

The Arctic Institute  
of  
North America

# REPORT

OF THE

# CANADIAN ARCTIC EXPEDITION 1913-18

VOLUME III: INSECTS

PART H: SPIDERS, MITES, AND MYRIAPODS

Spiders:	J. H. Emerton
Acarina:	N. Banks
Chilopoda:	Ralph V. Chamberlin

SOUTHERN PARTY—1913-16



MR. JUSTICE W. G. MORROW  
SUPREME COURT OF THE  
NORTHWEST TERRITORIES  
YELLOWKNIFE, N.W.T.

OTTAWA  
J. de LABROQUERIE TACHÉ  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1919

Issued July 14th, 1919

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Acarina: .  
Chilopoda

Vol. iii-40

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## The Spiders collected by the Canadian Arctic Expedition, 1913-18.

By J. H. EMERTON.

This collection includes thirteen species, three of which are described as new. Two of these are minute spiders, living under loose stones along the shore, and the third is a large *Lycosa*, living in large numbers among the low plants of the tundra. Of the other ten species, three have been found by earlier explorers in Greenland, Spitzbergen, or Siberia, and appear to be exclusively Arctic; the rest have been found much farther south. The four species from Nome and Teller, Alaska, all occur in the White mountains of New Hampshire, and two of them at various stations across the continent and south into the United States. *Lycosa pictilis*, found at Bernard harbour, has long been known in the upper parts of the White mountains, and is also found on the coast of Labrador. *Xysticus bimaculatus*, found also at Bernard harbour, Dolphin and Union strait, Northwest Territories, is known from the Rocky mountains near Banff and from the mountains of Colorado. The two species of *Pardosa* are widely distributed over the northern part of the continent.

All types described in this paper are in the Canadian National Collection of Insects, Ottawa. The specimens were collected by Mr. F. Johansen.

### *Erigone arctica* White (1852).<sup>1</sup>

This resembles the common *Erigone dentigera* of the New England coast. The palpus (Pl. I, fig. 1) has the same general length and proportions, but the process of the patella is somewhat longer, and the end of the tibia wider, with the inner and outer points sharper and more divergent than in *dentigera*. It has been found at Cornwallis island and in Spitzbergen.

Locality: Cockburn point, Dolphin and Union strait, Northwest Territory, autumn of 1914.

### *Typhocraestus spetsbergensis* (Thor.) Kulczynski.<sup>2</sup>

This is 2 mm. long, and grey, without any markings, the legs very little lighter than the thorax. The male palpus has the tibia a little longer than wide and slightly widened at the end. The front edge is nearly straight except a small tooth on the outer corner, which is slightly curved inward at the point (Pl. I, figs. 2 and 4.) The tarsal hook is small and curved in more than half a circle, the basal end showing along the edge of the tarsus when seen from above. The palpal organ is distorted in all the specimens, but shows the slender transparent appendage and the other details as figured by Kulczynski (Pl. I, fig. 3).

Locality: Three males and two young from Spy island (Jones islands, known also as Thetis islands), on the Arctic coast of Alaska, September 3, 1913, under green algæ on the wet seashore. Found also by the English Polar Expedition of 1875-6 in latitude 82° 33' and in Siberia and Spitzbergen.

### *Tmeticus alatus*, n. sp.

A little over 2 mm. long and pale yellow without markings like pale individuals of *Tmeticus flaveolus* Banks and *T. longisetosus* Em. The male palpus seen from above has the tibia longer than wide with a large curved tooth on

<sup>1</sup> Cambridge, Annals and Magazine of Natural History, 1877.

<sup>2</sup> Memoirs Acad. St. Petersburg, 1902. Strand, Fauna Arctica, 1906. *Erigone spetsbergensis* Thorell, Swedish Acad., 1872.

the inner side extending a little over the tarsus (Pl. I, fig. 5). Seen from the side the tibia is wider than long (Pl. I, fig. 6). The tarsal hook is much like that of *longisetosus*, with two short and stout curved teeth at the end and a narrow long base on which are several hairs and close to the tarsus three long bristles slightly serrated toward the end somewhat like the bristles in *longisetosus* and *armatus* (Pl. I, fig. 6). The epigynum has a middle lobe widened at the end and covered at the base by two depressions divided by a narrow ridge. At the sides of the epigynum are two thickened spots with hairs directed inward (fig. 7).

