

AN ACCOUNT
OF THE
CRUSTACEA
OF
NORWAY

WITH SHORT DESCRIPTIONS AND FIGURES OF ALL THE SPECIES

BY
G. O. SARS

VOL. V

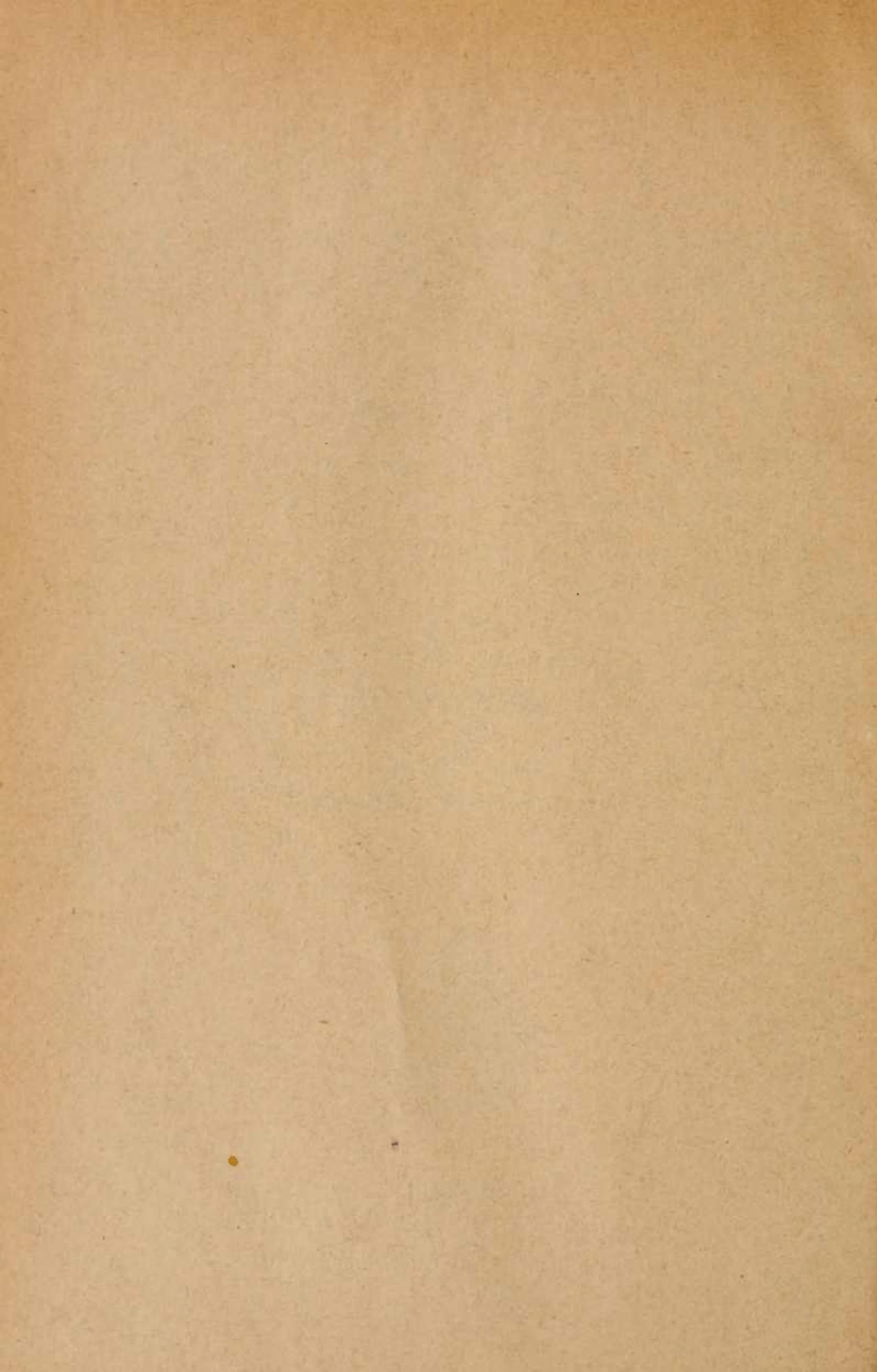
COPEPODA
HARPACTICOIDA

PARTS XXI & XXII
LAOPHONTIDÆ (continued)

WITH 16 AUTOGRAPHIC PLATES



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Male with the inner ramus of 3rd pair of legs transformed in a similar manner to that in the male of *L. depressa*. Last pair of legs very small, with the distal joint rounded, and the inner expansion of proximal joint almost obsolete.

Colour yellowish grey.

Length of adult female 0.55 mm.

Remarks.—This form, first described by Boeck, belongs to the smaller species of the genus. It is moreover easily distinguished from any of the 3 preceding species by the narrow and produced caudal rami, and by the slender form of the posterior maxillipeds and of the legs.

Occurrence.—I have met with this form not unfrequently in many places, both of the south and west coasts of Norway, as also in the Trondhjem Fjord, and Th. Scott also records it from Finmark. It is found in moderate depths, ranging from 6 to 20 fathoms, among algæ.

Distribution.—British Isles (Brady), coast of France (Canu).

155. *Laophonte elongata*, Boeck.

(Pl. CLXII).

Laophonte elongata, Boeck, Nye Slægter og Arter af Saltvandscopepoder. Chr. Vid. Selsk. Forh. 1872, p. 50.

Specific Characters.—*Female.* Body slender and elongated, with the segments sharply marked off from each other, and fringed at the posterior edge with delicate spinules. Cephalic segment comparatively large and deep, with the lower edges strongly curved in the middle; rostral projection of moderate size and truncated at the tip. Urosome nearly as long as the anterior division, lateral expansions of genital segment and the 2 succeeding ones densely setiferous; last segment shorter than the preceding one. Caudal rami exceedingly slender and elongated, almost attaining half the length of the urosome, and scarcely at all divergent, apical setæ of moderate length. Anterior antennæ rather slender, almost attaining the length of the cephalic segment, and composed of 6 articulations only, the last 2 being confluent, 2nd joint the largest and without any projection of the hind edge. Posterior antennæ about as in *L. thoracica*. 1st pair of legs, as in that species, very slender, with the basal part much elongated, outer ramus small and only composed of 2 joints. Natatory legs slender and elongated, resembling in structure those in *L. thoracica*. Last pair of legs with the distal joint considerably narrower than in that species, otherwise of a rather similar structure.

Colour pale yellowish, with scattered orange patches along the sides of urosome; ovaria dark green.

Length of adult female 0.60 mm.

Remarks.—This form is nearly allied to *L. thoracica*, though easily distinguishable by its more slender body, and especially by the very narrow and elongated caudal rami, which moreover are not divergent, as in that species, but extended straight behind. Of the structural details, the biarticulate outer ramus of the 1st pair of legs and the very narrow distal joint of the last pair in the female may be mentioned as well-marked distinguishing characters. The form recorded by Th. Scott from Franz Josef Land as *L. longicaudata* Boeck, seems to be the present species, as the outer ramus of the 1st pair of legs is indicated to be biarticulate.

Occurrence.—I have found this form occasionally in several localities both of the south and west coasts of Norway in moderate depths among algæ.

Distribution.—Frans Josef Land (Scott).

156. *Laophonte typhlops*, G. O. Sars, n. sp.

(Pl. CLXIII).

Specific Characters.—*Female.* Body moderately slender, with the segments sharply marked off from each other. Cephalic segment rather broad, though comparatively shorter than in *L. elongata*, rostral projection obtusely rounded at the tip. Urosome shorter than the anterior division, lateral expansions of genital segment and the 2 succeeding ones well marked and finely setous; last segment about the length of the preceding one. Caudal rami rather produced, considerably exceeding in length the last segment, slightly divergent and attenuated distally, apical setæ very slender, the longest of them almost attaining the length of the whole body. Eye wholly absent. Anterior antennæ slender and elongated, being fully as long as the cephalic segment, and distinctly 7-articulate. Posterior antennæ with the distal joint long and narrow, outer ramus well developed, about half the length of the proximal joint. 1st pair of legs with the basal part less narrow than in the 2 preceding species, outer ramus distinctly 3-articulate and exceeding half the length of the 1st joint of the inner, the latter much longer than the basal part. Natatory legs with the rami long and slender, 1st joint of inner ramus provided inside with a well-marked seta. Last pair of legs comparatively large, distal joint, however, extremely narrow, sublinear, tip conically produced; inner expansion of proximal joint narrowly exerted at the tip, marginal setæ 5 in number, 2 of them issuing from the tip, proximal seta of inner edge attached at rather a long distance from the others close to the base.

Male with the anterior antennæ hinged in the usual manner, but having the last joint of the proximal part only slightly dilated. Inner ramus of 3rd pair of legs only differing from that in female in the seta of the outer edge being transformed to a short spine. Last pair of legs, as usual, much smaller than in female, distal joint narrow fusiform; inner expansion of proximal joint very slight, with a single seta.

Colour whitish, pellucid.

Length of adult female 0.64 mm.

Remarks.—In most of the structural details the present form closely agrees with a species recently described by Th. Scott as *L. longiremis*. It is however very conspicuously distinguished from that species by the much more produced caudal rami. In *L. longiremis*, both according to the figures and the description given by Scott, these rami are comparatively short, not exceeding in length the last segment, whereas in the present species they are almost twice as long and much more slender in form. Another character distinguishing this species is the total absence of any visual organ, a feature which has given rise to the specific name here proposed.

Occurrence.—Some few specimens of this form were found in the summer 1906 at Flekkerö, south coast of Norway, in a depth of about 20 fathoms.

157. *Laophonte longicaudata*, Boeck.

(Pl. CLXIV).

Laophonte longicaudata, Boeck, Oversigt over de ved Norges Kyster iagttagne Copepoder. Chr. Vid. Selsk. Forhandl. 1864, p. 279.

Syn.: *Laophonte Hodgei*, Brady.

Specific Characters.—*Female.* Body rather slender, with the segments of the anterior division less sharply marked off from each other than in the preceding species. Cephalic segment large and contracted in front, rostral projection strongly prominent and somewhat curved as the tip, which is minutely trilobate. Urosome with the lateral expansions of the anterior segments rather slight and only sparingly setous; last segment about the length of the preceding one. Caudal rami very long and slender, equalling in length the last 2 segments combined, and extending straight behind, apical setæ comparatively short. Anterior antennæ scarcely exceeding half the length of the cephalic segment, and distinctly 7-articulate, 2nd joint the largest and exhibiting in the middle behind a short denticulate projection. Posterior antennæ of rather feeble structure, outer ramus well developed. 1st pair of legs less robust than in most other species, outer ramus

3-articulate, and exceeding half the length of the 1st joint of the inner, the latter about the length of the basal part, terminal claw very slender. Natatory legs well developed, with the inner ramus larger and broader than in most other species, its proximal joint only in the 4th pair setiferous. Last pair of legs comparatively small, distal joint narrow oval in form, with the inner edge straight; inner expansion of proximal joint short and broad, with 5 marginal setæ, the apical one the longest.

Male with the inner ramus of 3rd pair of legs transformed in the usual manner. Last pair of legs very small, distal joint well defined and somewhat widening towards the end, with 4 marginal setæ; inner expansion of proximal joint almost obsolete.

Body in female of whitish colour, with 3 light orange transversal bands, the 1st across the cephalic segment, the 2nd occupying the posterior part of the genital segment, the 3rd the anal segment.

Length of adult female 0.73 mm.

Remarks.—This form, first recorded under the above name by Boeck, is a very distinct species, easily distinguished by its slender form of body, the greatly prominent rostral projection, and the long and narrow caudal rami. In the living state it is also readily recognized by its peculiar and beautiful colouring.

Occurrence.—I have met with this form occasionally off the west coast of Norway, as also in the Trondhjem Fjord, in moderate depths among algæ.

Distribution.—British Isles (Brady).

158. *Laophonte similis* (Claus).

(Pl. CLXV).

Cleta similis, Claus, Die Copepoden-Fauna von Nizza, p. 20, Pl. V, figs. 13, 14.

Syn: *Laophonte setosa*, Boeck.

„ — *affinis*, Boeck.

Specific Characters.—*Female.* Body rather slender, with the segments of the anterior division not very sharply marked off from each other. Cephalic segment of moderate size, with the rostral projection short and broad, obtusely rounded at the tip. Urosome almost as long as the anterior division, lateral expansions of the segments not much prominent, last segment shorter than the preceding one. Caudal rami rather produced, exceeding in length the anal segment, and scarcely at all divergent, apical setæ much elongated. Anterior antennæ rather slender, almost attaining the length of the cephalic segment, and only composed of 6 ar-

ticulations, the outer 2 being confluent, 2nd joint somewhat shorter than 3rd, with a small nodiform projection in the middle behind. Posterior antennæ with the outer ramus comparatively short, but of usual structure. 1st pair of legs much stronger than in *L. longicaudata*, with the inner ramus rather elongated, outer ramus about half the length of the 1st joint of the inner, and only composed of 2 joints, the distal one very slender, linear in form. Natatory legs well developed and of normal structure, proximal joint of inner ramus in all of them without any seta inside. Last pair of legs of moderate size, distal joint oblong oval in form and densely ciliated on both edges, marginal setæ 5 in number, the apical one very slender, hair-like; inner expansion of proximal joint linguiform, extending somewhat beyond the middle of the distal joint, marginal setæ 4 in number, the outermost but one much the longest. Ovisac rounded oval in form.

