

IV.—ADDITIONS TO THE FAUNA OF THE FIRTH OF FORTH.  
—PART VIII. BY THOMAS SCOTT, F.L.S., Mem. Soc. Zool. de  
France. (Plates III., IV.)

The Crustacea that have been added to the Forth fauna during the past year comprise one species of Cumacea, twenty-five species of Amphipoda, five species of Copepoda, and a species of boring Mollusk—*Xylophaga dorsalis*. The Amphipoda that are now for the first time recorded for the Firth of Forth have not all been obtained during the past year, some of them having been several years in my possession, but only recently identified. They include a number of rare and interesting forms, of which two if not three are new to the British fauna, while some of the others, though already known as British species, are not often met with in our seas. The Copepoda include two species apparently new to science, one described for the first time last year from specimens obtained in other parts of Scotland, and two which, though reported from England, do not appear to have been known to occur in the Scottish seas.

In the study of the Forth Amphods I have had the assistance of the valuable Monograph of the Amphipoda of Norway by Prof. G. O. Sars, the publication of which has recently been completed. This work, which is indispensable in any investigation of the British species, has permitted of a more satisfactory discrimination of a number of forms that had been set aside as doubtful. I have also been indebted to the Rev. T. R. R. Stebbing and the Rev. A. M. Norman for the names of some of the more difficult species, and to Capt. Campbell of the Fishery Steamer 'Garland' for his efforts to make our work successful. My son, Mr Andrew Scott, has, as formerly, prepared the drawings that illustrate this paper.

The following are the species that now fall to be added to the Forth fauna in addition to those published in previous reports:—

CRUSTACEA—CUMACEA.

*Vaunthompsonia cristata*, Spence Bate (1858).—A single specimen of this Cumacean was obtained in a gathering collected by means of an anchored tow-net; the gathering was collected a little to the west of May Island on the 11th of March (1896). I do not know of any previous record of this species for the Firth of Forth. In the *Fourth Annual Report of the Fishery Board for Scotland* (1886), *Vaunthompsonia cristata* is recorded for East Loch Tarbert (Loch Fyne). Dr Robertson has also recorded it for the Clyde.

AMPHIPODA.

*Socarnes Vahli* (Kroyer).—This species is apparently very rare in the Firth of Forth; it is one of several Amphipoda that have been added to the British fauna within recent years by Dr Robertson, and I do not know of any previously published records of its occurrence in Britain, except that by Dr Robertson from the Clyde. I am indebted to the Rev. Mr Stebbing for the identification of this species.

*Tryphosa Hörringii*, Boeck.—This and the closely allied species, *Tryphosa nana* (Kroyer), have been obtained in the Forth and are in my

it was again changed. By steamer from Greenock I arrived at Ardris-haig at 1 P.M., and, in a fishing-boat, took the fry to Loch Gair, about four miles within the Otter Spit, in Loch Fyne. It was found, on examination, that the delay in the journey had seriously affected the larvæ, from their being necessarily crowded and left quiet during the night. The transportation of larval plaice, above described, to Loch Fyne this year is, of course, experimental. The small numbers dealt with, and the somewhat sickly condition of the fry on arrival, in some cases make it doubtful whether positive results should be expected. But, when advantage is taken of sufficient experience in the way of transporting the fry, and reasonable numbers are dealt with, there is no reason why results should not be looked forward to similar to those experienced for years in Norway,—if the localities fixed upon are at all adapted for the purpose. For this reason it would be advisable that several, say three or four lochs, were fixed upon for the experiments, and were thoroughly examined before the fry were put in.

Such experiments have never, to my knowledge, been done. In Norway, where hatching of cod has been carried out on a large scale at Flödevig, the practice to date has been to distribute the newly-hatched larvæ in the fjords. From the want of statistics it is impossible to give the results in figures, but the positive increase in the number of cod on the corresponding markets has frequently been astonishing, and has left no room for doubt as to its origin, or, in other words, of the practical results effected by the hatchery.

As the local Fishery Committees around the coast began to understand the benefit to the localities where fry were distributed, they have latterly expended a great part of their funds in obtaining fry from the hatchery, to be distributed in their own waters, and some of them have continued the practice already for four or five years.

I need only draw attention to one case, as it gives some statistical information. I refer to the Christiania Fjord, a long and rather closed region, where a committee called 'The Society for the Promotion of the Fisheries in the Christiania Fjord within Dröbak' keeps careful statistics of the number of fish captured in the fjord. From their statistical reports for a number of years back, it is plainly evident that the annual catch of all the common food-fishes there has decreased rapidly and constantly, although bye-laws, &c., are enforced to a considerable extent. But, while the decrease has continued for all the other species, the yearly catch of cod has not only ceased to decrease, but has shown a regular increase since the fry began to be put out there from Flödevig hatchery.

collection; the first, besides being a larger species, is, as Prof. Sars remarks, 'readily distinguishable by the very conspicuous triangular projection of the first segment of the urosome.' The tilson is also armed with at least one additional pair of short spines.