Localities: One male and two females from Cockburn point, Northwest Territories, September 26, 1914. Four females and one immature male from Bernard harbour, Dolphin and Union strait, Northwest Territories, June 27, 1916.

#### *Tmeticus brunneus* Emerton.<sup>1</sup>

Nome Alaska, August 25, 1916. Originally described from the White mountains, New Hampshire, at 4,000 feet elevation.

#### *Microneta maritima*, n. sp.

Less than 2 mm. long, and dull grey with paler legs. The mandibles are thickened at the base and narrowed toward the point, with two small teeth where the narrowing begins (Pl. I, fig. 8). The male palpi are, as usual in this genus, large, and the tarsus angular. It has a small process at the base and the middle is extended and flattened into a keel bent inward on the outer side. This shows plainly from above or below when the palpus is curved in the natural position, (Pl. I, fig. 10). The tarsal hook is wide in the middle and turned abruptly upward at the point, as in *olivacea* (Pl. I, fig. 9).

Locality: Cockburn point, Dolphin and Union strait, Northwest Territory, September, 1914, under stones.

#### *Microneta crassimanus* Emerton.<sup>2</sup>

Nome, Alaska, August 1916. Originally described from the White mountains, New Hampshire, at 4,000 feet elevation.

#### *Epeira patagiata* Clerck (1757.)

Nome, Alaska, August 25, 1916. The most common round-web spider throughout Canada, the northern United States, and the north of Europe.

#### *Dictyna*.

Several immature specimens were found under stones along the shore at Bernard harbour, Northwest Territories, June and July, 1915. They are probably *Dictyna hamifera* Thor., 1872, described from Greenland and among the spiders from the "Danmark Expedition" to northeastern Greenland, 1906-8.

#### *Lycosa pictilis* Emerton.<sup>3</sup>

Several specimens of this bright-coloured spider, including two adult males, were found at Bernard harbour, Northwest Territory. It is common on Mount Washington, New Hampshire, from 5,000 to 6,000 feet elevation, and has been found on the coast of Labrador at Hopedale. The *Tarantula exasperans* Cambridge, from Discovery bay, latitude 81° 44', is possibly this species. It is described and figured by Cambridge in 'The Annals and Magazine of Natural

<sup>1</sup> Conn. Acad. 1882 and Conn. Acad. 1909.

<sup>2</sup> Conn. Acad. 1882

<sup>3</sup> Conn. Acad., 1885.

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History', 1877. *T. exasperans* has been identified by Simon and Kulczynski with *Lycosa (Tarantula) alpigena* of the Alps, but I cannot confirm this identification, not having been able to compare European specimens.

The usual markings are shown in Pl. I, fig. 11. The middle stripe of the cephalothorax has a characteristic form, widening behind the eyes, and narrowing again a little farther back. The hinder half of the stripe, especially in young spiders, continues narrow its whole length, but in other individuals and usually in adult males, it widens again opposite the dorsal groove and is sometimes connected by radiating lines with the light areas at the sides. The abdomen has two orange yellow spots at the front end, and sometimes a little orange colour among the grey farther back. The middle spot branches into four black points, and behind it are two or three black spots of variable size on the middle line. Outside of the median spots are four or five pairs of small, bright, white spots alternating with black, forming two lines converging behind (Pl. I, fig. 11). There are great variations from this pattern and one of the Bernard harbour males is marked as in Pl. I, fig. 12. Here there is a middle stripe, which in life is probably covered with orange hairs, and from this branches extend to the white spots. The other markings are obscured in the general grey colour. This variety has been seen in specimens from Mount Washington. In all varieties the legs are banded with dark and light grey.

Locality: Bernard harbour, Northwest Territories. Barter island, Alaska, June, 1914.