Male with the inner ramus of 3rd pair of legs transformed in the usual manner. Last pair of legs very small, with the distal joint quite short and only provided with 4 setæ, the innermost rather strong, spiniform; inner expansion of proximal joint almost obsolete, though carrying a single well-developed seta.

Colour dark yellowish.

Length of adult female 0.90 mm.

Remarks.—This form was first described by Claus under the name of *Clela similis*, and was subsequently also recorded by Prof. Brady. Boeck, however, did not recognise the species, but described it under another name, viz., *L. setosa*. The form subsequently named by the same author *L. affinis* is scarcely different from that species. On the other hand, is the form described by Canu as *L. similis* evidently not that species, as clearly shown by the very different structure of the anterior antennæ and the last pair of legs. The present form is one of the larger species of the genus, and may be easily recognised by its slender and graceful body and the very long caudal setæ.

Occurrence.—I have met with this form not unfrequently in the upper part of the Christiania Fjord, as also occasionally off the south and west coasts of Norway in moderate depths among algæ.

Distribution.—Mediterranean at Nizza (Claus), British Isles (Brady), ? Franz Josef Land (Scott).

159. *Laophonte horrida*, Norman.

(Pl. CLXVI & CLXVII).

Laophonte horrida, Norman, Report of the "Valorous" Expedition. Proceed. Royal Soc. London 1876, p. 206.Syn: *Clela minuticornis*, Buehholz.

Specific Characters.—*Female.* Body elongated, with all the segments very sharply marked off from each other by deep strictions. Cephalic segment, seen dorsally, almost quadrangular in form, dorsal face produced behind into a strong backwards-curving spiniform projection. Rostrum strongly prominent, conspicuously constricted at the base, and exhibiting on each side in the middle an angular ledge carrying a delicate bristle, terminal part linguiform, with the tip narrowly rounded. The 4 succeeding segments angularly produced laterally, and each carrying dorsally 2 juxtaposed strong denticulated spines curving backwards; hind edge of the segments coarsely spinulose, except between the 2 dorsal spines. Urosome almost as long as the anterior division, the 2 divisions of the genital segment and the succeeding segment each with 2 dorsal spines similar to those on the anterior division, but more closely juxtaposed; lateral parts of these segments triangularly expanded and densely setiferous. Penultimate segment with the posterior edge divided dorsally in the middle into 4 peculiar spines, branching in a hand-like manner; last segment simple and shorter than the preceding one. Caudal rami rather produced, considerably longer than the anal segment, and each carrying a very strong, almost spiniform apical seta exceeding in length the urosome, the other setæ small and hair-like. Anterior antennæ rather slender, exceeding in length the cephalic segment (without the rostrum), and 6-articulate, 2nd joint the largest, and provided at the hind edge beyond the middle with a small nodiform projection, 3rd joint exceeding in length the outer 3 joints combined. Posterior antennæ strongly developed, being fully as long as the anterior ones, outer ramus of normal structure. Posterior maxillipeds comparatively large, with the basal part narrow, hand fusiform in shape, dactylus much elongated and curved at the end. 1st pair of legs slender and elongated, with the 2nd basal joint very narrow, outer ramus small and only consisting of 2 joints; inner ramus with the proximal joint quite smooth, and somewhat exceeding in length the 2nd, basal joint, apical claw long and slender. Natatory legs with both rami very narrow, distal joint of inner ramus provided in the 2nd and 4th pairs with 3, in the 3rd pair with 4 setæ, none of which issue from the outer edge. Last pair of legs of moderate size, distal joint however very small and somewhat obliquely truncated at the end, with only 3 setæ; inner expansion of proximal joint rather

broad at the base, but narrowly exerted at the tip, extending beyond the distal joint, marginal setæ 4 in number.

Male almost of same size as the female, but of more slender form. Anterior antennæ strongly linged, with the last joint of the proximal part considerably dilated, distal part terminating in a claw-like point. Outer ramus of 3rd pair of legs very powerfully developed, with all the joints considerably thickened and having the spines very coarse, setæ of inner edge short and spiniform; inner ramus transformed in the usual manner. 4th pair of legs likewise with the outer ramus much coarser than in female and with the setæ of the inner edge spiniform. Last pair of legs very small, with the inner expansion of proximal joint obsolete.

Colour dark yellowish brown.

Length of adult female 1.30 mm.

Remarks.—This remarkable form was first described by Buchholtz from the German Arctic Expedition, but was erroneously identified with Müller's *Cyclops minuticornis*, for which reason Norman proposed for it a new specific name, viz., *horrida*. It is one of the largest species of the genus, and is moreover easily recognised by the strong spinous armature of the body, which latter character has given rise to the specific name proposed by Norman.

Occurrence.—I have found this form rather abundantly in the upper part of the Christiania Fjord in a depth of from 10 to 20 fathoms, muddy bottom. It also occurs occasionally both of the south and west coasts of Norway at least up to the Trondhjem Fjord, and Th. Scott records it moreover from the Finnmark coast. The specimens are in most cases so densely coated with mud, that the peculiar spinous armature of the body is only faintly traced. In some cases, however, the body appears cleaner, so as to reveal the regular arrangement of the spines more clearly. The movements of the animal are rather clumsy, and, as in most other species, are effected in a somewhat jerking manner.

Distribution.—British Isles (Brady), Greenland (Buchholtz), Polar islands north of Grinnels Land (2nd Fram Expedition), Franz Josef Land (Scott), off Bear Island and Spitsberg (Scott).

160. *Laophonte brevispinosa*, G. O. Sars, n. sp.

(Pl. CLXVIII).

Specific Characters.—*Female.* Body resembling in its general form that of the preceding species, and having a rather similar dorsal armature. Cephalic segment, however, somewhat different in shape, bulging considerably to each side in its posterior part, and having the lower edges produced in front to rounded

projecting lobes; dorsal process much shorter than in *L. horrida*. Rostrum rather narrow, being scarcely at all dilated in the middle, tip minutely bilobate. The 4 succeeding segments rounded laterally, dorsal spines very short and perfectly smooth, edges of the segments not spinulose. Urosome with the lateral expansions of the anterior segments less produced, dorsal spines larger than those of the anterior division; penultimate segment with the hind edge divided dorsally in the middle into 2 well-defined branching appendages, to each side of which 3 densely crowded simple spines occur. Caudal rami resembling in form and structure those in *L. horrida*. Anterior antennæ, as in that species, very slender and 6-articulate, 2nd joint however quite simple, without any projection of the hind edge, 3rd joint shorter than the 3 outer joints combined. Posterior antennæ less robust than in *L. horrida*, not attaining the length of the anterior ones, outer ramus very narrow. 1st pair of legs likewise of feebler structure, with the proximal joint of the inner ramus scarcely longer than the 2nd basal joint, outer ramus, as in *L. horrida*, biarticulate. Natatory legs about as in that species. Last pair of legs rather small, with the distal joint almost transversely truncated at the tip; inner expansion of proximal joint not extending beyond the distal joint; number of setæ on both joints as in the preceding species.

Male with the outer rami of 3rd and 4th pairs of legs far less robust than in *L. horrida*, setæ of inner edge not transformed.

Colour dark brownish grey.

Length of adult female about 1 mm.

Remarks.—This form looks very like the preceding species, and may easily be confounded with it. On a closer examination, it is however found to differ very markedly in some points, both as regards the armature of the body and the structure of the appendages.

Occurrence.—I have hitherto only met with this form in 2 localities, viz., Hvalør, at the entrance of the Christiania Fjord, and at Lillesand, south coast of Norway. In both localities it occurred on a muddy bottom, in a depth of about 10 fathoms.

161. *Laophonte Koreni*, Boeck.

(Pl. CLXIX).

Laophonte Koreni, Boeck, Nye Slægter og Arter af Saltvandscopepoder. Chr. Vid. Selsk. Forhandl. 1872, p. 51.

Specific Characters.—*Female.* Body comparatively short and broad, conspicuously depressed, with the segments sharply marked off from each other.

Cephalic segment about the length of the 4 succeeding segments combined, and slightly contracted in front; rostral projection not much prominent and triangular in form, tip narrowly rounded. The 3 succeeding segments with the lateral parts rounded off and densely setiferous. Urosome much shorter than the anterior division, all the segments, except the last, with well-marked lateral expansions densely fringed with delicate bristles. Caudal rami short and thick, of rounded quadrangular form, and somewhat divergent, being clothed inside with hair-like spinules partly arranged in transversal rows, apical setæ slender and divergent. Anterior antennæ of moderate length and somewhat thickened at the base, 7-articulate, with the 3rd joint the longest. Posterior antennæ rather stout, with the outer ramus of normal structure. Posterior maxillipeds powerfully developed. 1st pair of legs likewise rather strong, with the 2nd basal joint comparatively broad, bulging considerably inside, outer ramus distinctly 3-articulate, and exceeding half the length of the 1st joint of the inner, the latter fully as long as the basal part, and ciliated on the inner edge, apical claw strong and curved at the tip. Natatory legs well developed, inner ramus however comparatively short, with only 4 setæ on the terminal joint. Last pair of legs with the distal joint rather large and oblong oval in form, carrying 5 comparatively short setæ, that issuing from the conically produced tip very thin, hair-like; inner expansion of proximal joint only slightly produced, with 5 marginal setæ, the outer 2 closely juxtaposed and smaller than the others. Ovisac large, rounded oval in form.

Male with the anterior antennæ strongly hinged, last joint of proximal part almost globose, terminal part armed at the base outside with a strong claw-like projection. 3rd and 4th pairs of legs very conspicuously transformed, outer ramus in both pairs much stronger than in female, with the spines considerably thickened; inner ramus of 3rd pair only biarticulate, distal joint produced outside to a short triangular projection, and carrying on the tip 2 unequal setæ; inner ramus of 4th pair reduced to a small nodiform joint carrying 2 thickish diverging setæ. Last pair of legs, as usual, much smaller than in female, distal joint slightly widening towards the end and provided with 4 setæ only; inner expansion of proximal joint almost obsolete, though carrying 2 small setæ.

Colour light yellowish grey.

Length of adult female 0.70 mm.

Remarks.—This form, first recorded by Boeck under the above name, may be easily recognised by its broad depressed body, the sharp demarcation of the segments, and the long diverging caudal setæ. The transformation of the inner rami of the 3rd and 4th pairs of legs in the male is rather unlike that generally met with in the present genus.

Occurrence.—I have found this form occasionally in the upper part of the Christiania Fjord, as also off the west coast of Norway in moderate depths among algae. Out of Norway it has not yet been recorded.

162. *Laophonte proxima*, G. O. Sars, n. sp.

(Pl. CLXX).

Specific Characters.—*Female.* Body more slender than in the preceding species, though, as in that form, conspicuously depressed, with the segments sharply marked off from each other. Cephalic segment about as in *L. Koreni*: the 3 succeeding segments however more angular and less densely setous. Urosome rather short, and having the lateral expansions of the segments less produced. Caudal rami comparatively longer than in *L. Koreni* and gradually tapering distally, apical setæ less divergent. Anterior antennæ more slender, with the 2nd and 3rd joints of about equal length. Posterior antennæ resembling in structure those in *L. Koreni*. 1st pair of legs somewhat less robust than in that species, otherwise of a very similar structure. Natatory legs also rather similar, except that the distal joint of the inner ramus in the 3rd pair of legs has 5 setæ, and that the outer ramus of the 4th pair is somewhat shorter and stouter. Last pair of legs differing more conspicuously from those in *L. Koreni*, the distal joint being much shorter and broader, obliquely oval in form, and very densely hispid, marginal setæ 6 in number, 2 of them on the outer edge closely juxtaposed.

Colour not yet ascertained.

Length of adult female 0.84 mm.

Remarks.—The present form is closely allied to *L. Koreni*, differing however in the more slender form of the body, as also in some of the structural details, for instance in the shape of the distal joint of the last pair of legs. Only the female sex is as yet known.

Occurrence.—Some few specimens of this form were picked up from a sample taken at Kopervik, west coast of Norway, from moderate depth.

163. *Laophonte Strömi* (Baird).

(Pl. CLXXI & CLXXII).

Canthocamptus Strömii, Baird, Brit. Entomostraca, p. 208, Pl. XXVII, fig. 3 (not Lilljeborg, nor *Dactylopus Strömi* Claus).Syn: *Laophonte curticauda*, Brady (not Boeck).

