

VI.—ON SOME NEW AND RARE CRUSTACEA FROM THE SCOTTISH SEAS.

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(Plates X.—XIII.)

PRELIMINARY NOTE.

The Crustacea mentioned in the following notes were obtained for the most part in collections made during various Fishery investigations carried out under the direction of Dr. T. Wemyss Fulton, Scientific Superintendent of the Fishery Board for Scotland.

Several of the forms described appear to be new to science, others have not before been recorded from the Scottish seas, and one or two belong to a curious parasitic group of minute Copepoda found usually in the mar-supium of Crustacean species belonging to the Amphipoda, Sympoda, and others of the smaller Malacostraca.

The following are the species described :—

Pseudocyclopia giesbrechti, Wolfenden—male described for the first time.

Euryte longicauda, Philippi, var. minor—new variety.

Longipedia coronata, Claus—new to Scottish fauna.

Stenhelia pygmæa, Norman and Scott—new to Scottish fauna.

Ameira elegans, sp. n.

Laophonte longiremis, sp. n.

Cletodes sarsi, sp. n.

Dyspontius curticaudatus, sp. n.

Sphaeronella aoræ, sp. n.

„ *vararensis*, sp. n.

„ *minuta*.

„ „ var.

„ sp. from *Hemilamprops rosea*.

Arcturella dilatata—now first recorded from the Forth estuary.

DESCRIPTION OF THE SPECIES.

SUB-ORDER CALANOIDA.

FAM. PSEUDOCYCLOPHIDÆ.

Genus *Pseudocyclopia*, T. Scott (1892).*

Pseudocyclopia Giesbrechti, Wolfenden. Pl. x., figs. 1–9.

1902. *Pseudocyclopia Giesbrechti*, Wolfenden, Journ. Mar. Biol. Assoc., Plymouth, vol. vi., No. 3, January, 1902, p. 370, pl. iv.

* *The Tenth Annual Report of the Fishery Board for Scotland, III.*, p. 246 (1892).

The female of this species was described and figured by Dr. Wolfenden in the Journal of the Marine Biological Association for January, 1902, but the male appeared to be unknown.

The male specimen (fig. 1), which I now propose to describe, agrees so closely with Dr. Wolfenden's definition and figures of the female that, after making allowance for sexual differences, I have no hesitation in ascribing it to the same species.

The cephalothorax is robust, and appears to be composed of only four segments, but the fifth is so small as to be almost entirely obscured by the fourth; the abdomen is slender and much shorter than the body; rostrum not much produced. The length of the specimen figured is about .8mm. (about $\frac{1}{31}$ of an inch).

Antennules (fig. 1) moderately slender, except towards the proximal end; they are shorter than the cephalothoracic segment, and composed of seventeen joints; the basal joint is large and stout and rather more than half as long as the entire length of the remaining joints, which are all short—the tenth, fourteenth, fifteenth and last are, however, rather longer than any of the other twelve. The formula shows approximately the proportional lengths of all the joints:—

Proportional lengths of the joints,	58	·	5	·	6	·	4	·	3	·	4	·	4	·	7	·	9	·	6	·	6	·	7	·	9	·	12	·	8	·	19				
Numbers of the joints, -	-		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17

Posterior antennæ, outer ramus scarcely so long as the inner one, and composed of five joints—the third and fourth joints are very small and sparingly setiferous (fig. 3).^{*} Mouth appendages similar to those of the other described species.

All the four pairs of swimming feet (figs. 4-7) are also similar to those of the other described species, except that they are rather more hispid, but especially the inner branches of the fourth pair, and the outer branches also to some extent. In this pair the joints are more or less covered with minute prickles, as shown in the drawing (fig. 7), and the same character distinguishes the fourth pair in the female described and figured by Dr. Wolfenden.

Fifth pair are elongated and unequal on the two sides; the left leg is long and slender, for though the first and second joints are short, the other is of considerable length, and is probably longer than the drawing shows it, as the extremity is apparently slightly damaged; a dense fringe of small delicate hairs extends along part of the proximal half of the inner margin of the slender end joint, and terminates distally at a small hook-like process (fig. 8). The right leg is considerably dilated at the proximal end of the second joint, but becomes attenuated towards the distal extremity; the third joint is narrow, and terminates interiorly in one or two finger-like processes; while the end joint, which is very slender, and tapers gradually to a pointed apex, is furnished with a small process exteriorly near the proximal end, as shown in the drawing (fig. 8.). The abdomen is composed of five moderately short segments, and the furcal joints are also short (fig. 9).

Habitat.—Firth of Forth, west of Queensferry. Dredged Nov. 17, 1893, but only now described and figured.

Remarks.—One of the characters peculiar to the genus *Pseudocyclopia* is the presence of a long, moderately stout spine which springs from the inner distal angle of the first basal joint of the third pair of legs and reaches to about the end of the inner branch, as shown in figure 6.

^{*} Dr. Wolfenden describes the posterior antennæ as one-branched, but the outer ramus so characteristic of the *Pseudocyclopiidæ* as of the other *Calanoida* had probably become accidentally detached, and had thus given to the posterior antennæ an appearance somewhat unique among *Calanoids*,

SUB-ORDER CYCLOPOIDA.