#### *Lycosa asivak*, n. sp.

This species is 12 mm. to 14 mm. long. Fourth leg as long as the body. Black with light grey markings, which are indistinct and sometimes absent in the female. In the male there is a grey stripe in the middle of the cephalothorax from the eyes backward, and on the abdomen a middle grey mark in front, at the sides of which are light spots which unite behind into several transverse markings (Pl. II, fig. 13). The femora are black, but the other joints of the legs are covered above with short grey hairs mixed with longer black ones. The legs and abdomen are covered with fine black hairs, longer than the diameter of the legs. In the female the dorsal markings are much less distinct and usually form on the abdomen a small middle stripe in front and a series of pairs of small white spots. The legs are somewhat lighter in colour toward the end, but there is no strong contrast between the colour of femur and tibia. The fine hairs of the legs and abdomen are shorter in the female than in the male. The epigynum (Pl. II, fig. 14), has a middle lobe as wide as long throughout its length, and thickened in the middle. At the base of this lobe are two pits with oblique and slightly curved margins. The immature females show the undeveloped epigynum as in Pl. II, fig. 15. The male palpus is much like that of *pictilis*, the tibia is a little longer than wide, and about the same length as the patella. The tarsus is a little longer than the tibia. The parts of the palpal organ are small and comparatively simple, (Pl. II, fig. 16) as in *pictilis*.

This spider appears to be very common and over a hundred specimens were taken, including two adult males in June at Bernard harbour, Dolphin and Union strait, Northwest Territories, and two others at Camden bay, Alaska, July 4, 1914. The females taken at the same time were all immature, but adult females were taken later, July 12 and July 19, 1915, at the latter date with their cocoons and eggs.

According to Mr. Johansen's notes, they hide, especially at the breeding season, in holes in the ground or in the sod which they line with silk. In one case a lemming hole was used for this purpose. They were found eating beetles and other spiders, even of the same species. The accompanying photograph

<sup>1</sup>Asivak or arshivuk is an Eskimo name for a spider, with slight dialectic differences from northwestern Alaska to Coronation gulf.

(Pl. III.) taken by Mr. G. H. Wilkins of the Expedition, shows the spider in its natural surroundings near the mouth of its hole.

Localities: Bernard harbour, Dolphin and Union strait, Northwest Territories, from June to September. Two males from Camden bay, Alaska, July 4, 1914.

***Pardosa glacialis* Thorell (1872).**

This widely diffused species occurs at Bernard harbour, Northwest Territories, on the north coast of Alaska, and at Teller, Alaska. The forms of the epigynum differ from those in other places, but differ also among themselves. A female from Teller, Alaska, has the epigynum somewhat like variety *brunnea* of New England (Pl. II, fig. 17).

***Pardosa groenlandica* Thorell (1872).**

An adult female and several young were found at Herschel island, Yukon Territory, July, 1916. It lives across Canada and southward on the mountain tops of Colorado.

***Xysticus bimaculatus* Emerton.<sup>1</sup>**

Male 5 mm., female 6 mm. long. Pale with light brown and grey markings. The legs are short, the first leg of the male less than one and a half times the length of the body. The first and second legs are covered with fine light brown spots, with some larger marks on the ends of the femur. The third and fourth legs have brown markings on the ends of the joints. The cephalothorax has the middle light area lightly spotted in the front half. The dark areas are closely spotted with brown, darkest toward the abdomen. The abdomen is marked with three or four pairs of oblique light brown spots, the edges of which are irregularly spotted with dark grey, more definitely in the male than female. The whole under side is lightly spotted with brown. The male palpus has the tibia of usual form with a blunt outer process and a double process below, the inner branch of which is slightly curved at the point (Pl. II, fig. 19). The palpal organ is unusually complicated, the lower half of the bulb very much thickened in a curved ridge that ends in a blunt tooth on the inner side. The tube is short and twisted and turned away from the bulb, and under it is a small sharp point. The epigynum has a simple oval opening.

Localities: A male and female, in grass, Bernard harbour, Northwest Territories, August 25, 1915, and one immature female. Bluffs at lake at Konganevik, Camden bay, Alaska, June 27, 1914, young male and female. Found also in the Rocky mountains at Laggan, Alta., and on mount Lincoln, Colorado, at 11,000 feet.

<sup>1</sup>Canadian Spiders, Conn. Acad. 1894.

EXPLANATION OF PLATE I.