*Urothoe marinus* (Spence Bate).—This appears to be the largest of the British *Urothoes*, and though apparently of rare occurrence in the Firth of Forth, it seems to be generally distributed, and has been recorded from various British localities.

*Urothoe pulchella*, Costa.—Several specimens of this *Urothoe* have been obtained in the Firth of Forth; it is a smaller species than the last.

*Amphilochooides intermedius*, sp. n. (Pl. IV. figs. 1-3).

*Description of the species.*—This *Amphilochooides*, in general appearance and size, closely resembles *A. Boeckii*, G. O. Sars, and in structure is intermediate between *A. Boeckii* and *A. odontonyx* (Boeck), but differs from either in the following particulars:—The coxal plates of the first gnathopods are subrhomboidal and have the anterior corners distinctly toothed, as shown by the drawing (fig. 1); the dactylus has no interior basal tooth, and in this respect it resembles *A. odontonyx*, Boeck, but not *A. Boeckii*, G. O. Sars; the palm of the propodos appears to be furnished with a fringe of minute setæ instead of being finely serrulate. The coxal plates of the second gnathopods are broadly rounded at the end; the inner bifid angle of the meral joints is more strongly produced than in those of the two described species; the palm of the propodos is without serrulation of any kind, and in this respect also the second gnathopods differ from those of the other two species (fig. 2). The last pair of epimeral plates of the metasome have the posterior lateral corners toothed like those of *A. Boeckii*; in *A. odontonyx* the lateral angles of the same epimeral plates are bluntly angular (fig. 3). This *Amphilochooides* has been obtained in various parts of the Firth of Forth during the last few years, and has already been recorded by me as *A. odontonyx* (now *A. Boeckii*, G. O. Sars), because of its being so like that species in a few of its more prominent characters. The careful examination of a number of specimens, however, has shown that the differences I have indicated appear so far to be constant; it seems better, therefore, to separate this form under a distinctive appellation than to combine it with either of the two described species, and as it partakes in some measure of the characters of both I have named it *Amphilochooides intermedius*.

Typical *A. odontonyx* (now *A. Boeckii*) has not hitherto been observed in the Firth of Forth, but *A. pusillus*, G. O. Sars, now identified as *A. odontonyx* (Boeck), has been occasionally obtained, and a few detail drawings from Forth specimens are given for the sake of comparison with *A. intermedius* (see figs. 4-6, Pl. IV.).

*Metopa nasuta*, Boeck.—This small but well-marked species was obtained in some material that was dredged in the deep water west of May Island in April 1892, but is only now recorded. Dr Robertson has recorded this species from the Clyde; it has also been recorded from the Moray Firth by T. and A. Scott.

*Metopa Bruzelii* (Goes).—Specimens of a *Metopa* that agree in their more important structural details with *M. Bruzelii*, as given in Prof. G. O. Sars' monograph, are occasionally obtained in the Firth of Forth.

*Calliopius Rathkei* (Zaddach) is a smaller species than the more common *C. laeviusculus*. Several specimens were obtained in the vicinity of Dunbar in April 1894.

*Paratyclus falcatus* (Metzger) has only recently been obtained in the Firth of Forth. The most obvious difference between this and the next species is the dorsal spine-like projections of the segments of the metasome; while the powerful claw-like extremities of the first pereopods in both species distinguish them at a glance from any other member of the genus.

*Paratyclus uncinatus* (G. O. Sars).—This species does not appear to be very rare in the Firth of Forth, and, though only now recorded, specimens have been in my collection since early in 1893. The uniformly even dorsal ridge in this species distinguishes it from the previous one.

*Dexamine thea*, Boeck.—A few specimens of this small *Dexamine* have been obtained in the Firth of Forth. It is curious that the supposed common *Dexamine spinosa* is apparently extremely rare in the Forth.

*Tritata gibbosa* (Spence Bate).—This appears to be one of the less common of the Forth Amphipods; only a few specimens have yet been observed.

*Gammarus Duebeni*, Lilljeborg.—This species has been found in the Forth district in brackish pools at the mouth of the Cocklemill Burn, Largo Bay; this *Gammarus* forms a connecting link between the truly fresh-water and the truly marine Amphipoda. There is a peculiarity about this species that I do not find mentioned in published descriptions of it, viz., the ease with which the last uropods become detached. I find it more difficult to get an adult specimen of *G. Duebeni* with the caudal appendages all intact than of *G. pulex* or any of the marine *Gammarus*.