FAM. CYCLOPIDÆ.

Genus *Euryte*, Philippi (1843).

Euryte longicauda, Philippi, var. *minor*. Pl. x., figs. 13 and 14.

Euryte longicauda is a moderately common species, and has already been recorded from the Firth of Forth and other places. Two forms, a smaller and a larger, have occasionally been observed, but they appear to differ very little from each other except in size. Figures 10 and 13 on plate x. show a female of the usual size and one of the small variety. The first measures about 1.2mm. and the other .8mm. in length; the drawings of them are similarly enlarged. But though they differ so distinctly in size, there appears to be scarcely any structural difference between them: for convenience sake, however, the small form might be distinguished as var. *minor*. The fifth foot in this variety is slightly different in shape and armature from that of the other, as shown by figures 12 and 14. Both of the forms represented here are from South Bay, Firth of Forth.

SUB-ORDER HARPACTICOIDA.

FAM. LONGIPEDIIDÆ.

Genus *Longipedia* (1863).

Longipedia coronata, Claus. Pl. x., figs. 15-17.

Prof. G. O. Sars has shown that the *Longipedia* usually recorded from Scottish waters as *Longipegia coronata*, Claus, was not the species described by him under that name, but another and quite distinct form to which he has given the new name of *Longidepia Scotti*.* The true *L. coronata*, Claus, appears to be moderately rare in our seas, and is probably limited to moderately deep water. I have only observed it in two gatherings, and they were on each occasion collected in over fifty fathoms. *Longipedia coronata*, Claus, which is scarcely so large as *L. Scotti* shows several minute points of difference from the other species, *i.e.*, the arrangement of the three prominent setæ on the long end-joint of the inner branches of the second pair of legs in the female is similar to that of *L. minor*, Scott, but there are short stout spine-like processes at the distal end of the basal joints of the outer and inner branches (fig. 15). The fifth pair of feet, though similar to those of *L. Scotti*, are slightly different in form and armature (fig. 16); while the last segment of the abdomen bears two short stout spines on each side of the prominent medium spine on the posterior dorsal margin (fig. 17).

Habitat.—Moray Firth, off Fraserburgh, September 29, 1904, collected by Dr. H. C. Williamson, to whom I am indebted for the specimens. The same species was also obtained in one of the "Gold-seeker" gatherings, and is recorded in the Bulletin of the Council of the International Bureau for November, 1904.

* Sars' Crustacea of Norway, vol. v., p. 11, pl. v., fig. 1 (1904).

FAM. STENHELIDÆ.

Genus *Stenhelia*, Boeck (1864).

Stenhelia pygmæa, Norman and Scott.

1905. *Stenhelia pygmæa*, N. and S., Ann. and Mag. Nat. Hist. (7), vol. xv., p. 284.

This small species has recently been noticed in a gathering of Crustacea collected at Station II., Firth of Forth, on December 26, 1894.* It was described by Norman and Scott from a specimen dredged near Eddystone Lighthouse by Rev. Canon A. M. Norman.†

S. pygmæa is one of the smaller species belonging to this genus, and measures only about $\frac{1}{70}$ of an inch in length; it appears to differ from other described species by the peculiar structure of the antennules and of the first pair of swimming feet, and by the form and armature of the fifth pair.

Genus *Ameira*, Boeck (1864).

Ameira elegans, sp. n. Pl. x., figs. 18 and 19; pl. xi., figs. 1-9.

Description of the Female.—The body, which is moderately elongated and slender, has a general resemblance to *Canthocamptus palustris*, but it is rather less robust and somewhat smaller; the specimen figured measured only .7mm. (nearly $\frac{1}{8}$ of an inch) in length (pl. xi., fig. 1).

Antennules moderately elongated, eight-jointed, and sparingly setiferous; the second joint is considerably longer, and the fifth and seventh smaller than the others (pl. xi., fig. 2). The formula shows the lengths:—

Proportionate length of the joints,	13	·	23	·	14	·	15	·	9	·	10	·	7	·	11
Number of the joints, - - -	1	2	3	4	5	6	7	8							

The antennæ (posterior antennæ) are moderately large, and are each furnished with a small uniaarticulate outer ramus bearing a few apical setæ (pl. xi., fig. 3).

Mandibles narrow, oblong, masticatory end obliquely truncated, and armed with small teeth; mandible palp small, the basal part furnished with two setæ at the extremity—one being stout and spiniform, and one plumose—and a small uniaarticulate branch bearing a few setæ is articulated to the distal half of the basal part (pl. xi., fig. 4).

The second maxillipeds are stout, and armed with a moderately long terminal claw (pl. x., fig. 18).

The swimming feet resemble those of *Canthocamptus palustris*, but differ in a few minor particulars, as shown by the drawings. In the first pair, which are moderately stout, the first joint of the inner branches reaches to slightly beyond the end of the outer branch, the next two joints are short, but the end joint is rather longer than the other; in the outer branches the middle joint, which is slightly longer than the first or third has a small spine on the inner distal angle; all the three joints have the usual marginal spines—one on each of the first and second joints, and three spines and two setæ on the lower half of the outer margin and end of the third joint (pl. xi., fig. 5).

