these the present form may be easily distinguished by the comparatively small size of the cephalon, and by the 2 superposed dorsal projections of the urosome.

Occurrence. — Though nowhere in any abundance, this form would seem to occur along the whole coast of Norway, from the Christianiafjord to Vadsø. It is a true deep-water form, only occurring in depths ranging from 100 to 400 fathoms.

Distribution. — Stat. 18 & 295 of the Norwegian North Atlantic Expedition, both lying outside the great fishing banks of the west coast of Norway.

Fam. 17. Eusiridæ.

Body generally rather slender, now compressed, now more cylindric in form, with the metasome powerfully developed. Cephalon not very large, more or less produced in front, and having the inferior edges incised to receive the large basal joint of the inferior antennæ. Coxal plates now of moderate size, now very small, 1st pair always expanded distally. Antennæ comparatively slender, with elongated peduncles, the superior ones provided with a very small accessory appendage; those of male more or less distinctly modified. Oral parts of normal structure. Mandibles having the molar expansion well developed, and the terminal joint of the palp much elongated. Maxillipeds rather large, with strong palps. Gnathopoda subequal, and rather strongly built, with the propodos large and subcheliform. The 2 anterior pairs of pereiopoda generally very slender and shorter than the 3 posterior ones, which successively increase in length and have the basal joint moderately expanded. Last pair of uropoda somewhat differing from the preceding pairs, having the rami more or less foliaceous. Telson very large, and with the outer part cleft.

Remarks. — This family was established in the year 1888 by the Rev. Mr. Stebbing, to include the genera formerly referred by Boeck, to his subfamily *Leucothoinæ*, with the exception of the genus *Leucothoë*, which was considered as the type of a separate family. He refers, besides, to the same family 2 new genera, viz, *Cleonardo* and *Eusiroides*. The family is here taken in a somewhat more restricted sense than is done by Mr. Stebbing, the genus *Lilljeborgia* being excluded, on account of its very striking difference from the other types, especially as regards the very fully developed accessory appendage of the superior antennæ, and the well-pronounced sexual difference in the

structure of the gnathopoda. In both these respects it would seem to approach nearer to the family *Gammaridæ* and especially to the genus *Cheirocratus* of Norman. Only two of the genera belonging to the present family are represented in the fauna of Norway.

Gen. 1. **Eusirus,** Krøyer, 1845.

Body compressed and more or less distinctly carinated dorsally, some of the segments being produced to posteriorly-pointing, dorsal projections. Cephalon with a rather small rostral prominence, lateral corners short and broad. Coxal plates of moderate size, 1st pair broadly expanded distally, 4th pair much the largest, and distinctly emarginated posteriorly in their upper part; the 2 succeeding pairs not nearly so deep as the preceding ones, and having the anterior lobe scarcely larger than the posterior. Epimeral plates of metasome rather large, those of last pair serrated posteriorly, and not at all produced at the lateral corners. Eyes distinct, though having the visual elements imperfectly developed. Superior antennæ, as a rule, longer than the inferior, and with the last joint of the peduncle short and very movably articulated to the preceding joint, being encompassed at the base by 2 more or less strongly dentated lappets issuing from the end of the former, accessory appendage forming a small linear joint lying inside the base of the flagellum. Inferior antennæ not modified in the male. Anterior lip rounded; posterior one with distinct, though small inner lobes. Mandibles rather strong, cutting edge but slightly dentated, palp elongated and slender, with the terminal joint fully as long as the other 2 combined, and very narrow. First pair of maxillæ comparatively small, with the palp but little expanded distally and the basal lobe unisetose. Second pair of maxillæ with both lobes short and rounded at the tip, the inner one considerably broader than the outer. Maxillipeds rather large, basal lobes partly coalesced, masticatory lobes of moderate size, and setous along the inner edge and the apex, palp very robust, with the last joint strongly developed, and the dactylus unguiform. Gnathopoda subequal both in size and structure, and of rather peculiar structure, the carpus being much elongated and produced inferiorly, at the base, to a setous lobe, its outer part extremely narrow and attenuated, propodos very broad, subquadrangular or transversely elliptical in shape, and affixed to the carpus at the upper posterior corner, palm nearly transverse, and defined below by on obtuse projection armed with several strong spines, its edge sharpened and minutely setous, dactylus slender and curved. The 2 anterior pairs of

pereiopoda generally very feeble in structure, the 3 posterior pairs more or less elongated and slender, with the basal joint oblong oval in form. Last pair of uropoda scarcely projecting beyond the others, and having the rami lanceolate and edged with small denticles. Telson elongate, tapering distally, outer part more or less deeply incised.

