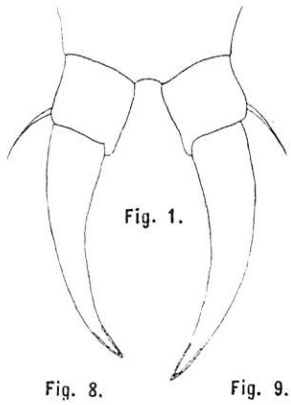


Fig. 1.

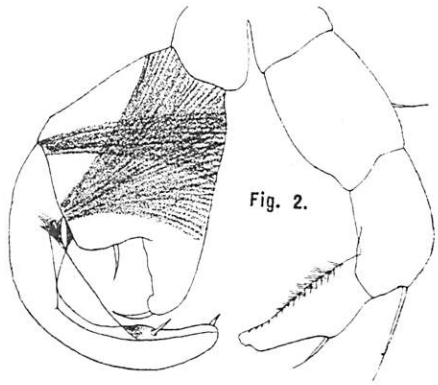


Fig. 2.

Fig. 8.

Fig. 9.

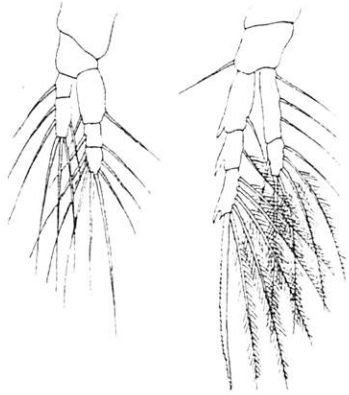


Fig. 8.

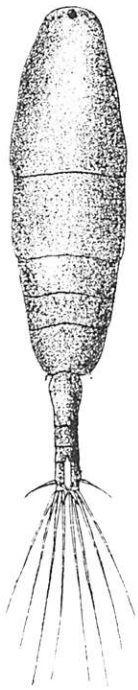


Fig. 3.

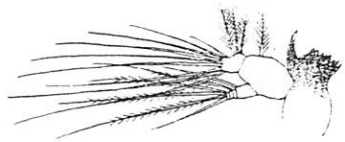


Fig. 5.

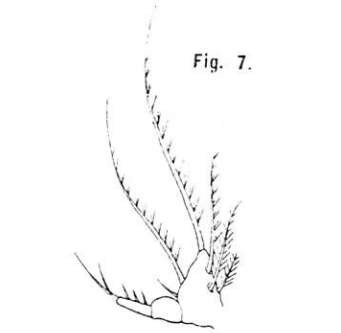


Fig. 7.

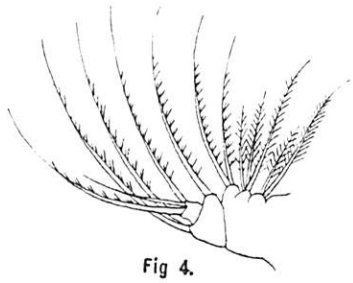
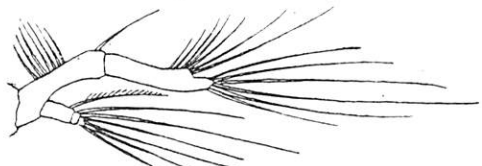


Fig 4.



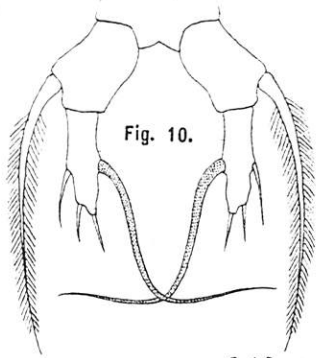


Fig. 10.

Andrew Scott, del ad nat.

S.J. Brown sc.

Figs. 1 and 2—CORYNURA DISCAUDATA, n. sp.

Figs. 3 to 10—ACARTIA FORCIPATA, n. sp.

produced centrally into a rounded flap. Anterior antennæ (fig. 2) 7-jointed, their relative lengths being as follows:—

1	2	3	4	5	6	7
12	12	4	11	10	9	9

the first four being nearly double the width of the terminal joints. All bear short spines, a long one terminating the fourth and fifth joints, and three the apical joint.

Posterior antennæ (fig. 4) 5-jointed, the fourth joint very short. A sharp powerful curved claw with broad base forms the apex. Mandible (fig. 5) broad at the base with long slender finely setose stilet; no palp. Maxilla (fig. 6) consists of a broad base terminated by two spines.

Anterior foot jaw (fig. 7) of similar character to the mandible, with one finely plumose seta. Posterior foot jaw (fig. 8) consists of a single broad plate, its length half its breadth and bearing a row of fine spines on its outer edge. Each branch of first four pairs of swimming feet (figs. 9 and 10) 2-jointed with strong spines and densely plumose setæ.