In the second, third, and fourth pairs the inner branches are all shorter than the outer. The middle joint of the second pair bears a single setæ on the inner distal angle; but the end joint, which is rather longer than

* This gathering was only partially examined at the time it was collected, and it has not even yet been exhaustively dealt with.

† Cf. *Ann. and Mag. Nat. Hist.* for March, 1905, p. 284.

the other two, is provided with two setæ on the inner margin, two spines on the outer margin, and also with two long spines of unequal length and a long seta at the apex; the inner branches have the outer edge of each joint fringed with minute bristles, and a moderately long seta springs from the distal angles of the first and second joints and from the lower half of the third joint; the third joint is also armed with a terminal spine and two long terminal setæ (pl. xi., fig. 6).

The armature of third and fourth pairs is similar to that of the second, except that there are two setæ instead of one on the lower half of the inner margin of the last joint of the inner branches (pl. x., fig. 19, and pl. xi., fig. 7).

The fifth pair resembles, to some extent, the same appendages in female specimens of *Canthocamptus palustris*, but the inner portion of the primary joints, which are broadly sub-triangular, have the apex more or less distinctly truncated rather than rounded. The armature of the inner portion of the primary joints consists of five apical setæ, of which the three inner ones and the outermost are only of moderate length, but the other—the second from the outside—is greatly elongated. The secondary joints are oblong, with the outer and inner margins nearly parallel, the length being equal to about twice the width at the broadest part; outer margin nearly straight, inner slightly convex, apex obliquely truncate and furnished with six setæ; the second from the inside is very long, while the second from the outside is short; the others are of varying lengths, as shown in the drawing (pl. xi., fig. 8). Furcal joints very short (pl. xi., fig. 9).

Habitat.—West of Dunbar, near low water, collected by hand-net October 16, 1894, as well as in a collection from Musselburgh collected the same year; rare.

Remarks.—Though this species resembles *Canthocamptus palustris* in some respects, the difference in the proportional lengths of the joints of the antennules and of the outer and inner branches of the first pair of swimming feet, and also in the form of the fifth pair, and especially of the secondary joints of that pair, is sufficient to distinguish it.

FAM. LAOPHONTIDÆ.

Genus *Laophonte*, Philippi (1840).

Laophonte longiremis, sp. n. Pl. xi., figs. 10–20.

Description of the Female.—Body slender, and somewhat similar to *Laophonte thoracica* in general appearance. The cephalothoracic segment is equal in length to the next three taken together, gibbous on the under side, the ventral margins boldly rounded, the depth being nearly equal to the length of the segment; the remaining segment short. Furcal joints about equal in length to the last abdominal segment. Length of the specimen represented by the drawing (fig. 10) .6mm. (about $\frac{1}{42}$ of an inch).

Antennules long, slender, and composed of seven joints (fig. 11); first and second joints subequal, considerably longer than the first, the next three small, but the end joint is nearly as long as the combined lengths of the three preceding joints, as shown in the formulæ:—

Proportional lengths of the joints,	-	16	·	25	·	22	·	7	·	4	·	7	·	16
Number of the joints, - - -	-	1	2	3	4	5	6	7						

A long, slender, sensory filament springs from the upper distal angle of the fourth joint, as shown in the drawing.

The posterior antennæ are moderately slender and elongated, and the end joint is armed with a hook-like process on the outer distal angle in addition to the usual terminal setæ (fig. 12); outer ramus small, unarticulate, and provided with two marginal and two terminal setæ.

Mandibles small and armed with a few bluntly-rounded teeth on the biting edge; palp small and furnished with a minute unarticulated branch (fig. 13).

Maxillæ and first maxillipeds as in *L. thoracica*.

Second maxillipeds also similar to those of that species, the terminal claw being long and slender (fig. 14).

In the first pair of natatory legs the inner branch has the joint slender and nearly twice the length of the entire outer branch, and it bears a few minute bristles on the inner margin; the end joint is small and armed with a moderately stout and elongated claw. The outer branches are composed of three subequal joints, but the last is rather smaller than either of the other two (fig. 15). Outer branches of the second, third, and fourth pairs all three-jointed, elongated, and slender, and bearing long slender spiniform marginal setæ and very long terminal bristles, as shown by the drawing (figs. 16-18); inner branches short, two-jointed, and scarcely reaching to the second joint of the outer branches; first joint considerably shorter than the second, and each furnished with a single seta near the end of the inner margin; the end joint of the inner branches of the second and fourth pairs has a single seta on the lower half of the outer margin, two on the inner margin, and two at the apex; but in the third pair there are three setæ on the inner margin of the end joint of the inner branches.

Moreover, a single seta springs from near the middle of the inner margin of the end joint of the outer branches of the second pair, and two from the inner margins of the same joints of the third and fourth, but otherwise the armature of the outer branches of the second, third, and fourth pairs is much alike.