Remarks. — The present genus, the type of the family, was established by Krøyer in the year 1845, to include an arctic species *E. cuspidatus*. It is chiefly distinguished by the peculiar structure of the gnathopoda, which differs considerably from that in most other Amphipoda. The genus comprises no less than 5 Norwegian species, to be here described, 3 of which are now for the first time established. Besides, a 6th species has been described by Dr. Hansen as *E. Holmii*, from the Kara Sea, and the same form was also collected on the Norwegian North Atlantic Expedition, but was at that time erroneously recorded as *E. cuspidatus*.

1. **Eusirus cuspidatus**, Krøyer.

(Pl. 146).

Eusirus cuspidatus, Krøyer, Nat. Tidsskr. 2 R. p. 501, Pl. 7, fig. 1.

Body comparatively rather robust, though considerably compressed, and having the posterior part of the back distinctly carinated, the carina being produced, in the last 2 segments of mesosome and the first 2 of metasome, to acute, posteriorly-pointing projections. First segment of urosome with a slight dorsal carina in its posterior part. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, rostral projection short and obtuse, lateral corners rather broad, and slightly bilobate. Anterior pairs of coxal plates fully as deep as the body; 1st pair moderately expanded distally, having the anterior corner evenly rounded, the posterior one divided into 3 small serrations; the 2 succeeding pairs somewhat tapering distally, and having likewise 3 small serrations at the infero-posteal corner; 4th pair nearly twice as broad as the preceding pair, and produced posteriorly, below the emargination, to an angular projection. Last pair of epimeral plates of metasome evenly rounded at the lateral corners, and minutely serrated throughout the considerably arched posterior edge. Eyes rather large, and oval reniform in shape. Superior antennæ almost attaining half the length of the body, the first 2 joints of the peduncle about of same length, and both produced at the end to small lappets divided into several obtuse denticles, last joint very short, flagellum about twice the length of the peduncle, and composed of numerous small articulations, without any calceolæ, but carrying

fascicles of delicate bristles, accessory appendage extremely small, scarcely attaining the length of the last peduncular joint. Inferior antennæ considerably shorter than the superior, the last 2 joints of the peduncle nearly equal-sized, flagellum scarcely attaining the length of those joints combined. Gnathopoda comparatively strongly built, carpal lobe rather prominent, propodos but little broader than it is long, and rounded quadrangular in form, palm very slightly arched, dactylus comparatively strong. Pereiopoda more robust than in the other known species, and densely edged with fascicles of short spines, basal joint of last pair not nearly twice as long as it is broad at the base, posterior edge strongly curved in its upper part and, as in the 2 preceding pairs, finely serrated, dactylus in all pairs rather strong. Last pair of uropoda with the inner ramus somewhat longer than the outer. Telson quite unarmed and very large, reaching nearly to the tip of the last pair of uropoda, outer part slightly tapering and divided at the tip into 2 diverging acuminate lappets, cleft very narrow, firsure-like, and extending about to the middle of the telson. Colour, according to the statement of Boeck, yellowish white, changing into reddish. Length of adult female 24 mm.

Remarks. — This is the species first detected, and ought therefore to be regarded as the type of the genus. It is easily distinguished from the other species by its comparatively strongly built body and appendages, and by the very distinct carina running along the posterior part of the back. It also grows to a larger size than most of the other species.

Occurrence. — I have myself only found a single specimen of this form, that here figured, which was collected, many years ago, at Vardø, east Finmark, from a depth of 20—30 fathoms. Also Boeck records it from the Norwegian coast, but his statement about its occurrence as far south as Kattegat, must be founded upon some error.

Distribution. — Greenland (Krøyer), Spitsbergen (Goës).

2. **Eusirus propinqvus**, G. O. Sars, n. sp.

(Pl. 147, fig. 1).