Specific Characters.—*Female.* Body rather slender, gradually attenuated behind, with the segments well marked off from each other. Cephalic segment of moderate size, with the rostral projection very short and rounded at the tip. Urosome with the anterior segments slightly expanded laterally, last segment about the length of the preceding one. Caudal rami about twice as long as they are broad, smooth, with the tip transversely truncated, apical setæ slender and elongated. Anterior antennæ rather slender, almost as long as the cephalic segment, and distinctly 7-articulate. Posterior antennæ with the stem itself of normal structure, outer ramus however very small, and having the setæ imperfectly developed. 1st pair of legs with the outer ramus 3-articulate, and exceeding half the length of the proximal joint of the inner, the latter rather strong and ciliated on both edges. Natatory legs well developed, with the normal number of spines and setæ. Last pair of legs of moderate size, distal joint rather broad and obliquely oval in form, with 6 marginal setæ, the innermost of which is quite short and arising from a nodiform projection bordered inside by a strongly chitinized rim; inner expansion of proximal joint rather broad, but scarcely extending beyond the middle of the distal joint, marginal setæ 5 in number, the outermost one very small. Ovisac large, oval in form.

Male somewhat smaller than female, and having the 2 anterior free segments of metasome considerably larger than the 2 succeeding ones. Urosome much narrower than in female, almost cylindrical in form, with the segments scarcely at all expanded laterally. Anterior antennæ very powerfully developed and strongly hinged, with the last joint of the proximal part globularly dilated, distal part biarticulate and terminating in a sharp point. 2nd and 3rd pairs of legs conspicuously transformed and much larger than in female, with the outer rami very powerful, their terminal joint more or less incurved and having the spines largely developed and divergent, setæ of inner edge much reduced in size. Inner ramus of 2nd pair with the proximal seta of the distal joint transformed to a spine-like appendage pointing straight inwards and terminating in a hamiform point; that of 3rd pair biarticulate, with the distal joint much dilated and produced outside to a short and thick spiniform projection flanked at the base with a row of 4 strong denticles, marginal setæ 4 in number, 2 of them issuing from the

somewhat produced tip. 4th pair of legs of exactly same structure as in the female. Last pair of legs very much reduced, distal joint obsolete, and replaced by 3 hair-like setæ.

Colour light yellowish.

Length of adult female 0.88 mm., of male 0.77 mm.

Remarks.—This is in my opinion the form originally recorded by Baird as *Canthocamptus Strömi*. Prof. Lilljeborg described under this name a very different form, which subsequently was named by Boeck *Mesochra Lilljeborgi*, and Prof. Claus identified Baird's species with another Harpacticoid belonging to the genus *Dactylopusia*. Though the identification of Claus has been admitted by all subsequent authors, I have felt justified to reject also this identification as erroneous, and have accordingly recorded Claus's species under a new name, viz., *Dactylopusia vulgaris*. Indeed, the figures given by Baird clearly show his species to belong neither to the genus *Mesochra* nor to *Dactylopusia*, but quite certainly to the genus *Laophonte*, and, as the present form is one of the commoner littoral species and on the whole agrees in its general appearance pretty well with Baird's figure, it is very likely to believe it to be the true Bairdian species.

Occurrence.—Off the west coast of Norway this form occurs rather abundantly in the littoral region among algæ, as also occasionally in tidal pools. On the other hand, I have not met with it off the south coast or in the Christiania Fjord, where it is replaced by 2 nearly-allied species, to be described below.

Distribution.—British Isles (Baird, Brady), Franz Josef Land (Scott).

164. *Laophonte curticauda*, Boeck.

(Pl. CLXXIII).

Laophonte curticauda, Boeck, Oversigt over de ved Norges Kyster iagttagne Copepoder. Chr. Vid. Selsk. Forhandl. 1864, p. 278 (not Brady).

Specific Characters.—*Female.* Very like the preceding species as to its external appearance, but of smaller size and somewhat less slender form of body. Rostral projection, as in the said species, very short and obtuse at the tip. Caudal rami of a similar form to those in *L. Strömi*, but densely covered with small adpressed spikes, apical setæ long and slender. Anterior antennæ comparatively less elongated than in that species, 7-articulate. Posterior antennæ with the outer ramus well developed and of quite normal appearance, carrying 4 distinctly ciliated setæ. 1st pair of legs of moderate size and resembling in structure those in *L. Strömi*. Natatory legs likewise of a very similar structure, except that the

distal joint of the inner ramus in 3rd and 4th pairs has only 3 setæ, and that the terminal joint of the outer ramus in 4th pair is shorter, with only 3 spines. Last pair of legs differing more conspicuously, distal joint much smaller and oval in form, with only 5 setæ, the innermost one quite normal; inner expansion of proximal joint less broad, but rather prominent, extending as far as the distal joint; marginal setæ 4 in number, the outermost but one much longer than the others.

Male with the 2nd pair of legs scarcely at all transformed, having only the rami somewhat more elongated than in female. 3rd pair, on the other hand, very unlike those in the female, the outer ramus being exceedingly powerful and incurved, with the spines strongly developed and the setæ of the inner edge spini-form; inner ramus distinctly 3-articulate, with the middle joint produced outside to a mucroniform process. 4th pair of legs likewise somewhat transformed, having the outer ramus considerably more strongly built than in female. Last pair of legs very small, though having the distal joint well defined and edged with 4 slender setæ.

Colour yellowish.

Length of adult female 0.72 mm.

Remarks.—This form was very imperfectly characterised by Boeck, and it was for this reason not recognised by Prof. Brady, who described under the name of *L. curticauda* a different species, viz., that recorded above as *L. Strömi*. It is indeed closely allied to that species, but evidently specifically distinct, differing, as it does, in some of the structural details very conspicuously, for instance in the much fuller development of the outer ramus of the posterior antennæ, the rather unlike shape of the last pair of legs in both sexes, and finally in the somewhat different transformation of the natatory legs in the male.

Occurrence.—I have met with this form not unfrequently in the upper part of the Christiania Fjord in moderate depths, as also in some places of the south coast of Norway. Boeck found a single specimen at Haugesund, west coast of Norway. It is very probable that it also occurs off the British Isles, but has been confounded with the preceding species.

165. *Laophonte minuta*, Boeck.

(Pl. CLXXIV).

Laophonte minuta, Boeck, Nye Slægter og Aiter af Saltvandscopepoder. Chr. Vid. Selsk. Forhandl. 1872, p. 52.

Specific Characters.—*Female.* Body moderately slender, with the segments rather sharply marked off from each other. Rostral projection somewhat more

prominent than in the 2 preceding species, and obtusely acuminate at the tip. Caudal rami somewhat produced, exceeding in length the anal segment, apical setæ, on the other hand, unusually short. Anterior antennæ of moderate size and distinctly 7-articulate. Posterior antennæ, like those in *L. Strömi*, having the outer ramus quite rudimentary and of conical form, with only 2 hair-like setæ. 1st pair of legs built on the same type as in the 2 preceding species, though perhaps somewhat less strong. Natatory legs likewise of a rather similar structure, except that the 4th pair is considerably smaller than the others, with no setæ on the outer ramus inside. Last pair of legs somewhat resembling in shape those in *L. Strömi*, innermost seta of the distal joint, however, quite normal, and the 2 outermost setæ on the inner expansion of proximal joint both very small.

Male with the outer rami of 2nd and 3rd pairs of legs much stronger than in female, and having the spines, especially of the terminal joint, very large and divergent; inner ramus of 3rd pair, as in *L. Strömi* only composed of 2 joints, the distal one produced at the end outside to a short spiniform projection. 4th pair of legs scarcely different from those in female. Last pair of legs much reduced, distal joint not defined, and replaced by a very slight expansion carrying 4 setæ, inside which 2 other small setæ occur.

Colour yellowish.

Length of adult female 0.80 mm.

Remarks.—This form also is closely related to *L. Strömi*, perhaps still more so than *L. curticauda*. It is however easily recognised from any of them by the sharply defined body-segments, and more particularly by the unusually short caudal setæ, whereas the caudal rami themselves are more produced than in the said species. It seems indeed that the present form has been observed by Prof. Brady, but only regarded by him as a variety of his *L. curticauda* (= *L. Strömi*). In Pl. 78 of his Monograph 2 figures of a leg of the last pair are given, the one (fig. 7) representing the usual form, the other (fig. 8) indicated as belonging to a variety. The former figure undoubtedly refers to *L. Strömi*, whereas the latter may have been drawn from a specimen of the present species. The specific name given by Boeck to this species is somewhat inappropriate, as it does not in reality belong to the smaller but rather more to the larger species of the genus.

Occurrence.—I have hitherto only met with this form in the upper part of the Christiania Fjord; but here it occurs at times in great abundance on a muddy bottom, at a depth of 3 to 10 fathoms.

Distribution.—? British Isles (Brady).

166. *Laophonte littoralis*, Scott.

(Pl. CLXXV).

Laophonte littorale. Scott, On some new and rare Crustacea from Scotland. Ann. Mag. Nat. Hist. ser. 6, Vol. XII, p. 238, Pl. XI, figs. 7—14.

Specific Characters.—*Female*. Body somewhat robust, with the anterior division slightly depressed and broader than the posterior. Cephalic segment comparatively large, equalling in length the 4 succeeding segments combined, rostral projection short, triangular. Urosome almost as long as the anterior division, and having the anterior segments slightly expanded laterally, last segment fully as long as the preceding one. Caudal rami about twice as long as they are broad and somewhat divergent, apical setæ rather elongated. Anterior antennæ of moderate length and somewhat thickened at the base, 7-articulate. Posterior antennæ rather strongly built, outer ramus, however, extremely small, conical in form, and only provided with 2 hair-like bristles. 1st pair of legs powerfully developed, with the inner ramus very strong, outer ramus exceeding half the length of the proximal joint of the inner, and 3-articulate, middle joint much the longest. Natatory legs normal, except that the terminal joint of the outer ramus in the 4th pair wants any seta of the inner edge. Last pair of legs well developed, distal joint rather large and having the form of a regularly rounded lamella, with 6 comparatively short marginal setæ; inner expansion of proximal joint not extending to the middle of the distal joint, and provided with 5 marginal setæ, the 2 outer of which are smaller than the others. Ovisac rather large, rounded oval in form.

Male with the outer rami of 2nd and 3rd pairs of legs scarcely at all differing in structure from those in female. Inner ramus of 2nd pair with the proximal seta of the last joint transformed to a short and thickish spine; that of 3rd pair 3-articulate, with the terminal joint very short, middle joint, as usual, produced at the end outside to a spiniform process. 4th pair of legs very unlike those in female, outer ramus exceedingly powerful and incurved, with the spines very large, 3 of them issuing from the terminal joint; inner ramus much reduced in size, unarticulate, with a single seta and 2 hair-like bristles. Last pair of legs with the distal joint not defined, it being replaced by 3 small setæ, inside which another similar seta is attached.

Colour light yellowish grey.

Length of adult female 0.67 mm.

Remarks.—Though the habitus-figure of this species given by Scott looks rather unlike that here reproduced, I cannot doubt that the present form is the same as that observed by the said author, since in all the structural details it

exhibits a very close agreement. The most prominent character of this species is undoubtedly the peculiar transformation of the 4th pair of legs in the male. Moreover the shape of the last pair of legs in the female is rather characteristic.

Occurrence.—A few specimens of this form were taken, some years ago, from a tidal pool at Haugesund, west coast of Norway.

Distribution.—Scottish coast (Scott).

167. *Laophonte breviröstris* (Claus).

(Pl. CLXXVI).

Cleta breviröstris, Claus, Die freilebenden Copepoden, p. 124.

Syn: *Laophonte Herdmani*, Scott.

Specific Characters.—*Female.* Body moderately slender and gradually tapering behind, with the segments well marked off from each other. Cephalic segment rather large, about the length of the 4 succeeding segments combined, rostral projection very short and slightly bilobular at the tip. Urosome shorter than the anterior division, and having the anterior segments somewhat expanded laterally. Caudal rami comparatively short, not attaining the length of the anal segment, and transversely truncated at the tip, apical setæ rather slender. Anterior antennæ much shorter than the cephalic segment, and only composed of 6 articulations, the last 2 being confluent; 2nd joint somewhat dilated and exhibiting a short nodiform projection of the hind edge in the middle. Posterior antennæ with the outer ramus normally developed. 1st pair of legs moderately strong, with the inner ramus rather elongated, outer ramus distinctly 3-articulate, but comparatively small, not attaining half the length of the proximal joint of the inner. Natatory legs well developed, with the normal number of setæ. Last pair of legs with the distal joint comparatively short and broad, spatulate in form, marginal setæ somewhat unequal and 5 in number, all issuing from the almost transversely truncated end of the joint; inner expansion of proximal joint obliquely truncated and extending almost to the end of the distal joint, marginal setæ 4 in number, the outermost but one much longer than the others.

