

AN ACCOUNT
OF THE
CRUSTACEA
OF
NORWAY

WITH SHORT DESCRIPTIONS AND FIGURES OF ALL THE SPECIES

BY
G. O. SARS

VOL. V
COPEPODA
HARPACTICOIDA

PARTS XXXV & XXXVI
SUPPLEMENT (concluded), INDEX etc.

WITH 12 AUTOGRAPHIC PLATES



BERGEN
PUBLISHED BY THE BERGEN MUSEUM

SOLD BY
ALB. CAMMERMEYER'S FORLAG, CHRISTIANIA
1911

outer ramus. 1st pair of legs with the inner ramus distinctly 3-articulate, 1st joint 3 times as long as the other 2 combined, and carrying inside, at some distance from the end, a slender seta, apical claw and seta of this ramus not very slender; outer ramus much shorter than the 1st joint of the inner, its last joint fully as large as the middle one, and having an additional small spine outside. The 3 succeeding pairs of legs with no seta inside the middle joint of the outer ramus, 1st joint of inner ramus on the other hand setiferous; inner ramus of 4th pair, as in the preceding species, distinctly 3-articulate. Last pair of legs with the distal joint well defined and somewhat resembling in shape that in *L. attenuata*, but of comparatively smaller size and provided with only 4 setæ; inner expansion of proximal joint more produced, extending beyond the middle of the distal joint, and carrying 4 somewhat unequal setæ.

Colour not yet ascertained.

Length of adult female 0.68 mm.

Remarks.—In the distinctly 3-articulate inner ramus of the 1st pair of legs, this form seems, it is true, to differ essentially from the other species comprised within the present genus; but as the other legs are built upon the very same type as in the preceding species, and there is also a general resemblance in the other structural details, I consider it quite unreasonable, solely on the ground of the above-mentioned difference, to remove it from the other species of the present genus. The specific name here proposed refers to the unusually long and slender anterior antennæ.

Occurrence.—Only some few specimens of this form, most of them in a more or less mutilated condition, were picked up from samples taken in the same locality as that from which the preceding species was derived.

Leptomesochra confluens, G. O. Sars, n. sp.

(Suppl. Pl. 43).

Specific Characters.—*Female.* General form of body resembling that in the 2 preceding species, being very slender and narrow, sub-linear. Rostral prominence very small, knob-like. Urosome fully as long as the anterior division and scarcely tapering at all behind; genital segment rather large, last segment somewhat exceeding in length the preceding one. Caudal rami very short and thick, being scarcely as long as they are broad at the base, each having outside a thin bristle generally curved anteriorly; apical setæ of moderate length. Anterior antennæ rather slender, equalling in length the first 2 segments combined, and composed of 8 well-defined joints, the 2nd of which is the largest, 3rd and 4th

joints of about equal size, terminal part about as long as those two joints combined. Posterior antennæ with the outer ramus very small, uniarticulate, carrying 2 short setæ on the tip. Oral parts about as in *L. tenuicornis*. 1st pair of legs resembling in structure those in *L. attenuata*, the inner ramus being composed of only 2 joints, apical claw and seta comparatively slender. The 3 succeeding pairs of legs likewise of a structure very similar to that in the said species; inner ramus of 4th pair however composed of only 2 joints, like that of the 2 preceding pairs. Last pair of legs with the distal joint wholly confluent with the proximal one, each leg forming an undivided small lamella of somewhat irregular form, exhibiting in the middle of the posterior edge a slight incision, whereby 2 short lobules may be distinguished, the outer one carrying 5 thin bristles, the inner 4 spiniform setæ. Ovisac comparatively small, with a very limited number of ova.

Male rather smaller than female and having the anterior antennæ hinged in the usual manner. Last pair of legs resembling in shape those in female, but having a smaller number of marginal setæ, which also are more spiniform in appearance.

Colour not yet ascertained.

Length of adult female 0.68 mm.

Remarks.—This form also distinguishes itself by a peculiarity not found in any of the other species, viz, the complete fusion of the 2 joints of the last pair of legs. In all other structural details, however, it shows a close affinity to them, and accordingly cannot be generically removed. The specific name here proposed refers to the above-mentioned anomalous character.

Occurrence.—Only 2 or 3 specimens of this form have hitherto come under my notice. They were found in the same samples from which the 2 preceding species were derived.

Gen. *Phyllocamptus*, Scott, 1899.

Generic Characters.—Body sub-cylindrical in form, with rather thin integuments. Rostral projection very small. Genital segment in female imperfectly subdivided. Caudal rami short. Anterior antennæ less slender than in the preceding genus. Posterior antennæ likewise more strongly built, with the outer ramus broader, though composed of only a single joint. Mandibles moderately strong, palp comparatively small, biarticulate. Maxillæ and maxillipeds nearly as in the preceding genus. 1st pair of legs unusually short and stout, with the outer ramus nearly as long as the inner, the latter biarticulate. The 3 succeeding pairs of

legs well developed, with the outer ramus rather large, inner ramus much shorter and in all 3 pairs 3-articulate, 1st joint, however, very small; natatory setæ on both rami much reduced in number. Last pair of legs somewhat resembling in structure those in *Ameira*.

Remarks.—This genus was established in the year 1899 by Th. Scott, to include the species *P. fairliensis*. As observed by that author, it exhibits some affinity, partly to the genera *Canthocamptus* and *Attheyella*, partly to the genus *Mesochra*, though differing in some points materially from each of these 3 genera. In addition to the typical species, the form recorded by Th. Scott as *Mesochra propinqua* ought evidently to be referred to the present genus, as also the new species described below.

Phyllocamptus minutus, G. O. Sars, n. sp.

(Suppl. Pl. 44).

Specific Characters.—*Female.* Body moderately slender and slightly tapered behind. Cephalic segment about the length of the 3 succeeding segments combined, and not very deep; rostral prominence extremely small, knob-like. Urosome somewhat shorter than the anterior division, and having all the segments perfectly smooth; last segment nearly as large as the preceding one. Caudal rami scarcely longer than they are broad at the base, apical setæ normal. Anterior antennæ not attaining the length of the cephalic segment and rather thick in their proximal part, being composed of 8 joints clothed with rather slender setæ, the first 2 joints much larger than the others, 3rd and 4th joints of about equal size, terminal part considerably exceeding in length those joints combined. Posterior antennæ with the distal joint fully as long as the proximal one and slightly widening distally, outer ramus resembling somewhat that in the genus *Nitocera*, being conspicuously compressed and provided with 3 thickish setæ, the innermost of which however is very small. 1st pair of legs with the outer ramus rather strongly built and only slightly shorter than the inner; its terminal joint larger than either of the other 2, and armed with 3 strong spines and 2 slender geniculate setæ; inner ramus with the proximal joint slightly dilated and carrying inside, behind the middle, a well-developed plumose seta, distal joint almost as long as the proximal one, but much narrower, linear in form, and armed on the tip with a claw-like spine and a very long seta accompanied inside by a thin bristle. The 3 succeeding pairs of legs with the outer ramus much produced and strongly spinous outside, its first 2 joints without any setæ inside, terminal joint long and narrow, with the inner edge quite smooth in the 2 anterior pairs, in 4th

pair provided with 2 strong spinulose setæ; apical spine and seta in all pairs very long and slender; inner ramus scarcely half as long as the outer, with the 1st joint very small and simple, middle joint the largest and produced at the end inside to an acute corner, terminal joint carrying on the tip a moderately long spine and inside 2 unequal setæ, the distal one very long and slender. Last pair of legs with the distal joint well-developed, oval in form, and edged with 6 setæ of rather unequal length, the innermost but one very long and slender; inner expansion of proximal joint comparatively short, not extending to the middle of the distal joint, and carrying at the obtusely rounded extremity 2 unequal setæ and inside them 2 short spines bifid at the tip.

Colour not yet ascertained.

Length of adult female 0.48 mm.

Remarks.—The above-described species is unquestionably referable to the genus *Phyllocamptus*, as defined by Th. Scott, and comes very near *P. fairliensis* Scott. It is however of much smaller size and differs moreover in the perfectly smooth caudal segments, as also slightly in the structure of the legs.

Occurrence.—Only a solitary female specimen of this form has hitherto come under my notice. It was found in a sample taken last summer at Korshavn from a depth of about 20 fathoms.

Gen. *Paramesochra*, Scott, 1892.

Generic Characters.—Body more or less slender, with the anterior division distinctly broader than the posterior and somewhat depressed. Integuments very hard. Rostrum obsolete. Genital segment in female large, not subdivided. Caudal rami more or less produced. Anterior antennæ short and stout. Posterior antennæ with the proximal joint distinctly subdivided, outer ramus well developed, though unarticulate. Mandibles very strong, with the palp well developed, biramous. Maxilla comparatively small, with the epipodal lobe imperfectly developed. Anterior maxillipeds with 4 subequal setiferous lobes inside, the outermost issuing from the distal joint, apical part well defined. Posterior maxillipeds with the dactylus composed of a small basal joint carrying 2 or 3 claw-like spines. Legs comparatively small and of simple structure; 1st pair with both rami biarticulate, the inner one distinctly prehensile; the 3 succeeding pairs with the basal part broad and flattened, outer ramus 3-articulate, inner biarticulate; natatory setæ imperfectly developed. Last pair of legs with the distal joints very small, proximal joints confluent inside to a large median plate.

Remarks.—This is a rather anomalous genus, the systematic position of which appears somewhat doubtful. Its supposed close affinity to the genus *Mesochra*, as indicated by the name proposed by Th. Scott, I am unable to admit. It is in my opinion very different from that genus, and seems to me to be much more nearly related to the genus *Leptopsyllus* Scott. Indeed one of the species of the latter genus, *L. intermedius*, ought in my opinion to be referred to the present genus. Only the type species is known to me.

Paramesochra dubia, Scott.

(Suppl. Pl. 45).

Paramesochra dubia, Th. Scott, Additions to the Fauna of the Firth of Forth. Part IV. 10th Ann. Rep. of the Fishery Board for Scotland, p. 252, Pl. XII, figs. 18–32.

Specific Characters.—*Female.* Body moderately slender, with the anterior division oblong oval in outline and somewhat narrowed behind. Cephalic segment comparatively large, broadly rounded anteriorly and having the postero-lateral corners produced to spiniform appressed processes extending beyond the next segment; 5th segment much narrower than the preceding one, and marked off from it by a conspicuous constriction. Urosome fully as long as the anterior division, but much narrower, and having the segments perfectly smooth, genital segment rather large and tumid, last segment very small. Caudal rami about the length of the last 2 segments combined, narrow linear in form and somewhat divergent, apical seta comparatively short, dorsal seta issuing close to the end. Anterior antennæ scarcely more than half as long as the cephalic segment and angularly curved, being composed of 7 sharply defined joints clothed with rather short setæ, 1st joint much the largest, occupying more than half the length of the antenna, and having the inner distal corner produced to a strong spiniform projection slightly curved inwards, 2nd and 3rd joints of about equal size, 4th rather smaller and carrying at the end the usual sensory filament, terminal part scarcely longer than the 2 preceding joints combined. Posterior antennæ with the distal joint comparatively large and somewhat fusiform in shape, outer ramus rather narrow, with 3 or 4 lateral setæ and 2 apical, one of them spiniform. Mandibular palp comparatively large, with the inner ramus very slender and abruptly bent upon the basal part. Posterior maxillipeds with the propodus rather narrow, tapered distally, dactylus terminating in 3 claw-shaped spines of about equal length. 1st pair of legs comparatively small, though having the basal part rather broad, outer ramus scarcely as long as the 1st joint of the inner, its distal joint armed with 4 spines successively increasing in length; inner ramus with the

proximal joint linear in form and quite unarmed, distal joint small carrying on the tip a claw-like spine and a somewhat longer seta. The 3 succeeding pairs of legs with the outer ramus distinctly 3-articulate and without any setæ inside, its terminal joint armed in the 2 anterior pairs with 3 spines and a sub-apical seta, in 4th pair with only 2 spines; inner ramus considerably shorter than the outer, with the distal joint oval in form and about the length of the proximal one, being only provided with a single imperfectly developed seta at the tip. Last pair of legs with the median plate divided at the end by a small incision into 2 short lobes, each carrying 2 unequal setæ; distal joints very small, cordate in form, each with 3 short setæ, inner edge finely ciliated.

Colour not yet ascertained.

Length of adult female 0.58 mm.

Remarks.—The above-described form agrees on the whole so closely with that recorded by Th. Scott, that I cannot but believe it to belong to the same species, though it is of somewhat smaller size and more slender form of body than indicated in the figures given by Th. Scott. I have also failed to detect in any of my specimens even the slightest trace of the peculiar prominences ("lenses") mentioned by T. Scott as occurring on each side of the cephalic segment behind, and seen both in his figure of the female and that of the male.

Occurrence.—Some few specimens of this peculiar form, all of the female sex, were picked up from samples taken last summer at Korshavn from a depth of about 20 fathoms, sandy bottom.

Distribution.—Scottish coast (Scott).

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Add the following species:

Laophonte karmensis, G. O. Sars, n. sp.

(Suppl. Pl. 46).

Specific Characters.—*Female.* Body moderately slender, resembling somewhat in shape that in *L. brevisrostris*, though having the segments more sharply marked off from each other. Cephalic segment very large and tumid, considerably exceeding in length the succeeding 4 segments combined; rostral projection broadly triangular in form and distinctly bilobular at the tip. Urosome with the lateral expansions of the anterior segments rather prominent and minutely spinulose on the edges. Caudal rami scarcely longer than the anal segment and of nearly equal width throughout, lateral edges smooth. Anterior antennæ comparatively short, scarcely attaining half the length of the cephalic segment, and composed

of 7 well-defined joints, 2nd joint much the largest, and produced outside to a short triangular projection. Posterior antennæ and oral parts normally developed. 1st pair of legs comparatively large, with the inner ramus much produced, outer ramus however very small, scarcely exceeding in length $\frac{1}{3}$ of the proximal joint of the inner, and composed of only 2 joints. The 3 succeeding pairs of legs resembling in structure those in *L. brevirostris*, but comparatively less slender and with the setæ of the outer ramus somewhat reduced in number. Last pair of legs likewise resembling in shape those in the said species, distal joint however less broad and provided with only 4 setæ on the obtusely truncated extremity; inner expansion of proximal joint less produced, extending scarcely beyond the middle of the distal joint.

