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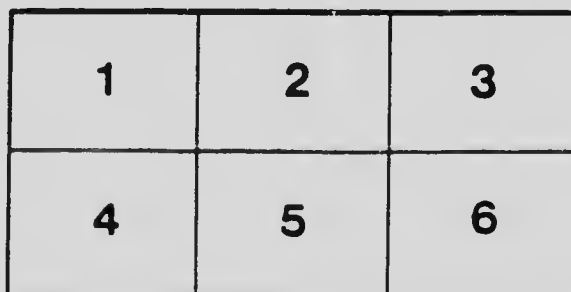
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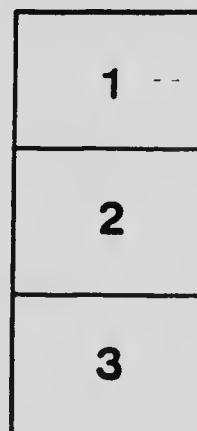
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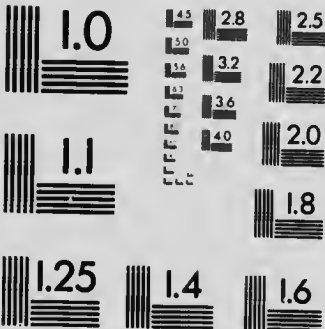
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REPORT
OF THE
CANADIAN ARCTIC EXPEDITION
1913-18

VOL. VII: CRUSTACEA

PART I: OSTRACODA

FRESHWATER OSTRACODA FROM CANADA AND ALASKA

By G. O. Sars

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OTTAWA
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1926

Issued July, 28, 1926

Report of the Canadian Arctic Expedition, 1913-18.

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By G. O. Sars

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FRESHWATER OSTRACODA FROM CANADA AND ALASKA

By PROF. G. O. SARS,

University, Oslo, Norway.

INTRODUCTORY

The freshwater *Ostracoda* of North America are still rather imperfectly known, the only fairly complete account being that given by C. H. Turner in the *Synopsis of the Entomostraca of Minnesota*, published in 1895. From Canada very few species have as yet been recorded, and it will therefore be of interest to have further knowledge of that part of the Fauna in the more northern regions of America.

The present account is based upon collections made mainly by Mr. Frits Johansen, and taken chiefly in the neighbourhood of Ottawa.¹ The collections comprise sixteen species in all, five of which appear to be new to science, and a 6th (*Cypris barbata*, Forbes) constituting the type of a new genus. This and the five new species are figured on the five plates accompanying the present account, and detailed descriptions of them are given in the text.

Family CYPRIDAE

Subfamily CYPRINAE

Group NOTODROMIDES

Genus *Cyprois* Zencker

REMARKS.—Of this well-defined genus, in the restriction now generally accepted, only a single species is as yet known, viz., *C. marginata* (Strauss). I am now enabled to add another nearly allied, but evidently distinct species from Canada.

1. *Cyprois occidentalis*, n. sp.

Plate I.

SPECIFIC CHARACTERS.—*Female*. Shell somewhat compressed, seen laterally (fig. 1), short oval or subquadrangular in shape, greatest height a little behind the middle and about equal to $\frac{1}{3}$ of the length, dorsal margin gently arched in the middle; ventral margin very slightly sinuated, both extremities obtusely rounded off, the anterior a little broader than the posterior; seen dorsally (fig. 2), narrow ovate in outline, with the greatest width behind the middle and scarcely exceeding $\frac{1}{3}$ of the length, anterior extremity gradually narrowed to a sharp point, posterior more obtuse. Valves very thin and transparent, without any obvious sculpturing, and provided at each extremity with a well marked hyaline rim crossed by fine curved striae, that of the anterior extremity being in particular very broad and conspicuous; hairy coating very scarce. Structure of the several appendages (see figs. 4-7, 10-12) on the whole very similar to that in the type species.

Male (fig. 3) of smaller size than female, and slightly differing in the shape of the shell, which is more compressed and, viewed laterally, higher in proportion to the length, with the dorsal margin more arched; posterior extremity, as

¹As only three of the sixteen species listed in this report were represented in the Arctic collections, an apology seems needed for the inclusion of the large mass of extralimital material which is outside of the proper purview of the Arctic expedition publications. The local Ottawa specimens were sent to Professor Sars without proper explanations by the collector, in his zeal for early publication, independently of the Arctic Publications Committee, and as a comprehensive report was prepared by Professor Sars including both the Arctic and the southern specimens, it was thought best not to break up the report.

in the female, obtusely rounded off. Prehensile palps of maxillipeds (figs. 8, 9) distinctly unequal, propodus of the left palp (fig. 9) with a deep sinus about in the middle, bounded proximally by a rather prominent linguiform expansion; dactylus however in both palps narrow and greatly curved. Copulative appendages (fig. 13) comparatively smaller than in the type species and less strongly chitinized, differing also conspicuously in shape. Ejaculatory tubes (fig. 14) comparatively short.

Colour not yet ascertained.

Length of adult female about 1 mm., that of male 0.90 mm.

REMARKS.—The above described form is unquestionably specifically different from *C. marginata*, being of much smaller size and differing conspicuously in the shape of the shell, as seen laterally. Moreover well-marked differences are found in the prehensile palps of the maxillipeds in the male, as also in the copulative appendages and the ejaculatory tubes.

OCCURRENCE.—Two perfect specimens only of this form, a female and a male, were picked up from a sample taken by Mr. F. Johansen, in May, 1923, from pools at Billings bridge, Ottawa, Ont. In the same sample some detached valves of quite young specimens were also found.

Group ENCYPRIDES

Genus *Cypris* O. Fr. Mueller (sens. strict.)

2. *Cypris pubera* O. Fr. Mueller

OCCURRENCE.—Of this large and easily recognizable Ostracod a considerable number of specimens have been collected by Mr. F. Johansen, chiefly from pools at Billings bridge, Ottawa, Ont., in the month of June, 1921-23.

Genus *Eucypris* Vavra.

3. *Eucypris crassa* (O. Fr. Mueller)

OCCURRENCE.—A few, somewhat damaged specimens of this peculiar species were found in a sample taken by Mr. F. Johansen in May, 1923, from some pools at Billings bridge, Ottawa, Ont.

Genus *Cypriconcha*, new genus

GENERIC CHARACTERS.—Shell subcompressed, reniform in shape, and scarcely at all flattened ventrally. Valves sub-equal, thin, and densely hairy, with the edges unarmed; inner duplicatures broad, in particular behind. Antennae comparatively feeble, but apparently well adapted for swimming. Mandibles strong, with the palp distinctly articulate and the vibratory plate well developed. Maxillae with the masticatory lobes comparatively narrow, palp rather produced and having the distal joint cylindrical in shape. Prehensile palps of maxillipeds in male slightly unequal, both having a very conspicuous thumb-like process issuing inside the propodus. Legs comparatively slender, but of normal structure. Caudal rami very much prolonged, with the dorsal edge finally spinulose. Copulative appendages of male of moderate size and slightly lobular behind. Ejaculatory tubes large, with numerous whorls of radiating spikes. Spermatic vessels confined to the posterior part of the valves.

REMARKS.—This new genus is established to include the remarkable form described below and originally recorded by Forbes as a species of the genus *Cypris*. It is, however, evidently not a genuine *Cypris*, in the sense now generally adopted, nor can it, as believed by Turner, be referred to the genus *Herpetocypris*, as it differs essentially in the structure of the valves, and in the posterior antennae being provided with distinctly developed, natatory setae. As it also otherwise exhibits some characteristic differences from the other genera included

in the group *Eucypridae*. I have felt justified in regarding it as the type of a particular genus, for which the above name is proposed. The female sex only has hitherto been observed. By the examination of the male specimen described below I have been still more confirmed in the generic distinctness of the present form.