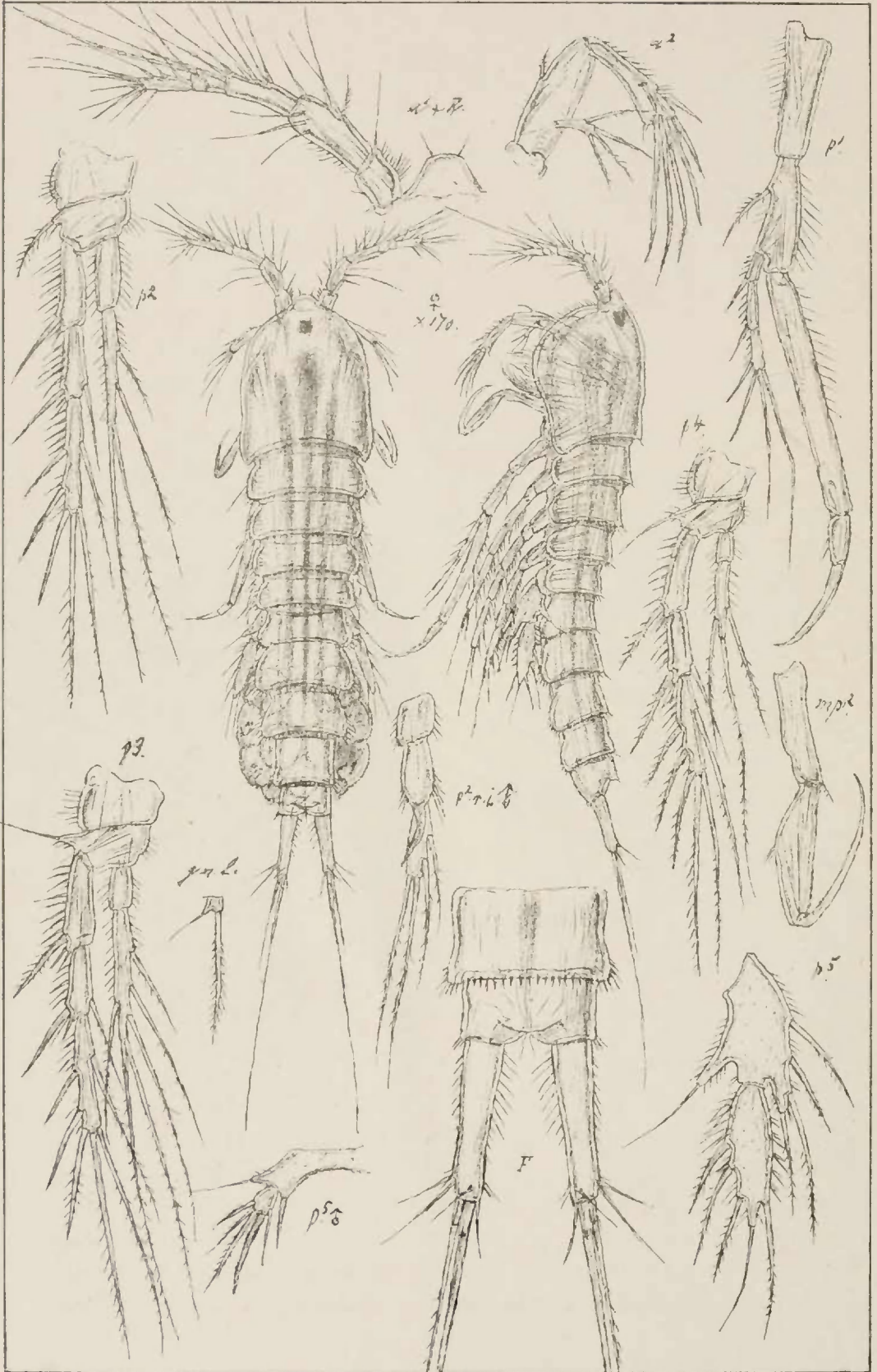
Male with the 2nd pair of legs resembling in structure those in female, except that one of the setæ attached inside the distal joint of the inner ramus appears somewhat coarser, with the proximal part thickened and densely clothed with small spinules. 3rd pair of legs with the outer ramus somewhat more strongly built than in female, the terminal joint being more or less incurved and having the setæ of the inner edge spiniform; inner ramus transformed in the usual manner. 4th pair of legs of exactly same structure as in the female. Last pair of

Copepoda

Laophontidæ

Harpacticoida

PL. CLXI



G.O. Sars autogr.

Norsk lithgr. Officin.

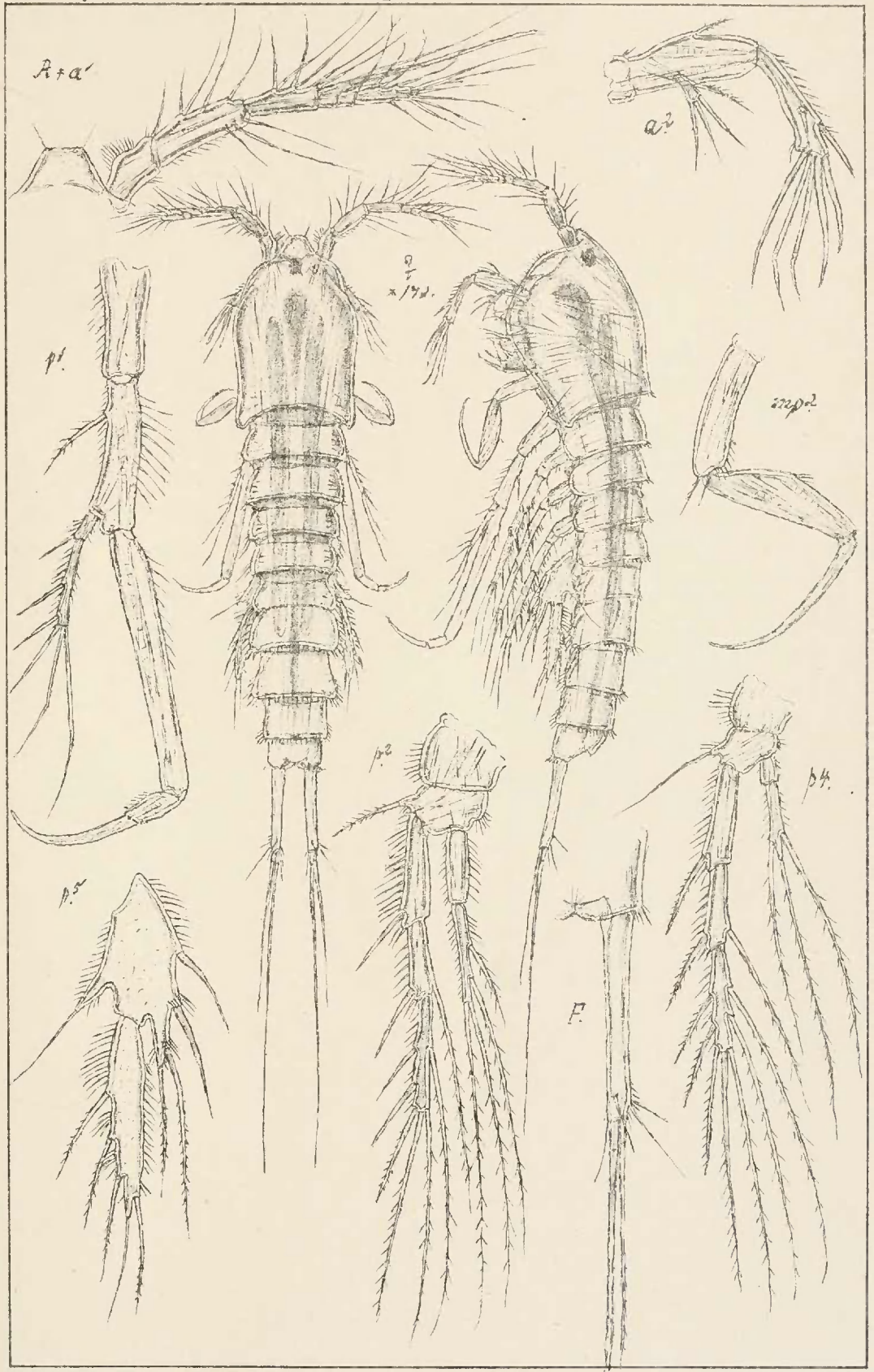
Laophonte thoracica, Boeck

Copepoda

Laophontidæ

Harpacticoida

PL. CLXII



G.O. Sars autogr.

Norsk lithgr. Officin.

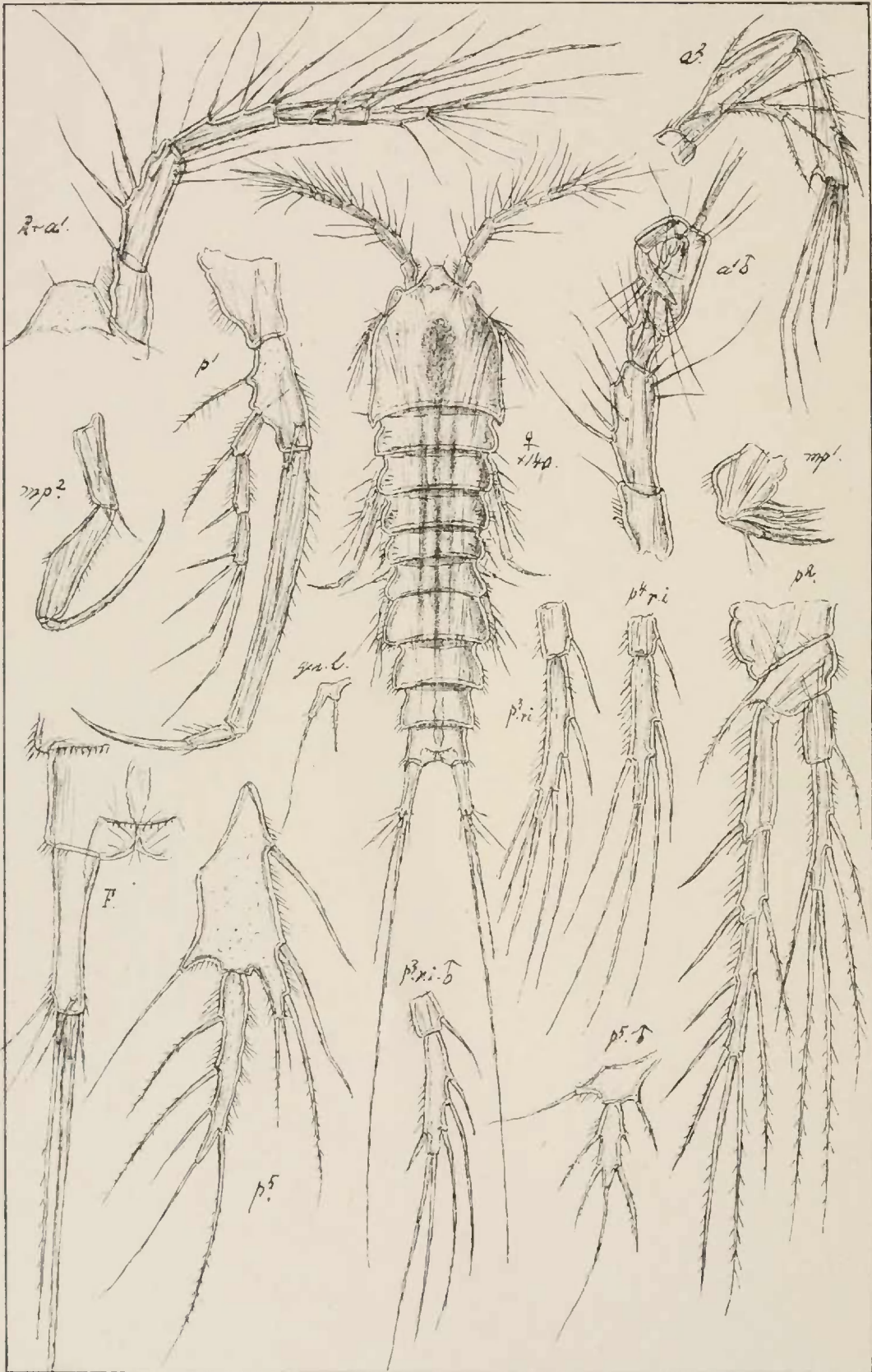
Laophonte elongata, Boeck

Copepoda

Laophontidæ

Harpacticoida

PL. CLXIII



G.O. Sars autogr.

Norsk lithgr. Officin.