*Melita dentata* (Kroyer).—This is another of the rarer Amphipods of the Firth of Forth; it is also one of the more easily distinguished species. Very few specimens have been obtained.

*Mæra Batei*, Norman, is one of the few British species not represented in Prof. Sars' Monograph of Norwegian Amphipoda. It appears to be rare in the Firth of Forth. I am indebted to the Rev. Mr Stebbing for the identification of this species.

*Cheirocrates sundewalli* (Rathke).—Specimens of this species have occasionally been obtained in the Firth of Forth during the past year or two, at least since 1893.

*Cheirocrates intermedius*, G. O. Sars (pl. IV. fig. 7), is an addition to the British fauna. This species, though only recently recorded, was first obtained in 1893; its chief distinctive character is the peculiar form of the propodos of the second male gnathopods. The Forth specimens differ slightly from that figured by Prof. Sars, in that the tooth that bounds the palm of the propodos below is bifid instead of being composed of three denticles.

*Cheirocrates assimilis* (Lilljeborg).—This species, though apparently widely distributed in the British seas, has not hitherto been recorded for the Forth. The previous British records are those of the Rev. A. M.

Norman and Dr Robertson for the Clyde district, and of A. O. Walker for the Liverpool Bay district.

*Autonoe longipes* (Lilljeborg).—The first pair of gnathopods in the male of this species has the distal end of the lower edge of the basal joint densely fringed with long outward-curving hairs, and by this character alone the species may be distinguished from the various closely allied forms. Only a few specimens of *Autonoe longipes* have been obtained in the Forth, and the British records of it are few.

*Gammaropsis nana*, G. O. Sars.—Forth specimens of this small species have been in my collection since June 1890, but though specimens are still occasionally obtained, it does not appear to be common. It has been recorded as British by Mr A. O. Walker from the Liverpool Bay district.

*Megamphopus cornutus*, A. M. Norman.—This has a superficial resemblance to *Gammaropsis nana*, but is readily distinguished by the greater length of the two first pairs of pereopods, which are also somewhat different in structure. The species appears to have a wide distribution, but it is only occasionally met with in the Firth of Forth.

*Microtopopus maculatus*, A. M. Norman, is of more frequent occurrence than the last; specimens from the Forth have been in my collection since 1891; they were obtained in Largo Bay. It has since been obtained in various places within the Forth area, and also in the Moray Firth.

*Ischyrocerus minutus*, Lilljeborg.—Some of the male specimens of this species obtained in the Forth appear to be somewhat larger than those described by Prof. Sars. *Ischyrocerus minutus* was also first recorded as British from the Liverpool Bay district by Mr A. O. Walker. Dr Robertson has also obtained it in the Clyde.

*Podocerus pusillus*, G. O. Sars.—Though this species is only now recorded for the Forth, Forth specimens have been in my collection since 1887, and it is owing to the thoroughly accurate and reliable descriptions and figures in Prof. G. O. Sars' Monograph that I have been enabled to identify this and a number of other Forth Amphipods which during the last few years had been laid aside as doubtful.

*Podocerus Herdmani*, A. O. Walker (*P. odontonyx*, G. O. Sars).—The chief distinctive character of this species is the peculiar form of the claw of second gnathopods. The species was obtained by Mr Walker in the Liverpool Bay district, which, under his supervision, has been shown to contain a rich Amphipod fauna.

*Erichthonius Hunteri* (Spence Bate).—Spence Bate described this species in the *British Museum Catalogue of Amphipoda* (pub. 1862), but there seems to be some doubt of the locality from whence the specimens that formed the basis of his description came. I have been unable to find any British record for the species. In the Forth area it is not uncommon in dredged material; clusters of its tubes are also sometimes obtained (fig 8, Pl. IV. exhibits a drawing of one of the second gnathopods).

*Corophium crassicorne*, Bruzelius.—Prof. Sars considers this to be

quite distinct from *C. Bonelli*, M. Edwards. This along with the other three species of *Corophium* described in Prof. Sars' Crustacea of Norway have been obtained in the Forth, but *C. crassicorne* is much less common than either *C. Bonelli* or *C. grossipes*.