Male differing from the female in a very similar manner to that found in the male of *L. brevirostris*.

Colour yellowish.

Length of adult female 0.48 mm.

Remarks.—This form is nearly allied to *L. brevirostris* (Claus), but is of much smaller size, and moreover differs in the comparatively shorter, but distinctly 7-articulate anterior antennæ and in the very small biarticulate outer ramus of the 1st pair of legs. It also exhibits some slight differences in the structure of the other legs.

Occurrence.—I have hitherto only noted this form from a single locality, viz., Skutesnes, at the southern end of Karmø, S.W.coast of Norway. It occurred here not infrequently in a depth of about 10 fathoms, on a muddy bottom covered with decaying algæ.

Add also the following genus:

Pseudolaophonte, A. Scott.

Syn. *Laophontina* Norm. & Scott.

Generic Characters.—General form of body resembling that in *Laophonte*. Rostral plate short and broad. Caudal rami somewhat produced. Anterior antennæ strongly built, especially in the male, and having the number of joints reduced, 2nd joint produced outside to a strong recurved unguiform process. Posterior antennæ, oral parts, and 1st and last pairs of legs built on the same type as in *Laophonte*. Legs of 2nd to 4th pairs, however, rudimentary, and quite unfit for swimming.

Remarks.—The present genus, established by A. Scott, is nearly allied to *Laophonte*, differing from it chiefly in the rudimentary condition of the 2nd to 4th pairs of legs. The genus *Laophontina*, recently established by Messrs. Norman and Th. Scott, ought in my opinion to be combined with *Pseudolaophonte*, the distinguishing characters recorded being apparently only of specific, not of generic value.

Pseudolaophonte spinosa (Thomps.).

(Suppl. Pl. 47).

Laophonte spinosa, J. C. Thompson, Revised Report on the Copepoda of Liverpool Bay. Trans. Liverpool Biol. Soc. Vol. VII, p. 198, Pl. XXXIII.

Syn. *Pseudolaophonte aculeata*, A. Scott.

Specific Characters.—*Female.* Body comparatively slender, cylindrical in form, and very flexible, all the segments being sharply marked off from each other and clothed at the hind edge with minute spinules. Cephalic segment rather large, equalling in length the 3 succeeding segments combined, and, viewed dorsally, of oval quadrangular form; rostral plate short and broad, transversely truncated at the end, with a small conical prominence in the middle. Urosome shorter than the anterior division, and having the lateral parts of the segments slightly expanded and densely spinulose, each expansion terminating in a somewhat stronger denticle; last segment smaller than the others and not expanded laterally, anal opercle armed in the middle with a short, thick spine. Caudal rami about the length of the anal segment and slightly tapering distally, each armed dorsally somewhat in front of the middle, with an upturned spiniform projection accompanied by a delicate bristle, and at the inner distal corner with a similar but longer curved spine, outer edge carrying about in the middle 2 thin bristles, apical seta of moderate length and accompanied outside by a very short bristle. Anterior antennæ almost as long as the cephalic segment, and composed of 5 joints only, the 1st minutely serrate along the inner edge, and produced outside near the base to a knob-like prominence divided at the end into a varying number of denticles, 2nd joint a little shorter, fusiform, and produced outside in the middle to a strong recurved claw-like process, 3rd joint of about the same length as the 2nd, but much narrower, 4th joint scarcely half as long, and carrying at the end the usual sensory filament, 5th or last joint, representing the terminal part, about the length of the 4th, and produced at the hind corner to a spiniform projection. Posterior antennæ with the distal joint about the length of the proximal one, but much narrower and armed in the usual manner, outer ramus comparatively small, with 4 thickish setæ. Posterior maxillipeds very slender, with the propodos sub-

linear in form. 1st pair of legs well developed, with the outer ramus biarticulate and nearly attaining half the length of the proximal joint of the inner; apical claw of the latter ramus moderately strong. The 3 succeeding pairs of legs extremely small and difficult to isolate by dissection. 2nd pair of legs consisting each only of a biarticulate stem, the proximal joint representing the basal part, the distal joint the outer ramus. 3rd pair distinctly biramous, with both rami biarticulate. 4th pair likewise biramous, with the outer ramus 3-articulate, the inner biarticulate and scarcely more than half as long. Last pair of legs normally developed, foliaceous, distal joint oval in form and carrying on the somewhat obliquely truncated extremity 5 comparatively short setæ, each arising from a knob-like prominence at the edge; inner expansion of proximal joint rather large, triangular in form, and extending almost as far as the distal joint, marginal setæ 5 in number, 3 of them issuing from the inner edge; surface of both joints covered with curved rows of minute spikes.

Male of about same size as the female, and having the anterior antennæ very strongly hinged, with the 4th joint globularly dilated, and the terminal part claw-like. 3rd and 4th pairs of legs slightly differing from those in female, 1st joint of outer ramus in both pairs being produced at the end outside to a long deflexed spiniform process; inner ramus of 3rd pair moreover terminating in a somewhat flexuous spine. Last pair of legs very much reduced in size, distal joint with only 3 stout spines, inner expansion of proximal joint not produced, and carrying 2 unequal setæ.

Colour light grey.

Length of adult female 1.30 mm.

Remarks.—This form was first described in the above-quoted paper by J. C. Thompson as a species of the genus *Laophonte*, and was figured on a separate plate. The figures are however far from being accurate, and also in the description there are some apparent inaccuracies, which led Mr. A. Scott to believe that the form observed by him was a different species. I think however that there can be little doubt that the 2 forms are in reality identical, and the specific name *spinosa* proposed by Thompson ought accordingly, as the older one, to be substituted for that given to the species by Mr. A. Scott. In size and general appearance the present form somewhat resembles *Laophonte cornuta* Phil., but on a closer examination is easily distinguished by the peculiar armature of the caudal rami, and by the rudimentary condition of the legs of the 2nd to 4th pairs.

Occurrence.—I found this form last summer not unfrequently at Korshavn on a coarsely sandy bottom, at depths ranging from 20 to 50 fathoms. As could be inferred from the rudimentary condition of the natatory legs, the animal is

quite incapable of swimming freely in the water, and keeps constantly at the bottom, where it moves by winding its very flexible body and at the same time using its powerful antennæ and to some extent also the caudal rami as levers

Distribution.—Liverpool Bay (Thompson, A. Scott), Scottish coast (Th. Scott).

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Euryeletodes similis (Scott).

Distribution.—Polar Islands North of Grinnell Land (2nd Fram Exped.).

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Add the following species:

Rhizothrix gracilis (Scott).

(Suppl. Pl. 48).

Enhydrosoma gracile. Th. Scott, On some new and rare Crustacea, etc. 21st Ann. Rep. of the Fishery Board for Scotland, Part III, p. 122, Pl. II, figs. 16—26, Pl. III, fig. 1.

Specific Characters.—*Female.* Body comparatively slender, cylindric in form, or very slightly tapered behind. Cephalic segment of moderate size and not very deep, projecting in front to a broadly triangular rostral prominence. Urosome comparatively short, scarcely exceeding half the length of the anterior division, its last segment a little shorter than the preceding one. Caudal rami comparatively small and somewhat contracted in their distal part, which is produced, outside the apical setæ, to a bifid lappet, outer edge with a slender bristle behind the middle, principal apical seta about the length of the urosome. Anterior antennæ rather small, though somewhat more slender than in the type species, and, as in that species, composed of 4 joints only, the 1st of which is the largest, 2nd and 3rd joints of about equal length, last joint rather smaller. Posterior antennæ with the distal joint short and armed outside with 2 thick spines, at the end with 2 somewhat longer spines and 2 thin geniculate setæ, outer ramus very small, with 4 comparatively short bristles. Oral parts of essentially the same structure as in the type species; posterior maxillipeds however comparatively more slender. 1st pair of legs with the rami less narrow than in *R. curvata*, spine attached outside to the 1st joint of the outer ramus short, inner ramus scarcely more than half as long as the outer; each ramus, as in the type species, carrying on the tip 2 very slender setæ terminating in a tuft of spreading cilia. The 3 succeeding pairs of legs scarcely differing in structure

from those in the type species. Last pair of legs however rather different, forming simple transverse lamellæ contiguous in the middle, each lamella exhibiting a slight median incision and carrying on either side of the incision a row of 5 closely-set plumous setæ, outer corner exerted to a knob-like prominence tipped with a delicate bristle. Ovisac oval in form and attached to the genital segment by a long stalk.

Male still more slender than female, and scarcely smaller. Anterior antennæ 5-articulate and strongly hinged, with the 4th joint globularly dilated and the terminal joint claw-shaped. Last pair of legs smaller than in female with the median incision obsolete and the number of setæ much reduced.

Colour not yet ascertained.

Length of adult female 0.68 mm.

Remarks.—The above-described form is unquestionably referable to the genus *Rhizothrix*, as characterised in the main part of this work, agreeing, as it does, in all essential structural details with the type species, *R. curvata* Brady, though being specifically well defined.

Occurrence.—Several specimens of this form were picked up from samples taken last summer at Korshavn from a depth of about 20 fathoms, sandy bottom.

Distribution.—Scottish coast (Scott).

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Add the following new genus:

Gen. **Anoplosoma**, G. O. Sars, n.

Generic Characters.—Body without any armature whatever, the segments being evenly rounded both laterally and dorsally. Rostrum wholly absent. Caudal rami moderately slender, linear in form. Anterior antennæ narrow and elongated, with the terminal part distinctly biarticulate; those in male slightly hinged. Posterior antennæ very slender, outer ramus rudimentary. Mandibular palp slender, biarticulate. Maxillæ very small. Anterior maxillipeds with only a single setiferous lobe inside the basal joint. Posterior maxillipeds normal. 1st pair of legs very small and imperfectly developed, both rami being composed of only a single joint. The 3 succeeding pairs of legs extremely slender and projecting laterally; 2nd basal joint much prolonged and forming with the 1st an elbow-shaped bend, outer ramus very narrow and elongated, with the full number of natatory setæ; inner ramus exceedingly small, uniarticulate. Last pair of legs with the distal joint long and slender, proximal joint only slightly expanded inside, but having outside a very long and narrow process.

Remarks.—I have been in some doubt about the real systematic position of the present genus, but have at last arrived at the conclusion that it ought more properly to be referred to the family *Anchorabolidæ*, in spite of the absence of any obvious armature of the body. It is from this character that the generic name here proposed has been derived. Only a single species of this genus has hitherto come under my notice.

Anaplosoma sordidum, G. O. Sars, n. sp.

(Suppl. Pl. 49).

Specific Characters.—*Female.* Body not very slender, and somewhat depressed, sub-linear in form, being of nearly equal width throughout. Integuments very thin and fragile. Surface of body smooth, without any distinct processes, either lateral, or dorsal, but clothed with scattered stiff hairs arranged in a symmetrical manner, 2 pairs of them, attached to the 3rd and 4th segments dorsally, more being conspicuous than the others. Cephalic segment of moderate size, about equalling in length the 2 succeeding segments combined, and transversely truncated anteriorly, the frontal edge being even slightly concave in the middle. The 3 succeeding segments with the lateral parts evenly rounded off; 5th segment scarcely smaller than the preceding one. Urosome about the length of the anterior division and having all the segments simple, without lateral expansions, genital segment distinctly subdivided in the middle, last segment unusually large, being fully as long as the 2 preceding segments combined, anal opercle somewhat prominent and finely denticulated at the edge. Caudal rami about the length of the anal segment, slightly divergent and of narrow linear form, inner edge finely ciliated in its proximal part; all the setæ, 7 in number on each ramus, crowded together on its outermost part, the dorsal one arising from a bulbous base, and having its proximal part somewhat thickened and sharply defined from the distal; principal apical seta about half the length of the body. Eye wholly absent. Anterior antennæ very slender and narrow, fully twice as long as the cephalic segment, and composed of 5 well-defined joints, 1st, 3rd and 5th joints of about equal size, 2nd joint comparatively short but broader than the others, 4th joint very small. Posterior antennæ with the proximal joint very long and slender, outer ramus replaced by a small bristle arising from a knob-like prominence. Mandibular palp with the basal joint rather narrow and about the length of the distal one, exhibiting outside a small lappet tipped with a delicate bristle and apparently answering to the outer ramus. Posterior maxillipeds rather stout, with 2 remarkably strong plumose setæ issuing from the basal joint, propodus oblong in form, with a conspicuous sinus outside near the base, dactylus long and slender.

1st pair of legs very small, 2nd basal joint, as in the succeeding pairs, narrowly produced, and carrying at the end outside a slender seta, outer ramus represented by a narrow, somewhat curved joint appearing as the immediate continuation of the basal part, and provided with 6 unequal setæ, 3 on the outer edge and 3 on the tip; inner ramus scarcely more than half as long as the outer, and carrying on the tip 3 unequal setæ. The 3 succeeding pairs of legs with the 2nd basal joint much produced, outer ramus long and very narrow, with the spines of the outer edge rather slender, the first 2 joints in the 2nd and 4th pairs confluent, in the 3rd pair well defined; inner ramus in 2nd pair resembling that of 1st pair, in the 3rd pair much smaller, bisetose, in 4th pair quite rudimentary. Last pair of legs with the distal joint linear in form, and carrying 5 slender curved setæ, proximal joint with the outer process very long and narrow, inner expansion small, with 2 slender setæ of unequal length.