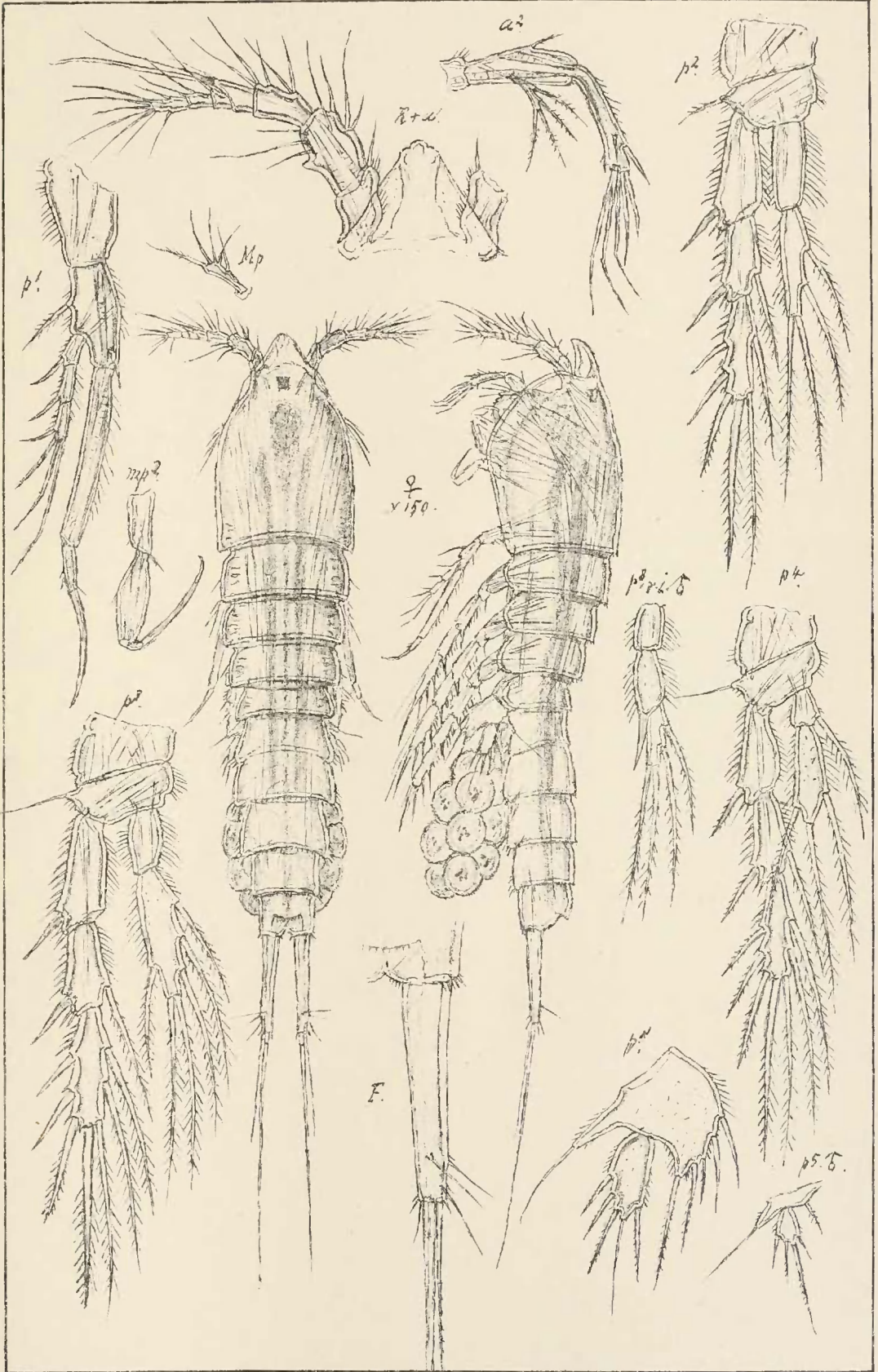
Laophonte typhlops, G.O. Sars

Copepoda

Laophontidæ

Harpacticoida

PL. CLXIV



G.O. Sars autogr.

Norsk lithgr. Officin.

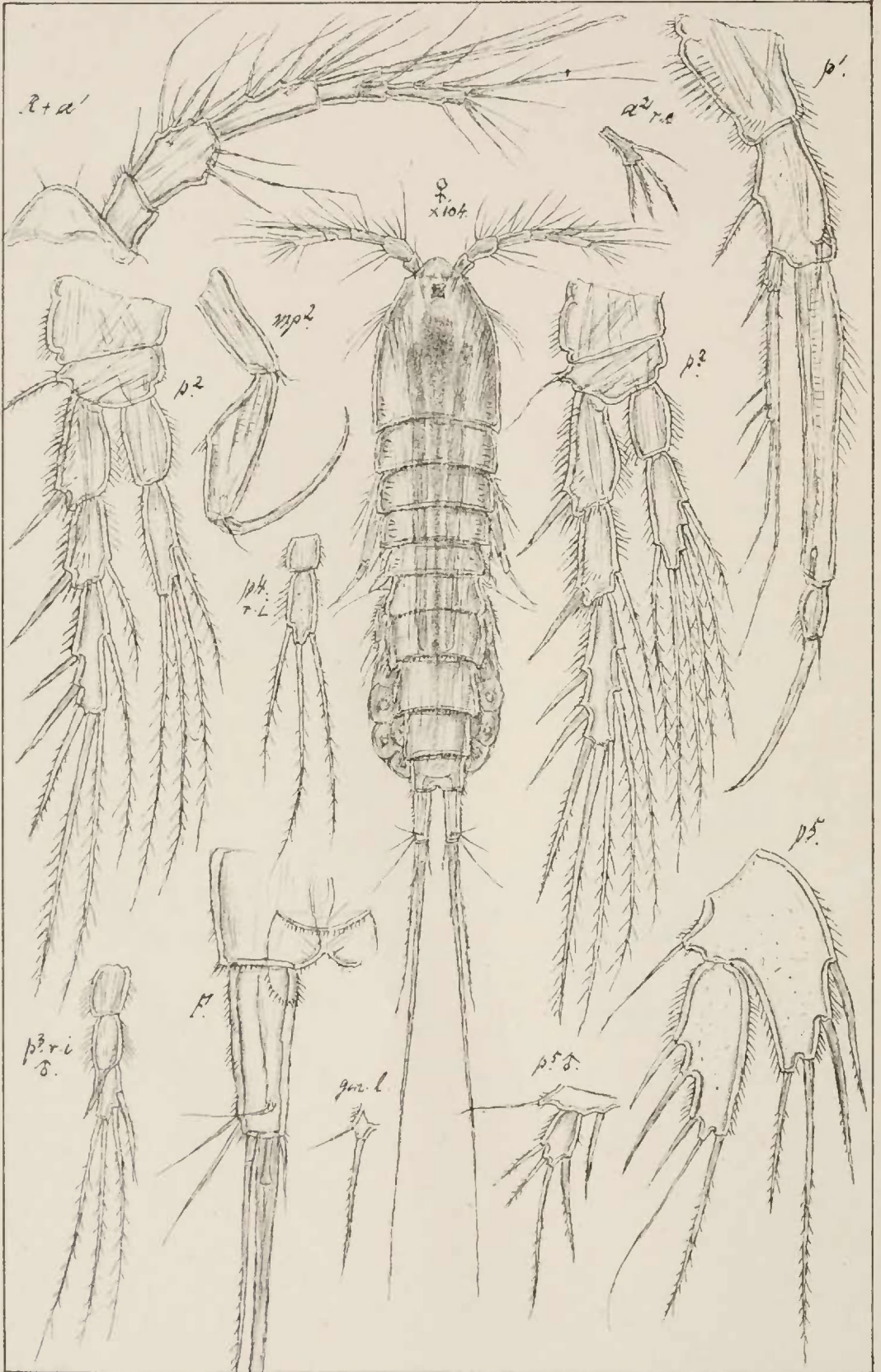
Laophonte longicaudata, Boeck

Copepoda

Laophontidæ

Harpacticoida

PL. CLXV



G.O.Sars autogr.

Norsk lithogr. Officin.

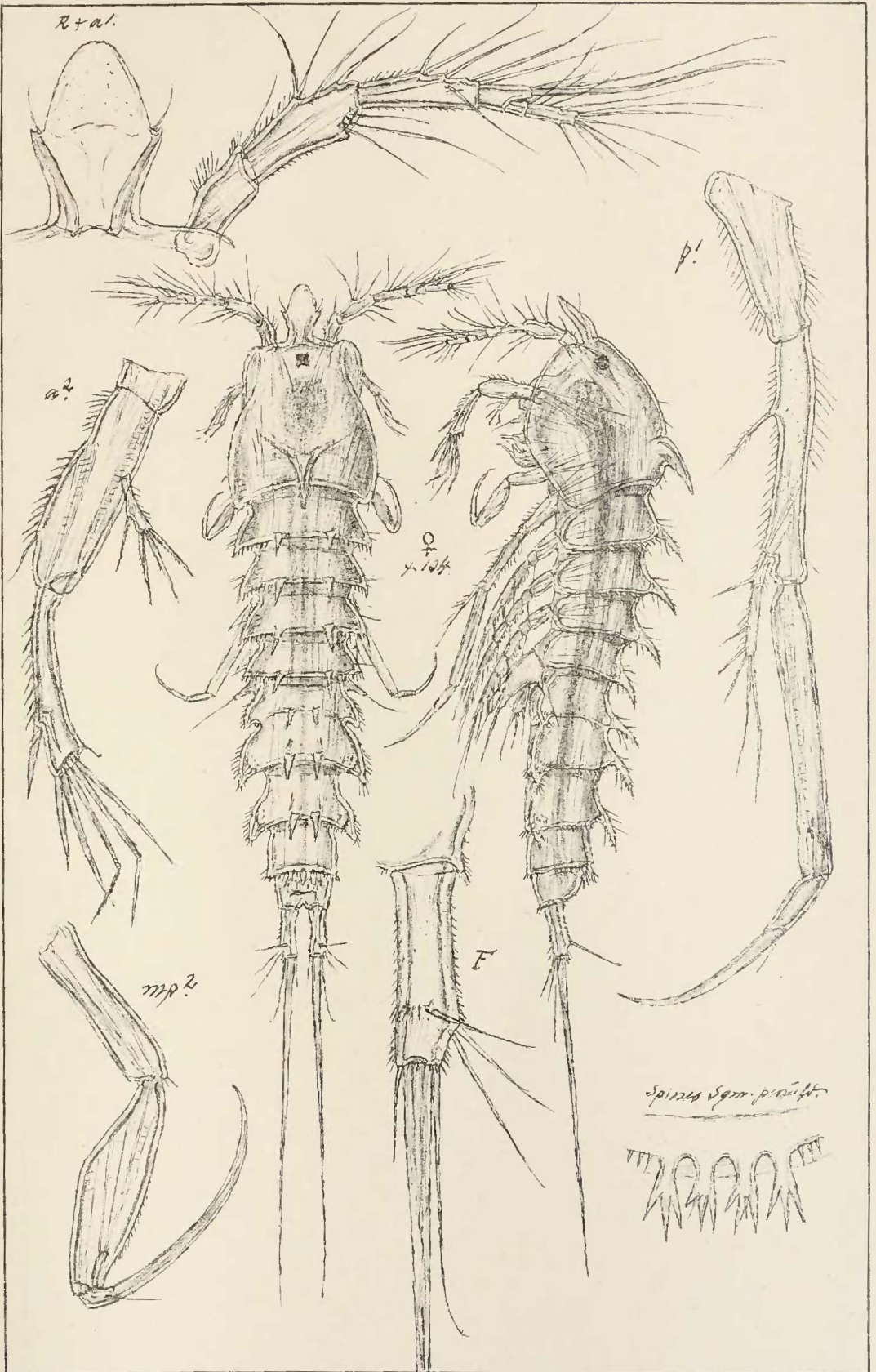
Laophonte similis (Claus)

Copepoda

Laophontidœ

Harpacticoida

PL. CLXVI



G.O.Sars autogr.

Norsk lithgr. Officin.