- Fig. 1. *Erigone arctica*, palpus.  
 2. *Typhocraestus spetsbergensis*, palpus (upper side).  
 3. " " (palpal organ showing transparent appendage.)  
 4. " " (side edge).  
 5. *Tmeticus alatus*, male palpus (from above).  
 6. " " (side view).  
 7. " " epigynum.  
 8. *Microneta maritima*, mandibles.  
 9. " " "  
 10. " " palpus.  
 11. *Lycosa pictilis*, usual markings.  
 12. *Lycosa pictilis*, occasional variation of markings.



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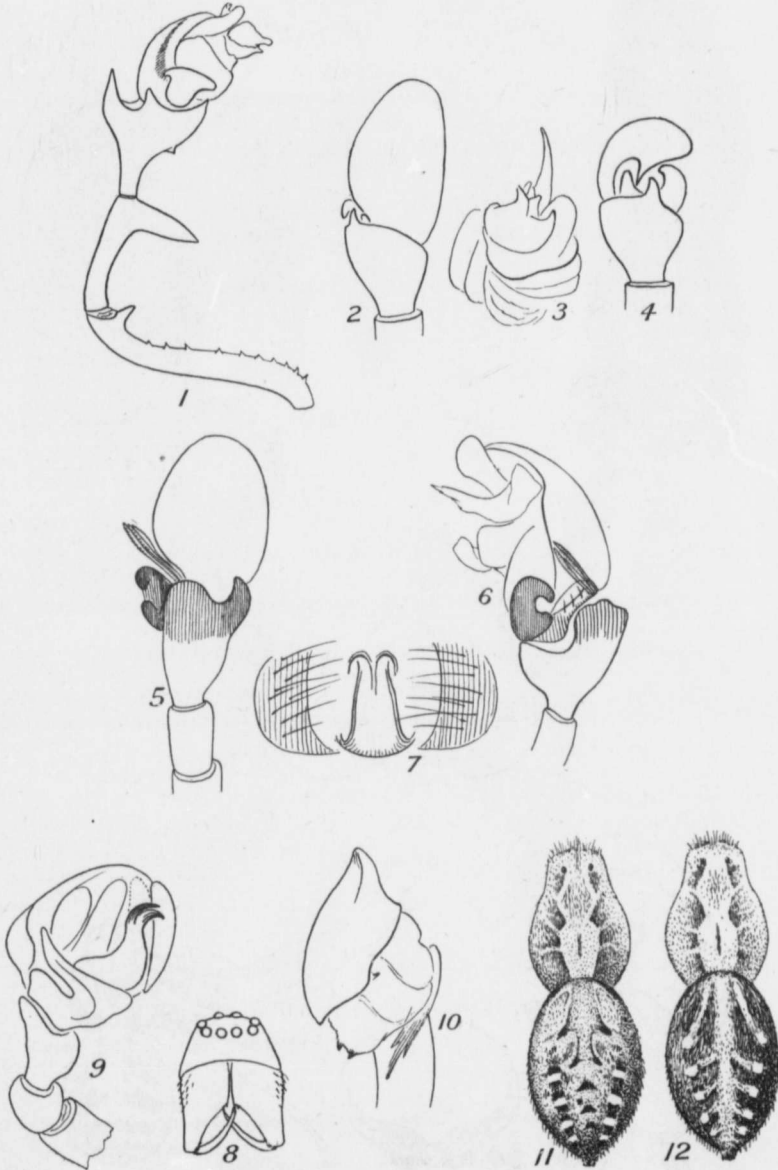
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PLATE I.

Spiders collected by the Canadian Arctic Expedition, 1913-18.



Spiders collected by the Canadian Arctic Expedition, 1913-18.