4. *Cypriconcha barbata* (Forbes)

Plate II

Cypris barbata Forbes, Bulletin of the United States Fish Commission for 1891, p. 214, Pl. XXXVII, figs. 2, 3, Pl. XXXVIII, Washington, 1893.

Herpeto cypris barbata Turner, Freshwater Ostracoda of the United States (in C. L. Herrick, Synopsis of the Entomostraca of Minnesota, p. 316, Pl. LXXVII, 1895, Second Report State Zoologist).

SPECIFIC CHARACTERS.—*Male*. Shell, seen laterally (fig. 1), oblong, uniform in shape, rather higher behind than in front, greatest height about equal to half the length, dorsal margin almost straight in the middle and sloping rather steeply behind, more slowly in front, ventral margin distinctly sinuated in front of the middle and conspicuously bowed in its posterior part; anterior extremity somewhat deflexed and obtusely rounded at the end, posterior considerably broader and rather oblique, with the lower corner quite evenly rounded off. Seen dorsally (fig. 2), narrow oblong in outline, with the greatest width scarcely exceeding $\frac{1}{3}$ of the length, side-edges nearly straight in the middle, both extremities pointed, the posterior more so than the anterior. Valves perfectly equal, with the surface smooth, but all over clothed with rather coarse hairs, forming a dense fringe around the anterior extremity; inner duplicatures remarkably broad behind, and defined inwards by a sharply marked, curved line (see fig. 1). Anterior antennae (fig. 3) rather slender, with the terminal part almost twice as long as the basal one and, as usual, composed of five joints, the first of which is about the length of the two succeeding ones combined; setae of this part slender and elongated, forming together a dense, apical fascicle. Posterior antennae (fig. 4) not nearly so powerfully developed as in the genus *Cypris*, with the penultimate joint much shorter than the preceding one and rather narrow, sublinear in shape; natatory setae present in the usual number and distinctly ciliated, extending however not fully as far as the apical claws; the latter distinctly denticulated. Anterior lip (see fig. 5) somewhat protuberant in front. Mandibles (fig. 6) well chitinized and coarsely dentate at the extremity; palp of moderate size and rather densely setiferous, with the vibratory plate comparatively large and provided with six plumose setae, five on the transversely truncated extremity, and one rather smaller on the anterior edge. Maxillae (fig. 7) with the spines of the outermost masticatory lobe smooth; palp considerably produced beyond this lobe; vibratory plate large, semilunar in shape. Maxillipeds (fig. 8) transformed in the usual manner, the palp being developed to a powerful, grasping organ, that on the right side somewhat larger than that on the left (fig. 9), and having the thumb like process of the propodus considerably more prominent; dactylus moreover exhibiting at the base a well-marked, tridentate, lamellar expansion, only faintly indicated on the left palp. Anterior legs (fig. 10) considerably more slender than in the genus *Cypris* with the terminal part distinctly four-articulate. Posterior legs (fig. 11) still more slender, with the apical joint knob-like and armed with a somewhat hamate spine and a recurved seta (see fig. 12). Caudal rami (fig. 13) exceedingly long and slender, almost attaining half the length of the shell, and somewhat flexuous, dorsal edge with about eight succeeding combs of spinules, apical claws (according to Forbes) contained about two and a half times in the length of the ramus.*

*These claws were broken off in the specimen examined by me; they are, however, added in the figure from the drawing given by Forbes.

Seta of the dorsal edge very small and attached near the apex. Copulative appendages (fig. 14) oblong oval in shape and divided behind into two obtusely rounded lappets. Ejaculatory tubes (fig. 15) very large and each enclosed within a roomy, muscular sheath; both extremities funnel-shaped.

Colour, according to Forbes, a dirty yellowish-brown, with a reddish-brown patch on either side.

Length of the specimen examined 3.40 mm.

REMARKS.—This large and handsome ostracod has hitherto only been observed by Prof. S. A. Forbes, who in the above-quoted paper has given a rather full description of the female accompanied by some figures. The description, which has been reproduced *in extenso* in Mr. Turner's monograph, agrees on the whole pretty well with that here given; though, because the specimen examined by me was of a different sex, some differences in the shape of the shell, as seen laterally, are found, in addition to the sexual transformation of the maxillipeds. Forbes gives the length of the shell to 4 mm. and supposes it to be the largest freshwater ostracod known. It is, however, in this respect considerably surpassed by some of the South African forms recorded by the present author, particularly by the big species of the genus *Megalocypris*.

OCCURRENCE.—The above described solitary specimen was taken by Mr. A. G. Huntsman on June 11, 1920, in sloughs, three miles northeast of Medicine Hat, Alberta. Forbes obtained the species from the Yellowstone river, Yellowstone Park, Wyoming (1893, Prelim. Rep. Aquat. Invert. Fauna).

Genus *Cypricercus* G. O. Sars

5. *Cypricercus affinis* (Fischer)

OCCURRENCE.—Several specimens of this form have been collected by F. Johansen. They were taken at the two following localities.

Pools at Billings bridge, Ottawa, Ont., May, 1923.

Brackish pond at Teller, Port Clarence, Alaska, Aug. 3, 1913, C.A.E.*

6. *Cypricercus horridus*, n. sp.

Plate III, figs. 1-7.

SPECIFIC CHARACTERS.—*Female*. Shell very tumid, seen laterally (fig. 1), rather regularly oval or elliptical in shape, greatest height nearly in the middle and somewhat exceeding half the length, dorsal margin gently arched, with the greatest curvature in the ocular region, and joining the hind-edge without any angular bend, ventral margin slightly sinuated in the middle and somewhat bowed in front, both extremities evenly rounded off, the anterior one considerably broader than the posterior—seen dorsally (fig. 2), broadly oval in outline, with the greatest width attaining about $\frac{3}{4}$ of the length, both extremities somewhat blunted, the posterior more so than the anterior. Valves, as in the other species of this genus pronouncedly unequal, the left one considerably overlapping the right in front, as also somewhat behind; surface very uneven, being everywhere thickly covered with short and stout, somewhat squamiform spikes curving as a rule, backwards, and giving the shell a very scabrous appearance; a rather dense coating of fine hairs may also be observed. Structure of the several limbs (*see* figs. 3-6) on the whole agreeing closely with that in the other known species. Caudal rami (fig. 7) exhibiting the appearance characteristic of the genus, being much produced, narrow linear in shape and perfectly straight, distal apical claw not attaining half the length of the ramus.

Colour not yet ascertained.

Length of adult female 1.05 mm.

Male unknown.

*See pp. 3-4 in Part N, of this volume.

REMARKS.—The above described form is unquestionably referable to the genus *Cypricercus*, as defined by the present author in his most recent publication (Account of the Crustacea of Norway, Vol. IX, Bergen, 1925, p. 117). It is, however, well distinguished from any of the other known species by the very pronouncedly scabrous surface of the shell, this character having indeed given rise to the specific name proposed. In the structure of the several appendages I have not found any essential difference from that in the other species. Yet, for comparison, figures of some of the limbs have been given on the accompanying plate.

OCCURRENCE.—Three female specimens only of this easily recognizable form have come to my notice. They were found in two samples taken by Mr. Fr. Johansen at the two following localities:—

Rideau canal, Ottawa, Ont., June 9, 1918 (1 specimen).

Pools at Billings bridge, Ottawa, Ont., June 16, 1923 (2 specimens).

7. *Heterocypris incongruens* (Ramdohr)

OCCURRENCE.—This seems to be the commonest ostracod occurring in Canada, as a rather considerable number of specimens have been collected by Mr. F. Johansen from several places. The localities are as follows:—

Pools at Aylmer road (near Deschenes), Que., May 15, 1921 (numerous specimens).