Fifth pair of moderate size, primary joint broadly oblong; the inner distal angle slightly produced, and furnished with three setæ on the inner margin—one being near the middle and two near the distal end; the produced part bears one seta also on its inner margin and three others of small size and unequal length at its apex. The primary joint also carries a slender spiniform seta on the outer distal angle; the secondary joint is narrow and elongated, the length being equal to fully four times the width at the broadest part; it is provided with about four setæ on the outer margin, one on the inner margin, and one on the produced and narrow apex (fig. 19).

Habitat.—In an old quarry at Granton, Firth of Forth, which is open to the sea; collected August 25, 1894; rare. This species differs from any other known to me; no male has yet been observed.

FAM. CLETODEIDÆ.

Genus *Cletodes*, Brady (1872).

Cletodes Sarsi,* sp. n. Pl. xii., figs. 1-9.

Description of the Female.—This species is somewhat intermediate between *Cletodes neglecta* and *C. longicaudata*, but differs from *C. neglecta* in having longer furcal joints, and from *C. longicaudata* in the furcal joints of that species being still more elongated (fig. 1). The length of the specimen figured is about .5mm. ($\frac{1}{30}$ of an inch).

* Named in compliment to Herr Professor G. O. Sars, the eminent Norwegian carcinologist.

The antennules (fig. 2) are very short, and composed of five joints; the length of the second joint is about equal to that of the last, but the penultimate joint is very small, as shown by the formula:—

$$\begin{array}{r} \text{Proportional lengths of the joints,} \quad - \quad 5 \cdot 13 \cdot 9 \cdot 2 \cdot 13 \\ \text{Number of the joints,} \quad - \quad - \quad - \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \end{array}$$

The posterior antennæ are of moderate size, the end joint has the inner margin fringed with minute bristles, while two short setæ spring from the distal half of the same margin; the outer rami is very small and unarticulate, and furnished with two or three setæ (fig. 3).

The mandible, maxillæ, and first maxillipeds are similar to those of *C. neglecta*. The second maxillipeds are very small, the end joint has the inner margin fringed with fine bristles and bears a long and very slender claw (fig. 4).

All the four pairs of swimming feet are moderately short, and are somewhat similar to each other in structure; the outer branches are three-jointed and bear moderately long, slender spines or setæ; the end joints of the outer branches of the first and second pairs are each provided with four terminal setæ, but the third and fourth pairs have five setæ round the end of the last joint; these joints of the third and fourth pairs also differ from those of the first and second in that they become gradually and distinctly broader towards the distal extremity, as shown in the drawing (figs. 7 and 8); the inner branches are all two-jointed, short, and narrow; the first joint is very small, but the second is elongated; the inner branches in the first pair scarcely reach beyond the end of the second joint of the outer branches, while in each of the second, third, and fourth pairs the inner branches are slightly shorter than those of the preceding pair; the inner branches of the first and second pairs are each furnished with two, and the others with three, terminal setæ (figs. 5–8).

The fifth pair are small; the primary joint, which is very short, is produced interiorly into a narrow plate, which becomes somewhat wider towards the distal end, and is furnished with a short and moderately elongated spine, which is articulated to a notch near the middle of the inner margin, and also with a stout and moderately long spine and an elongate seta on the truncate apex; the secondary joint is long and very narrow; a short seta springs from near the middle and another from near the distal end of the outer margin. Moreover, a moderately long and spini-form seta springs from near the distal end of the inner margin of the secondary joint, and there is also a slender apical seta (fig. 9).

The furcal joints are rather longer than the combined lengths of the last two abdominal segments, and they each bear a small bristle on the upper half of the outer margin and another on their dorsal aspect.

Habitat.—Firth of Forth, 1901; rare.

FAM. HARPACTICIDÆ.

Genus *Harpacticus*.

Harpacticus uniremis, Kröyer. Pl. x., fig. 20.

This species, which is so fully described and figured by Professor G. O. Sars in the new volume of his *Crustacea of Norway* now in course of publication, has been observed in one or two places round the Scottish and English coasts—I have even obtained it in material washed from the filters in use at the hatchery at the Bay of Nigg.

In this species the limbs are strongly hispid, and it is otherwise quite distinct from the other described species belonging to the genus found on

our shores. Figure 20 in plate x. shows one of the fifth pair of thoracic feet of a female specimen.

FAM. ASTEROCHERIDÆ.

Genus *Dyspontius*, Thorell (1859).

Dyspontius curticaudatus, sp. n. Pl. xiii., figs. 1-10.

Description of the Female.—Length .8mm. (about $\frac{1}{31}$ of an inch); somewhat similar to *Dyspontius striatus* in general appearance, but considerably smaller, except that the abdomen is also distinctly shorter, and the cephalosome rather more distinctly triangular in front. The abdomen and furcal joints are very short, and are together scarcely longer than the combined lengths of the preceding segments of the metasome (fig. 1).

The antennules are short, moderately stout, sparingly setiferous, and composed of eight joints; second and last joints subequal and longer than any of the others; the fourth is short, being only about half the length of the joint on either side, as shown in the annexed formula:—

Proportional lengths of the joints,	14	·	25	·	10	·	5	·	10	·	8	·	10	·	23
Numbers of the joints, -	1		2		3		4		5		6		7		8

A short sensory filament springs from about the middle of the end joint (fig. 2).