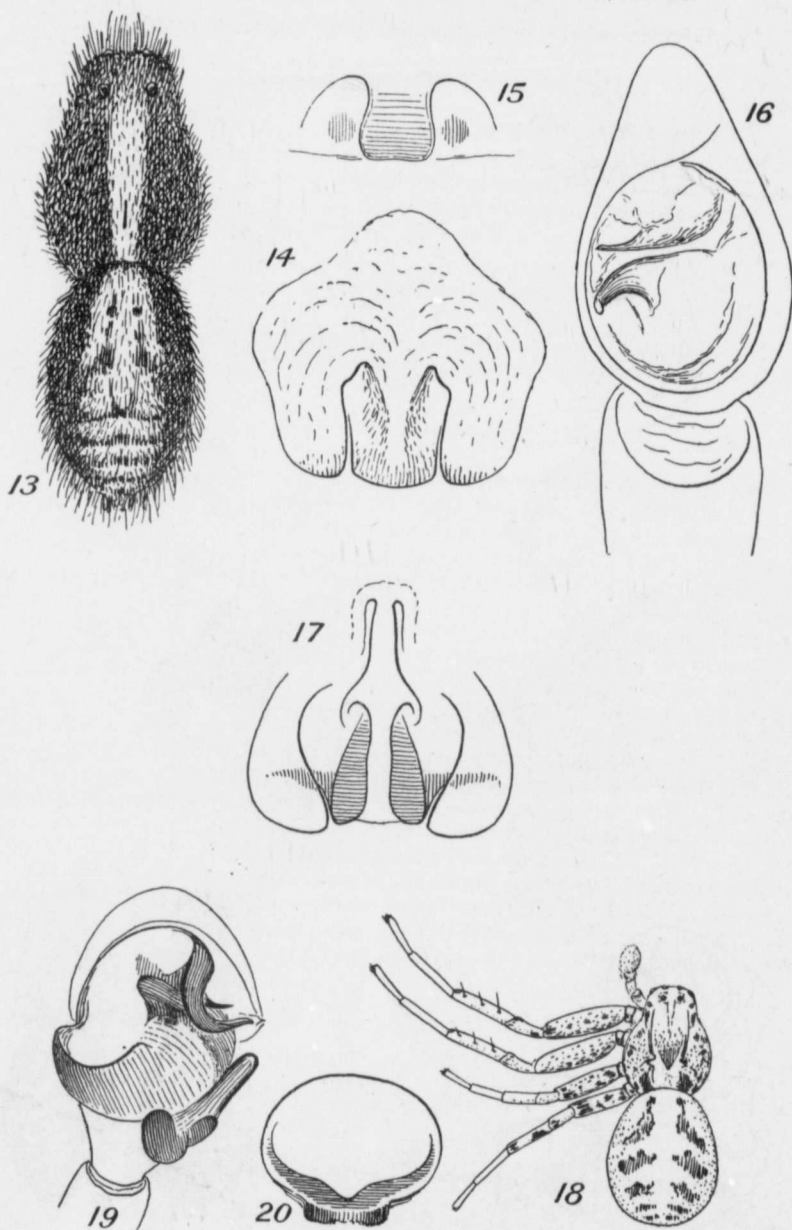
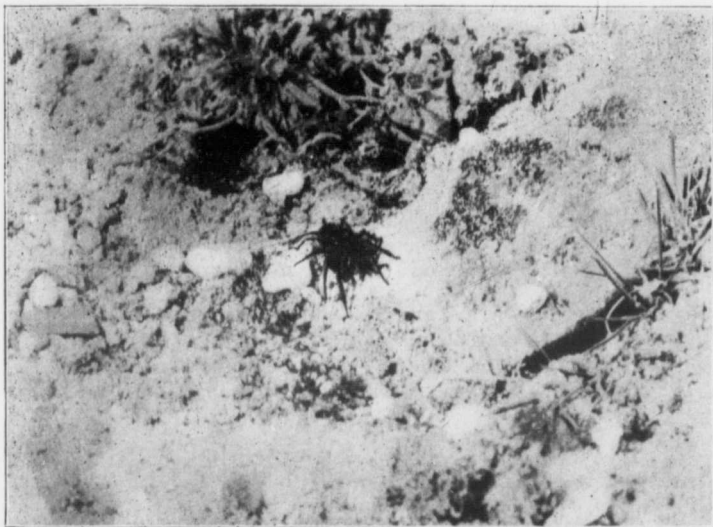


Fig. 13. *Lb*  
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*Lycosa asivak*, Bernard harbour, Northwest Territories, July 9, 1915.

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EXPLANATION OF PLATE II.

- Fig. 13. *Lycosa asivak*, dorsal markings.  
 14. " " epigynum.  
 15. " " undeveloped epigynum.  
 16. " " male palpus.  
 17. *Pardosa glacialis*, epigynum.  
 18. *Xysticus bimaculatus*.  
 19. " " male palpus.  
 20. " " epigynum.