## COPEPODA.

(?) *Canthocamptus parvus*, T. and A. Scott (pl. III. figs. 1-10). 1896 (?) *Canthocamptus parvus*, T. and A. Scott, *Ann. and Mag. Nat. Hist.*, S. 6, vol. xviii, p. 6, pl. II. figs. 14-22 (July 1896). This is a very small species, the length of the specimen figured being only .37 millimetre (about  $\frac{1}{10}$  of an inch) in length. The body is moderately robust. The antennules are short and composed of six joints, and the secondary branches of the antennæ are small and unarticulate (fig. 3). The mouth organs are somewhat similar to those in other species of *Canthocamptus*; in *C. parvus* the mandible palp is apparently two-jointed, a small seta springs from the apex of the first joint, while the small sub-apical joint is provided with three setæ (fig. 5). In the first pair of swimming feet, the first joint of the inner branches is rather longer than the entire length of the outer branches, the second and third joints are together equal to about half the length of the first, while the second is rather shorter than the third joint; the first and second joints of the outer branches are subequal; but the third, which is narrower, is also rather longer than the second joint (fig. 9). The inner branches of the next three pairs are much shorter than the outer branches, and two-jointed. The fifth pair are comparatively small; the inner portion of the basal joint is broad, with the apex obliquely truncate and furnished with five somewhat unequal setæ, the second one from the outside being more elongate than the others; secondary joint is sub-quadrangular in form and rather longer than broad; it bears five setæ, the two innermost being longer than the others. The caudal stylets are very short (fig. 10). The male antennules are apparently eight-jointed, and have a complicated hinged structure adapted for grasping. The inner branches of the third pair of swimming feet are three-jointed and rather more elongate than the inner branches of the third pair in the female; the second joint has a small seta on the inner angle, and the third joint bears two terminal setæ. The fifth pair are very small; the inner portion of the basal joint is somewhat triangular in form and furnished with three small apical setæ; the secondary branch is subrhomboid and bears five setæ (for further particulars see *Ann. and Mag. Nat. Hist.*, July 1896).

*Habitat*.—Between tide marks at Aberlady Bay, Firth of Forth.

*Remarks*.—*Canthocamptus parvus* has six jointed antennules, whereas the usual number is eight or nine, but otherwise the structure of this small species is that of a true *Canthocamptus*.

*Canthocamptus hirticornis*, T. Scott.

This, though it sometimes occurs in fresh water, is frequently obtained in localities where the water is more or less brackish; and so far no truly inland fresh water habitat is known for it; all the places where it has hitherto been found have been near the sea. In the Forth district it has been obtained in brackish water pools at the mouth of the Cockle-mill Burn at the east end of Largo Bay, in company with several other forms of a like intermediate character.

*Mesochra propinqua*, sp. n. (pl. III. figs. 11-22).

*Description of the species*.—Female .55 millim. ( $\frac{1}{45}$  of an inch). In general appearance this form resembles *Mesochra Robertsoni*. The anten-

nules (fig. 12) are eight-jointed and moderately setiferous, the fifth and seventh joints are smaller than the others,—the seventh being only about half the length of the joint on either side; the proportional lengths of the joints are nearly as follows:—

$$\begin{array}{r} \text{Proportional lengths of the joints, } 9 \cdot 11 \cdot 9 \cdot 8 \cdot 6 \cdot 8 \cdot 4 \cdot 9 \\ \text{Number of the joints, } \quad \quad \quad 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot 8 \end{array}$$

The secondary branches of the antennæ are small and unarticulate and furnished with three setæ—two at the apex and one subapical (fig. 14). The mandible palp consists of two joints; the basal joint is moderately stout and terminates in a moderately stout spine; the second joint, which is small and submarginal on the basal joint, is articulated to that joint near its distal end and bears four setæ—two terminal and two marginal (fig. 15). Second foot jaws stout, terminal claw fully as long as the second joint (fig. 16). The first pair of swimming feet are somewhat similar to those of *M. Robertsoni*, but the inner branches have the second joint much shorter and less robust than the other—the first joint is nearly twice the length of the end one (fig. 17). The inner branches of the second, third, and fourth pairs are short and three-jointed; the first joint is very small, while the second is larger than either the first or third; the outer branches are elongate and three jointed; the second joint, which is rather longer than the first, is only about two-thirds the length of the end joint (fig. 18). The fifth pair are small; the produced inner portion of the basal joint is subtriangular in outline and provided with four apical setæ, the two inner ones of which are short and spiniform, the other two are moderately long and plumose; the secondary joint is subcylindrical and about twice as long as broad, and extends somewhat beyond the apex of the produced inner portion of the basal joint; it is furnished with several setæ round the outer margin and apex, the middle one of the three apical setæ being considerably longer than any of the others (fig. 20). Caudal stylets shorter than the last abdominal segment (fig. 22).

Male:—The male antennules appear to consist of the same number of joints as the female antennules and are hinged as shown by the drawing (fig. 13). In the third pair of swimming feet the end joints of the inner branches are provided with a moderately long and stout and somewhat sinuate terminal process the apex of which is bifid (fig. 19). The fifth pair are very small, and the inner portion of the basal joint, which is scarcely produced, is furnished with three short and moderately stout setæ: the secondary joint is broadly ovate and bears five setæ round the outer margin and apex; the inner margin is ciliate (fig. 21); in other respects the male differs little from the female.