The antennæ (posterior antennæ) are moderately elongated, four-jointed, and armed with three moderately stout terminal spines, the middle one being considerably elongated and the outer very small; the outer ramus is rudimentary (fig. 3). The siphon reaches to about the end of the cephalosome.

The mandibles are very slender, and a small portion of the distal end of the inner margin is coarsely dentate, as shown in the drawing (fig. 4).

The maxillæ are somewhat similar to those of *Dyspontius striatus*, but are rather stouter, and the inner ramus is proportionally scarcely so elongate, being only slightly longer than the outer ramus; the terminal setæ of the outer and inner rami are also similar to those of that species (fig. 5).

The first maxillipeds resemble those of *Dyspontius fringella*, Giesb., very closely; they are furnished with a small fringe of setæ near the end of the second joint; the terminal claw is moderately short (fig. 6).

The second maxillipeds have the second joint elongated, but the third and fourth, which are subequal in length, are together not much more than half the length of the second joint; the terminal claw is stout and moderately short, and about equal to the combined lengths of the two preceding joints (fig. 7).

The swimming feet resemble those of *Dyspontius striatus*. In the first pair neither of the two branches bear terminal spines; the first joint of the outer branch, which is nearly twice as long as the next, carries a short seta on the distal angle of the outer margin, and another on the lower half of the inner margin; the second joint bears a short spine on the outer angle and a seta on the inner margin, while the last joint is furnished with two small spines on the outer margin, two setæ on the inner margin and two more setæ at the apex; the first joint of the inner branches bears one and the second two setæ on their inner margin, while the third carries three on the inner margin, one small seta on the outer margin, and two of moderate length at the apex, as shown in the drawing (fig. 8); the second pair, which were somewhat similar to the third, were damaged and no

drawing is given of them. In both branches of the third pair the armature of the first and second joints resembles that of the same joints in the first pair, but in the third joint of the outer branches there are three short spines on the outer margin, five setæ on the inner margin, besides a moderately stout terminal spine; while that of the third joint of the inner branches has three setæ on the inner margin, a small seta on the outer margin, and a stout spine with a seta in front of it at the apex (fig. 9).

In the fourth pair the outer branches only are developed, and resemble the outer branches of the third pair; the inner branches are represented by a minute digitiform process (fig. 10).

The fifth pair very minute.

Habitat.—Dredged in the vicinity of Culross, a few miles above Queensferry, Firth of Forth.

This form is in some respects similar to *Dyspontius striatus*, but it differs in having only eight-jointed antennules and in the abdomen being very short. The male is unknown.

FAM. NICOTHOIDÆ.

Genus *Nicothoë*, Aud, and M. Edw., 1826.

Nicothoë astaci, Audouin and M. Edwards.

1826. *Nicothoë astaci*, Aud and M. Edw., Ann. Sci. Nat., 1st ser., vol. ix., p. 345, taf. 49, figs. 1-9.

Dr. H. C. Williamson, while examining a lobster sent to him from Dunbar, observed this curious parasite adhering to one of the gills and kindly handed it over to me. This is the first specimen of *Nicothoë* I have seen from the Forth district. The distribution of this species, so far as concerns the British Islands, appears to be coextensive with its host.

FAM. CHONIOSTOMATIDÆ.

Genus *Sphæronella*, Salensky (1868).

Sphæronella minuta, T. Scott. Pl. xii., fig. 18; pl. xiii., fig. 16.

This small form—parasitic on the Amphipod *Periocolodes longimanus* (Spence Bate)—was described in Part III. of the Twenty-second Annual Report of the Fishery Board for Scotland, published in 1904 (pl. xv., figs. 11-15). One or two more specimens of *Periocolodes* infested with the same species of *Sphæronella* were recently observed in gatherings of small Crustacea collected in the Moray Firth by Dr. H. C. Williamson, to whom I am indebted for the specimens. Figure 18, plate xii., shows a *Periocolodes* with a parasite *in situ*, and figure 16, plate xiii., shows an enlarged drawing of an adult female bearing two ovisacs, each of which is about as large as the parasite itself.

Sphæronella minuta, var. *valida*. Pl. xiii., fig. 17-20.

This form, which was obtained in the marsupium of an amphipod, *Melamphopus cornutus*, Norman, resembles *Sphæronella minuta* so closely except in size, that I can only regard it as a large variety of that species. The female, which is represented by the drawing (fig. 17, pl. xiii.), measures .73mm. in length, or about one and a half times the size of *S. minuta*. The body is globular in form and the appendages, so far as

they could be made out, appeared to be closely similar to the corresponding appendages in *S. minuta*. No males have yet been observed. The Amphipod was obtained in a gathering of small Crustacea collected off the east side of Inchkeith, Firth of Forth, in May, 1901.

Sphæronella aora, sp. n. Pl. xii., figs. 10–17.

Female moderately large; its outline, when seen from above, had an obscurely quadrate appearance and was about as long as broad; the head forms a small rounded protuberance in front; length .86mm. (about $\frac{1}{30}$ of an inch); ovisacs large (fig. 10).