Male somewhat smaller than female, and having the anterior antennæ slightly hinged and composed of 7 well-defined joints, the 1st of which is much the largest. Last pair of legs smaller than in female, with only a single seta inside the proximal joint.

Colour whitish grey.

Length of adult female 0.84 mm.

Remarks.—This form is very markedly distinguished from the other members of the family *Anchorabolidae* by its less slender body and the absolute absence of any processes similar to those found in the other species. In most cases, however, the body is found to be so thickly covered with muddy particles, that these differences only become obvious after the animal has been subjected to a very careful cleansing. The muddy particles are apparently kept in place by the peculiar stiff hairs which clothe the surface of the segments, and evidently serve as a protecting covering for the body, the integuments of which are very thin and fragile. It is to this peculiarity that the specific name here proposed refers.

Occurrence—I found this peculiar Copepod last summer not unfrequently at Korshavn in a depth of 30—50 fathoms, on a bottom covered with coarse sand intermingled with mud. It moves in a manner very similar to that observed in *Anchorabulus mirabilis*, for which it may easily be mistaken, as that form is also very often found covered by a thick crust of muddy particles.

Stenocaris minor, (Scott).

(Suppl. Pl. 50).

Cylindropsyllus minor, Th. Scott, Additions to the Fauna of the Firth of Forth. 10th Ann. Rep. of the Fishery Board for Scotland, p. 210, Pl. XI, figs. 17—24.

Specific Characters.—*Female.* Body slender, cylindrical in form, resembling that in *S. gracilis*. Rostrum very small and apparently not defined behind. Urosome about the length of the anterior division, genital segment the largest, last segment scarcely smaller than the preceding one. Caudal rami about the length of the anal segment, slightly divergent, and of nearly equal width throughout, outer edge carrying near the end a short bristle, principal apical seta transformed to a lancet-shaped appendage accompanied outside by a slender bristle issuing from its base. Anterior antennæ resembling in structure those in *S. gracilis*, but composed of 7 well-defined joints, the terminal part being 3-articulate instead of biarticulate. Posterior antennæ likewise rather similar, though having the outer ramus comparatively smaller. Oral parts and the 4 anterior pairs of legs very nearly agreeing in their structure with those appendages in *S. gracilis*. Last pair of legs, as in that species, very small, lamelliform, but less exerted at the end, and having only a single coarse spine inside, marginal setæ 7 in number. Ovisacs small and narrow, each containing only 3 or 4 ova arranged in a single row.

Colour whitish.

Length of adult female 0.90 mm.

Remarks.—This form, described by Th. Scott as a species of the genus *Cylindropsyllus*, is evidently referable to the genus *Stenocaris*, as defined in the main part of this work, agreeing with the type species, *S. gracilis*, in all essential characters. It differs from that species in the much smaller size, the distinctly 7-articulate anterior antennæ, the peculiar transformation of the principal caudal seta, and finally in the form and armature of the last pair of legs.

Occurrence.—Some few specimens of this form, all of the female sex, were found last summer at Korshavn in a depth of about 20 fathoms, sandy bottom.

Distribution.—Scottish coast (Scott).

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Add the following new genus:

Gen. *Tachidiopsis*, G. O. Sars, n.

Generic Characters.—General form of body somewhat resembling that in *Tachidius*, the anterior division being distinctly broader than the posterior.

Rostral prominence comparatively small, deflexed. Genital segment in female imperfectly subdivided. Caudal rami comparatively short. Anterior antennæ more slender than in *Tachidius*, and composed of a greater number of joints. Posterior antennæ with the proximal joint distinctly subdivided, outer ramus rather fully developed. Oral parts somewhat resembling in structure those in the genus *Tachidiella*. Posterior maxillipeds, however, clearly distinguished by the presence inside the basal joint of a complex masticatory lobe clothed with several denticulated spines. 1st pair of legs with both rami 3-articulate, the inner one the longer and bent in the middle. Inner ramus of the 2 succeeding pairs of legs biarticulate, the outer 2 joints being coalesced, that of 4th pair distinctly 3-articulate. Last pair of legs comparatively small, distal joint well defined, inner expansion of proximal joint scarcely at all produced.

Remarks.—This new genus ought evidently to be included in the family *Tachidiidae*, as defined in the main part of this work, as it exhibits in its structural details some affinity both to the genus *Tachidiella* and to *Pseudotachidius*, though differing conspicuously from both of them in certain points. The structure of the posterior maxillipeds in particular is very peculiar and unlike that found in any other Harpacticoid known to me. Only a single species of this genus has hitherto come under my notice.

Tachidiopsis cyclopoides, G. O. Sars, n. sp.

(Suppl. Pl. 51).

Specific Characters—Female. Body moderately slender, with the 2 divisions sharply marked off from each other, whereby it assumes a pronouncedly cyclopoid appearance. Anterior division oblong oval in outline, with the cephalic segment rather large and broadly rounded in front; rostral projection triangular, deflexed. Epimeral plates of the 3 succeeding segments small and rounded off; 5th segment much narrower than the preceding one, from which it is separated by a conspicuous constriction. Urosome a little shorter than the anterior division and much narrower, tapering somewhat distally, its segments clothed with small spikes; genital segment comparatively large and somewhat depressed in its anterior part, last segment slightly shorter than the preceding one, and having the anal opercle finely denticulated. Caudal rami about the length of the anal segment and of uniform width throughout, each with a small bristle outside near the end, apical setæ normally developed. Anterior antennæ almost attaining the length of the cephalic segment and composed of 9 well-defined joints clothed with comparatively short and simple setæ, 1st joint the largest, the 3 succeeding joints of

about equal size, terminal part nearly as long as the proximal, with the 2nd joint the largest, the 2 succeeding joints very short. Posterior antennæ with the distal joint comparatively short, but with rather long apical setæ, outer ramus exceeding in length the distal joint and distinctly 4-articulate. Mandibles with the masticatory part considerably expanded, the outer 2 teeth of the cutting edge claw-like, palp with the basal part oblong oval in form, rami of about equal size, the outer one distinctly 4-articulate. Posterior maxillipeds with the masticatory lobe of the basal joint well defined and armed with 5 short denticulated spines and one or 2 simple bristles, propodus fusiform in shape, with the outer edge finely ciliated, inner edge carrying in the middle 2 strong plumose setæ, dactylus rather complex, biarticulate, proximal joint carrying at the end inside a short bristle, and outside a small lobule tipped with a minute hair, distal joint unguiform with 2 slender curved setæ outside. 1st pair of legs with the basal part broad and flattened, outer ramus shorter than the inner and having a well developed seta inside the middle joint, terminal joint larger than either of the other 2, and armed with 5 slender spines successively increasing in length distally, and with a seta on the inner edge; inner ramus with the 1st joint about the length of the other 2 combined and, like the middle one, provided at the end inside with a slender seta, terminal joint somewhat smaller than the middle one, and carrying outside a short spine, inside a small seta, and at the tip another seta and a very long spine. The 3 succeeding pairs of legs with the outer ramus normally developed, terminal joint in the 2 anterior pairs with 2 setæ inside, in 4th pair with 3 such setæ; inner ramus in 2nd pair nearly as long as the outer, and having the proximal joint rather expanded, in 3rd pair rather shorter; distal joint in both these pairs with a small dentiform projection in the middle of the outer edge, inner edge in 2nd pair with 3 setæ, the outermost one rather strong, in 3rd pair with 4 subequal setæ and a minute denticle interposed between the 2 proximal ones. 4th pair of legs with the inner ramus distinctly 3-articulate, but much shorter than the outer. Last pair of legs with the distal joint conical in form, and edged with 5 rather unequal setæ, one of them issuing from the narrowly exerted tip; inner expansion of proximal joint rather broad, but scarcely at all produced, and provided with 3 slender setæ. Ovisac of moderate size and rounded oval in form.

Male unknown.

Colour not yet ascertained.

Length of adult female 0.65 mm.

Remarks.—In its outward appearance this form has a strong resemblance to certain species of the genus *Cyclopina*, and may easily be mistaken for one of them.

A closer examination will however at once prove it to be a genuine Harpacticoid. As in the greater number of these, only a single ventral ovisac is present, a circumstance which never occurs in any of the Cyclopoida.

Occurrence.—Some few specimens of this form, all of the female sex, were picked up from samples taken last summer at Korshavn from a depth of about 20 fathoms, sandy bottom.

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Fultonia hirsuta, Scott.

Remarks.—On a closer examination of specimens of this form taken last summer at Korshavn, I have ascertained that in the female there are 2 well-defined ovisacs present, as in the genus *Eurycletodes*, to which the present form also in other respects exhibits an unmistakable affinity. This fact has still further confirmed me in the opinion intimated on page 341, that the genus *Fultonia* and its near ally *Argestes*, should more properly be included in the family *Cletodidae*, in spite of the distinctly 3-articulate inner rami of the natatory legs.

Additional species.

Fam. Ectinosomidæ.

Ectinosoma tenuireme, Scott.

(Suppl. Pl. 52).

Ectinosoma tenuireme, Th. & A. Scott, Revision of the British Copepoda belonging to the genera *Bradya* and *Ectinosoma*. Trans. Linn. Soc. London, 2nd ser. Vol. IV, Part 5, p. 439, Pl. 36, fig. 33; Pl. 37, figs. 8, 27, 36, 46; Pl. 38, figs. 1, 24, 40, 49.

Specific Characters.—*Femule.* Body exceedingly slender, of narrow linear form. Rostral plate not very prominent, and narrowly rounded at the tip. Urosome considerably shorter than the anterior division and somewhat tapered distally, last segment very small. Caudal rami scarcely longer than they are broad, and slightly divergent, apical setæ exceedingly slender and elongated, the inner medial one exceeding in length $\frac{2}{3}$ of the body. Anterior antennæ unusually slender and attenuated, 7-articulate, 1st joint much the largest, last joint very small. Posterior antennæ with the outer ramus very narrow, 3-articulate, last joint nearly twice as long as the other 2 combined. Anterior lip with the usual recurved projection in front. Mandibles and maxillæ of the usual structure. Anterior maxillipeds very strongly built, with the 2nd basal joint considerably dilated and fully twice as long as the 1st, terminal claws very slender. Posterior maxillipeds long and narrow, with the terminal joint fully half as long as the middle one. Natatory legs with the outer ramus much smaller than the inner, scarcely exceeding in length the first 2 joints of that ramus combined. Last pair of legs comparatively small, distal joint twice as long as it is broad, with the middle seta exceedingly long and slender, almost 3 times as long as the other 2, which are subequal in length; inner expansion of proximal joint extending considerably beyond the middle of the distal joint, the 2 apical setæ rather unequal. Ovisac comparatively large, oblong in form.

Colour not yet ascertained.

Length of adult female 0.73 mm.

Remarks.—This species briefly described by Scott in the above-cited treatise, is most nearly related to *E. gracile* Scott, but is of somewhat larger size and still more slender form of body. It moreover differs slightly in the structure of the antennæ, the maxillipeds and the last pair of legs, as also in the very long and slender caudal setæ.

Occurrence.—Some few specimens of this form were picked up from samples taken last summer at Korshavn from a depth of 30—50 fathoms, coarse sandy bottom.

Distribution.—Scottish coast (Scott).

Gen. **Neobradya**, Scott, 1892.

Generic Characters.—Body elongate, of cylindrical form, without any sharp demarcation between the anterior and posterior divisions. Rostral prominence short, triangular. Genital segment in female not subdivided. Caudal rami small, with the principal apical seta sub-geniculate. Anterior antennæ elongate, resembling in structure those in *Cylindropsyllus* and *Stenocaris*. Posterior antennæ however rather different, the outer ramus being very fully developed. Anterior lip simple, flap-shaped. Mandibles strong, with the palp large and biramos. Maxillæ with the exopodal lobe unusually large. Maxillipeds comparatively small, the anterior ones with 4 setiferous lobes inside, and the apical part distinctly defined; the posterior ones not prehensile, 3-articulate, and armed inside with a number of stout appressed spines coarsely pectinate along the one edge. Natatory legs moderately slender, with the number of setæ much reduced; 1st pair with both rami 3-articulate, the 3 succeeding pairs with the inner ramus biarticulate. Last pair of legs very small, with the distal joint imperfectly defined at the base and the inner expansion of proximal joint poorly developed. A single ovisac present in female.

Remarks.—The systematic position of this genus appears to me somewhat doubtful. Th. Scott believes it to be nearly allied to the genus *Bradya* of Boeck, and according to that opinion it should of course be included in the family *Ectinosomidae*. There are however several characters by which it conspicuously differs from the members of that family, and by which it shows a certain affinity to a very different family, viz., that of the *Cylindropsyllidae*, with which the external appearance also agrees better than with the *Ectinosomidae*. On the other hand, the structure of the posterior antennæ and the mandibles is very different from that in the first-named family and more in accordance with that found in the *Ectinosomidae*. I think that it will be found advisable in

future to remove the present genus from both these families, and to regard it as the type of a particular family. The genus contains as yet only a single species, to be described below.

Neobradya pectinifera, Scott.

(Suppl. Pl. 53).

Neobradya pectinifer, Th. Scott, Additions to the Fauna of the Firth of Forth, Part IV. 10th Ann. Rep. of the Fishery Board for Scotland, p. 249; Pl. XIII, figs. 19—32.