The first foot (fig. 9) is fringed with short setæ on the lower surface of basal joint. Fifth feet (fig. 1) 1-jointed, each having two terminal spines.

A single specimen of this singular species (sex, male) was taken by tow-net in Puget Sound.* Though bearing a strong resemblance to *Lichomolgus*, its remarkable rostrum and singular posterior foot jaw, as well as the 2-jointed swimming feet, completely separate it from that genus.

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* The specific name *columbiæ* refers to its occurrence in the strait between "Columbia" and British Columbia, and where, moreover, much good work has been done by zoological expeditions from the Columbia University, New York.

Some of the above-named animals from Puget Sound are common British species, and others are closely related or representative forms. I noted the presence of Starfishes very closely resembling our North Atlantic *Cribrella sanguinolenta*, *Stichaster roseus*, and *Solaster endeca*; while Mr. A. O. Walker, who is examining the higher crustacea, writes to me:—"The *Pandalus*, which is *P. danæ*, St., only differs from our common *P. montagui* in having one more tooth on the lower side of the rostrum, and two small teeth at its extremity instead of one; and *Crangon nigricauda*, St., is so very near our common Shrimp, that I do not think it ought to have been separated. Then there is a *Hippolyte* very like our *H. pusiola*, Kr., and another like our *H. spinus*, and so on. The *Idotea* is certainly *I. exsecata*, St., it represents our *I. linearis*."

This close resemblance between our common British species and some of the animals from this arm of the Pacific, a third of the way round the world, is most interesting. There are also, however, some very characteristic forms, such as the huge Holothurians and the magnificent Cryptochitons.

Explanation of Plates.

Plate V., *Eurytemora herdmani*, n. sp.

Fig. 1, female, dorsal view, × 35; fig. 2, anterior antenna, female, × 75; fig. 3, posterior antenna, × 95; fig. 4, mandible and palp, × 85; fig. 5, posterior foot jaw, × 125; fig. 6, foot of first pair, × 255; fig. 7, foot of fourth pair, × 255; fig. 8, foot of fifth pair, female, × 152; fig. 9, anterior antenna, male, × 75; fig. 10, fifth pair of feet, male, × 100; fig. 11, abdomen and caudal stylets, male, × 40.

PLATE VI., *Corynura discaudata*, n. sp.

Fig. 1, female, dorsal view, × 24; fig. 2, anterior antenna, female, × 35; fig. 3, posterior antenna, × 55; fig. 4, mandible and palp, × 35; fig. 5, maxilla, × 125; fig. 6, anterior foot jaw, × 55; fig. 7, posterior foot jaw, × 55; fig. 8, foot of first pair, × 85; fig. 9, foot of fourth pair, × 85; fig. 10, anterior antenna (right), male, × 40; figs. 11, abdomen and caudal stylets, male, × 40.

PLATE VII.

Figs. 1 and 2. *Corynura discaudata*, n. sp.

Fig. 1, fifth pair of feet, female, × 75; fig. 2, fifth pair of feet, male, × 75.

Figs. 3 to 10. *Acartia forcipata*, n. sp.

Fig. 3, female, dorsal view, × 25; fig. 4, posterior antenna, × 125; fig. 5, mandible and palp, × 50; fig. 6, anterior foot jaw, × 125; fig. 7, posterior foot jaw, × 75; fig. 8, foot of first pair, × 125; fig. 9, foot of fourth pair, × 125; fig. 10, fifth pair of feet, female, × 125.

PLATE VIII.

Pseudolichomolgus columbiæ, n. gen. and sp.

Fig. 1, female, dorsal view, × 18; fig. 2, anterior antenna, × 305; fig. 3, rostrum, × 255; fig. 4, posterior antenna, × 250; fig. 5, mandible, × 455; fig. 6, maxilla, × 500; fig. 7, anterior foot jaw, × 500; fig. 8, posterior foot jaw, × 380; fig. 9, foot of first pair, × 215; fig. 10, foot of fourth pair, × 215.

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ELEVENTH ANNUAL REPORT
MARINE BIOLOGY COMMI
BIOLOGICAL STATION at

By Professor W. A. HERDMAN

[Read December 10th, 1

THE past year, though comparatively marked, as the following pages will biological work carried on at Port E our littoral; and several of our local up interesting lines of investigation economic importance. There wa hatching at Easter, several meetin Port Erin during the year and l demonstrations given, the College occupied, some additions have been lists, and several notable papers p journals upon the results of work d Station.

The fact that we have had fewer than in some previous years is proba of the Hon. Treasurer in Scotland an in America during a considerable But the new season will see ren direction. Plans are being laid for of our submarine area, for a system problems of distribution and enviro of the plankton, or floating life of th which is so important in fishery engaged our special attention, and, a in this Report, a scheme is in oper

PROCEEDINGS

AND

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