Antennules apparently four-jointed, but the end joint is very small; the penultimate joint, which is equal to about one and a half times the length of the one that precedes it, is furnished with a number of short setæ (fig. 12).

The first maxillipeds are uniarticulate, very robust, and armed with a stout terminal claw (fig. 14).

The second maxillipeds are moderately stout, elongated, and four-jointed; the second joint is as long as the third and fourth combined, while the third is narrower than the second and rather longer than the ultimate joint; terminal claw short and stout (fig. 15).

The male, which measures about .28mm. has a somewhat close resemblance to the male of *Sphæronella chinensis*, H. J. H.* The cephalo-thoracic plate is widest posteriorly where the breadth is about equal to the length; the sides, which are nearly straight, converge towards the proximal end, which is trilobed, the median lobe being larger than that on either side, abruptly truncate in front and produced slightly beyond the lateral lobes, which are bluntly rounded. Posterior portion of the body short, semicircular in outline, and covered with short bristles (fig. 11).

The antennules of the male differ slightly from those of the female; they are rather shorter and stouter (fig. 13).

The second maxillipeds differ considerably from those of the female; the second joint is moderately stout, but comparatively shorter than in the second maxillipeds of the female, and furnished with two or three transverse rows of short bristles; the two end joints are slender, the ultimate one being very small and bearing a moderately stout claw (fig. 16).

The thoracic legs appear to be uniarticulate and armed with one long and one short terminal seta (fig. 17).

Habitat.—In the marsupium of *Aora gracila* (Bate), from a tow-net gathering collected in the Dornoch Firth by Dr. H. C. Williamson, which he kindly handed over to me for examination.

Sphæronella vararensis, sp. n. Pl. xiii., figs. 12–15.

This *Sphæronella* was found in the marsupium of an Amphipod, *Megaluropus agilis*, Norman, captured in Burghead Bay, Moray Firth, by Dr. H. C. Williamson, on Dec. 12, 1904, and kindly handed over to me along with some other interesting things. One or two females of this parasite were observed, but no males. The females are of an ovate form, widest in the middle, and nearly one and a half times longer than broad; head somewhat produced and broadly truncate in front. The specimen represented by the drawing measured .53mm. (about $\frac{1}{47}$ of an inch) and carried two ovisacs, each nearly as long as the parasite itself; the ovisacs were ovate in form, broadly rounded on the outer, but flattened on the

*The "Choniostomatidæ," by H. J. Hansen, pp. 106 and 112, Pl. II. and Pl. III.

inner aspect (fig. 12). The female as seen from the side is moderately and evenly rounded on the dorsal aspect and somewhat flattened below, as shown in figure 13.

The antennules appear to be four-jointed, but the end joint is very small, while the penultimate joint is nearly as long as the preceding two joints taken together (fig. 14).

The second maxillipeds are moderately large and composed of four joints; the first and second joints are robust, and the second is considerably more elongate than the next two joints combined, which are short and narrow, and furnished with a short terminal claw (fig. 15). This form does not agree with any species known to me. No males were observed.

(?) *Sphæronella* sp. from a *Hemilamprops rosea* (Norman).

A moderately large *Sphæronella*, bright red in colour, was quite recently obtained in the marsupium of a specimen of *Hemilamprops rosea* (Norm.) captured in Loch Fyne by Dr. Williamson. So far as I am aware no *Choniostomaton* has yet been recorded from this species of the Lampropidæ.

ISOPODA VALVIFERA.

FAM. ARCTURIDÆ.

Genus *Arcturella*, G. O. Sars, 1897.

Arcturella dilatata, G. O. Sars. Pl. xiii., fig. 11.

1897. *Arcturella dilatata*, G. O. Sars, Crustacea of Norway, vol. ii., p. 92, pl. xxxviii.

A male specimen of this species was obtained in some material dredged off St. Monans on May 22, 1901. The species appears to be widely distributed, but moderately rare. The late Dr. Robertson has recorded this species from the Firth of Clyde, and I have observed one or two specimens in gatherings dredged off Fair Island in October, 1900.

DESCRIPTION OF THE PLATES.

PLATE X.

Pseudocyclopia giesbrechti, Wolfenden.

	Diam.
Fig. 1. Male, side view	× 90.
Fig. 2. Antennule	× 260.
Fig. 3. Antenna	× 260.
Fig. 4. Foot of first pair	× 260.
Fig. 5. Foot of second pair	× 260.
Fig. 6. Foot of third pair	× 260.
Fig. 7. Foot of fourth pair	× 260.
Fig. 8. Foot of fifth pair	× 260.
Fig. 9. Abdomen and furcal joints	× 195.

Euryte longicauda, Philippi.

Fig. 10. Female, dorsal view	× 90.
Fig. 11. Antennule	× 195.
Fig. 12. Foot of fifth pair	× 390.

Euryte longicauda, var. *minor*.

Fig. 13. Female, dorsal view	. . . . .	× 90.
Fig. 14. Foot of fifth pair	. . . . .	× 390.

Longipedia coronata, Claus.

Fig. 15. Foot of second pair, female	. . . . .	× 90.
Fig. 16. Foot of fifth pair, female	. . . . .	enlarged.
Fig. 17. Last segment of abdomen and furcal joints	. . . . .	× 195.