Specific Characters.—*Female.* Body very slender and elongated, of perfectly cylindrical form. Cephalic segment nearly as long as the 3 succeeding segments combined, and forming in front a short and broad rostral prominence of triangular form. Epimeral plates of the 3 succeeding segments very small, but distinct; 5th segment fully as large as the preceding one. Urosome about the length of the anterior division and rather massive, with all the segments perfectly smooth; last segment much smaller than the other 3, and deeply incised behind in the middle. Caudal rami very small, slightly longer than they are broad, and each carrying outside, about in the middle, 2 unequal bristles, dorsal seta issuing close to the end, apical seta accompanied outside by a thin bristle and having its proximal half very coarse, almost spiniform, distal part however extremely thin, hair-like and generally extended obliquely outwards. Eye wholly absent. Anterior antennæ nearly as long as the cephalic segment, and composed of 9 well-defined joints clothed with moderately long setæ, 1st joint comparatively short and thick, 2nd much the largest and slightly attenuated distally, 3rd joint about twice the length of the 4th, which carries at the end the usual sensory filament, terminal part scarcely longer than those 2 joints combined. Posterior antennæ with the outer ramus very fully developed and composed of 4 well-defined joints, the 1st about equal in length to the other 3 combined. Mandibles with the masticatory part abruptly incurved and somewhat flattened, cutting edge divided into several strong teeth, palp large, with the outer ramus distinctly 4-articulate. 1st pair of legs with the outer ramus slightly longer than the inner, middle joint without any seta inside, terminal joint armed with 4 spines and inside the tip with a slender seta; inner ramus with the 1st joint about the length of the other 2 combined and without any seta inside, middle joint setiferous, terminal joint about the size of the middle one, and carrying on the tip 3 unequal setæ, the middle one very long. The 2 succeeding pairs of legs with the outer ramus very narrow and without any setæ inside, terminal joint only slightly longer than the middle one, and provided at the end with 3 slender spines and a still more slender seta; inner ramus a little shorter than the outer, and having

the proximal joint subfusiform in shape and much larger than the distal one, the latter provided inside near the base with a moderately long seta, and at the tip with a very long denticulated spine accompanied outside by a short spine, inside by an ordinary seta. 4th pair of legs resembling in structure the 2 preceding pairs, except that the inner ramus is comparatively shorter and has no seta inside the distal joint, whereas the terminal joint of the outer ramus is provided inside with such a seta. Last pair of legs with the distal joint obliquely rounded and carrying outside 3 short spines and at the tip a slender seta; inner expansion of proximal joint very small, with only 2 slightly unequal setae on the transversely truncated extremity. Ovisac oblong oval in form, and attached to the genital segment by a short stalk.

Male only slightly differing from female, though having the anterior antennae hinged in the usual manner, and the last pair of legs less perfectly developed.

Colour pure white.

Length of adult female 1.18 mm.

Remarks.—From its slender cylindrical body, this Copepod looks very like the forms included in the family *Cylindropsyllidae*, and may at first sight easily be mistaken for one or other of them. A closer examination will however soon reveal some very essential differences in the structural details. Another obvious difference is the presence in the female of only a single ovisac, whereas in all the known *Cylindropsyllidae*, there are 2 such ovisacs.

Occurrence.—I found this remarkable Copepod last summer rather abundantly at Korshavn in the same locality from which so many other interesting forms, treated of in the preceding pages, were derived, the depth ranging from 30 to 50 fathoms. In the same locality also *Cylindropsyllus lewis* occurred rather frequently, and the resemblance between these 2 forms in size and general appearance was very striking.

Distribution.—Scottish coast (Scott).

Fam. Diosaccidæ.

Amphiascus simulans (Scott).

(Suppl. Pl. 54).

Stenohelia simulans, Norm. & Scott, Copepoda new to Science from Devon and Cornwall. *Ann. Mag. Nat. Hist.* ser. 7, Vol. XV, p. 285.

Specific Characters.—*Female.* Body slender, sublinear in form, or slightly tapered behind. Rostrum very prominent, acuminate. Urosome somewhat shorter than the anterior division, last segment not quite attaining the length of the preceding one. Caudal rami very short, being scarcely as long as they are broad, apical setæ normal. Anterior antennæ moderately slender, about the length of the cephalic segment, and composed of 8 joints, the 2nd much the largest and exhibiting in the middle a very conspicuous constriction, 4th joint about twice as long as the 3rd, terminal part exceeding in length those joints combined. Posterior antennæ with the middle joint of the outer ramus very small and without any seta. 1st pair of legs with the outer ramus about the length of the 1st joint of the inner, middle joint without any seta inside, terminal joint slightly longer and armed with only 2 spines and 2 geniculate setæ; inner ramus with the 1st joint narrow linear in form and carrying inside, near the end, a slender seta, last joint fully twice as long as the middle one, and armed in the usual manner; both these joints combined considerably exceeding half the length of the 1st. The 3 succeeding pairs of legs with the rami moderately slender, and the natatory setæ somewhat reduced in number, terminal joint of outer ramus in the 2 anterior pairs having only a single seta inside, that of the inner ramus in 2nd and 4th pairs likewise with a single seta on the inner edge. Last pair of legs with the distal joint oblong oval in form and edged with 6 setæ; inner expansion of proximal joint triangular in form and extending considerably beyond the middle of the distal joint, marginal setæ 5 in number. Ovisacs of moderate size, oblong fusiform in shape.

Male having the anterior antennæ transformed in the usual manner. 1st pair of legs with the spine inside the 2nd basal joint remarkably produced and somewhat sigmoid. Inner ramus of 2nd pair of legs with the middle joint expanded inside to a rounded lobe, and carrying at the end outside 2 strong deflexed spines, the inner one distinctly bifid at the tip. Last pair of legs much smaller than in female, distal joint short, pyriform in shape, with only 5 marginal setæ; inner expansion of proximal joint conical in form, with 2 thickish apical setæ.

Colour not yet ascertained.

Length of adult female 0.93 mm.

Remarks.—It is only quite recently that I have become aware of this form, owing to its external resemblance to several other species of the present genus. On a closer examination I find it however to be a well-defined species, which may also without dissection be easily recognised by the characteristic form of the 2nd joint of the anterior antennæ. This character has not been sufficiently noticed by Messrs. Norman and Scott in their description of the species.

Occurrence.—Several specimens of this form were found in samples taken last summer at Korshavn from depths ranging from 20 to 40 fathoms, sandy bottom.

Distribution.—Coast of Cornwall (Norm. & Scott).

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AN ACCOUNT
OF THE
CRUSTACEA
OF
NORWAY

AN ACCOUNT
OF THE
CRUSTACEA

OF
NORWAY

WITH SHORT DESCRIPTIONS AND FIGURES OF ALL THE SPECIES

BY

G. O. SARS

PROFESSOR OF ZOOLOGY AT THE UNIVERSITY OF CHRISTIANIA

VOL. V

COPEPODA

HARPACTICOIDA

WITH 284 AUTOGRAPHIC PLATES

(TEXT)



BERGEN
PUBLISHED BY THE BERGEN MUSEUM

SOLD BY

ALB. CAMMERMEYER'S FORLAG, CHRISTIANIA

1911

PREFACE.

The elaboration of the present Volume has been connected with no small trouble and expenditure of time. Indeed, the group of Crustacea here treated of is undoubtedly one of the most difficult, both as regards the direct examination of the species, and the exact determination of the often very intricate mutual relation of the several types. The group has proved to be very richly represented in the Norwegian Fauna, as will appear from the extent of this Volume, (about 300 (291) different species, belonging to 99 genera, being treated of here); and yet I have every reason to believe that many other forms will be added in the future. As regards this statement, I will only point to the fact that during my last excursion, in the summer of 1910, no less than about 40 additional species, several new to science, were procured, and of these moreover by far the greater number were derived from a single locality at Korshavn, on the south coast of Norway.

The systematic arrangement of the genera adopted in this work can only be regarded as a quite provisional one. No doubt in the future essential improvements will be effected also in this respect. Although the present Volume cannot therefore lay any claim to being an exhaustive account of the group, I think that it will at least be found useful as a basis for further investigations.

As to the preparation of the plates accompanying this Volume, I have been anxious to give, besides analytical figures of the several appendages, also good habitus-figures of each species, drawn on a sufficiently large scale. The great advantage of such figures for an easy determination of the species is evident. In most cases it is found that earlier authors have contented themselves with giving only lateral figures of the species belonging to the present group. I find, however, that in many cases the dorsal view of the animal more clearly reveals the characteristic differences between nearly-related species than does the lateral view. In cases where only a single habitus-figure is given, I have therefore always preferred to represent the animal in a dorsal aspect. In most cases, however, the animal is

figured in both positions. The analytical figures have in all cases been associated in the same plates with the habitus-figures, an arrangement which is undoubtedly more convenient than that adopted by Th. Scott in some of his recent papers, where these figures are found scattered over many different plates.

I regret that in some few cases the figures on the plates have been less perfectly reproduced, owing to want of care on the part of the lithographer in the transfer of my drawings to the stone. In the great majority of cases, however, I hope that the plates will be found to suffice for an easy recognition of the species represented.

In concluding this Volume, I wish to express my most sincere thanks to those gentlemen who have assisted me in the work. To Canon A. M. Norman and Dr. Th. Scott I am much indebted for their kindness in sending me interesting specimens and in giving me other information useful to me. My hearty thanks are also due to Mr. O. Nordgaard, curator of the Trondhjem Museum, for his generosity in placing in my hands his whole material of *Harpacticoida*, as also for sending me several bottom-samples taken by him partly off the Finmark coast, partly off the Lofoten Islands and in the Skjærstad Fjord. Several interesting species, described and figured in the present Volume, were derived from these samples. Finally, I beg to thank the Direction of the Bergen Museum for the promptness with which it has attended to the printing and publishing of the several parts of this Volume, as soon as they left my hands.

G. O. Sars.

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SYSTEMATIC LIST

OF THE SPECIES DESCRIBED IN THIS VOLUME.

Achirota.

Misophriidæ.

- Misophria, Boeck.
pallida, Boeck.

Logipediidæ.

- Longipedia, Claus.
coronata, Claus.
Scotti, G. O. Sars.
minor, Scott.
rosea, G. O. Sars.

- Sunaristes, Hesse.
paguri, Hesse.

- Canuella, Scott.
perplexa, Scott.
furcigera, G. O. Sars.

Cerviniidæ.

- Cervinia, Norman.
Bradyi, Norman.
synarthra, G. O. Sars.
Cerviniopsis, G. O. Sars.
clavicornis, G. O. Sars.
longicaudata, G. O. Sars.

- Eucanuella, Scott.
spinifera, Scott.

- Zosime, Boeck.
typica, Boeck.
incrassata, G. O. Sars.

Ectinosomidæ.

- Ectinosoma, Boeck.
Sarsi, Boeck.
neglectum, G. O. Sars.
propinquum, Scott.
elongatum, G. O. Sars.
Herdmani, Scott.
melaniceps, Boeck.
Normani, Scott.
curticorne, Boeck.
gothiceps, Giesbr.
mixtum, G. O. Sars.
brevirostre, G. O. Sars.
gracile, Scott.
tenuicreme, Scott.

- Microsetella, Brady & Rob.
norvegica, Boeck.

- Ectinosomella, G. O. Sars.
nitidula, G. O. Sars.

- Pseudobradya, G. O. Sars.
minor, Scott.
acuta, G. O. Sars.
similis, Scott.
hirsuta, Scott.
fusca, Scott.
robusta, G. O. Sars.
elegans, Scott.

- Bradya, Boeck.
typica, Boeck.

- dilatata*, G. O. Sars
armifera, Scott.
 Neobradya, Scott.
petniifera, Scott.

Chirognatha. Harpacticidæ.

- Harpacticus, M. Edw.
chelifer, Müller.
uniremis, Kröyer.
gracilis, Claus.
flexus, Brady.
littoralis, G. O. Sars
 Tigriopus, Norman.
fulvus, Fischer.
 Zaus, Goodsir.
spinatus, Goodsir.
abbreviatus, G. O. Sars.
Goodsiri, Brady.

Peltidiidæ.

- Alteutha, Baird.
interrupta, Goodsir.
purpurocincta, Norm.
 Peltidium, Philippi.
purpureum, Phil.

Tegastidæ.

- Tegastes, Norman.
falcatus, Norman.
flavidas, G. O. Sars.
Clausi, G. O. Sars.
grandimanus, G. O. Sars.
nanus, G. O. Sars.
harpacticoides, Claus.
calcaratus, G. O. Sars.
longimanus, Claus.
 Parategastes, G. O. Sars.
sphaericus, Claus.

Porcellidiidæ.

- Porcellidium, Claus.
fimbriatum, Claus.

Idyidæ.

- Aspidiscus, Norman.
littoralis, G. O. Sars.
fasciatus, Norm.
 Psamathe, Philippi.
longicauda, Phil.
 Machairopus, Brady.
minutus, G. O. Sars.
 Idyæa, Philippi.
furcata, Baird.
minor, Scott.
ensifera, Fischer.
tenera, G. O. Sars.
longicornis, Scott.
elegantula, G. O. Sars.
gracilis, Scott.
angusta, G. O. Sars.
finmarchica, G. O. Sars.
tenella, G. O. Sars.
 Idyanthe, G. O. Sars.
dilatata, G. O. Sars.
pusilla, G. O. Sars.
 Idyella, G. O. Sars.
pallidula, G. O. Sars.
erigua, G. O. Sars.

Thalestridæ.

- Thalestris, Claus.
longimana, Claus.
gibba, Kröyer.
ruforiolucens, Claus.
brunnea, G. O. Sars.
purpurea, G. O. Sars.
 Parathalestris, Brady & Rob.
Clausi, Norman.
harpacticoides, Claus.
hibernica, Brady & Rob.
Jacksoni, Scott.
 Phyllothalestris, G. O. Sars.
mysis, Claus.
 Halithalestris, G. O. Sars.
Croni, Kröyer.