*Habitat.*—Between tide marks Aberlady Bay, Forth.

*Remarks.*—Though this copepod comes somewhat near *M. Robertsoni*, it is quite distinct,—so much so that it may ultimately have to be removed to another genus. In the genus *Mesochra* the inner branches of the second, third, and fourth pairs in the female are two-jointed, but in the species now described, the inner branches are composed of three joints, and because of this difference I have doubtfully ascribed it to the genus *Mesochra*.

*Corycæus anglicus*, Lubbock.—This species appears to be rare in the Firth of Forth, as only one or two specimens have hitherto been observed. It has been obtained in the 'Fluke Hole' off St Monans, and off the Wemyss, and only a single specimen at a time; the last one was taken in material dredged off the Wemyss in October 1895.

*Lichomolys maximus*, I.C. Thompson.—Since the discovery of this species in *Pecten maximus* by Mr Thompson, it has been found to be a comparatively widely distributed species in the British seas. It has been obtained not only in the Firth of Forth but also in the Firth of Clyde, and is likely to be found wherever the conditions are favourable for its existence; it has also been found associated with other organisms besides *Pecten maximus*. In the Forth it was obtained on *Echinus esculentus*, and in the Firth of Clyde it has been obtained both in *Pecten maximus* and *Pecten opercularis*.

Genus *Lamippe*, Bruzelius (1859).

*Alcyonicola*, T. and A. Scott (1895).

*Lamippe* (?) *proteus*, Claparède.

1867. *Lamippe proteus*, Claparède.—*Ann. des Sci. Natur.*, Cinq. Serie, Tome viii., pp. 23–28, Pl. 5.

1895. *Alcyonicola fusiformis*, T. and A. Scot. *Ann. and Mag. Nat. Hist.*, S. 6, vol. xvi., p. 357, Pl. XVI. figs. 10–14; Pl. XVII. fig. 13.

*Habitat*.—Firth of Forth, frequent on *Alcyonium digitatum*. A parasite of *Alcyonium digitatum* from the Firth of Forth was described by T. and A. Scott in the *Annals and Magazine of Natural History* for November 1895 under the name of *Alcyonicola fusiformis*. Subsequently the Rev. A. M. Norman, in the course of some correspondence, drew my attention to a parasite described by Claparède in 1867 as *Lamippe proteus*, which appeared to have a general resemblance to the Forth *Alcyonicola*. From a careful comparison of Claparède's description and figures, with the *Alcyonium* parasite from the Forth, my son and I are now satisfied that *Lamippe* is identical with our *Alcyonicola*, and also that *Lamippe proteus* is probably the same species as *Alcyonicola fusiformis*. There are a few points of difference between them, as, for example, in the structure of the antennules, the proportional lengths of the joints of the antennæ, and the number of spine-like marginal stylets on the thoracic feet; but these differences are unimportant and may be accounted for by difference of habitat,—Claparède's specimens having been obtained on *Alcyonium palmatum* (*Lobularia digitata*, Delle Chiage), from the Mediterranean. Since the discovery of *Lamippe* (?) *proteus* in the Firth of Forth my son has obtained it in the Liverpool Bay district, and I have it also from the Clyde and the Moray Firth.

Four species of *Lamippe* (including the one referred to above) have been either fully or partially described, viz. :—

(1) *Lamippe rubra*, obtained as a parasite on *Pennatula rubra* from the Bohuslan Coast, and described by Bruzelius in *Archiv. f. Natur.*, 24 Jahrg. 1859, Band, *cf* p. 286.

(2) *Lamippe proteus*, Claparède, as above.

(3) *Lamippe Duthiersii*, obtained as a parasite on *Paralcyonium elegans* from Mentone, and described by Dr Joliet in *Archiv. de Zool. Exper. et Gen.*, 1st Series, Tome 10, pp. 101–110, Pl. VI. (1882).

(4) *Lamippe alcyonii*, found parasitic on *Alcyonium* from the coast of Africa, and partially described by Dr Joliet—see *op. cit.* for *L. Duthiersii*. Referring to this species Dr Joliet says “Les caracteres fournis par le dessin ne sont pas suffisants pour me permettre d'en faire une espèce definitive.” J. V. Carus, in his *Prodromus Faunæ Mediterraneæ* places *Lamippe*, provisionally, in the family *Chondracanthidæ* (M. Edw.) Claus.