Body comparatively more slender than in the type species, and having the dorsal carina not nearly so distinct. Last segment of mesosome very slightly elevated at the posterior edge dorsally; the 2 anterior segments of metasome each with a well-marked, posteriorly-pointing, dorsal projection. Cephalon about as in *E. cuspidatus*, except that the lateral corners are nearly transversely truncated at the tip. First pair of coxal plates rather expanded distally, anterior corner narrowly rounded, posterior one with a single small

serration; 4th pair having the posterior projection somewhat more prominent than in the type species. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners, posterior edge nearly straight, and finely serrated throughout. Eyes rather large, oval reniform, pigment light red. Superior antennæ in female scarcely exceeding in length 1/3 of the body, 1st joint of the peduncle rather large, fully as long as the other 2 combined, and exhibiting at the end posteriorly a small dentiform lappet, 2nd joint having, as usual, encompassing the base of the last joint, 2 lappets, the inner of which is bilobate at the tip, flagellum comparatively short, scarcely attaining the length of the peduncle, and, like the terminal joint of the latter, provided along the posterior edge with distinct calceolæ, accessory appendage very narrow, linear, exceeding in length the last peduncular joint. Inferior antennæ but little shorter than the superior, last joint of the peduncle scarcely attaining the length of the penultimate one, both edged anteriorly with distinct calceolæ, flagellum about half the length of the peduncle, and likewise carrying calceolæ along its anterior edge. Gnathopoda somewhat less robust than in the type species, carpal lobe very narrow, propodos nearly elliptical in form, its breadth being much greater than its length, palm rather arched, dactylus very slender. The 2 anterior pairs of pereiopoda extremely slender, with the meral joint much elongated, fully twice as long as the carpal one. The 3 posterior pairs likewise much more slender than in *E. cuspidatus*, with the propodal joint very narrow and elongated; basal joint of last pair far less expanded, and having the posterior edge slightly concave in the middle, dactylus in all pairs not nearly so strong as in the type species. Last pair of uropoda with the rami narrow lanceolate, the inner but little longer than the outer, both having, besides the usual denticles, on the inner edge a series of delicate setæ. Telson rather narrow, outer part gradually tapering, and having the lateral edges finely spinulose, terminal lobes acuminate and scarcely diverging, cleft extending not quite to the middle of the telson. Body semipellucid, with a more or less distinct yellowish orange tinge, posterior part of each segment exhibiting generally a somewhat darker, reddish brown hue, antennæ banded with red. Length of adult female 12 mm.

Remarks. — This new species is somewhat intermediate in character between the type species and *E. longipes* of Boeck, differing, however, rather markedly from both in the comparatively short flagella of the antennæ, and the great length of the meral joint of the 2 anterior pairs of pereiopoda. Also the shape of the propodos of the gnathopoda, and that of the telson is somewhat different. From *E. longipes*, to which species it bears a considerable resemblance as to the general habitus, it may, in the living state, at once be distinguished by the very different coloration of the body.

Occurrence. — I have met with this species not rarely in a single locality of the Trondhjemsfjord, at Vennæs, in a depth of 100 to 150 fathoms. It also occurs off the coast of Finmark, where several specimens were collected, many years ago, but at that time was confounded with *E. cuspidatus*. Finally, the same species has been found by the author at Selsøvig, on the Nordland coast. Off the west and south coasts of Norway, on the other hand, I have never met with this form.

3. **Eusirus minutus,** G. O. Sars, n. sp.

(Pl. 147, fig. 2).

Body considerably shorter and stouter than in the last species and, in this respect, more resembling that of *E. cuspidatus*. Posterior part of the back distinctly carinated, the carina being produced, on the last segment of mesosome and the 2 anterior ones of metasome, to well-defined, posteriorly pointing projections. Cephalon about the length of the first 2 segments of mesosome combined, rostral projection well developed, lateral corners transversely truncated at the tip. Coxal plates comparatively smaller than in the 2 preceding species; 1st pair fully as broad as they are deep, and having both the anterior and posterior corners evenly rounded, without any trace of serrations; 4th pair scarcely as deep as the corresponding segment, and having the posterior projection rather blunt. Last pair of epimeral plates of metasome narrowly rounded at the lateral corners, which are minutely serrated, upper part of the posterior edge somewhat arched and quite smooth. Eyes only faintly traced in alcoholic specimens, but apparently of the usual oval reniform shape. Antennæ in female comparatively short, and nearly equal in length; the superior ones scarcely exceeding in length 1/4 of the body, 1st joint of the peduncle rather large and thick, considerably exceeding in length the other 2 combined, and produced at the end posteriorly to an acute lappet, 2nd joint unusually short, and having the inner terminal lappet bidentate, flagellum somewhat longer than the peduncle, and composed of 10 articulations only, none of which are provided with calceolæ, accessory appendage very minute. Same antennæ in male much more elongated, having the flagellum about 3 times as long as the peduncle, and composed of numerous articulations, the proximals of which are densely clothed with slender sensory bristles. Inferior antennæ in both sexes of the very same appearance, last joint of the peduncle somewhat shorter and narrower than the penultimate one, flagellum about half the length of the peduncle. Gnathopoda not very strong, carpal process rather produced, though very narrow, propodos subquadrangular in