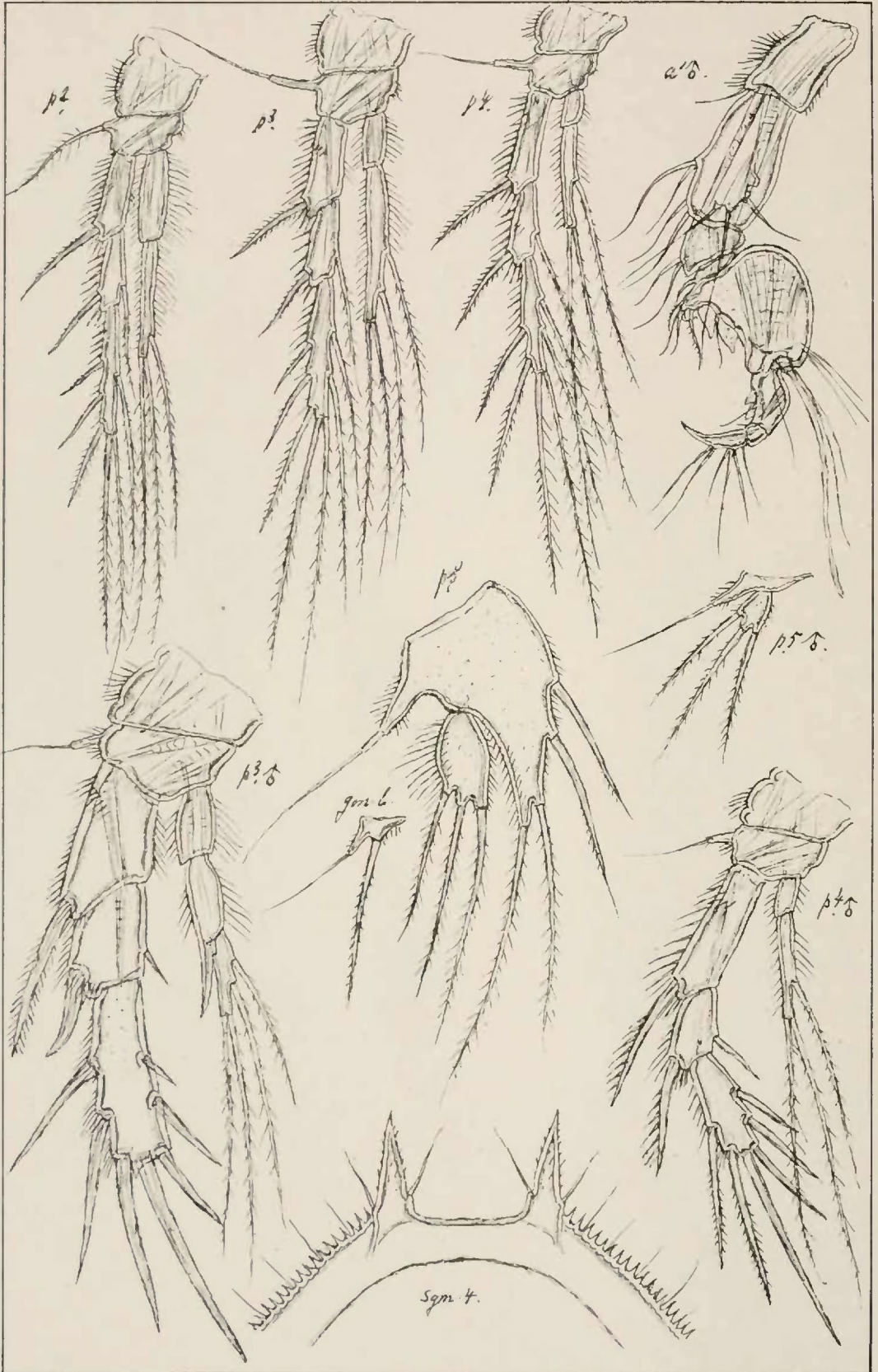
Laophonte horrida, Norm

Copepoda

Laophontidæ

Harpacticoida

PL. CLXVII



G.O. Sars autogr.

Norsk lithgr. Officin.

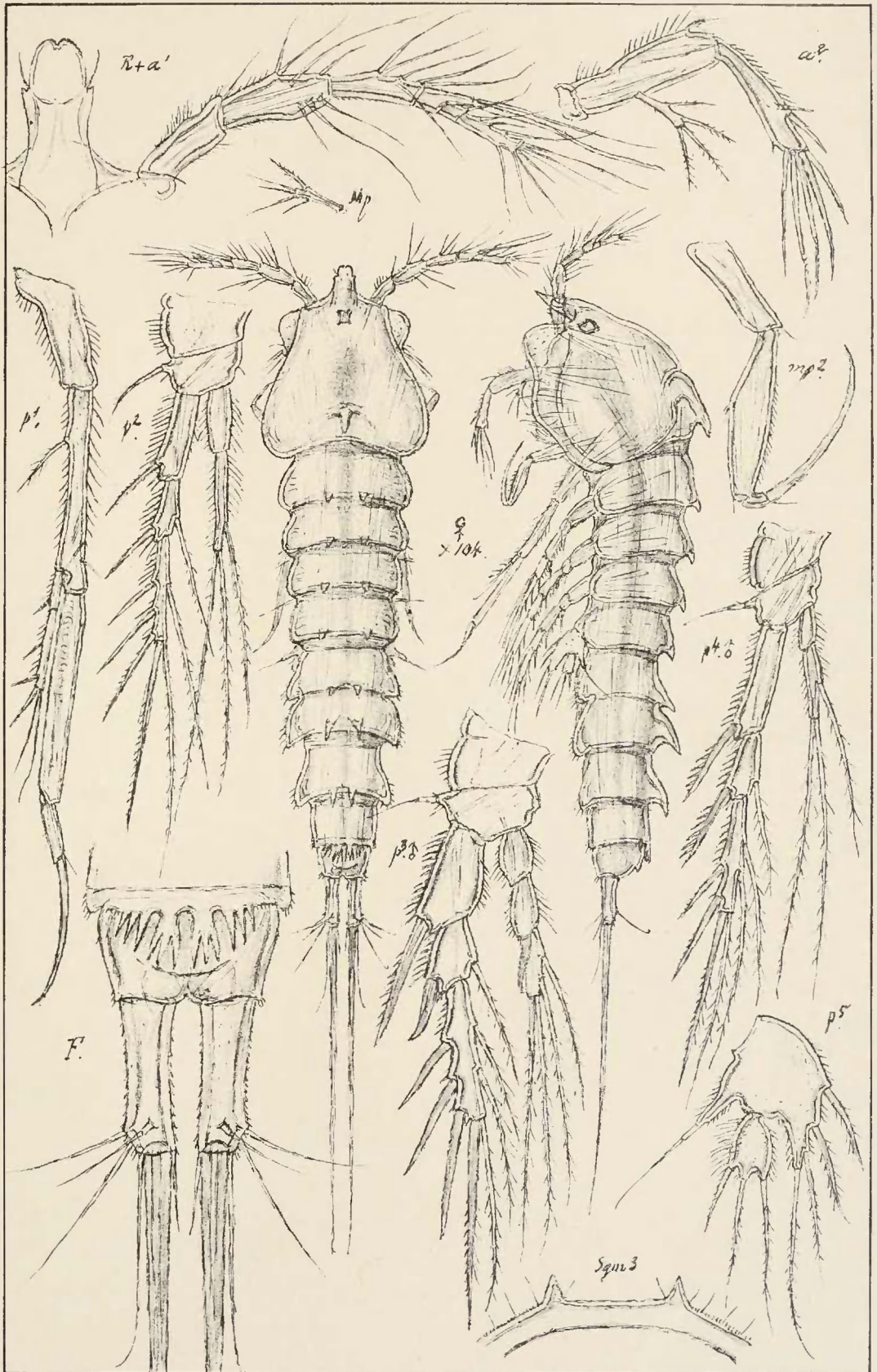
Laophonte horrida, Norm
(continued)

Copepoda

Laophontidæ

Harpacticoida

PL. CLXVIII



G.O. Sars autogr.

Norsk lithogr. Officin.

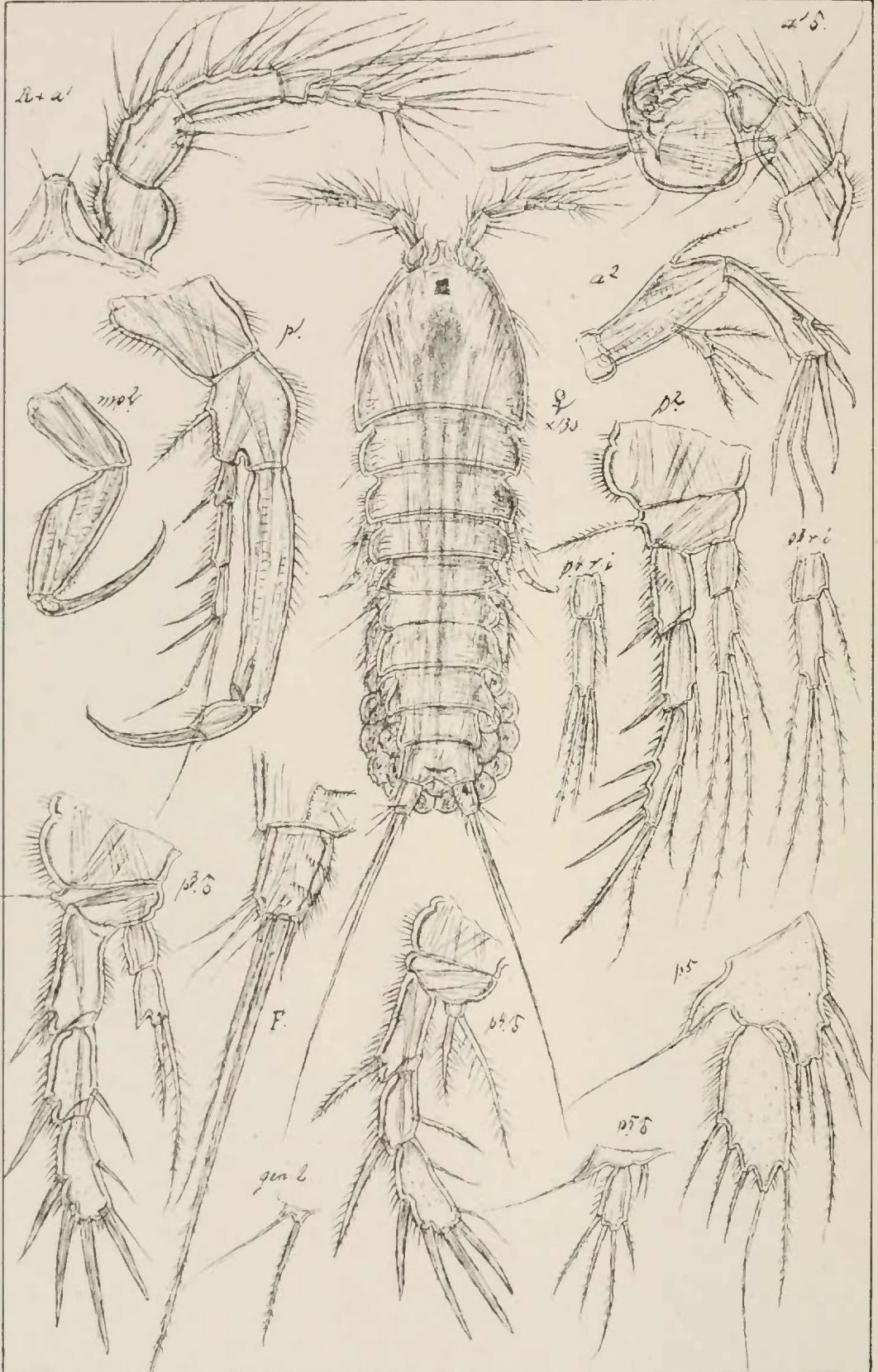
Laophonte brevispinosa G.O. Sars

Copepoda

Laophontidœ

Harpacticoida

PL. CLXIX



G.O. Sars autogr.

Norsk lithogr. Officin.

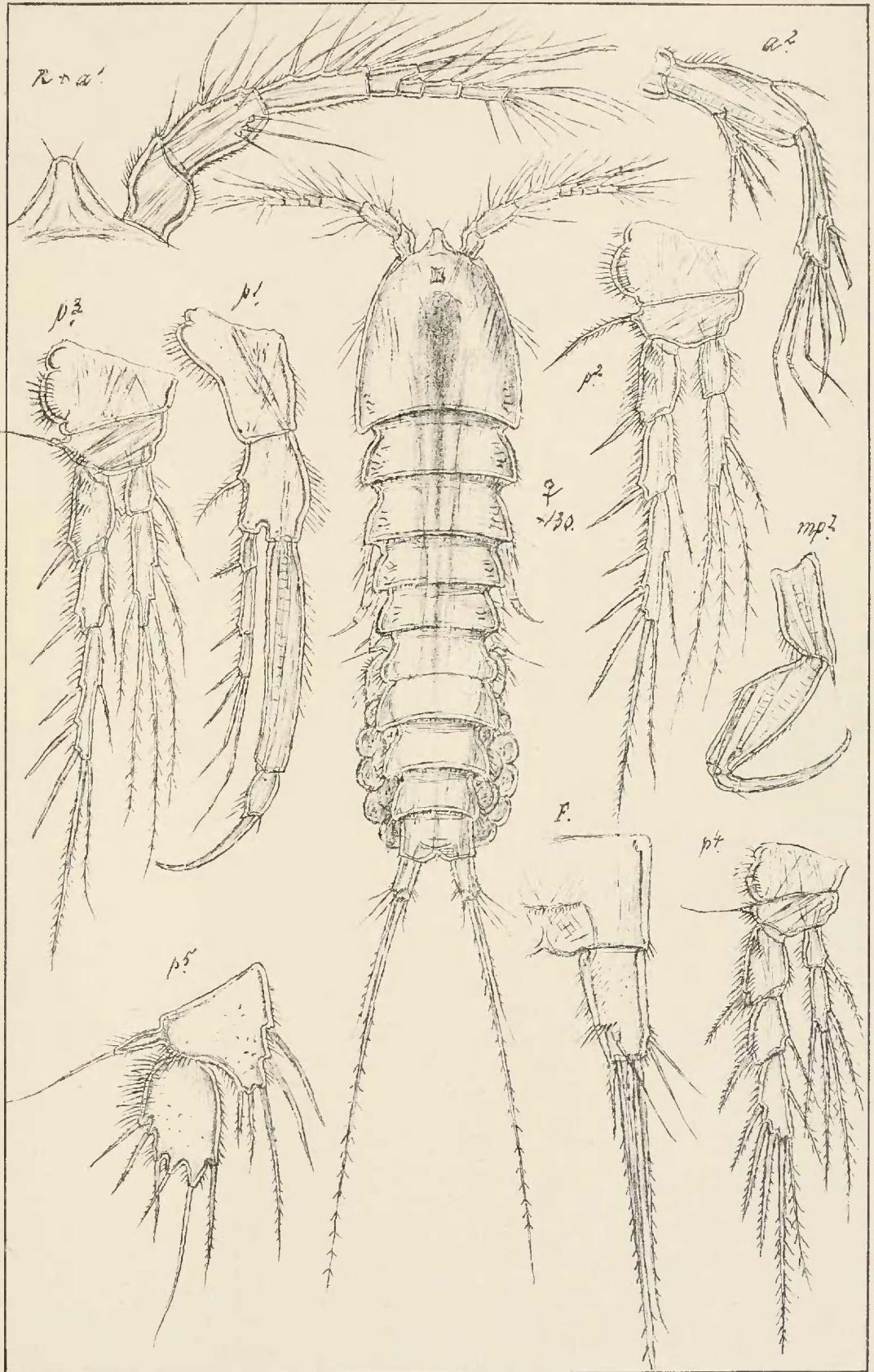
Laophonte Koreni, Boeck

Copepoda

Laophontidæ

Harpacticoida

PL. CLXX



G.O. Sars autogr.