I may state further, that my son and I obtained, almost simultaneously, in the Firth of Forth and in Liverpool Bay, another form of *Lamippe* that appears to be undescribed; it differs from any of the species referred to in several particulars, and notably, in the form of the posterior append-



ages. It is intended to describe this form in a joint paper later on (figs. 9-13, Pl. IV., are drawings of this apparently undescribed *Lamippe*).

## EPICARIDÆ.

(?) *Clypeoniscus Hanseni*, Giard and Bonnier (pl. IV. figs. 14, 15).

During the past few years I have occasionally obtained specimens of a minute Isopod-like organism both in the Firth of Forth and the Moray Firth; although apparently parasitic I have not, as yet, found it *in situ*. So far as the structure of this parasite can be made out it resembles *Clypeoniscus Hanseni* very closely. *Clypeoniscus Hanseni* is a parasite on *Idotea marina* Linné. on the coast of Denmark, and of Manche in France. *Idotea marina* is also a common British Isopod, and is frequently obtained by us in dredged and also in tow net collections; these collections are often preserved in spirit and put aside for future examination; the spirit may therefore cause any Epicarides that happen to be adhering to specimens of *Idotea marina* present in the collection to become detached, and in this way be more easily detected when the collection is examined than when *in situ* on the *Idotea*. Though several specimens have been obtained in material—usually dredged material—from the Firth of Forth and the Moray Firth they all appear to belong to one species.

ANNELID PARASITES OF *Sagitta* (pl. IV. figs. 16, 17).

In the course of our investigations we frequently come across specimens of *Sagitta* infested more or less with parasites; two distinct species of parasites have been observed; one of them (fig. 16) appears to be a *nematode* and is of frequent occurrence. During the months of January and February this year (1896) a large proportion of the *Sagitta* captured by us in the Firth of Forth were infested with these thread-like worms. The parasite usually occurs singly, but sometimes two or more specimens may be seen within the body of the *Sagitta*. Living *Sagitta* are almost transparent, and as the parasite is opaque white, it is quite easily observed *in situ*. The other parasite appears to be a *distoma* of some kind; it is very small, and of a greenish-yellow colour, and has the oral aperture subcentral (fig. 17). This parasite is usually lodged at the posterior end of the body of the *Sagitta*, but is also observed in other positions. I have shown elsewhere that *Sagitta* prey on post-larval fishes, but we have also found *Sagitta* in the stomachs of fishes, and it is just possible that some of the entozoa, sometimes so common in the body cavity of fishes, may be introduced by the fish feeding on the *Sagitta*. Sometimes both parasites are found in the same *Sagitta*. It is also probable that, after a time the (?) *nematode*—and perhaps the (?) *distoma* also, bores its way out through the *Sagitta's* body, as specimens of *Sagitta* are occasionally obtained with the (?) *nematode* projecting partly through the body of the *Sagitta*, as if it were in the act of making its way out; the parasite is also sometimes found free in the bottom of the jar containing tow-net gatherings in which parasite-infested *Sagitta* happen to be more or less common.

## EXPLANATION OF THE PLATES.

## PLATE III.

*Canthocamptus parvus*. T. and A. Scott.

Fig. 1. Female, side view,	×	160
Fig. 2. One of the female antennules,	×	760
Fig. 3. One of the male antennules,	×	760
Fig. 4. One of the antennæ,	×	760
Fig. 5. Mandible and palp,	×	760
Fig. 6. Maxilla,	×	760
Fig. 7. Anterior foot-jaw,	×	760
Fig. 8. Posterior foot-jaw,	×	760
Fig. 9. One of first pair of swimming feet,	×	760
Fig. 10. Caudal stylets and the last two segments of abdomen,	×	253

*Mesochra propinqua*, sp. n.

Fig. 11. Female, side view,	×	106
Fig. 12. One of the female antennules,	×	506
Fig. 13. One of the male antennules,	×	506
Fig. 14. One of the antennæ,	×	760
Fig. 15. Mandible and palp,	×	760
Fig. 16. Posterior foot-jaw,	×	760
Fig. 17. One of the first pair of swimming feet,	×	506
Fig. 18. One of the fourth pair,	×	506
Fig. 19. One of the third pair, male,	×	506
Fig. 20. One of the fifth pair, female,	×	506
Fig. 21. One of the fifth pair, male,	×	760
Fig. 22. Caudal stylets and last two abdominal segments,	×	253