shape, being scarcely shorter than it is broad at the base, its outer part somewhat expanded, palm but slightly curved. Pereiopoda very slender, though somewhat less elongated than in *E. propinqvus*, meral joint of the 2 anterior pairs equalling in length the propodal one, and not nearly twice as long as the carpal joint; basal joint of the 3 posterior pairs rather expanded, and having the posterior edge strongly serrated, that of last pair oval in form, scarcely at all tapering distally. Last pair of uropoda with the outer ramus much smaller than the inner. Telson rather elongated, and gradually tapering from the base to the tip, posterior incision very short, scarcely occupying 1/6 of the length of the telson, terminal lobes acuminate and slightly divergent. Colour in the living state of the animal not yet stated. Length of adult female scarcely exceeding 6 mm.

Remarks. — By its comparatively stout form of body and the distinctly carinated back, this new species somewhat resembles *E. cuspidatus*, differing, however, not only in its very small size, but also in the much shorter antennæ and more slender pereiopoda, as also in the rather different form of the telson.

Occurrence. — I have only seen a few specimens of this form, which were collected in the Trondhjemsfjord, at Rødbjerget, from a very considerable depth, amounting to 400 fathoms.

4. **Eusirus longipes,** Boeck.

(Pl. 148, fig. 1).

Eusirus longipes, Boeck, Crust. amph. bor. & arct. p. 77.

Syn.: Eusirus helvetiæ, Sp. Bate.
» — bidens, Heller.

Body comparatively slender, and less compressed than in the preceding species, with only a very slight indication of a dorsal carina. Each of the 2 anterior segments of metasome produced at the end to a well-marked, posteriorly-pointing, acute projection. Cephalon about the length of the first 2 segments of mesosome combined, lateral corners obtusely truncated at the tip. First pair of coxal plates rather broad in their outer part and having, like the 2 succeeding pairs, 2 small serrations at the infero-posteal corner; 4th pair about as deep as the corresponding segment, posterior projection rather short and blunt. Last pair of epimeral plates of metasome having the posterior edge evenly curved and throughout coarsely serrated. Eyes very large, occupying the whole height of the cephalon in front, and oblong reniform in shape, pigment bright red. Superior antennæ rather

elongated, exceeding half the length of the body, 1st joint of the peduncle about the length of the 2nd, but much thicker, and having at the end several small dentiform projections; 2nd joint as usual produced at the tip to 2 lappets encompassing the base of the last joint, the inner of these lappets being divided into 5 denticles, flagellum nearly twice the length of the peduncle, and composed of numerous articulations bearing distinct calceolæ, accessory appendage very narrow, and about as long as the last peduncular joint. Inferior antennæ considerably shorter than the superior, last joint of the peduncle longer than the penultimate one, flagellum about the length of those joints combined, and, like the latter, edged with distinct calceolæ. Gnathopoda moderately strong, carpal process not very large, propodos subquadrangular in shape, but little broader than it is long, palm slightly arcuate, dactylus slender, and curved at the tip. Pereiopoda very slender and elongated, meral joint of the 2 anterior pairs about the length of the propodal one, basal joint of the 3 posterior pairs oblong oval, tapering distally, and having the posterior edge strongly serrated. Last pair of uropoda with the rami subequal in size and narrowly lanceolate. Telson comparatively smaller than in the other species, and gradually tapering distally, cleft occupying about 1/3 of the length of the telson, terminal lobes acuminate and scarcely diverging. Body light straw-coloured, and everywhere mottled with small brick-red pigmentary specks; ova in the marsupial pouch dark bluish green. Length of adult female reaching 13 mm.