Norsk lithogr. Officin.

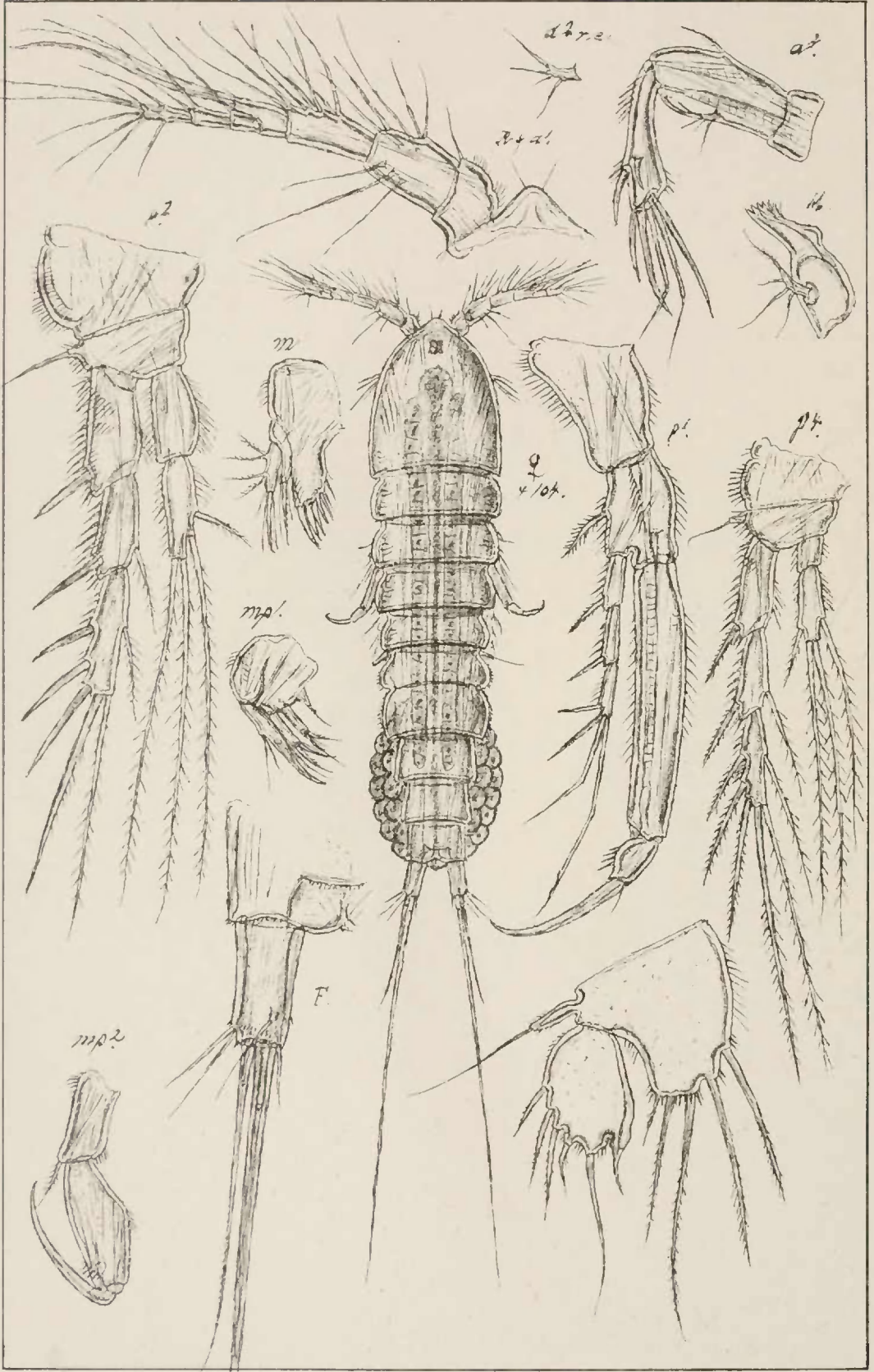
Laophonte proxima, G.O. Sars

Copepoda

Laophontidæ

Harpacticoida

PL. CLXXI



G.O. Sars autogr

Norsk lithgn: Officin.

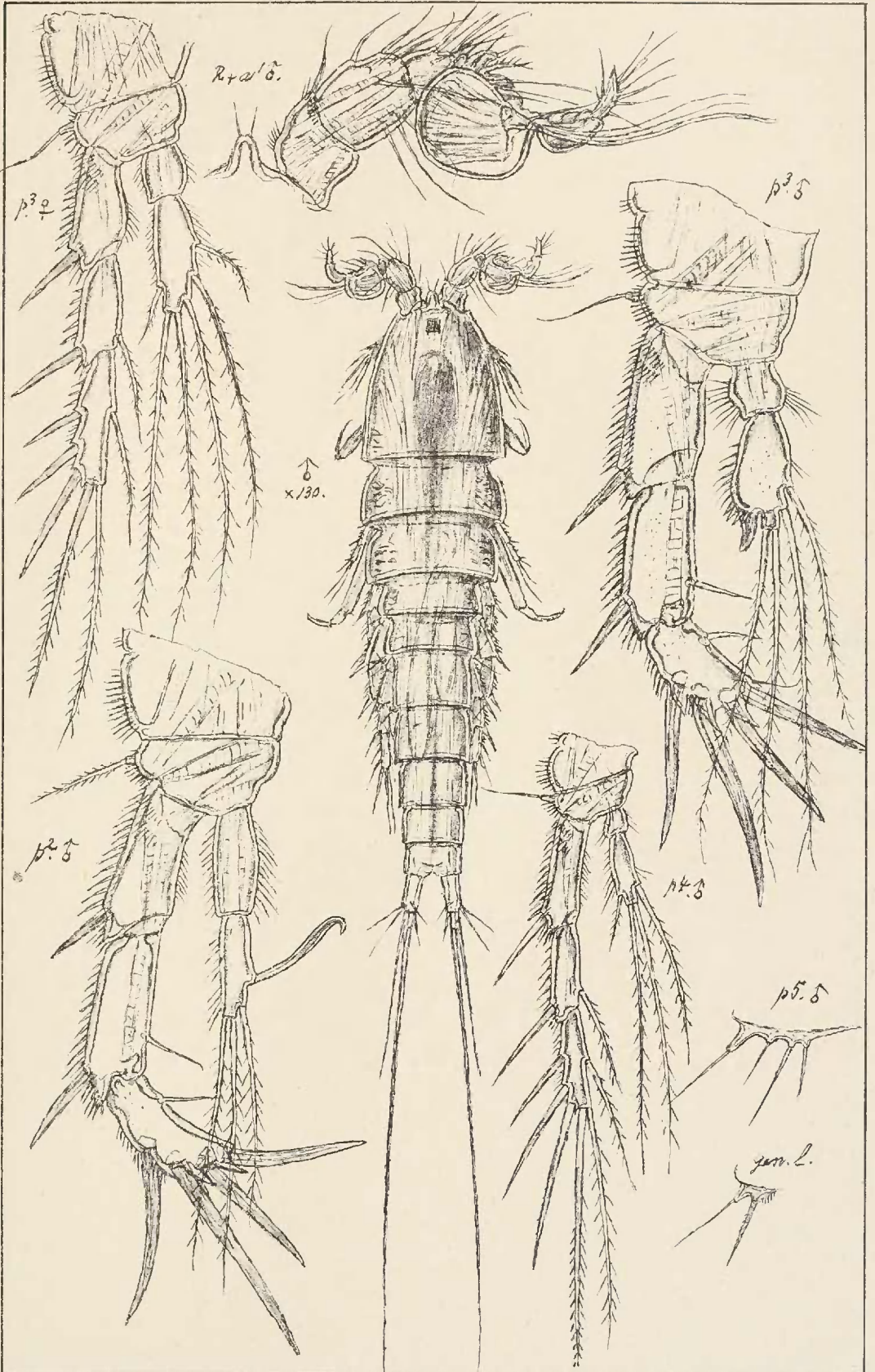
Laophonte Strömi (Baird)

Copepoda

Laophontidæ

Harpacticoida

PL. CLXXII



G.O. Sars autogr.

Norsk lithogr. Officin.

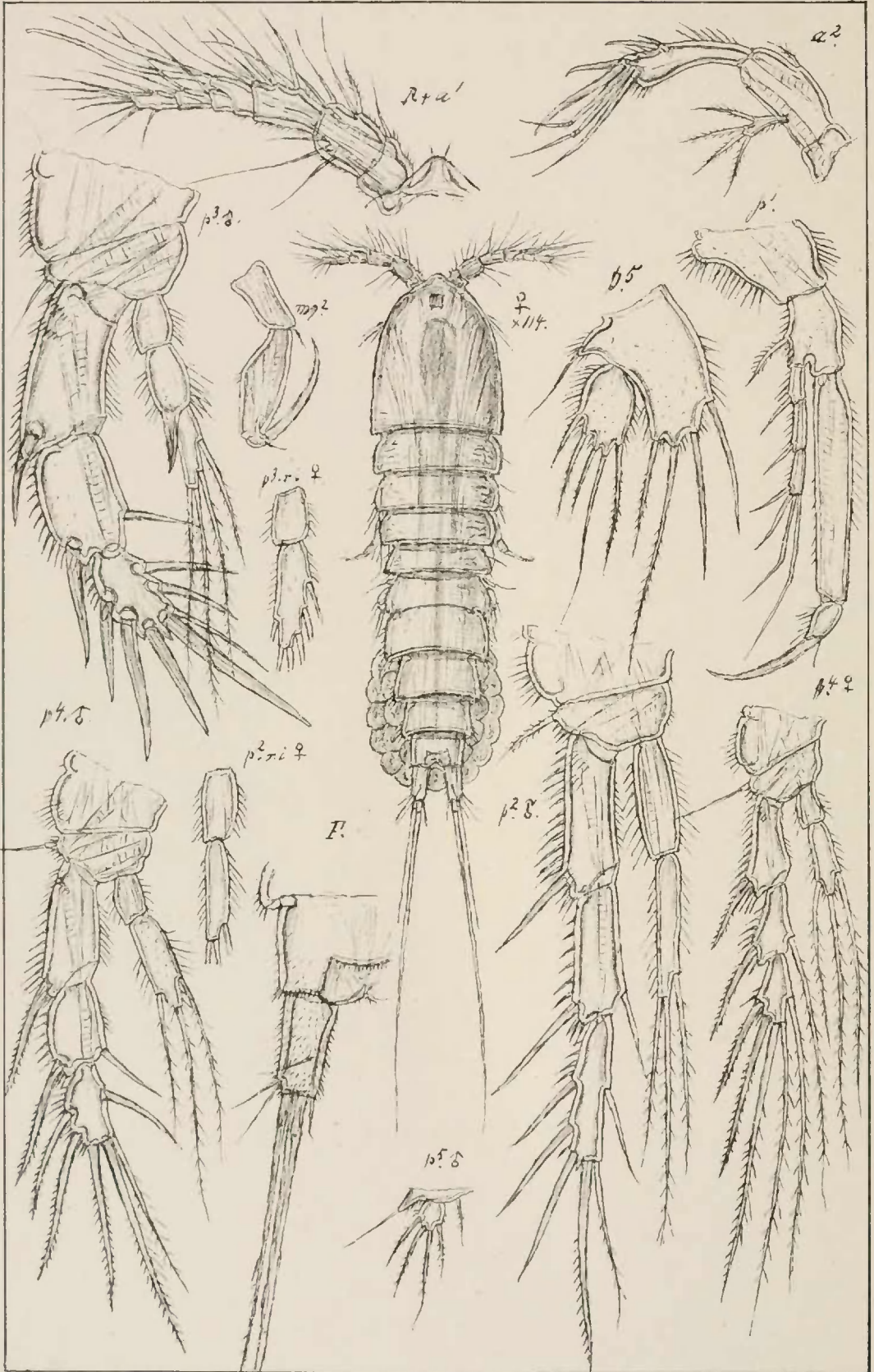
Laophonte Strömi (Baird)
(continued)

Copepoda

Laophontidæ

Harpacticoida

PL. CLXXIII



G.O. Sars autogr.