## PLATE IV.

Fig. 1. <i>Amphilochoides intermedius</i> , n. sp. first gnathopod,	×	190
Fig. 2. " " second gnathopod,	×	81
Fig. 3. " " third epimeral plate of metasome,	×	81
Fig. 4. <i>Amphilochoides odontonyx</i> (Boeck), first gnathopod,	×	190
Fig. 5. " " second gnathopod,	×	81
Fig. 6. " " third epimeral plate of metasome,	×	81
Fig. 7. <i>Cheirocrates intermedius</i> , G. O. Sars, second gnathopod, ♂	×	21
Fig. 8. <i>Erichthonius Hunteri</i> (Spence Bate), second gnathopod, ♂	×	21
Fig. 9. <i>Lamippe</i> sp., female, dorsal view,	×	42
Fig. 10. " one of the antennules,	×	380
Fig. 11. " one of the antennæ,	×	380
Fig. 12. " foot of first pair of feet,	×	380
Fig. 13. " foot of second pair,	×	380
Fig. 14. (?) <i>Clypeoniscus Hanseni</i> , dorsal view, ♂	×	106
Fig. 15. " " antennule a 1, antenna a 2,	×	254
Fig. 16. Sagitta with nematode parasite <i>in situ</i> ,	enlarged	
Fig. 17. Distome of Sagitta,	×	54



A. Scott del.

FIGS. 1-10.—*Canthocamptus parvus*, T. and A. Scott.

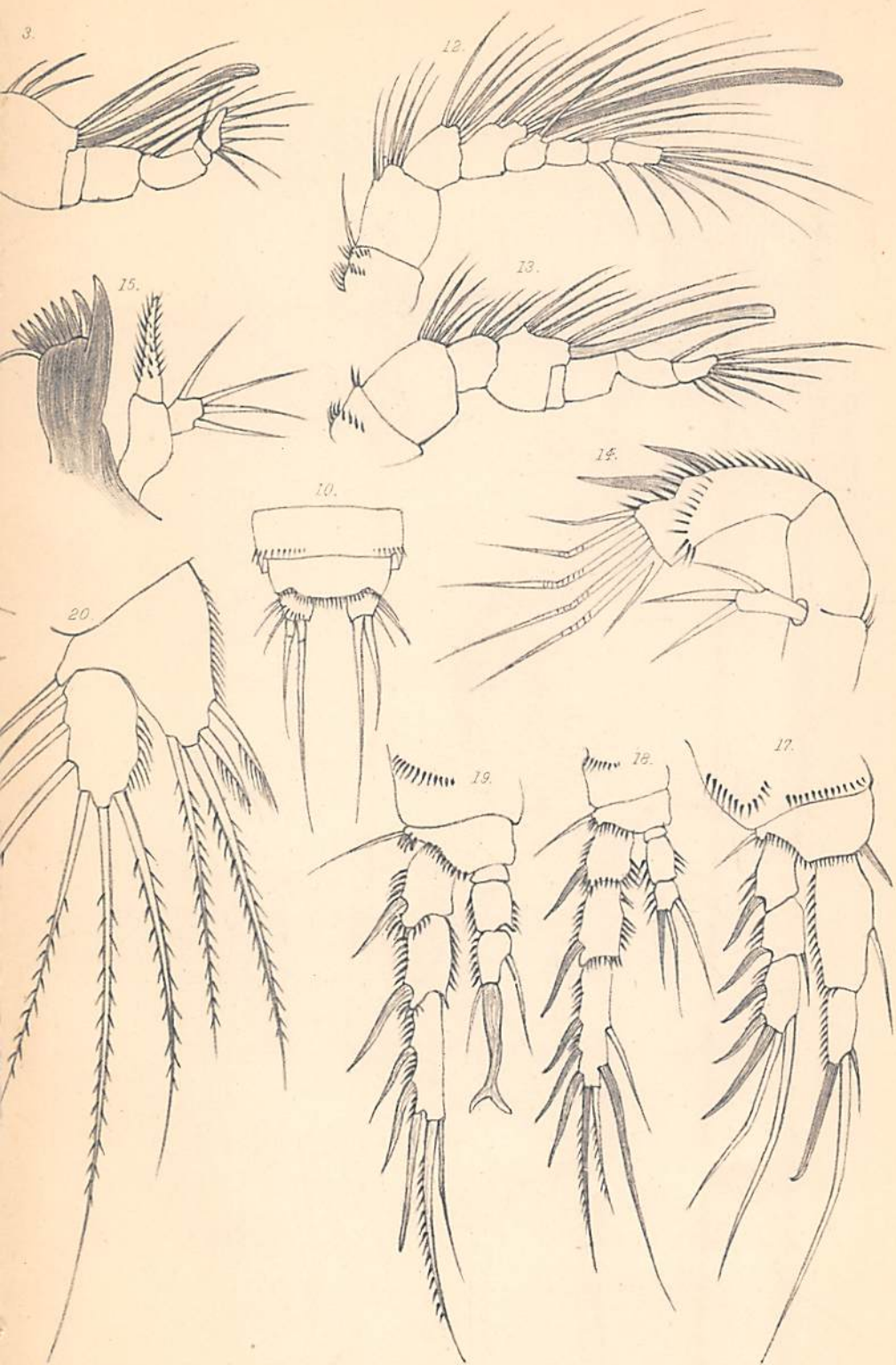


FIG. 16, T. S. del.  
the others A. S. del.