Rhynchothalestris, G. O. Sars.

rufocincta, Norm.

helgolandica, Claus.

Microthalestris, G. O. Sars.

forficula, Claus.

littoralis, G. O. Sars.

Dactylopusia, Norman.

thisboides, Claus.

neglecta, G. O. Sars.

vulgaris, G. O. Sars.

micronyx, G. O. Sars.

brevicornis, Claus.

latipes, Boeck.

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Idomene, Philippi.

forficata, Phil.

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Idomenella, Scott.

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Amenophia, Boeck.

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monensis, Brady.

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cinctus, Claus.

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nasutus, Boeck.

phyllopus, G. O. Sars.

latifolius, G. O. Sars.

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curians, Scott.

Giesbrechti, G. O. Sars.

propinquus, G. O. Sars.

longirostris, Claus.

tenuiremis, Brady.

parvus, G. O. Sars.

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pallidus, G. O. Sars.

abyssi, Boeck.

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exiguus, G. O. Sars.

Blanchardi, Scott.

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linearis, G. O. Sars.

sinuatus, G. O. Sars.

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Normani, G. O. Sars.

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lagenirostris, G. O. Sars.

nanoides, G. O. Sars.

bulbifer, G. O. Sars.

spinulosus, G. O. Sars.

simulans, Scott.

attenuatus, G. O. Sars.

hispidus, Norman

affinis, G. O. Sars.

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Stenhelia, Boeck.

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crassicornis, G. O. Sars.
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longicornis, G. O. Sars.
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sclosa, G. O. Sars.
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fragilis, G. O. Sars.
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attenuata, A. Scott.
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AN ACCOUNT
OF THE
CRUSTACEA
OF
NORWAY

AN ACCOUNT
OF THE
CRUSTACEA
OF
NORWAY

WITH SHORT DESCRIPTIONS AND FIGURES OF ALL THE SPECIES

BY

G. O. SARS

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VOL. V

COPEPODA

HARPACTICOIDA

(PLATES)



BERGEN
PUBLISHED BY THE BERGEN MUSEUM

SOLD BY

ALB. CAMMERMEYER'S FORLAG, CHRISTIANIA

1911

LIST OF PLATES

(WITH CORRECTIONS).

Letterings.—♀ female; ♂ male; *C.* cephalic segment; *Urs* urosome with the caudal rami; *gen. ar.* genital area; *F.* furcal joints; *R.* rostrum; *a.*¹ anterior antenna; *a.*² posterior antenna; *L.* anterior lip; *M.* mandible; *Mp.* mandibular palp; *m.* maxilla; *mp.*¹ anterior maxilliped; *mp.*² posterior maxilliped; *p.*¹—*p.*⁵ legs of 1st to 5th pairs.; *gen. l.* genital lobe of male.

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- Pl. CXCVIII.
Cletodes Buchholtzi, Boeck.
- Pl. CXCVIX.
Orthopsyllus linearis, (Claus).
- Pl. CC.
Mesocletodes irrasus, (Scott).
- Pl. CCI.
Eurycletodes laticaudatus, (Boeck).
- Pl. CCII.
Eurycletodes latus, (Scott).
- Pl. CCIII.
Eurycletodes similis, (Scott).
- Pl. CCIV.
Eurycletodes major, G. O. Sars.
- Pl. CCV.
Enhydrosoma curticaudatum, Boeck.
- Pl. CCVI.
 1. *Enhydrosoma propinquum*, (Brady).
 2. — *longifurcatum*, G. O. Sars.
- Pl. CCVII.
Rhizothrix curvata, Brady & Rob.
- Pl. CCVIII.
Huntemannia jahdensis, Poppe.
- Pl. CCIX.
Nannopus palustris, Brady.
- Pl. CCX.
Pontopolites typicus, Scott.
- Pl. CCXI.
Ancorabolus mirabilis, Norman.
- Pl. CCXII.
Echinopsyllus Normanii, G. O. Sars.
- Pl. CCXIII.
Ceratonotus pectinatus, G. O. Sars.
- Pl. CCXIV.
Arthropsoyllus serratus, G. O. Sars.
- Pl. CCXV.
Cylindropsyllus lævis, Brady.

- Pl. CCXVI.
Stenocaris gracilis, G. O. Sars.
- Pl. CCXVII.
D'Arcythompsonia fairliei, Scott.
- Pl. CCXVIII.
Tachidius brevicornis, Lilljeborg.
- Pl. CCXIX.
Tachidius brevicornis, Lilljeb. (continued).
- Pl. CCXX.
Pseudotachidius coronatus, Scott.
- Pl. CCXXI.
Tachidiella minuta, G. O. Sars.
- Pl. CCXXII.
Robertsonia tenuis Brady.
- Pl. CCXXIII.
Danielssenia typica, Boeck.
- Pl. CCXXIV.
Danielssenia fusiformis, (Brady).
- Pl. CCXXV.
Psammis longisetosa, G. O. Sars.
- Pl. CCXXVI.
Fultonia hirsuta, Scott.
- Pl. CCXXVII.
Argestes mollis, G. O. Sars.
- Pl. CCXXVIII.
Metis ignea, Philippi.
- Pl. CCXXIX.
Balænophilus unisetis, Auriv.
- Pl. CCXXX.
Balænophilus unisetis, Auriv. (continued).
- Supplm. Pl. 1.
Cervinia Bradyi, Norman.
- Supplm. Pl. 2.
 1. *Eucanuella spinifera*, Scott.
 2. *Zosime typica*, Boeck.
- Supplm. Pl. 3.
Zosime incrassata, G. O. Sars.
- Supplm. Pl. 4.
 1. *Pseudobradya hirsuta*, (Scott).
 2. — *fusca*, (Scott).

- Supplm. Pl. 5.
Pseudobradya robusta, G. O. Sars.
- Supplm. Pl. 6.
 1. *Pseudobradya elegans*, (Scott).
 2. *Bradya armifera*, (Scott).
- Supplm. Pl. 7.
Ectinosomella nitidula, G. O. Sars.
- Supplm. Pl. 8.
Harpacticus littoralis, G. O. Sars.
- Supplm. Pl. 9.
 1. *Tegastes harpacticoides*, (Claus).
 2. — *calcaratus*, G. O. Sars.
 3. — *longimanus*, (Claus).
- Supplm. Pl. 10.
Idyæa tenella, G. O. Sars.
- Supplm. Pl. 11.
 1. *Microthalestris littoralis*, G. O. Sars.
 2. *Dactylopusia latipes*, Boeck.
- Supplm. Pl. 12.
Dactylopodopsis dilatata, G. O. Sars.
- Supplm. Pl. 13.
 1. *Dactylopedella clypeata*, G. O. Sars.
 2. *Idomene borealis*, G. O. Sars.
- Supplm. Pl. 14.
Idomenella coronata, Scott.
- Supplm. Pl. 15.
Westwoodia monensis, (Brady).
- Supplm. Pl. 16.
Amphiaseus latifolius, G. O. Sars.
- Supplm. Pl. 17.
Amphiaseus thalestroides, G. O. Sars.
- Supplm. Pl. 18.
Amphiaseus denticulatus, (Thompson).
- Supplm. Pl. 19.
 1. *Amphiaseus Normani*, G. O. Sars.
 2. — *amblyops*, G. O. Sars.
- Supplm. Pl. 20.
Amphiaseus lagenirostris, G. O. Sars.
- Supplm. Pl. 21.
 1. *Amphiaseus nanoides*, G. O. Sars.
 2. — *bulbifer*, G. O. Sars.
- Supplm. Pl. 22.
Amphiaseus spinulosus, G. O. Sars.

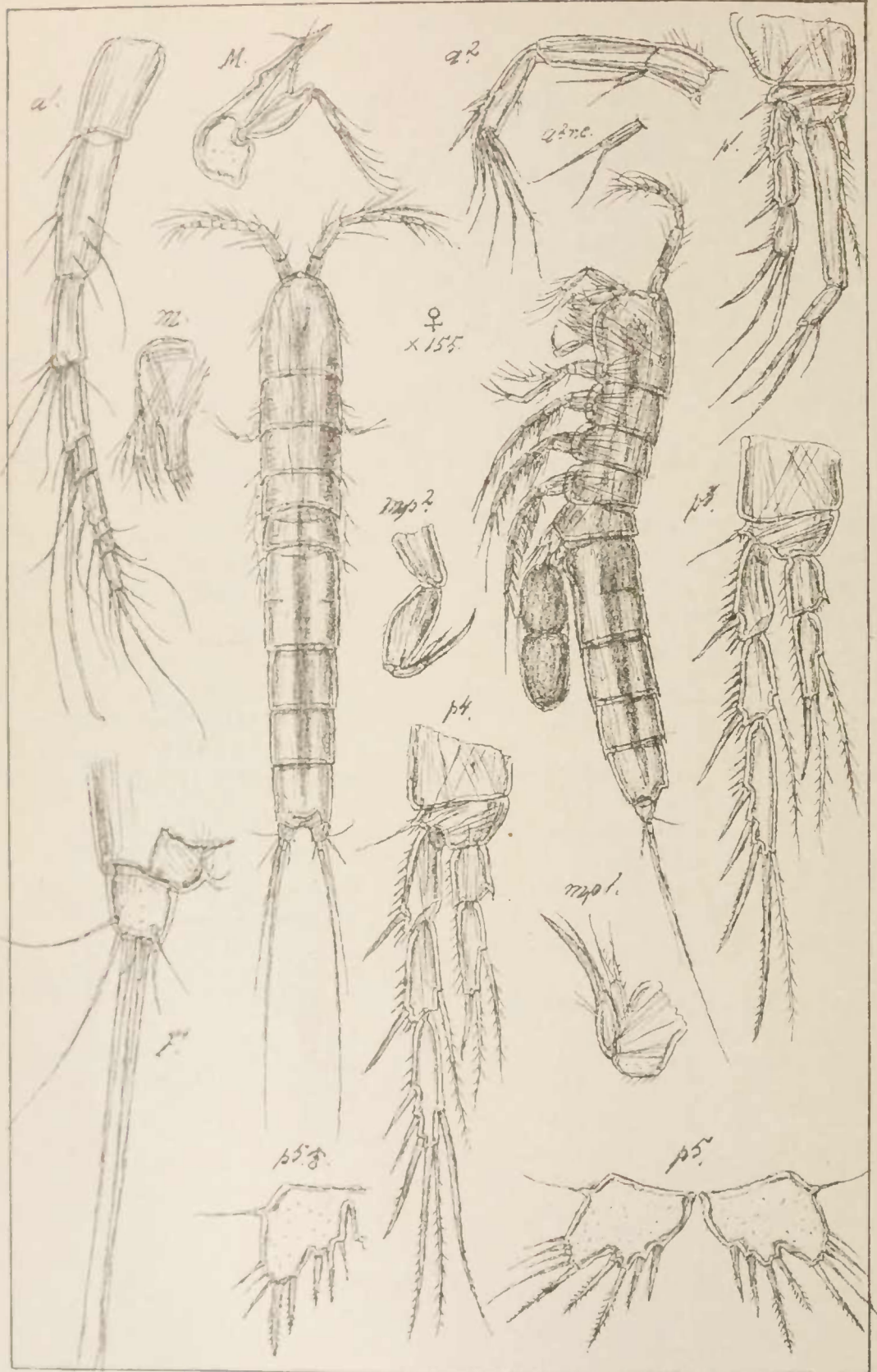
- Supplm. Pl. 23.
Amphiaseus confusus, (Scott).
- Supplm. Pl. 24.
 1. *Amphiaseus typhloides*, G. O. Sars.
 2. — *lamellifer*, G. O. Sars.
- Supplm. Pl. 25.
 1. *Stenheliopsis latifureca*, G. O. Sars.
 2. — *media*, G. O. Sars.
- Supplm. Pl. 26.
 1. *Mesochra exigua*, G. O. Sars.
 2. *Nitocera pusilla*, G. O. Sars.
- Supplm. Pl. 27.
Ameira tenuicornis, Scott.
- Supplm. Pl. 28.
Parameira propinqua, (Scott).
- Supplm. Pl. 29.
Pseudameira crassicornis, G. O. Sars.
- Supplm. Pl. 30.
Pseudameira furecata, G. O. Sars.
- Supplm. Pl. 31.
Ameiropsis nobilis, G. O. Sars.
- Supplm. Pl. 32.
Ameiropsis angulifera, G. O. Sars.
- Supplm. Pl. 33.
Ameiropsis abbreviata, G. O. Sars.
- Supplm. Pl. 34.
Stenocopia spinosa, (Scott).
- Supplm. Pl. 35.
Malacopsyllus fragilis, G. O. Sars.
- Supplm. Pl. 36.
Tetragoneiceps Scotti, G. O. Sars.
- Supplm. Pl. 37.
 1. *Tetragoneiceps* Scotti, G. O. Sars. (continued).
 2. *Phyllopodopsyllus Bradyi*, Scott (male).
- Supplm. Pl. 38.
Pteropsyllus consimilis, Scott.
- Supplm. Pl. 39.
Evansia incerta, Scott.
- Supplm. Pl. 40.
Leptastacus macronyx, Scott.
- Supplm. Pl. 41.
Leptomesochra attenuata, (A. Scott).
- Supplm. Pl. 42.
Leptomesochra tenuicornis, G. O. Sars.
- Supplm. Pl. 43.
Leptomesochra confluens, G. O. Sars.
- Supplm. Pl. 44.
Phyllocamptus minutus, G. O. Sars.
- Supplm. Pl. 45.
Paramesochra dubia, Scott.
- Supplm. Pl. 46.
Laophonte karmensis, G. O. Sars.
- Supplm. Pl. 47.
Pseudolaophonte spinosa, (Thompson).
- Supplm. Pl. 48.
Rhizothrix gracilis, (Scott).
- Supplm. Pl. 49.
Anoplosoma sordidum, G. O. Sars.
- Supplm. Pl. 50.
Stenocaris minor, (Scott).
- Supplm. Pl. 51.
Tachidiopsis cyclopoides, G. O. Sars.
- Supplm. Pl. 52.
Ectinosoma tenuireme, Scott.
- Supplm. Pl. 53.
Neobradya pectinifera, Scott.
- Supplm. Pl. 54.
Amphiaseus simulans, (Scott).