Norsk lithgn. Officin.

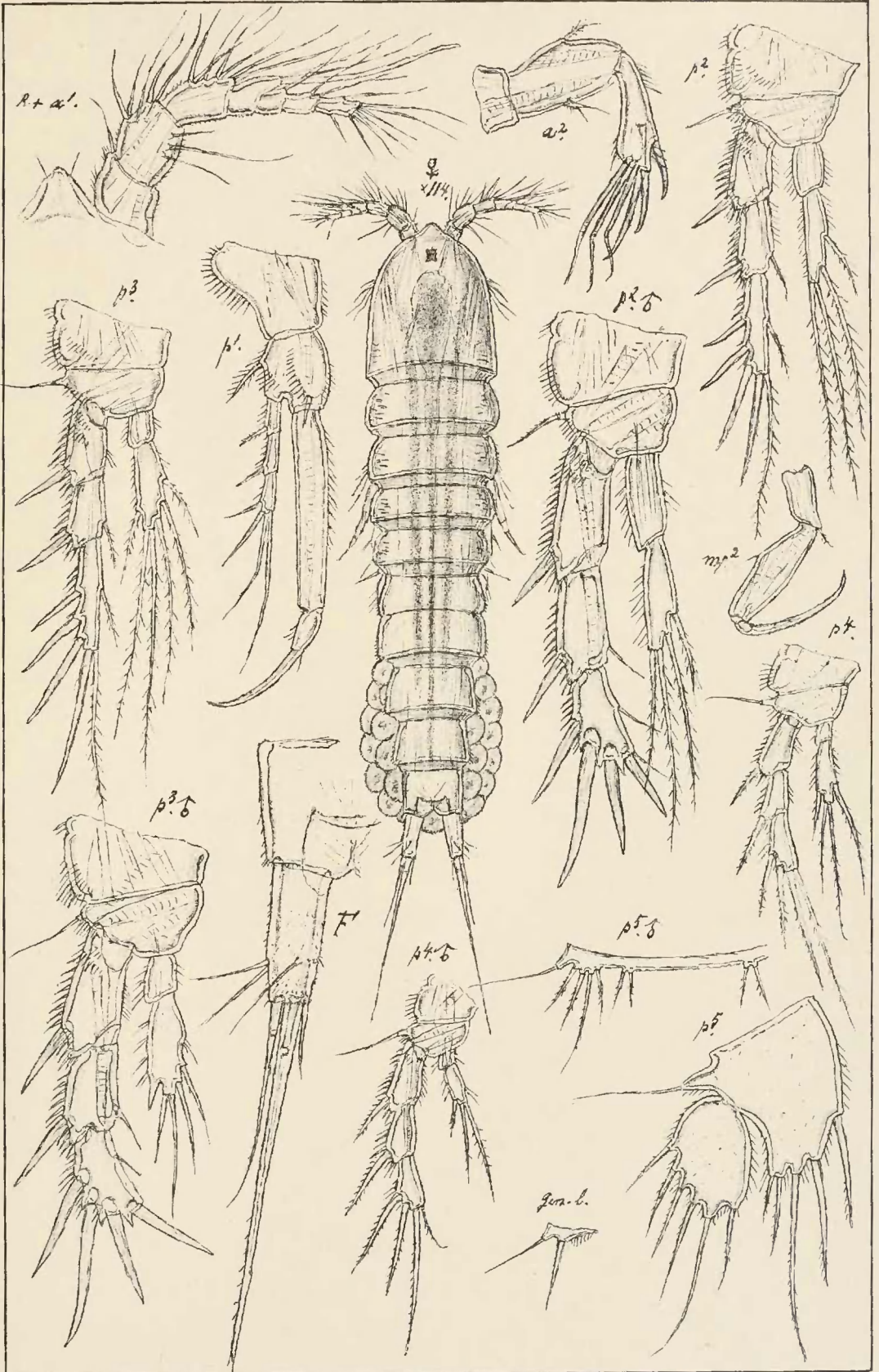
Laophonte curticauda Boeck

Copepoda

Laophontidœ

Harpacticoida

PL. CLXXIV



G.O. Sars autogr.

Norsk lithogr. Officin.

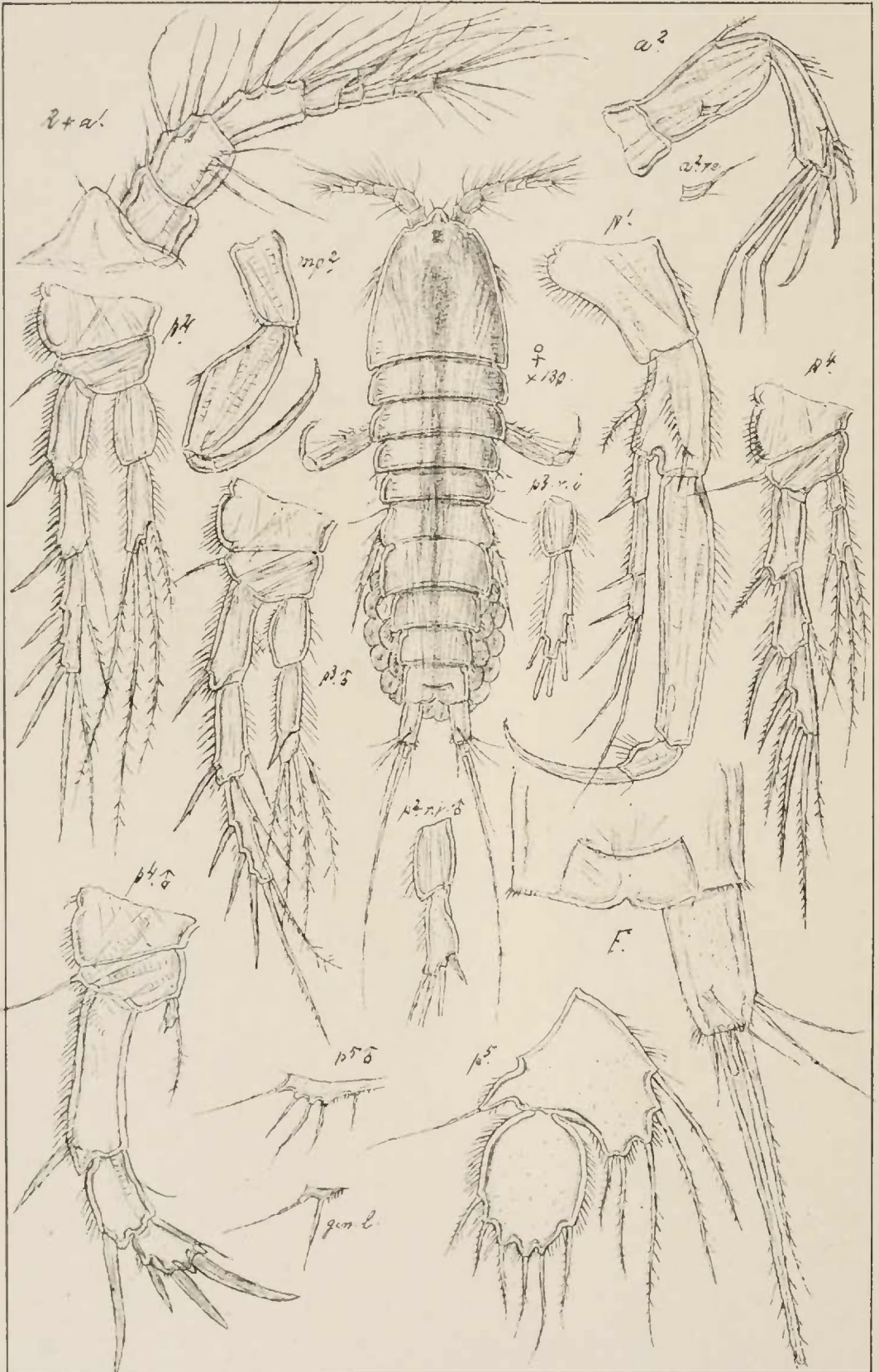
Laophonte minuta, Boeck

Copepoda

Laophontidæ

Harpacticoida

PL. CLXXV



G.O. Sars autogr.

Norsk lithgr. Officin.

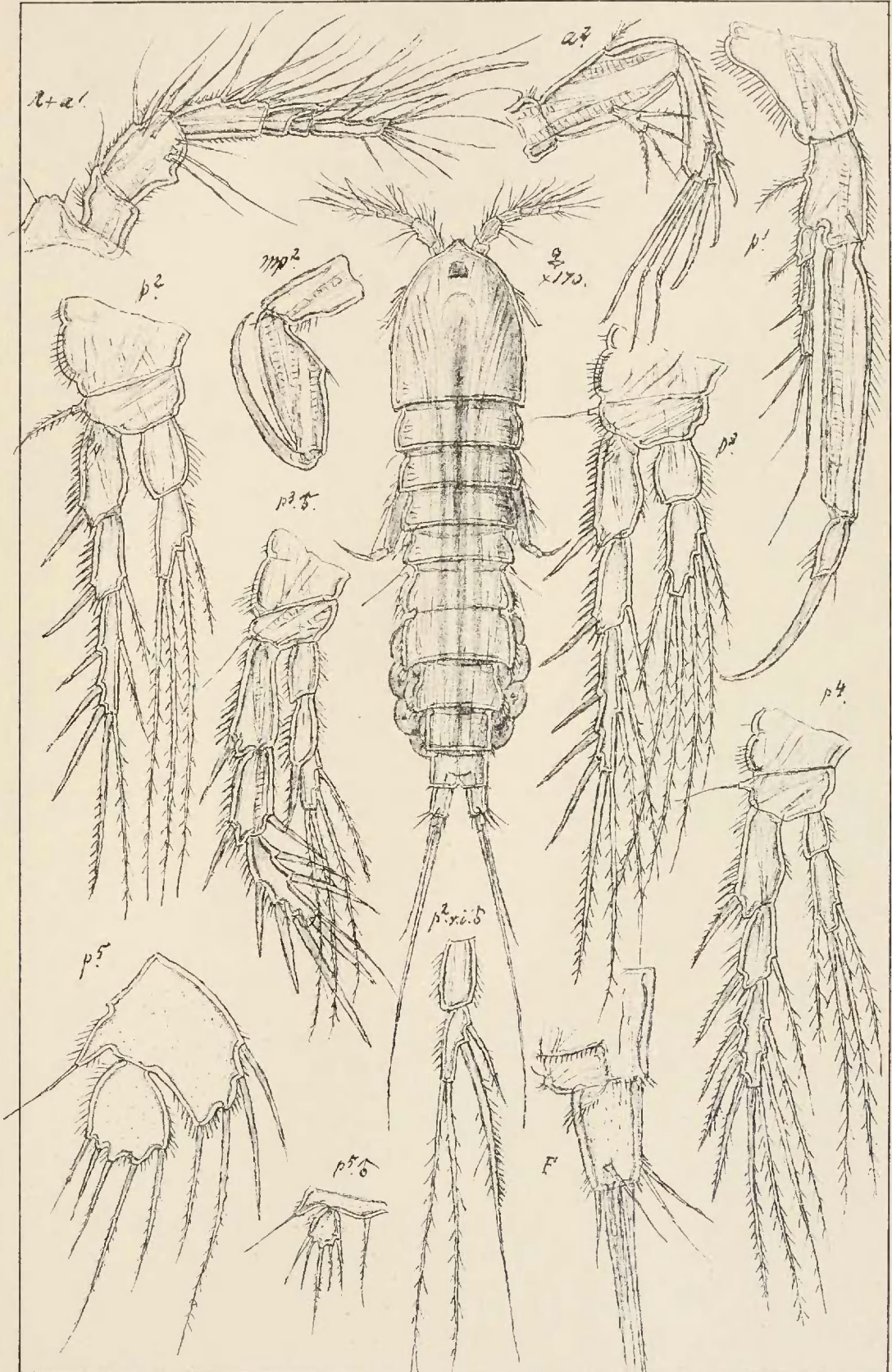
Laophonte littoralis, Scott

Copepoda

Laophontidæ

Harpacticoida

PL. CLXXVI



G.O. Sars autogr.

Norsk lithogr. Officin.

Laophonte brevis (Claus)