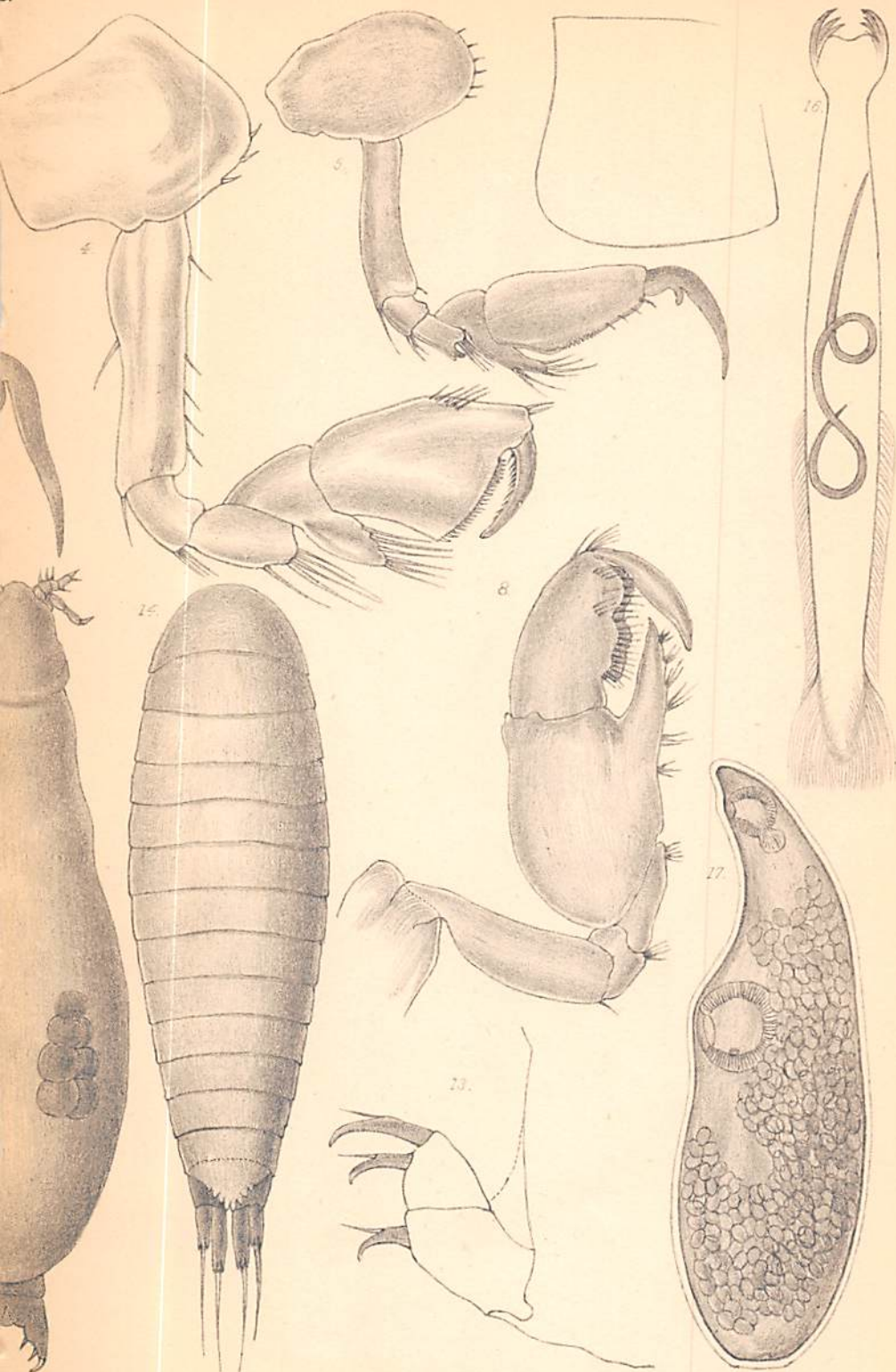
FIGS. 1-8.—*Amphipoda*.

FIGS. 9-13.—*Lamippe*, sp.

FIGS. 14-16.



FIGS. 11-22.—*Mesochru propinqua*, sp. n.



(?) *Clypeonicus Hanseni*.

FIGS. 16, 17.—*Sagitta* and *Sagitta* parasites.