Copepoda

Canthocamptidæ

Harpacticoida

Suppl. Pl. 43.



G.O. Sars, autogr.

Norsk Lithgr. Officin.

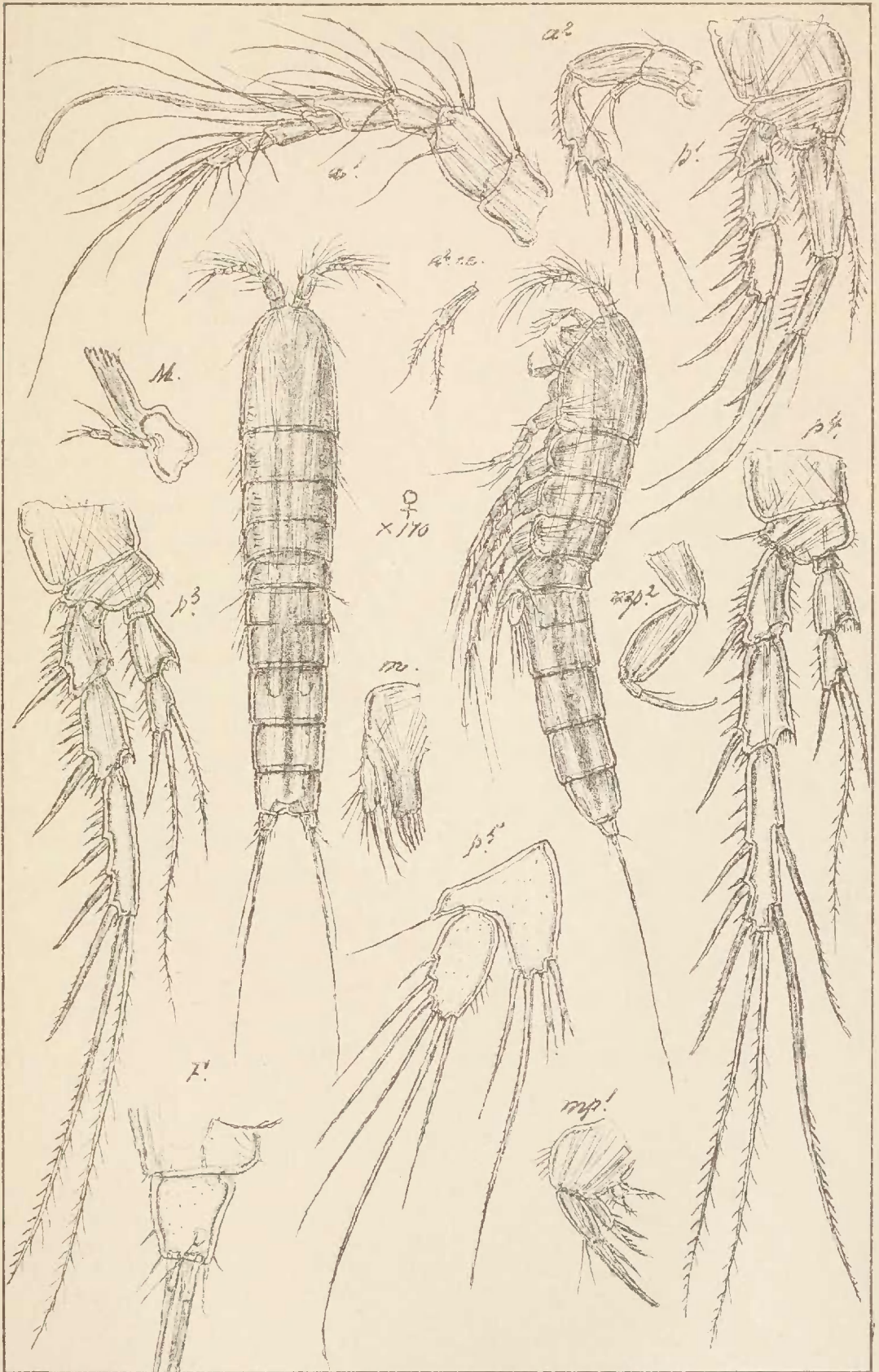
Leptomesochra confluens, G.O. Sars.

Copepoda

Canthocamptidae

Harpacticoida

Suppl. Pl. 44



G.O.Sars, autogr.

Norsk Lithgr. Officin.

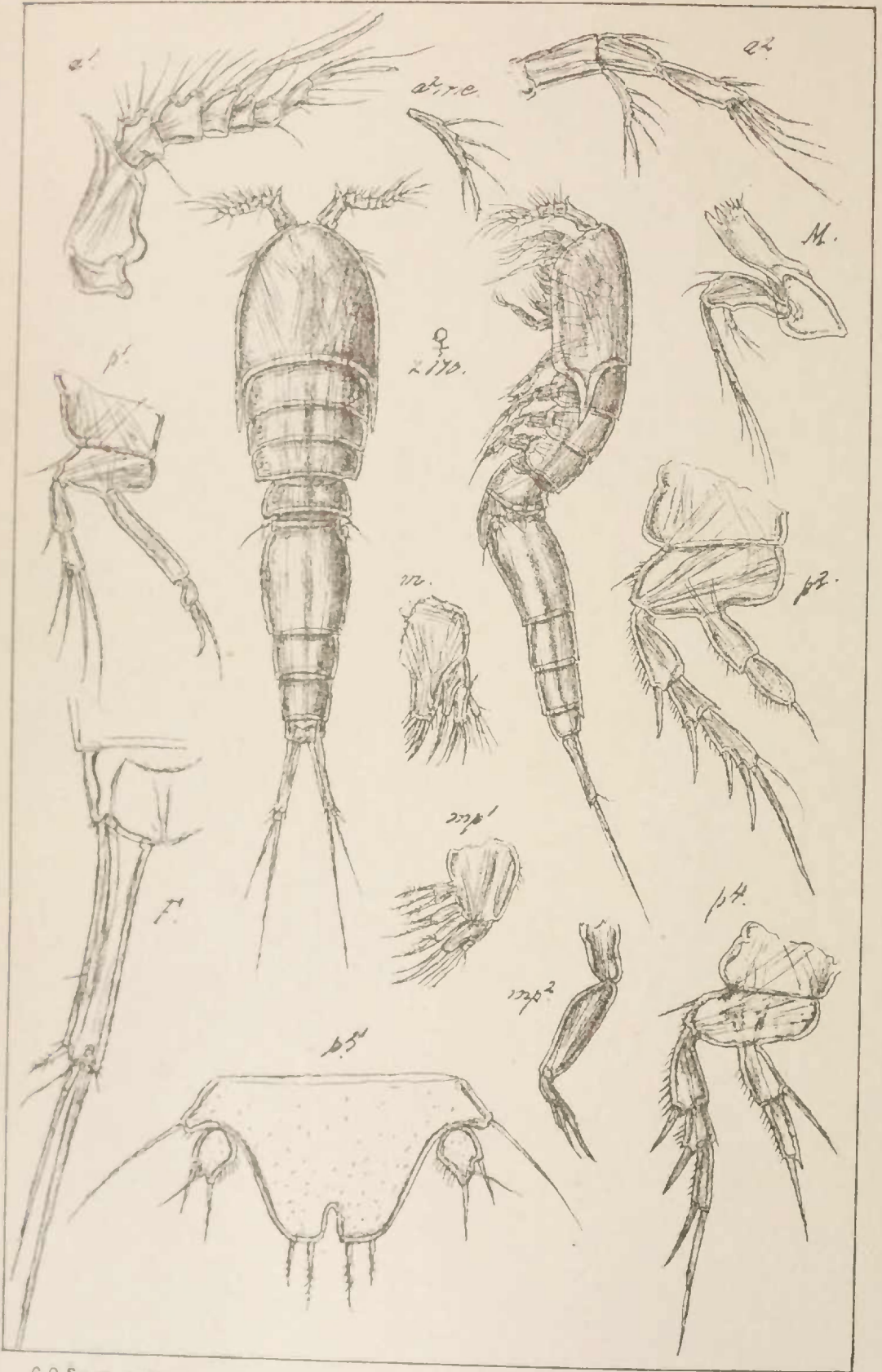
Phyllocamptus minutus, G.O.Sars.

Copepoda

Canthocamptidæ

Harpacticoida

Suppl. Pl. 45.



G.O. Sars, autogr.

Norsk Lithgr. Officin.

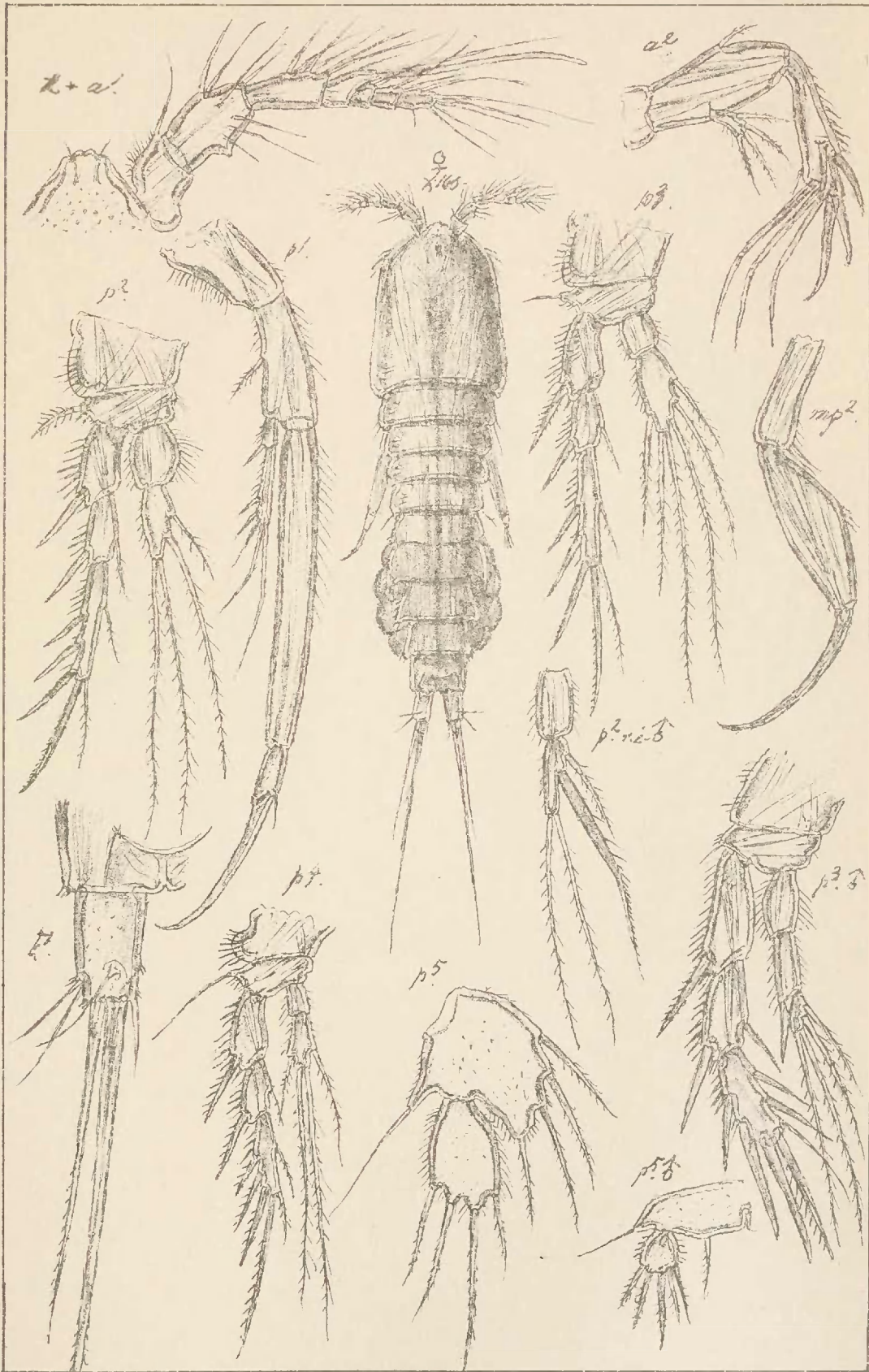
Paramesochra dubia, Scott.

Copepoda

Laophontidæ

Harpacticoida

Suppl. Pl. 46



G.O. Sars, autogr.

Norsk Lithgr. Officin.