Pond on the pasture at Graham Bay station, Britannia, Ottawa, Ont., May 28, 1922 (several specimens).

Rock-pools at Cape Gaspé, Que., Aug. 12, 1922 (numerous young specimens and detached valves).

Shallow pond at Chelsea road, Que., near Ottawa, May 2, 1922 (several specimens).

Pools along the road (grassy clay at the bottom), Port au Port, west coast of Newfoundland, September 2, 1922 (numerous specimens).

Genus *Prionocypris* Bray and Norman

8. *Prionocypris canadensis*, n. sp.

Plate III, figs. 8-16.

SPECIFIC CHARACTER.—*Female*. Shell somewhat compressed, see laterally (fig. 8) oblong trigonal in shape, greatest height in front of the middle and not fully attaining half the length, dorsal margin gibbously arched at some distance behind the ocular region, and sloping nearly at a straight course to each extremity, ventral margin distinctly sinuated in the middle, anterior extremity broadly rounded, posterior much narrower and obliquely produced, terminating below in an obtuse corner; see dorsally (fig. 9), narrow oblong in outline, with the greatest width about equal to two-fifths of the length, both extremities pointed and nearly equal. Valves subequal and rather thin, semi-pellucid, with the edges unarmed, surface smooth and only sparingly hairy. Anterior antennae (fig. 10) with the terminal part scarcely longer than the basal one, first joint about the length of the two succeeding ones combined, setae rather elongated. Posterior antennae (fig. 11) with the first joint of the terminal part moderately dilated and slightly longer than the other two combined; natatory setae reduced to very small rudiments (see fig. 12). Oral parts and legs (figs. 13-15) of quite normal structure. Caudal rami (fig. 16) rather powerfully developed and perfectly straight, linear in shape; distal apical claw scarcely attaining half the length of the ramus, dorsal seta small and attached near the apex.

Colour not yet ascertained.

Length of adult female 1.40 mm.

Male unknown.

REMARKS.—The quite rudimentary condition of the natatory setae on the posterior antennae proves this form to be referable to the genus *Prionocypris*, as recently defined by the present author. In this respect it certainly agrees also with the genus *Herpetocypris*; but it cannot by any means be referred to that genus, because the structure of the valves is wholly different and agrees closely with that found in the other species of the present genus. From these it differs conspicuously in the shape of the shell.

OCCURRENCE.—Two female specimens of this form were found in a sample taken by Mr. J. B. Tyrrell from a small brook in the foothills, tributary to Middle fork, Old Man river, Alberta, August 15, 1883.

Group CYPRIDOPSIDES

Genus *Cypridopsis* Brady

9. *Cypridopsis aculeata* (Costa)

OCCURRENCE.—Some few specimens of this form were raised from a parcel of dried mud kindly sent to me from Mr. F. Johansen, and taken by him from a pool near Ottawa.

Genus *Pionocypris* Brady and Norman

10. *Pionocypris vidua* (O. F. Mueller)

OCCURRENCE.—This form was raised rather abundantly from the same parcel of mud as the above named *Cypridopsis*. Four specimens were moreover picked up from a sample taken by Mr. F. Johansen on June 9, 1918, from the Rideau canal, Ottawa, Ont.

11. *Pionocypris helvetica* (Kaufmann)

OCCURRENCE.—Raised in my aquaria together with the preceding species. Also found in a sample taken by Mr. F. Johansen from a pool in fields on beaver meadow, Que., near Ottawa, on May 26, 1918.

Group CYCLOCYPRIDES

Genus *Cyclocypris* Brady and Norman

12. *Cyclocypris globosa* G. O. Sars

OCCURRENCE.—Some few specimens, apparently belonging to this species, were found in a sample of lake Plankton, 0-20 fathoms, three vertical hauls with net No. 4, through hole in ice, June 12, 1916, at Bernard harbour, Dolphin and Union strait, N.W.T.*

Genus *Cypria* Zencker

13. *Cypria lacustris* G. O. Sars

OCCURRENCE.—Found occasionally in the same sample as the *Cyclocypris*.

Group CANDONIDES

Genus *Candona* Baird

14. *Candona subgibba*, n. sp.

Plate IV, figs. 1-9.

SPECIFIC CHARACTERS.—*Female*. Shell rather compressed, seen laterally (fig. 1) of a somewhat irregular oblong shape, greatest height scarcely attaining half the length; dorsal margin considerably arched, forming behind the middle

*See p. 16 in Part N, of this volume.

an abrupt, almost gibbous bend and sloping rather steeply behind, more slowly in front; ventral margin distinctly sinuated in front of the middle and curved evenly upwards behind; both extremities obtusely rounded off, the anterior rather broader than the posterior, which appears somewhat produced behind; seen dorsally (fig. 2) the shell is narrow fusi-form or lancet-shaped, with the greatest width scarcely attaining one-third of the length; both extremities equally contracted and pointed at the end. Valves rather thin, semipellucid, and almost bare of hairs. Anterior antennae (fig. 3) comparatively slender, with the terminal part considerably longer than the basal one and all five joints of about same length; setae of this part rather slender and elongated. Posterior antennae (fig. 4) with the terminal part scarcely longer than the basal one, and, as in the other species of this genus, without any trace of natatory setae. Oral parts (figs. 5, 6) of the usual structure. Anterior legs (fig. 7) comparatively slender and elongated, with the first joint of the terminal part fully as long as the other three combined. Posterior legs (fig. 8) with the penultimate joint distinctly subdivided, terminal joint small but having all the three apical setae well developed. Caudal rami (see fig. 9) evenly curved and much attenuated, with the apical claws rather slender and considerably exceeding half the length of the ramus; dorsal seta well developed and rather remote from the apex. Genital lobes (ibid) unusually large, and each sending off behind a peculiar, somewhat securi form lappet.

Colour not yet ascertained.

Length of adult female 1.35 mm.

Male.—Unknown.

REMARKS.—In the general outward appearance this form bears some resemblance to the species of the genus *Cryptocandona* Kaufmann. It is, however, a true *Candona*, as proved by the structure of the several appendages, and may easily be distinguished from most other species of that genus by the gibbously vaulted dorsal face of the shell. The peculiar shape of the genital lobes is one of the most distinctive characters of the present species.

OCCURRENCE.—A solitary fully adult female specimen of this species was found in a sample taken by Mr. F. Johansen on Aug. 3, 1913, from a brackish pond at Teller, Port Clarence, Alaska.* Another specimen, exactly agreeing with the one here described had been previously picked out from a sample of dried mud kindly forwarded to me from Prof. Ishikawa, and taken from a pond near Tokyo, Japan.

15. *Candona parvula*, n. sp.

Plate IV, figs. 10-15.

SPECIFIC CHARACTERS.—*Female*. Shell less compressed than in the preceding species; seen laterally (fig. 10) rather regularly oblong oval in shape and nearly equally high throughout, with the height about half the length; dorsal margin almost straight and horizontal in the middle and sloping somewhat more steeply behind than in front; ventral margin slightly sinuated; both extremities obtusely rounded, the posterior a little broader than the anterior; seen dorsally (fig. 11), regularly oblong in outline, with the greatest width somewhat less than the height; anterior extremity obtusely pointed, posterior a little broader and more blunted. Valves only slightly pellucid, with the surface smooth and of a pearly lustre. Antennae and legs (figs. 12-14) comparatively shorter and more robust than in the preceding species. Posterior legs (fig. 14) with the penultimate joint not subdivided; shortest apical seta very small and hamiform, curved at the tip. Caudal rami (fig. 15) only slightly curved and much less attenuated than in *C. sabjibba*; apical claws rather shorter not attaining half the length of the ramus. Genital lobes (ibid) simple, rounded off behind.