Remarks. — The present species was first announced by Boeck in the year 1860, at the meeting of the Scandinavian naturalists in Christiania, and was, somewhat later, described by Sp. Bate as *E. helvetiæ*, from an imperfect specimen. According to Boeck the *E. bidens* of Heller is also identical with the present species. It is easily distinguishable from the other species by the presence of only 2 dorsal projections, and by its beautiful pigmentary ornament. From *E. propinqvus*, to which species it bears a rather strong resemblance, both in size and general appearance, it may, on a closer examination, be readily distinguished by the much greater length of the superior antennæ and of the meral joint of the 2 anterior pairs of pereiopoda, as also by the comparatively smaller and less deeply cleft telson. The form recorded by the Rev. Mr. Stebbing, under this name, from the Challenger Expedition, is scarcely identical with Boeck's species.

Occurrence. — The present species is not rarely found along the whole south and west coasts of Norway, in depths ranging from 30 to 100 fathoms. It also occurs in the Trondhjemsfjord, and extends, according to Boeck, even as far north as the Lofoten Isles.

Distribution. — Shetland Isles (Sp. Bate); Firth of Clyde (Robertson); coast of France (Chevreux); Adriatic (Heller).

5. **Eusirus leptocarpus,** G. O. Sars, n. sp.

(Pl. 148, fig. 2).

Body somewhat resembling in form that in the last species, but having the posterior part of the back distinctly carinated, the carina being produced in each of the segments of metasome, the last included, to acute posteriorly pointing projections. Cephalon scarcely attaining the length of the first 2 segments of mesosome combined, lateral corners truncated at the tip. First pair of coxal plates rather expanded, and broader than they are deep, anterior corner narrowly rounded, posterior one unarmed; the 2 succeeding pairs likewise rather broad in proportion to their depth; 4th pair having the edge, below the posterior projection, angularly bent. Last pair of epimeral plates of metasome with the posterior edge but slightly curved and finely serrated throughout, the serrations being also continued for some distance on the inferior edge. Eyes but very faintly traced in alcoholic specimens, though apparently of the usual shape. Superior antennæ but little exceeding $^1/_3$ of the length of the body, 1st joint of the peduncle about the length of the 2nd, both being rather elongated, flagellum considerably shorter than the peduncle, and without any calceolæ, accessory appendage very narrow, and fully as long as the last peduncular joint. Inferior antennæ not much shorter than the superior, last joint of the peduncle scarcely attaining the length of the penultimate one, flagellum about half as long as the peduncle, and without any calceolæ. Gnathopoda comparatively large, with the carpus much elongated and greatly attenuated in its outer part, propodos extremely broad, the breadth being fully twice the length, palm evenly curved, dactylus very narrow and elongated. Pereiopoda rather slender, meral joint of the 2 anterior pairs somewhat longer than the propodal joint, basal joint of the 3 posterior pairs comparatively narrow, and finely serrated on the posterior edge. Last pair of uropoda with the rami subequal and narrowly lanceolate in form. Telson comparatively larger than in *E. longipes*, but otherwise of a very similar structure. Colour in the living state of the animal not yet stated. Length of adult female 8 mm.

Remarks. — This new species somewhat resembles *E. longipes*, as to its general appearance, yet, on a closer examination, is easily distinguishable, not only by its greatly inferior size, but also by several well-marked structural details, for instance, by the presence of a distinct dorsal projection of

the last segment of metasome, in addition to the 2 usual ones, by the much shorter superior antennæ, which, moreover, are without any trace of calceolæ, and finally, by the rather different shape of the gnathopoda.