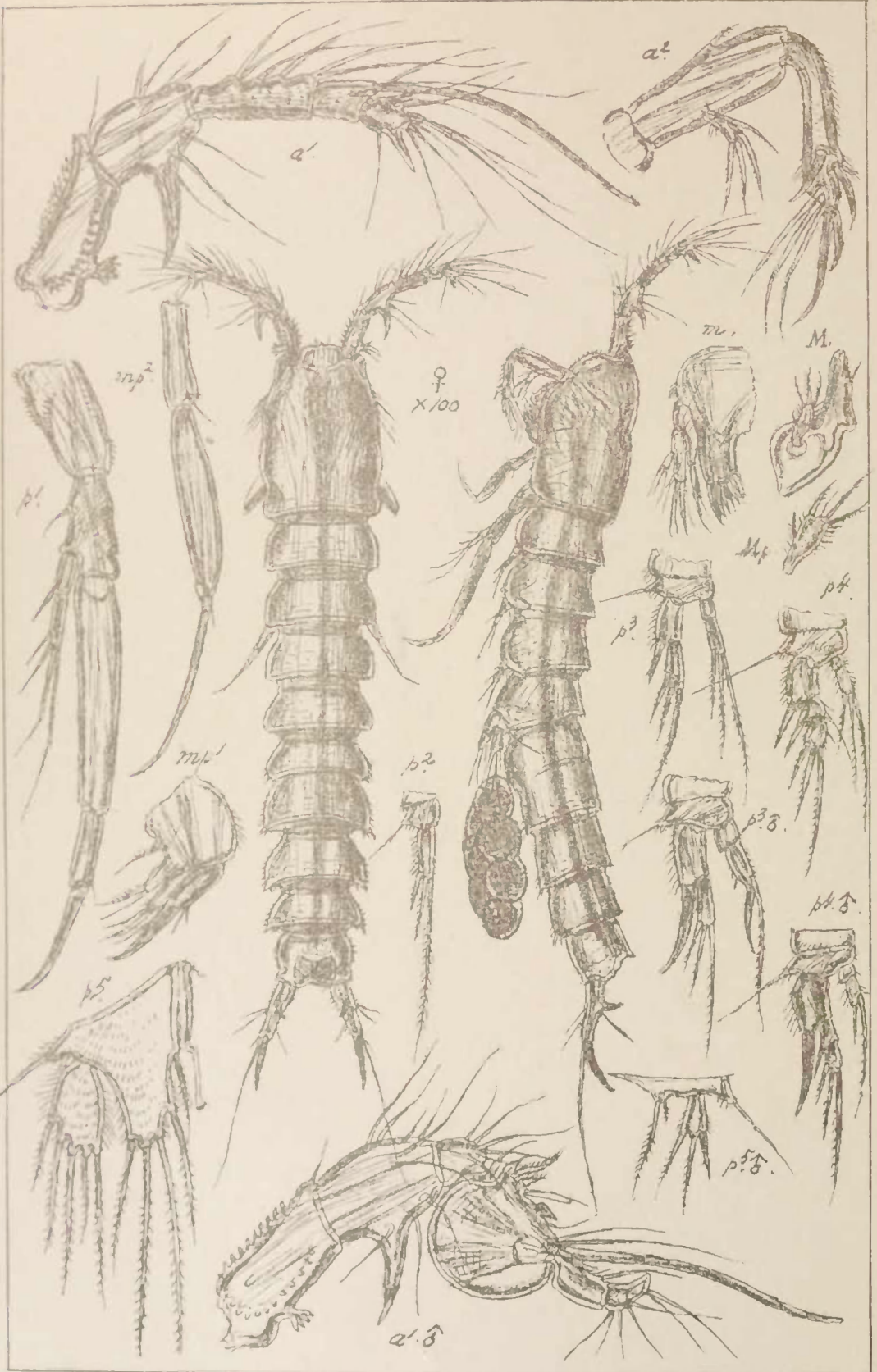
Laophonte karmensis, G.O. Sars.

Copepoda

Laophontidæ

Harpacticoida

Suppl. Pl. 47



G.O. Sars, autogr.

Norsk Lithgr. Officin.

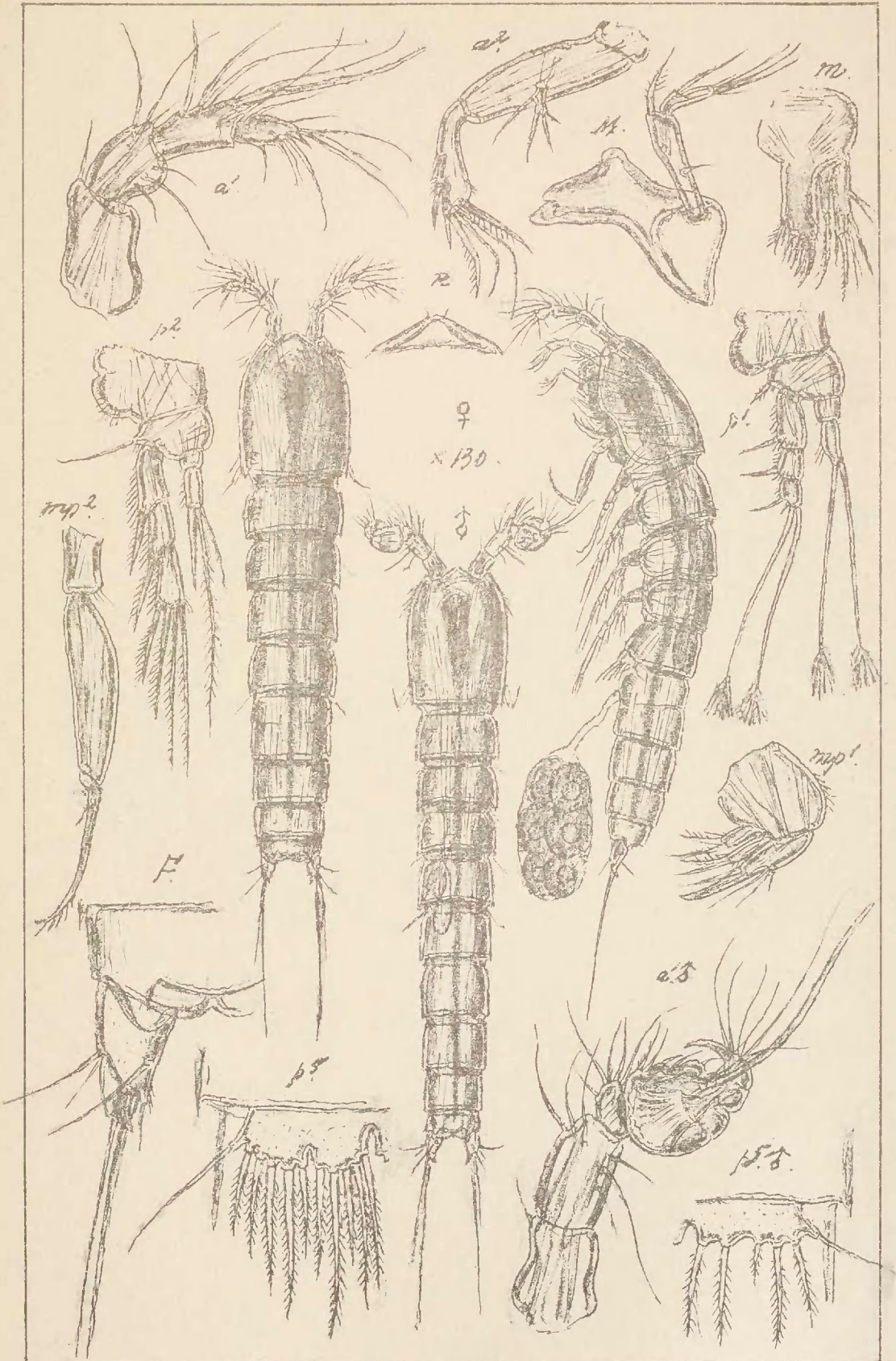
Pseudolaophonte spinosa, (Thomps)

Copepoda

Cletodidæ

Harpacticoida

Suppl. Pl. 48



G.O.Sars, autogr.

Norsk Lithgr. Officin.

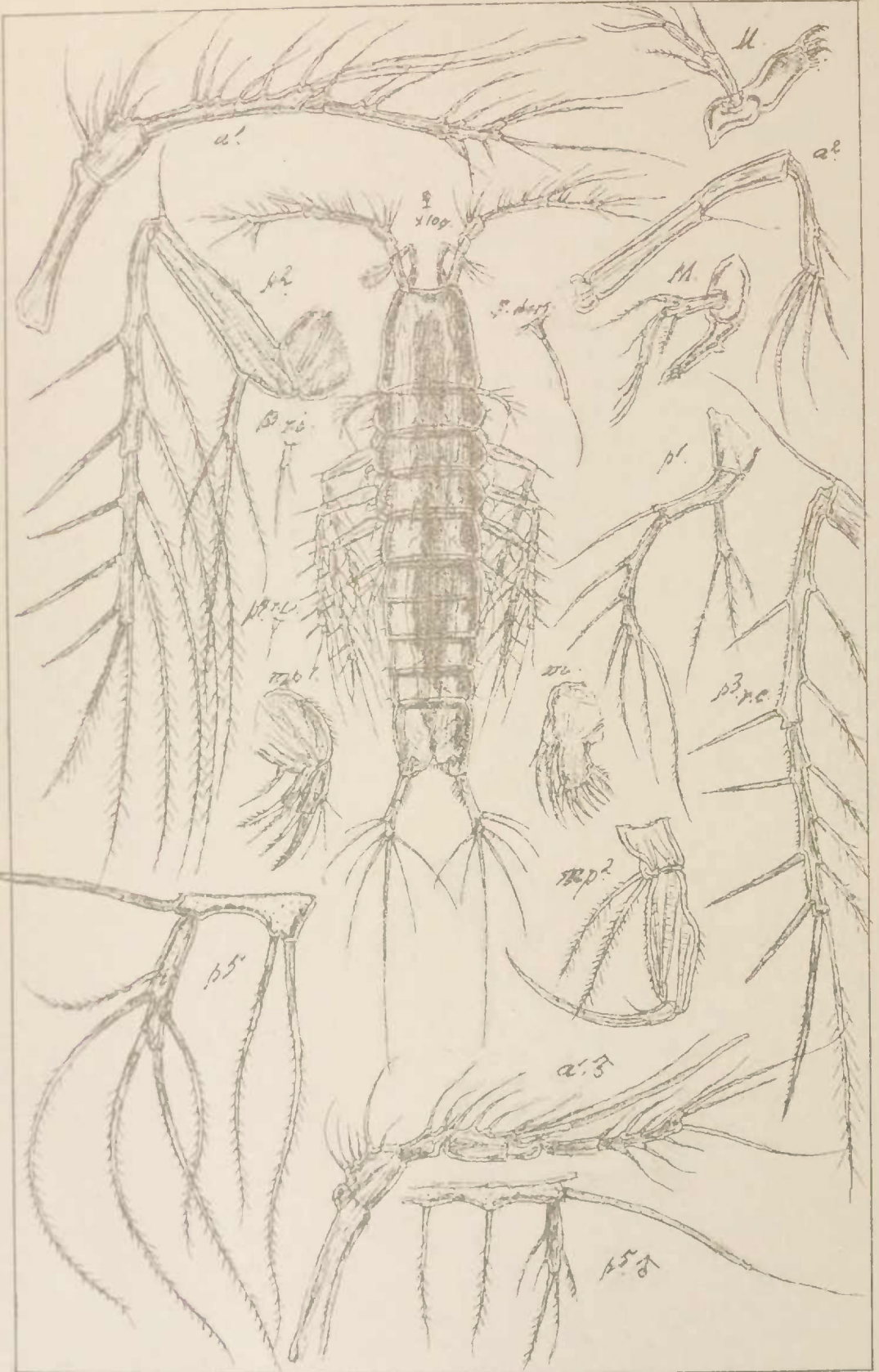
Rhizothrix gracilis, (Scott).

Copepoda

Anchorabolidæ

Harpacticoida

Suppl. Pl. 49.



G.O. Sars, autogr.

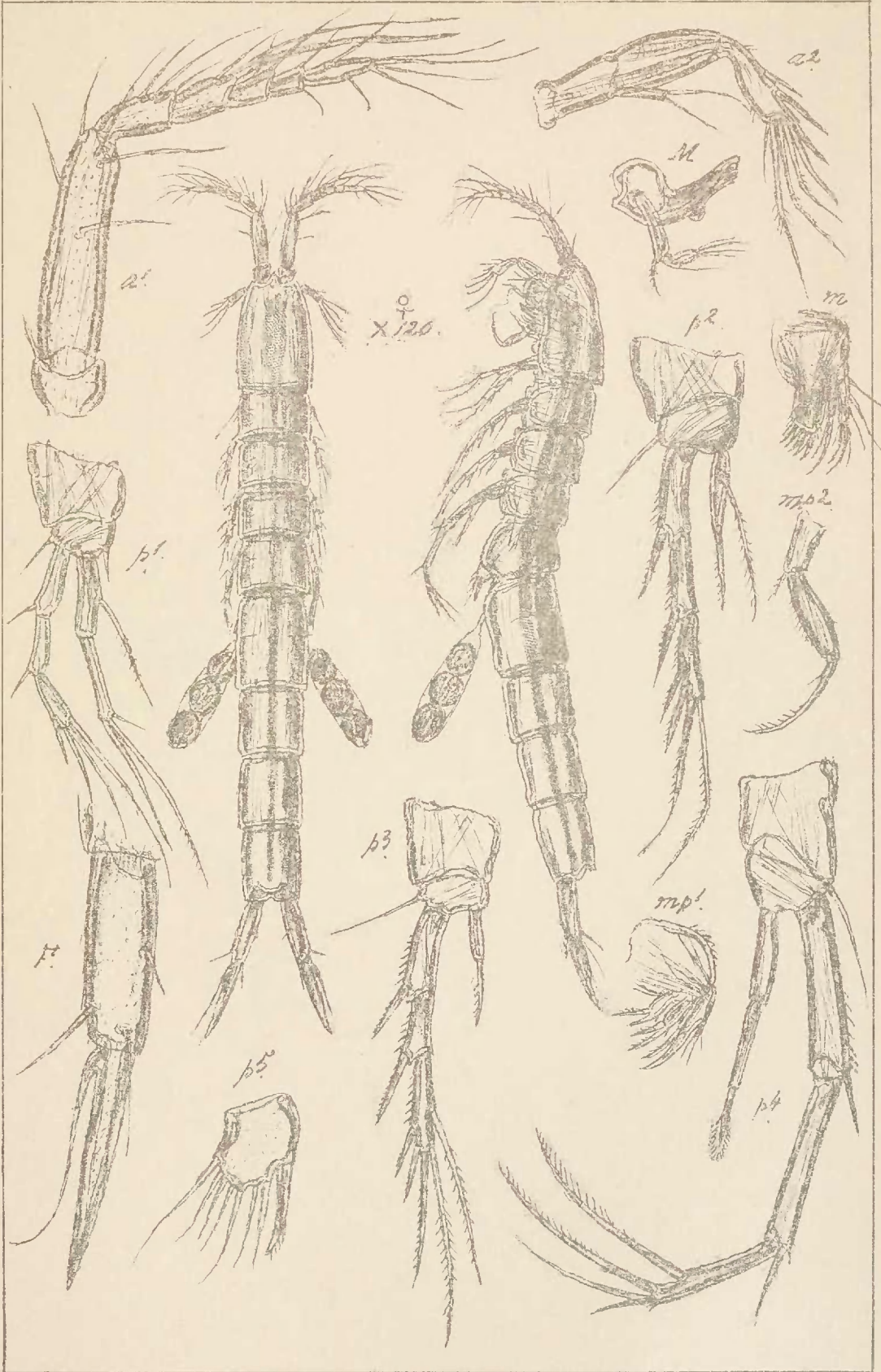
Norsk Lithgr. Officin.