* See also fig. 4 in part X, of this volume.

Colour, opaque whitish.

Length of shell scarcely exceeding 0.56 mm.

Male.—Unknown.

REMARKS.—This is a very small species and could easily be taken for one of the young of some larger form. I have, however, found all the appendages well developed, and, though no ripe ova were observed in the body cavity, I believe that the specimens had arrived at their full size.

OCCURRENCE.—Several specimens of this small ostracod, all of about the same size, were picked up from a sample taken by Mr. Fr. Johansen, May 20, 1918, from a pool on fields in beaver meadow, Que., near Ottawa.

Family CYTHERIDAE

Genus *Cytherites*, new genus

GENERIC CHARACTERS.—Shell short, scale-like, and much compressed with the valves perfectly equal and quite unarmed; surface smooth without any obvious sculpture. Antennae rather strong and built on the usual Cytheridean type. Mandibles with all the parts well developed. Maxillae, however, without any distinctly defined masticatory lobes. Legs very peculiar, all pronouncedly prehensile, terminating in a subcheliform hand.

REMARKS.—The present new genus, the chief characters of which are given above, is in particular highly distinguished by the remarkable structure of the legs, which is unlike that found in any other Cytherid known to me, and points to quite peculiar habits of the animal. The general shape of the shell differs also conspicuously from that usually met with in Cytheridae and looks more similar to that in some of the Cypridae, for instance in the species of the genus *Cypria*. After all, this genus differs so essentially from the other known Cytherida, that it should more properly be regarded as the type of a particular subfamily.

16. *Cytherites insignipes*, n. sp.

Plate V

SPECIFIC CHARACTERS.—*Female*. Shell, seen laterally (fig. 1), of a short rounded oval shape, with all the edges smoothly curved, greatest height somewhat behind the middle and attaining almost two-thirds of the length; dorsal margin boldly arched and sloping more steeply behind than in front; ventral margin scarcely at all sinuated; anterior somewhat oblique; posterior much broader and obtusely blunted, with the lower corner evenly rounded off; seen dorsally (fig. 2) the shell is very narrow lanceolate in outline, with the greatest width not nearly attaining one-third of the length; anterior extremity somewhat more pointed than the posterior. Valves very thin, with the surface perfectly smooth and almost bare of hairs, inner duplicatures apparently very narrow, eyes not observed. Anterior antennae (fig. 4) moderately strong, with the two joints of the basal part sharply defined and forming with each other an angular bend; terminal part almost twice as long as the basal one, and composed of five joints not much different in length and clothed with comparatively short simple setae; last joint very narrow, with three apical setae. Posterior antennae (fig. 5) rather stout, with the penultimate joint distinctly subdivided in the middle; last joint armed with two unequal claws, the posterior one being much the stronger and coarsely pectinate inside; flagellum well developed, extending almost to the extremity of the antenna. Anterior lip (see fig. 6) only slightly bowed in front; posterior lip, as usual, strengthened by two securiform and highly chitinised pieces (fig. 7). Mandibles (fig. 8) comparatively slender but well chitinised, with the extremity coarsely dentate; outermost tooth

lamellar and fringed with fine spinules (*see* fig. 9); palp rather narrow and only sparingly setiferous, but armed on the tip with a coarse, claw-like spine; vibratory plate small and edged with three or four slender setae. Maxillae (fig. 10) provided at the base with a well-developed, semilunar, vibratory plate; palp very much produced with the proximal joint narrow-fusiform in shape; distal joint short and armed on the tip with two subequal, clawlike spine (*see* fig. 11). Legs (fig. 12) comparatively short and robust, only slightly increasing in length posteriorly, with the basal part almost bare; first joint of the terminal part rather narrow and of somewhat different length on the several legs; the two outer joints in all of these firmly connected, to form a somewhat dilated hand, against which the strongly curved, nail-shaped apical claw or dactylus is seen to impinge, the latter issuing with a broad compressed base and terminating in a sharp, upturned point, being moreover armed inside with five long and slender, likewise upturned spinules (*see* fig. 13). Caudal lamellae (comp. fig. 3) much reduced, but not clearly made out.

Colour not yet ascertained.

Length of adult female 0.45 mm.

Male.—Unknown.

REMARKS.—The above-described remarkable ostracod is easily distinguished from any of the hitherto recorded Cytheridae, both as to the general shape of the shell and to the structure of the several appendages, in particular that of the legs. It is one of the smallest known forms, and indeed the anatomical examination has therefore been attended with no small difficulties.

OCCURRENCE.—Three specimens of this interesting form were among the Ostracoda sent to me by Mr. F. Johansen. They were contained in a separate little tube labelled "*Cythere*, Canada," the exact locality, date and collector not being known. (Old museum specimen, perhaps collected by J. B. Tyrrell.)

LIST OF LITERATURE RECORDING RECENT FRESHWATER
OSTRACODA FROM CANADA AND ALASKA

(Compiled by Frits Johansen, Ottawa)

- ADAMSTONE, F. B., and HARKNESS, W. J. K., 1923: The Bottom Organisms of Lake Nipigon (Univ. Toronto Studies, Biol. Ser., No. 22, Toronto, pp. 121-70). Records the occurrence of ostracods in bottom of Lake Nipigon, Ont., in 1921, on pp. 125, 127, 145, 155-60, 165-66, 168-70.
- ADAMSTONE, F. B., 1924: The Bottom-fauna of Lake Nipigon (ibid., No. 21, pp. 43-70). Records ostracods as found in Lake Nipigon, Ont., in 1922, on pp. 46-51, 53-57, 65.
- Distribution and economic importance of the bottom-fauna of Lake Nipigon (ibid., No. 25, pp. 33-100). Records ostracods (*Candona* sp., *Limnocythere* sp., etc.; see particularly p. 52) as occurring at bottom and in fish-stomachs in Lake Nipigon, Ont., 1921-23, on pp. 40-47, 51-52, 65-66, 70, 76, 78-79.
- ALM, G., 1914: Beiträge zur Kenntniss der nördlichen und arktischen Ostracodenfauna (Arkiv for Zoologi, Stockholm, Vol. IX, No. 5, 20 pp., 1 plate). Records, on p. 4, *Eucypris affinis hirsuta* Fisch., from Topsail, south end of Conception bay, east coast of Newfoundland, collected by Lindahl on August 21, 1871 (one female); and, from Grantley harbour, Port Clarence, Alaska, collected by the Swedish "Vega" Expedition, on July 23, 1879. Also, on p. 7, *Cypridopsis ridaa* O. F. Muell. (female) and *Cyprid crsculpta* Fisch. (male and female) are recorded from Topsail, Newfoundland.
- BAXTER, J. McG., 1903: Microscopic forms in freshwater (Proc. Nat. Hist. Assoc. Miram., No. III, Chatham, pp. 5-10). Mentions, on p. 7, cyprids as found in ponds near Chatham, N.B.
- 1905: Freshwater-life (ibid., No. IV, pp. 12-18). Mentions, on pp. 14, 17-18, cyprids as observed in freshwater from Chatham, N.B.
- BIGELOW, N. K., 1923: The Plankton of Lake Nipigon and environs (Univ. Toronto Stud., Biol. Ser., No. 22, Toronto, pp. 39-66). Records, on pp. 59-60, *Cyprid* sp., *Candona* sp., *Spirocypris tuberculata* Sharpe, *Limnocythere reticulata* Sharpe, *Ilyodromus pectinatus* Sharpe, from Lake Nipigon, Ont., collected in 1921.
- 1924: The food of young suckers in Lake Nipigon (ibid., No. 24, pp. 81-116). Records ostracods as found in the stomachs of *Catostomus commersoni* in Lake Nipigon in 1921-22, on pp. 88-91, 93-94, 96-100, 104-05, 109.
- CLEMENS, W. A., and BIGELOW, N. K., 1922: The food of Ciscoes (*Leucichthys*) in Lake Erie (ibid., No. 20, pp. 39-51). Records, on p. 51, ostracods as found in the stomach of *L. harengus* in Georgian bay, Ont.
- (This article is reprinted in Contrib. Canad. Biol. for 1921, Toronto, 1922, pp. 87-101; ostracods mentioned on p. 99.)
- CLEMENS, W. A., DYMOND, J. R., BIGELOW, N. K., and ADAMSTONE, F. B., 1923: The food of Lake Nipigon fishes (ibid., No. 22, pp. 171-88). Records, on pp. 175-81, 183-84, ostracods (*Cyprid* sp. and *Candona* sp.) found in fish stomachs from Lake Nipigon, Ont., in 1921.
- CLEMENS, W. A., DYMOND, J. R., and BIGELOW, N. K., 1924: Food-studies of Lake Nipigon fishes (ibid., No. 25, pp. 101-66). Record ostracods as occurring in the stomachs of fishes from Lake Nipigon, Ont., in 1921-23, on pp. 105-11, 114-20, 126-28, 133-35, 137-46, 157, 161-62.
- CUSHMAN, J. A., 1908: Freshwater Crustacea from Labrador and Newfoundland (Proc. U.S.N.M. Vol. 33, pp. 705-13, Plates LVIII-LXII, Washington). Describes, on p. 706 and Plate LVIII, figs. 1-10, *Herpetocypris testudinaria* n. sp. from a pond on Funk Island, north end of Newfoundland (about 30 miles off the Labrador coast), collected by O. Bryant in May, 1906.
- FOERSTER, R. E., 1925: Studies in the ecology of the Sockeye Salmon (Contrib. Canad. Biology, New Ser., Vol. II, pp. 335-422, Toronto). Mentions, on Table 13, and on pp. 405-06 the finding of ostracoda in the stomachs of young *Oncorhynchus nerka* from Cultus and Hicks lakes on the lower Fraser river, B.C., in the spring of 1923.