Ameira elegans, sp. n.

Fig. 18. Second maxilliped, female	. . . . .	× 780.
Fig. 19. Foot of third pair	× 260.

Harpacticus uniremis, Kröyer.

Fig. 20. Foot of fifth pair	enlarged.
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PLATE XI.

Ameira elegans, sp. n.

Fig. 1. Female, side view	× 60.
Fig. 2. Antennule	× 260.
Fig. 3. Antenna	× 390.
Fig. 4. Mandible	. . . . .	× 780.
Fig. 5. Foot of first pair	. . . . .	× 260.
Fig. 6. Foot of second pair	. . . . .	× 260.
Fig. 7. Foot of fourth pair	. . . . .	× 195.
Fig. 8. Foot of fifth pair	. . . . .	× 390.
Fig. 9. Last segment of abdomen and furcal joints	. . . . .	× 195.

Laophonte longiremis, sp. n.

Fig. 10. Female, side view	. . . . .	× 135.
Fig. 11. Antennule	. . . . .	× 520.
Fig. 12. Antenna	. . . . .	× 520.
Fig. 13. Mandible	. . . . .	× 780.
Fig. 14. Second Maxilliped	. . . . .	× 780.
Fig. 15. Foot of first pair	. . . . .	× 300.
Fig. 16. Foot of second pair	. . . . .	× 260.
Fig. 17. Foot of third pair	. . . . .	× 260.
Fig. 18. Foot of fourth pair	. . . . .	× 260.
Fig. 19. Foot of fifth pair	. . . . .	× 390.
Fig. 20. Last segment of abdomen and furcal joint	. . . . .	× 195.

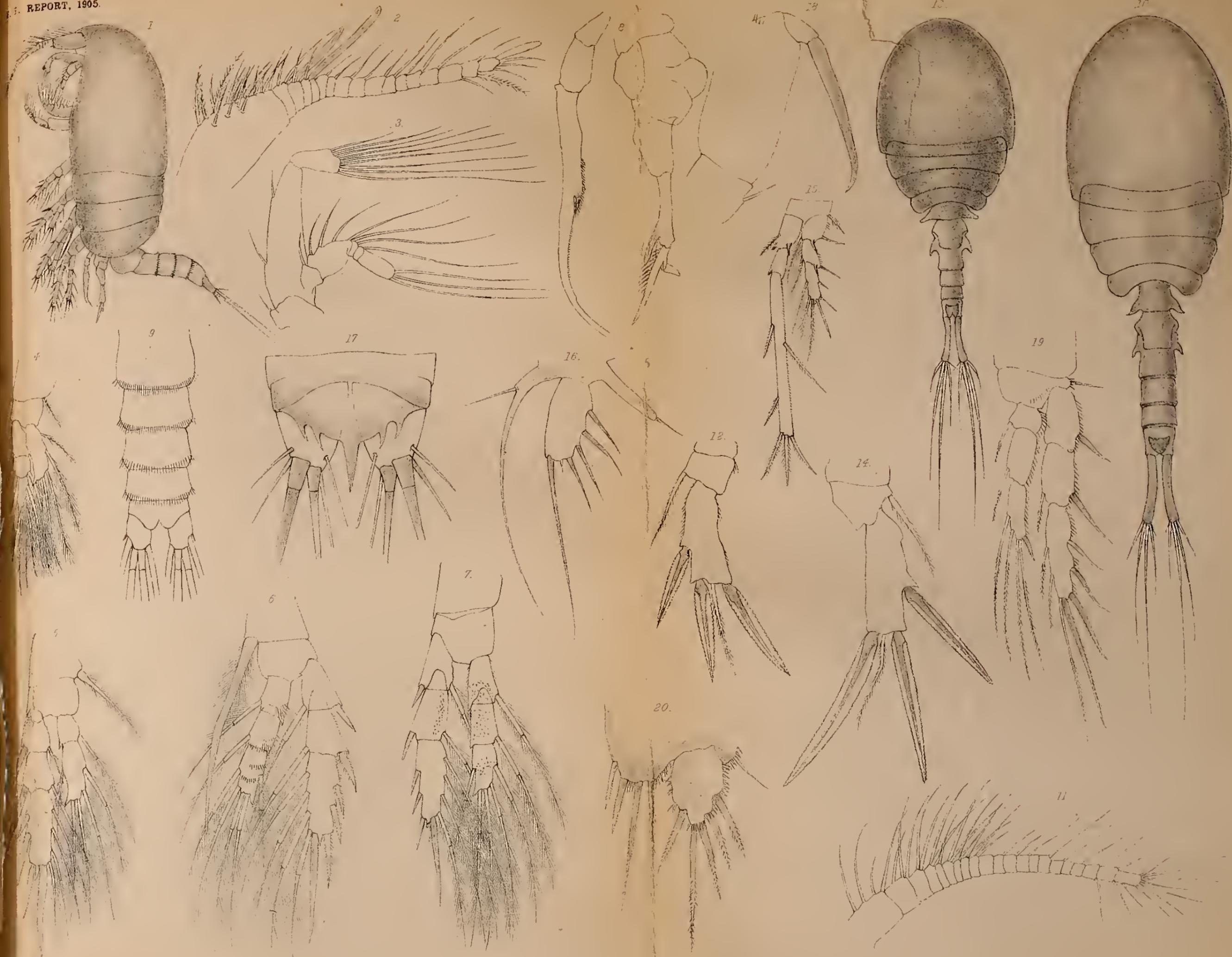
PLATE XII.