Anoplosoma sordidum, G.O. Sars

Copepoda

Cylindropsyllidæ Harpacticoida

Suppl. Pl. 50



G.O. Sars, autogr.

Norsk Lithgr. Officin.

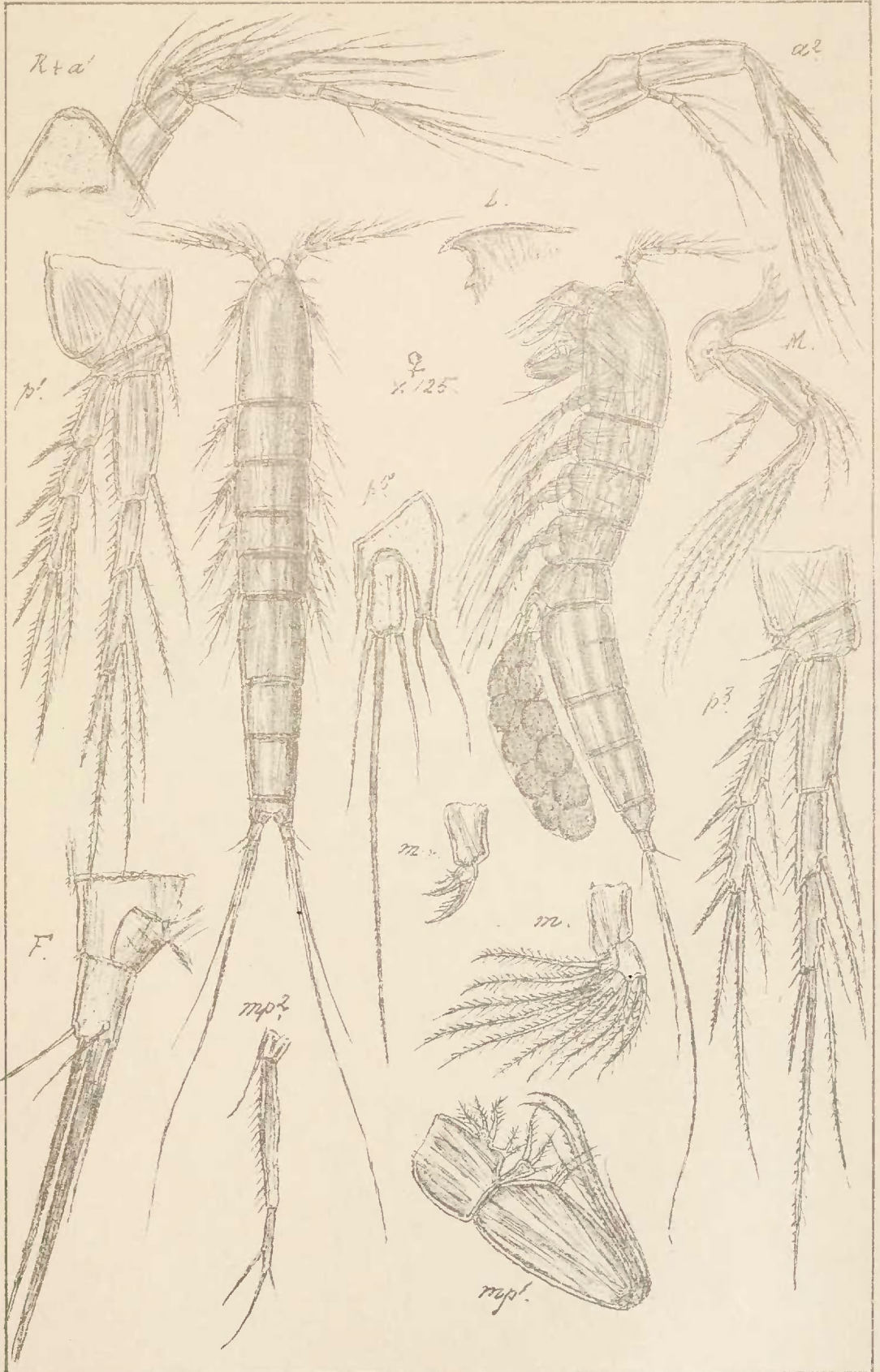
Stenocaris minor, (Scott).

Copepoda

Ectinosomidæ

Harpacticoida

Suppl. Pl. 52



G.O. Sars, autogr.

Norsk Lithgr. Officin.

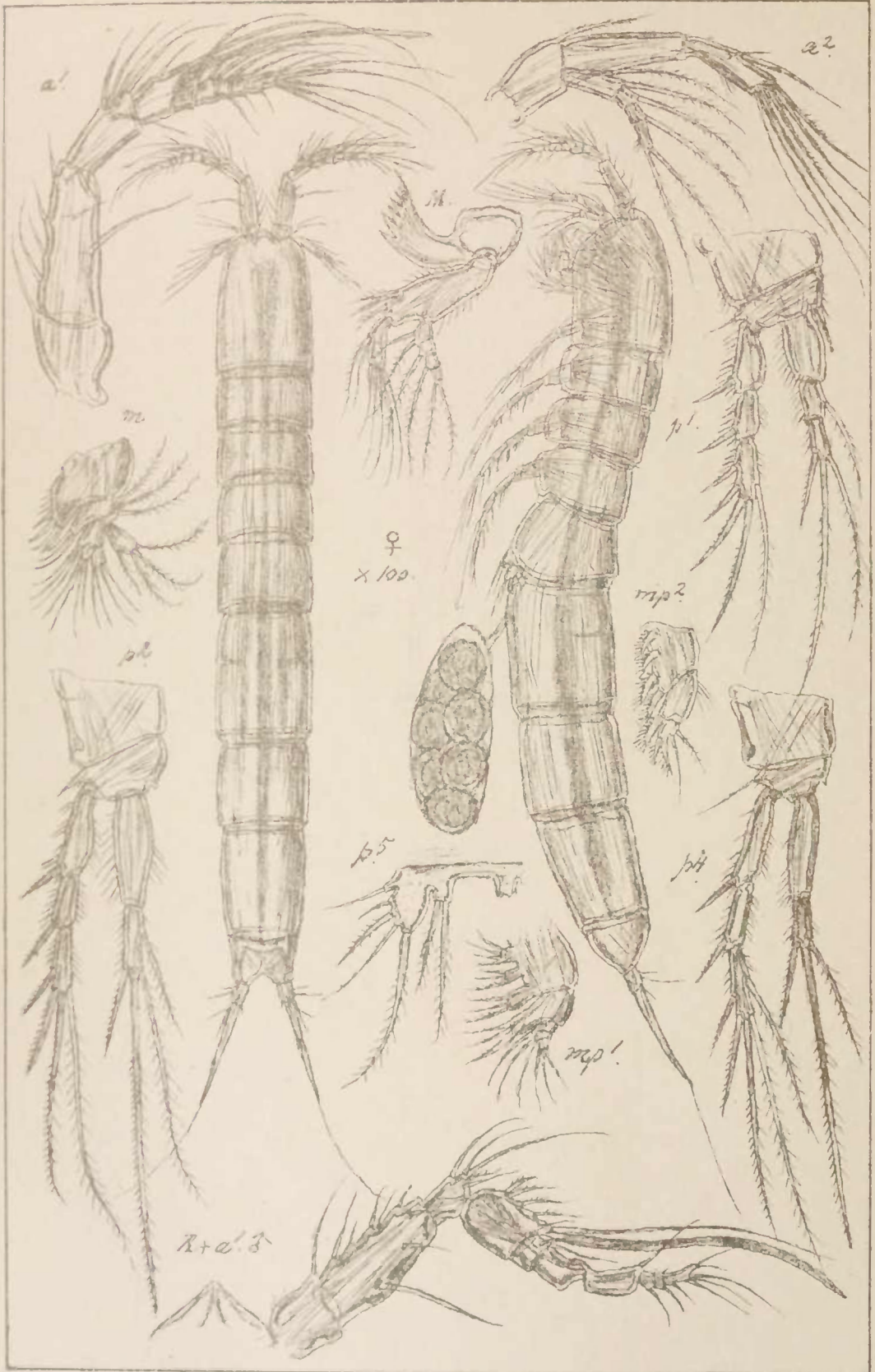
Ectinosoma tenuireme, Scott.

Copepoda

Ectinosomidæ

Harpacticoida

Suppl. Pl. 53



G.O. Sars, autogr.

Norsk Lithgr. Officin.

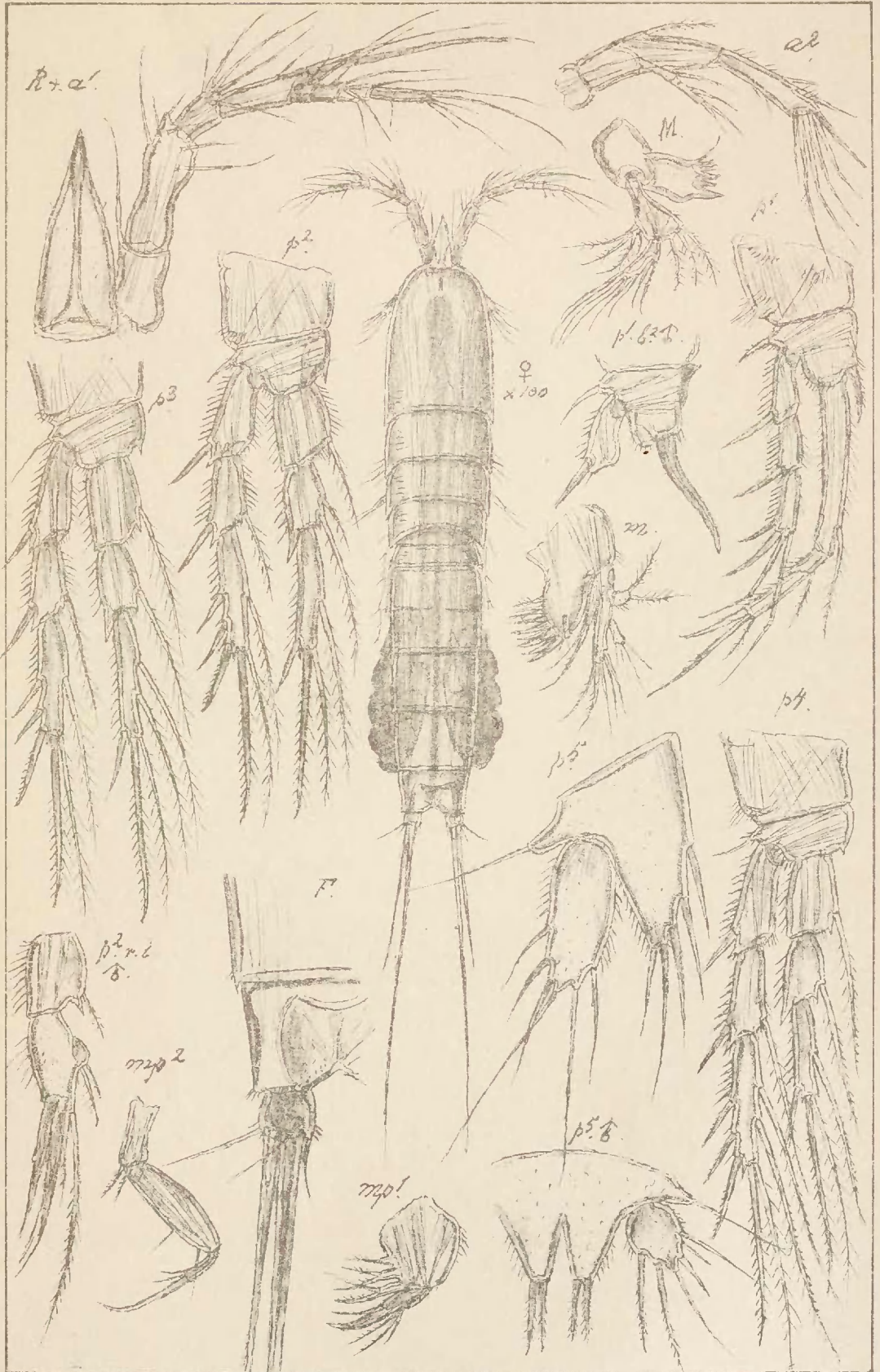
Neobradya pectinifera, Scott.

Copepoda

Diosaccidæ

Harpacticoida

Suppl. Pl. 54



G.O. Sars', autogr.

Norsk Lithgr. Officin.

Amphiascus simulans, Scott.