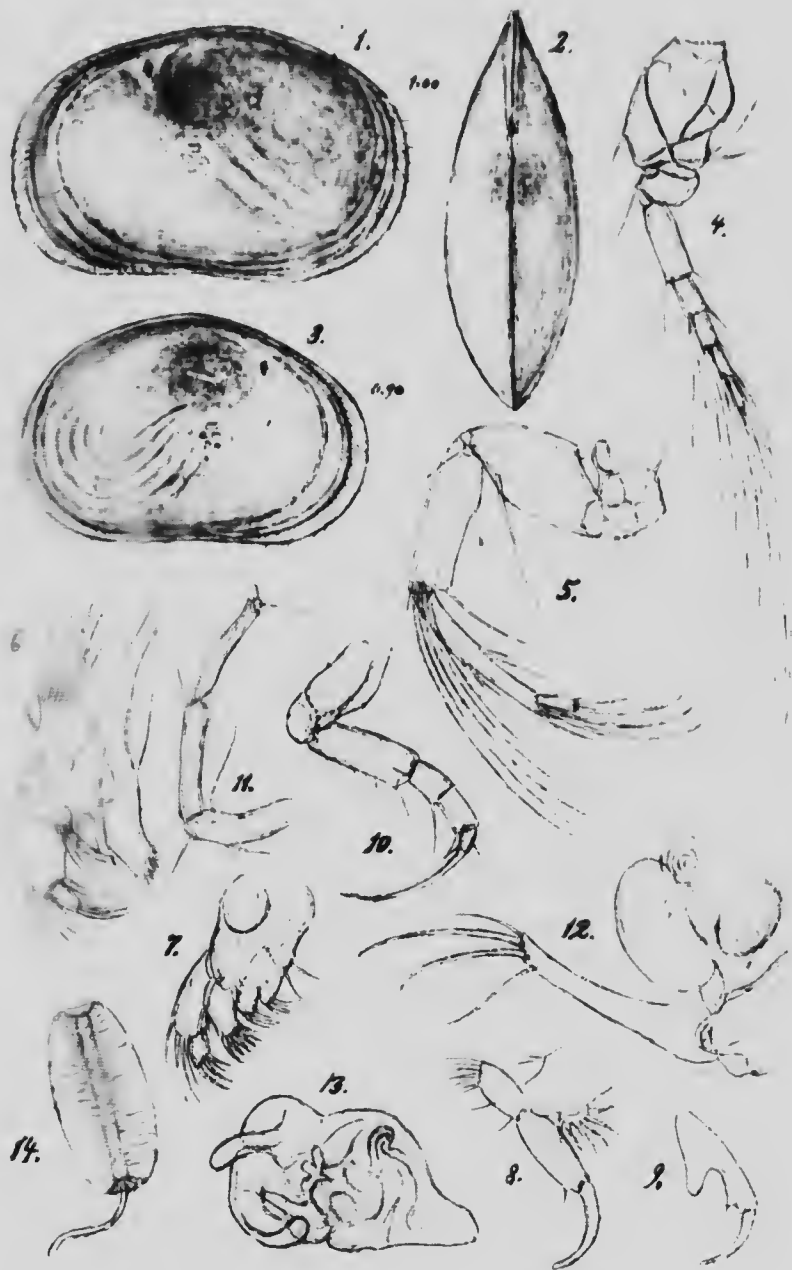
- HUNTSMAN, A. G., 1913: Invertebrates other than insects and molluscs (Nat. Hist. Toronto Region, Toronto, pp. 272-87). Mentions, on p. 275, Nicholson's record of *Cypris* sp. ? from Lake Ontario, near Toronto.
- 1922: The Quill Lakes of Saskatchewan and their fishery possibilities (Contrib. Canad. Biol., New Ser., Vol. 1, Toronto, pp. 125-11). Records, on p. 132, ostracods (*Limnocythere reticulata*, etc.), from Quill lakes in Sask. (lat. 52 degrees N., long. 101 degrees W.), collected by him and Prof. A. Willey in the spring of 1920.
- JOHANSEN, FRITS, 1921: Insect Life on the western arctic coast of America (Rep. Can. Arct. Exped. 1913-18, Vol. III, Part K, Ottawa, p. 19).
- 1922: Euphyllopod Crustacea of the American Arctic (ibid., Vol. VII, Part G, p. 3).
- 1922: The Crustacean life of some arctic lagoons, lakes and ponds (ibid., Vol. VII, Part N, pp. 4, 16). Freshwater ostracods observed in Alaskan and Western Canadian Arctic mentioned in these three papers.
- 1921: The larger freshwater Crustacea from Canada and Alaska (Canad. Field-Natur., Ottawa, Vol. 35, pp. 89, 92).
- 1923: Additional Notes on Euphyllopod Crustaceans (ibid., Vol. 37, p. 2).
- 1924: Further Notes on Canadian Euphyllopods (ibid., Vol. 38, pp. 1, 4, 7).
- In these three articles the occurrence (1921-23) of ostracods in ponds around Ottawa, Ont., is mentioned; and "mussel-shrimps" is proposed as the popular English name for these crustacea.
- KIRGH, A. B., 1921: Notes on Canadian Entomostraca (ibid., Vol. 35, pp. 72-73). Records, on p. 73, *Cypridopsis vidua* O. F. Muell., *Cyclocypris laevis* O. F. M., and *Cypris dentata* Sharpe, from near Kingston, Ont.; and *Cypris testudinaria* Sharpe, from Avlmer West, Elgin county (north shore of Lake Erie), collected by himself and H. C. White.
- 1923: A new *Cyclocypris* from eastern Canada (Trans. Roy. Can. Inst., Toronto, Vol. XIV, pp. 337-42, Plate XXVII). Describes *C. castanea* n. sp. from freshwater pools near St. Andrews, N. B., collected by himself in June, 1921 (together with *Cypridopsis vidua*, *Cypris reticulata*, *Caulona parallela*, *Cyclocypris laevis*) and in Chamcook lake (near St. Andrews), N.B., collected by himself in 1922 (p. 337).
- NICHOLSON, H. A., 1872: Preliminary Report on dredgings in Lake Ontario in 1872 (Annals and Magazine of Natural History, London, 4th Ser., Vol. X, pp. 276-85). Practically the same article as in Canad. Journal, Toronto, Vol. XIII; ostracods mentioned on pp. 278, 281.
- 1873: Contrib. Fauna Canad. (Canad. Journal, New Ser., Toronto, Vol. XIII, pp. 490-506). Mentions, on pp. 493, 501, *Cypris* sp. ? as common in muddy bottom of Lake Ontario, at 10-15 fathoms.
- SARS, G. O., 1915: Entomostraca of Georgian Bay (Contrib. Canad. Biol. for 1911-14, II, Ottawa, pp. 221-22). Records on p. 222, *Cyclocypris serena* Koch, from the Biolog. Station at Go Home bay, Georgian bay, Ont. (Lake Huron), collected by E. M. Walker in the summer of 1907.
- 1925: An Account of the Crustacea of Norway, Vol. IX, Ostracoda, Bergen (in publication). Mentions, on p. 137, the collecting of *Pionocypris helvetica* Kaufm. at Ottawa, Ont., by F. Johansen. (See this C. A. E. report.)
- SHARPE, R. W., 1918: Ostracoda (Ward and Whipple's Freshwater-Biology, New York, pp. 790-827). Mentions, on p. 813, the occurrence of *Perpetocypris testudinaria* Cushman in ponds on Newfoundland.
- WILLEY, A., 1923: Notes on the distribution of free-living Copepoda in Canadian waters (Contrib. Canad. Biol., New Ser., Vol. 1, Toronto, pp. 303-34, ill.). Records, on pp. 305, 311-12, two species of Ostracoda (*Caulona parallela* and *Cypris ophthalmica*) from St. Annacadie river, at the head of Minas basin, on the west side of Nova Scotia, collected by A. H. Leim in July-August, 1919 and 1920.