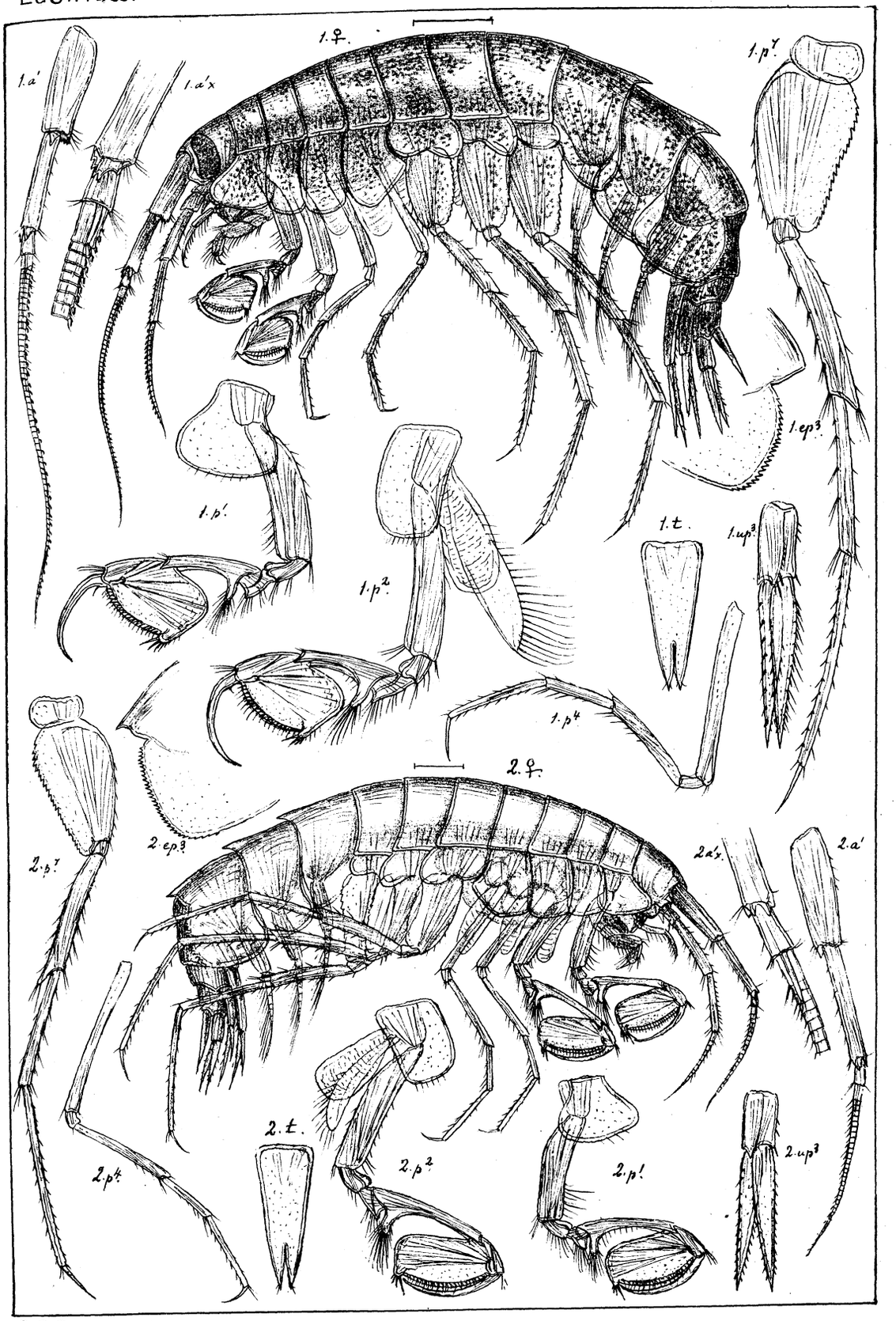
Occurrence. — Some specimens of this form were collected, many years ago, in the inner part of the Hardangerfjord, at Utne, from a depth of 300 —400 fathoms, but were at that time confounded with *E. longipes*. It also occurs in the Trondhjemsfjord, where a few specimens were collected, in the summer of 1891, likewise from a very considerable depth.

Gen. 2. **Rhachotropis,** S. Smith, 1883.