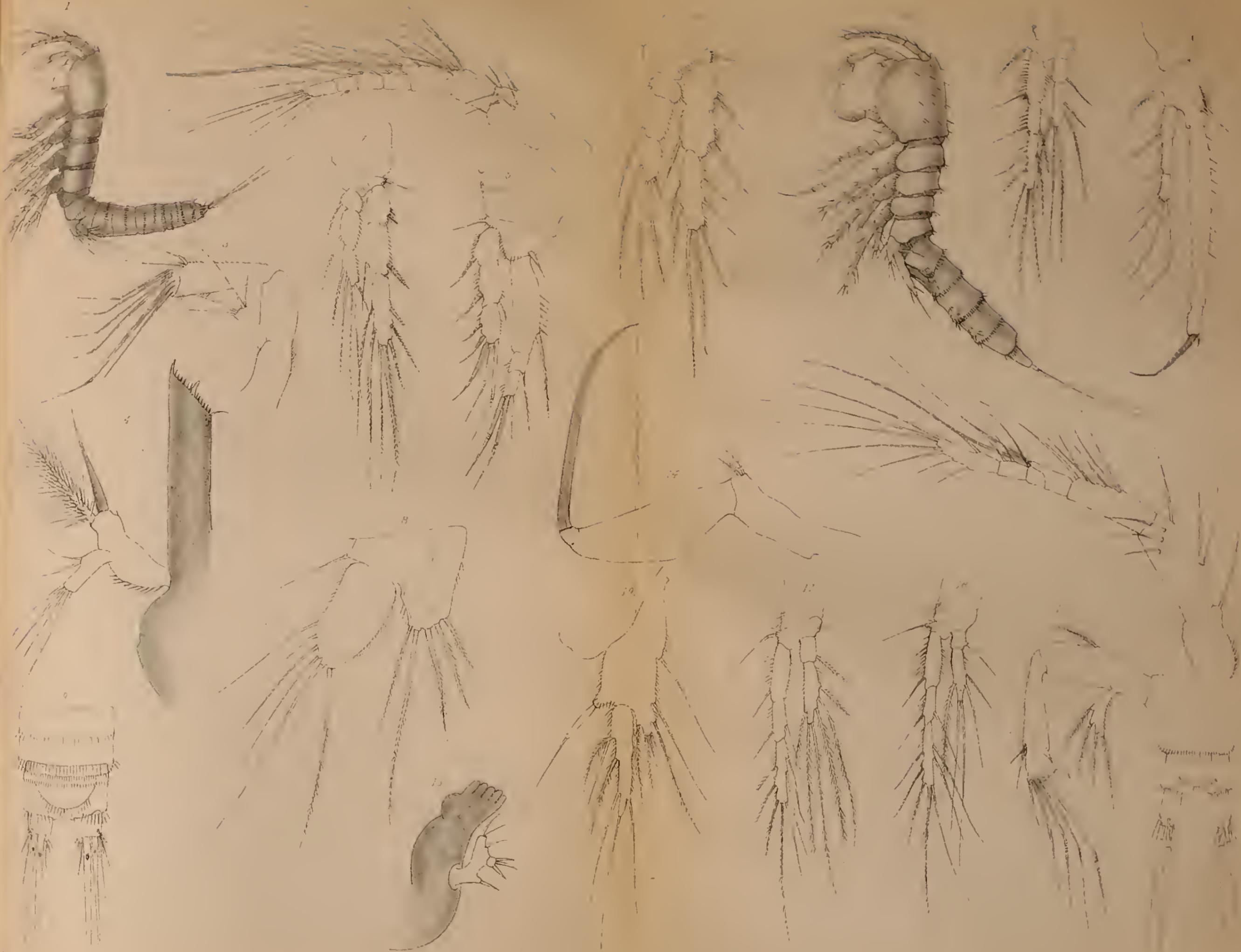
Cletodes Sarsi, sp. n.

Fig. 1. Female, dorsal view	. . . . .	× 180.
Fig. 2. Antennule	. . . . .	× 780.
Fig. 3. Antenna	. . . . .	× 780.
Fig. 4. Second maxilliped	. . . . .	× 780.
Fig. 5. Foot of first pair	. . . . .	× 780.
Fig. 6. Foot of second pair	. . . . .	× 780.
Fig. 7. Foot of third pair	. . . . .	× 780.
Fig. 8. Foot of fourth pair	. . . . .	× 780.
Fig. 9. Foot of fifth pair	. . . . .	× 780.

Sphaeronella aoræ, sp. n.

Fig. 10. Female, dorsal view	. . . . .	× 60.
Fig. 11. Male, dorsal view	. . . . .	× 180.





A. SCOTT, del. ad nat.