EXPLANATION OF THE PLATES

Plate I.

Cyprois occidentalis G. O. Sars n. sp.

- Fig. 1. Adult female, viewed from left side.
- Fig. 2. Same, dorsal view.
- Fig. 3. Adult male, seen from right side.
- Fig. 4. Anterior antenna.
- Fig. 5. Posterior antenna.
- Fig. 6. Mandible with palp.
- Fig. 7. Maxilla (without the vibratory plate).
- Fig. 8. Left maxilliped of male.
- Fig. 9. Palp of right maxilliped.
- Fig. 10. Anterior leg.
- Fig. 11. Posterior leg.
- Fig. 12. Extremity of body, with caudal ramus and genital lobe, seen from left side.
- Fig. 13. Copulative appendage of male.
- Fig. 14. Ejaculatory tube.



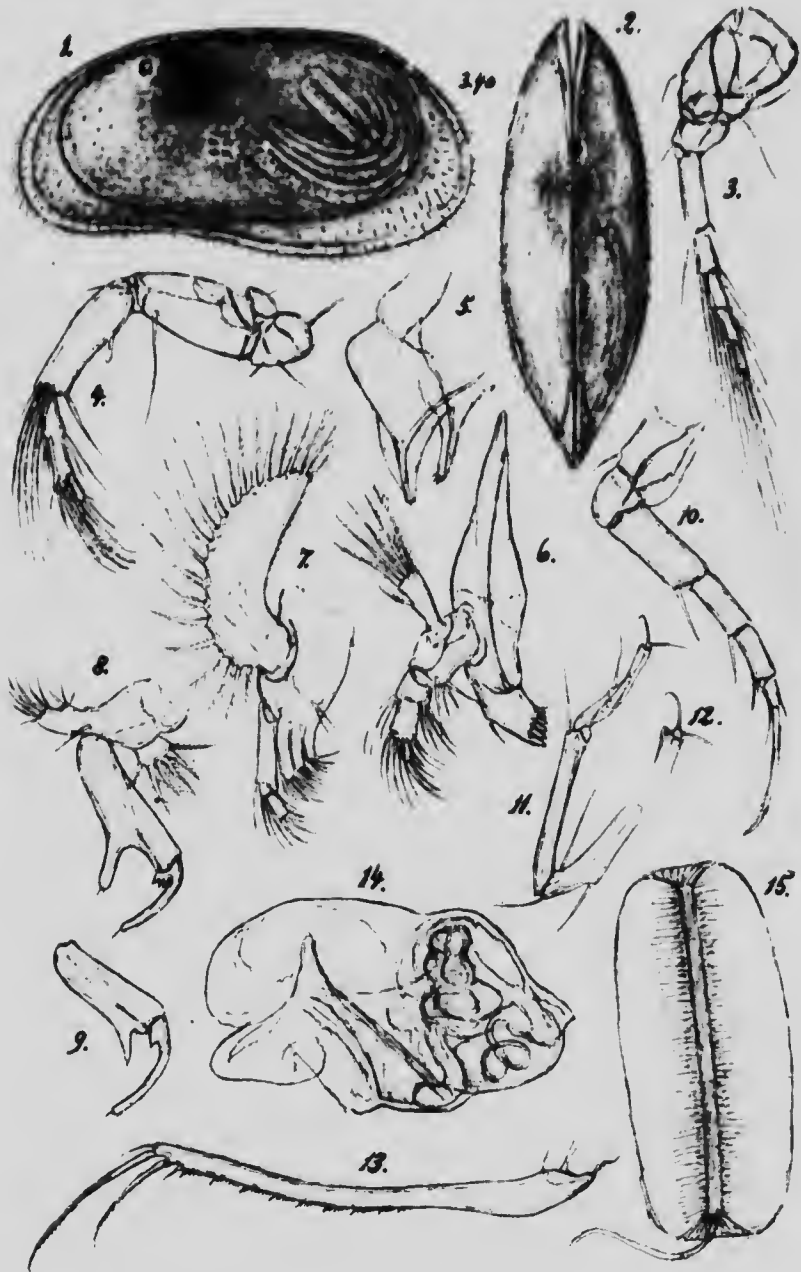
G. O. Sars, delin

Cypris occidentalis, G. O. Sars

Plate II.

Cypriconcha barbata (Forbes)

- Fig. 1. Adult male, seen from left side.
- Fig. 2. Same, dorsal view.
- Fig. 3. Anterior antenna.
- Fig. 4. Posterior antenna.
- Fig. 5. Lips seen from left side.
- Fig. 6. Mandible with palp.
- Fig. 7. Maxilla with vibratory plate.
- Fig. 8. Right maxilliped.
- Fig. 9. Palp of left maxilliped.
- Fig. 10. Anterior leg.
- Fig. 11. Posterior leg.
- Fig. 12. Extremity of same, more highly magnified.
- Fig. 13. Caudal ramus.
- Fig. 14. Copulative appendage.
- Fig. 15. Ejaculatory tube.



G. O. Sars, delin.

Cypriconcha barbata (Forbes).