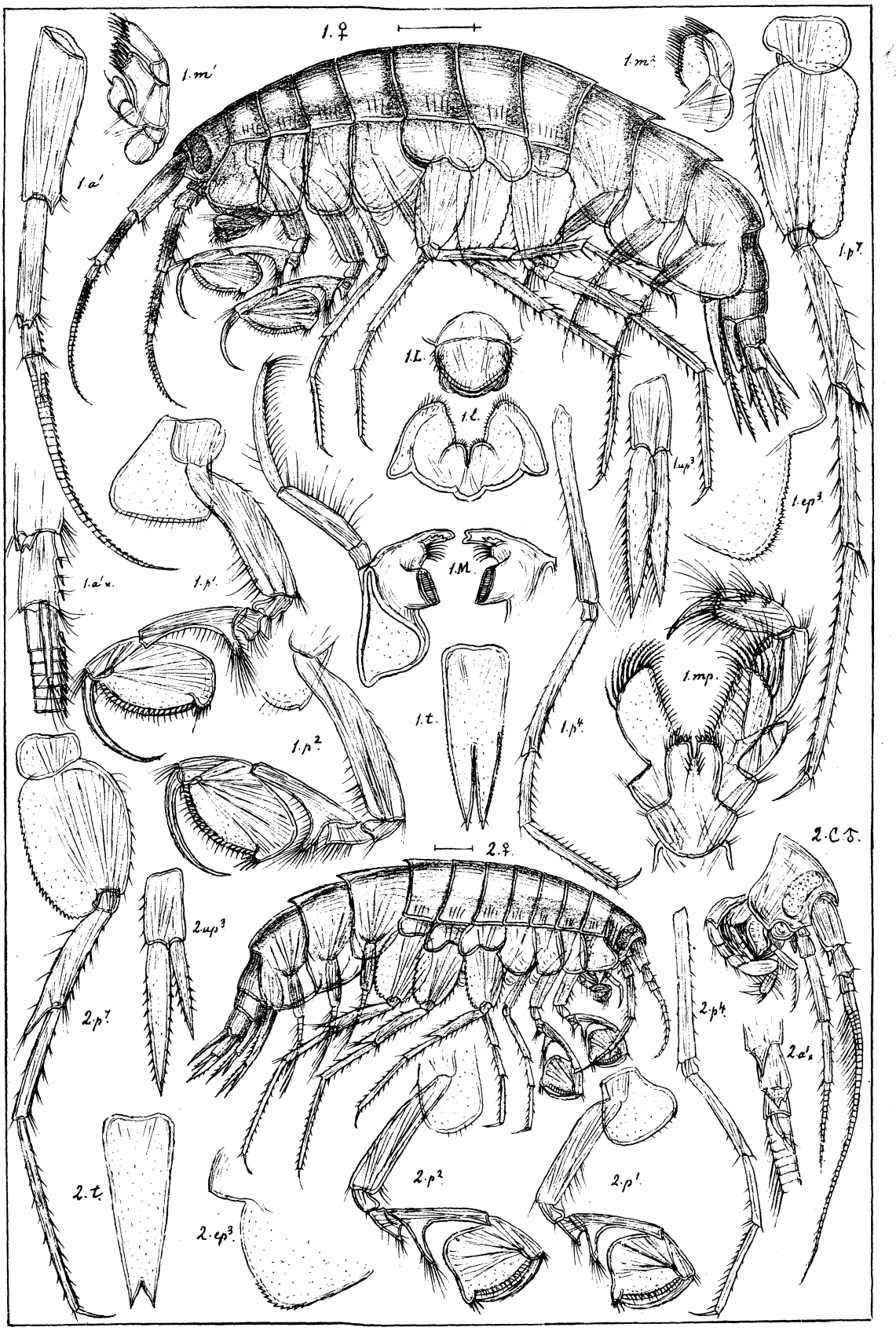
Syn.: Amphithonotus, Stimpson (part).
» Tritropis, Boeck.

Body scarcely at all compressed, and more or less spiny, the posterior part having a distinct dorsal keel, and, on each side of this, a subdorsal one, both generally elevated to acute, posteriorly pointing projections. Cephalon more or less produced in front, and having the lateral corners narrow linguiform. Coxal plates comparatively small; 1st pair expanded in front to a narrow lobe stretching along the side of the cephalon; 4th pair not much larger than the preceding pairs, and but very slightly emarginated posteriorly. Epimeral plates of metasome rounded, those of last segment serrated on the hind edge. Eyes more or less distinctly developed. Superior antennæ, as a rule, in female shorter than the inferior, and provided with a very small, nodiform, though distinctly biarticulate accessory appendage tipped by a rather fully-developed auditory seta and a few small spines. Both pairs of antennæ in male much more elongated than in female. Oral parts nearly of same structure as in *Eusirus*. Gnathopoda very strongly built and nearly equal, carpus comparatively short, and produced below to a setiferous lobe, its distal part not attenuated, propodos of considerable size and oblong oval in form, with the palm very oblique. Pereiopoda slender and elongated, the 3 posterior pairs rapidly increasing in length, basal joint of last pair more expanded than that of the 2 preceding pairs. Last pair of uropoda with the rami more or less foliaceous in character. Telson comparatively large, and having the outer part deeply cleft.

Remarks. — The genus *Amphithonotus* of Costa, which is here quoted as a synonym, is a most collective one, including, as it does, forms belonging to several different genera, of which probably none are referable to the present genus. But Stimpson subsequently referred to it a species, *A.*



G.O.Sars autogr. 1. Eusirus longipes, Boeck.
2. Eusirus leptocarpus, n.sp.



C.O.Sars autogr.

1. Eusirus propinqvus, n.sp.
2. Eusirus minutus, n.sp.