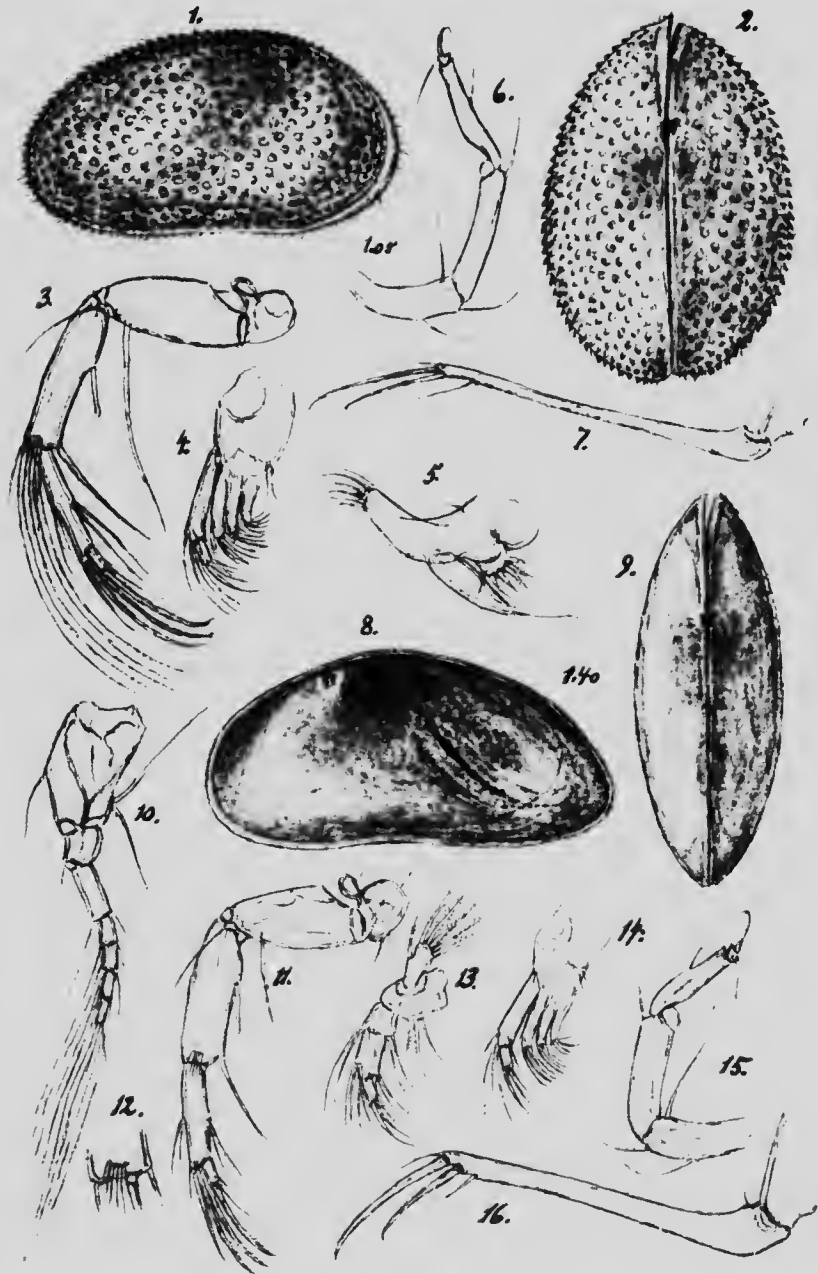
Plate III.

Capricornus horridus G. O. Sars, n. sp.

- Fig. 1. Adult female, seen from right side.
 Fig. 2. Same, dorsal view.
 Fig. 3. Posterior antenna.
 Fig. 4. Maxilla (without the vibratory plate).
 Fig. 5. Maxilliped.
 Fig. 6. Posterior leg.
 Fig. 7. Caudal ramus.

Prionocypris canadensis G. O. Sars, n. sp.

- Fig. 8. Adult female, seen from left side.
 Fig. 9. Same, dorsal view.
 Fig. 10. Anterior antenna.
 Fig. 11. Posterior antenna.
 Fig. 12. Piece of same more highly magnified, showing the rudimentary natatory setae.
 Fig. 13. Mandibular palp.
 Fig. 14. Maxilla (without the vibratory plate).
 Fig. 15. Posterior leg.
 Fig. 16. Caudal ramus.



G. O. Sars, delin. 1-7. *Cypricercus horridus*, G. O. Sars.
8-16. *Prionocypris canadensis*, G. O. Sars

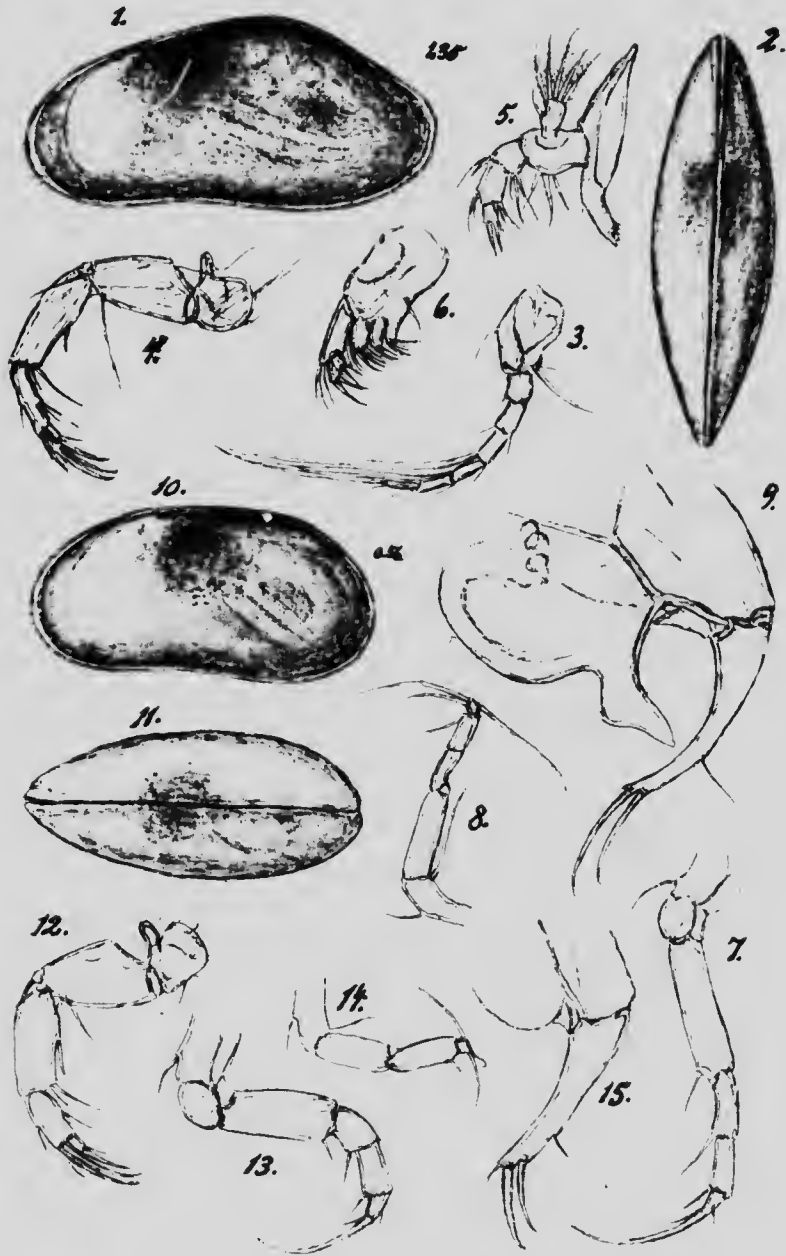
Plate IV.

Candona subgibba G. O. Sars, n. sp.

- Fig. 1. Adult female, seen from left side.
- Fig. 2. Same, dorsal view.
- Fig. 3. Anterior antenna.
- Fig. 4. Posterior antenna.
- Fig. 5. Mandible with pulp.
- Fig. 6. Maxilla (without the vibratory plate).
- Fig. 7. Anterior leg.
- Fig. 8. Posterior leg.
- Fig. 9. Extremity of body, with caudal ramus and genital lobe, seen from left side.

Candona parvula G. O. Sars, n. sp.

- Fig. 10. Female, seen from left side.
- Fig. 11. Same, dorsal view.
- Fig. 12. Posterior antenna.
- Fig. 13. Anterior leg.
- Fig. 14. Posterior leg.
- Fig. 15. Extremity of body, with caudal ramus and genital lobe, seen from left side.



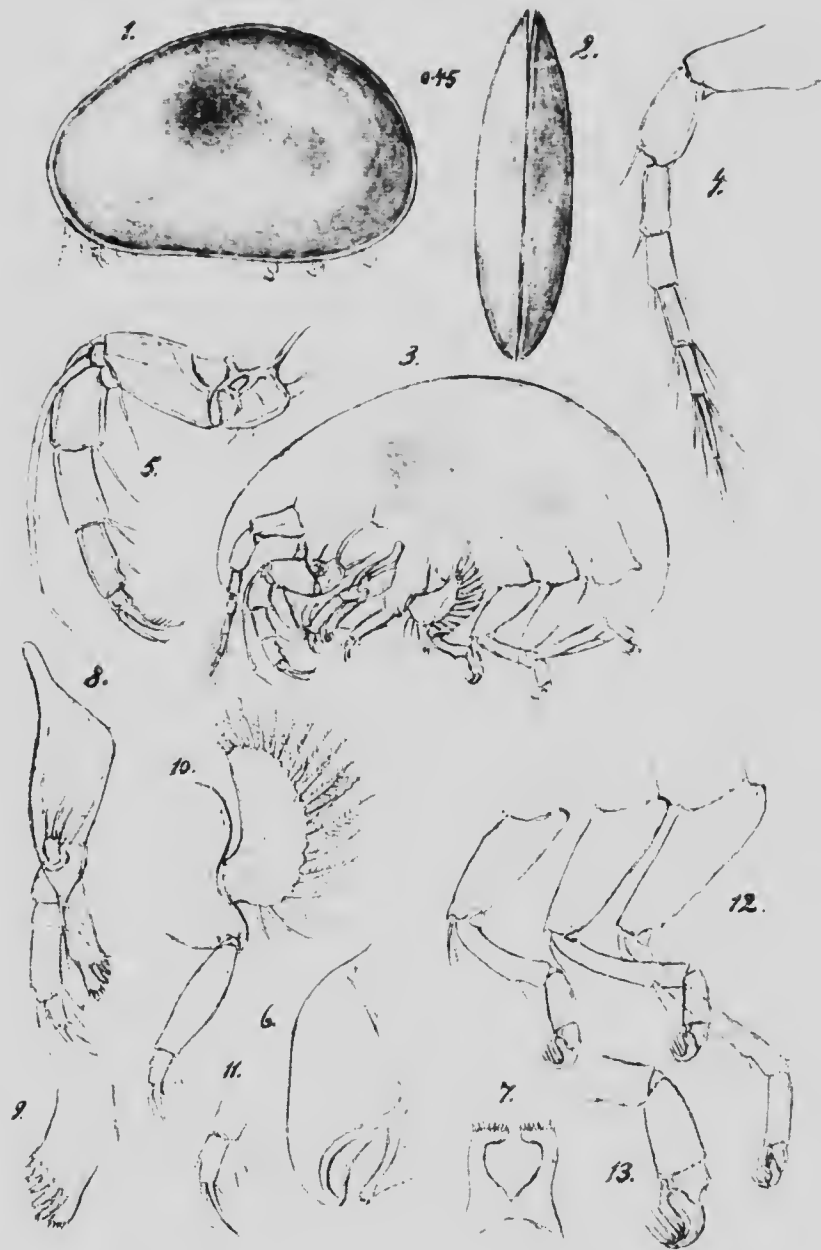
G. O. Sars, delin. 1-9. *Candona subgibba*, G. O. Sars.
10-15. *Candona parvula*, G. O. Sars.

Plate V.

Cytherites insignipes G. O. Sars, n. gen. and sp.

- Fig. 1. Adult female, seen from left side.
Fig. 2. Same, dorsal view.
Fig. 3. Right valve with enclosed body, more highly magn. lve removed in order to show
the several appendages in their natural position.
Fig. 4. Anterior antenna.
Fig. 5. Posterior antenna.
Fig. 6. Lips seen from left side.
Fig. 7. Chitinous frame of the posterior lip, seen from above.
Fig. 8. Mandible with palp.
Fig. 9. Extremity of same, more highly magnified, to show the dentation of the cutting edge.
Fig. 10. Mandible with vibratory plate.
Fig. 11. Same, extremity of the palp, more highly magnified.
Fig. 12. Right series of legs.
Fig. 13. Extremity of a leg, more highly magnified, to show the structure of the subcheliform hand.

(September, 1925.)



G. O. Sars, delin.

Cytherites insignipes, G. O. Sars.

Report of the Canadian Arctic Expedition, 1913-18.

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- Part A: NORTHERN PARTY, 1913-18. (To be prepared).
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Part B: BIRDS OF WESTERN ARCTIC AMERICA. By R. M. Anderson. (In preparation).

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Plant Galls. By E. Porter Felt. (Issued November 3, 1919).
Part H: SPIDERS, MITES AND MYRIAPODS.
Spiders. By J. H. Emerton.
Mites. By Nathan Banks.
Myriapods. By Ralph V. Chamberlin. (Issued July 14, 1919).
Part I: LEPIDOPTERA. By Arthur Gibson. (Issued January 10, 1920).
Part J: ORTHOPTERA. By E. M. Walker. (Issued September 4, 1920).
Part K: INSECT LIFE ON THE WESTERN ARCTIC COAST OF AMERICA. By Frits
Johansen. (Issued November 7, 1921).
Part L: GENERAL INDEX. (Issued December 1922).

VOLUME IV: BOTANY

- Part A: FRESHWATER ALGAE AND FRESHWATER DIATOMS. By Charles W. Lowe. (Issued February 20, 1923).
Part B: MARINE ALGAE. By F. S. Collins and Marshall A. Howe. (In preparation).
Part C: FUNGI. By John Dearness. (Issued June 1, 1923).
Part D: LICHENS. By G. K. Merrill. (Issued July 16, 1924).
Part E: MOSESSES. By R. S. Williams. (Issued February 8, 1921).
Part F: MARINE DIATOMS. By Albert Munn. (Issued November 13, 1925).

VOLUME V: BOTANY

- Part A: VASCULAR PLANTS. By James M. Macoun and Theo. Holm. (Issued October 14, 1921).
Part B: CONTRIBUTIONS TO MORPHOLOGY, SYNONYMY AND GEOGRAPHICAL DISTRIBUTION OF ARCTIC PLANTS. By Theo. Holm. (Issued February 10, 1922).
Part C: GENERAL NOTES ON ARCTIC VEGETATION. By Frits Johansen. (Issued October 7, 1924).

VOLUME VI: FISHES, TUNICATES, ETC.

- Part A: FISHES. By F. Johansen. (In preparation).
Part B: ASCIDIANS, ETC. By A. G. Huutsmaa. (Issued November 29, 1922).

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- Part A: DECAPOD CRUSTACEANS. By Mary J. Rathbun. (Issued August 18, 1919).
Part B: SCHIZOPOD CRUSTACEANS. By Waldo L. Schmitt. (Issued September 22, 1919).
Part C: CUMACEA. By W. T. Calman. (Issued October 15, 1920).
Part D: ISOPODA. By P. L. Poore. (Issued November 10, 1920).
Part E: AMPHIPODA. By Clarence R. Shoemaker. (Issued September 7, 1920).
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