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## The Acarina collected by the Canadian Arctic Expedition, 1913-18.

By NATHAN BANKS.

The Acarina collected by the Canadian Arctic Expedition, 1913-16, include seventeen species, all but one previously known, and recorded from other arctic and subarctic localities, some from widely separated places indicating their recurrence all through the arctic regions.

The new species of *Stigmaeus* is the first of this genus to be recorded from the arctic regions, but others are known fairly far north and in high mountains, so that one can hardly be surprised. Doubtless it feeds on moss.

### EUPODIDÆ.

#### *Rhagidia gelida* Thorell.

Bernard harbour, Dolphin and Union strait, Northwest Territories, August 16, June 19, 1915; in rotten driftwood and under stones; "largest one 2 mm. long; the abdomen dark purple-brown, cephalothorax rose, legs orange." [Johansen notes.]

### BDELLIDÆ.

#### *Bdella arctica* Thorell.

Young point, Northwest Territory, July 22, 1916, on rocks on beach; Bernard harbour, Northwest Territories, August 23, 1915; under stones at beach. "Abdomen dark purple, otherwise rose." [Johansen notes.]

#### *Bdella frigida* Banks.

Herschel island, Yukon Territory, July 28, 1916, on ground.

#### *Bdella decipiens* Thorell.

Bernard harbour, Northwest Territories, May 18, 1915, under stones.

### TETRANYCHIDÆ.

#### *Bryobia praetiosa* Koch.

Bernard harbour, Northwest Territories, July 19, 1915, on dead *Salix*-leaves; and October 4, 1914, under stones; eggs doubtless of this species in a cake on stick at Konganevik, Camden bay, Alaska, June 27, 1914.

#### *Stigmaeus arcticus*, n. sp.

Body bright rose red, legs rather paler, spotted. Body about one and two-thirds times as long as broad, rounded behind, broadest at humeri, narrowed in front; above with about twenty-four long, stiff, erect, rather thickened bristles, in four longitudinal rows; legs (Pl. IV, fig. 2) short and stout, first pair hardly as long as body, hind pair reaching very little beyond body; other pairs much shorter; all with fairly numerous long hairs; two long claws as long as the width of the tarsal joint; palpi (P. IV, fig. 1) nearly one-third the length

of the body, rather stout and curved downward; apical claw very long and stout, thumb rather slender, slightly narrowed at base, with few bristles near and at tip.

Length, 5 mm.

Locality: Bernard harbour, Dolphin and Union strait, Northwest Territories, Canada. June 18, 1915; from a pond; probably not the normal habitat. Type in Canadian National Collection of Insects, Ottawa.

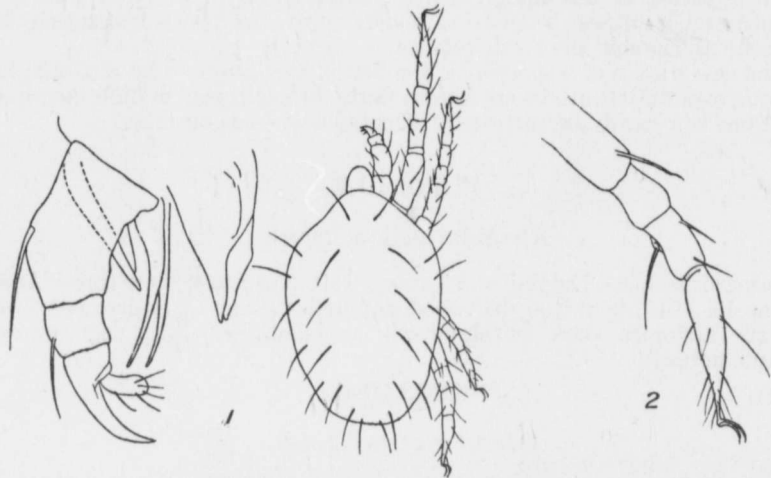


Fig. 1. *Stigmaeus arcticus*, n. sp., palpus.  
2. " " " leg.

#### TROMBIDIIDÆ.

##### *Trombidium succidum* Koch.

Bernard harbour, Northwest Territories; June 28; July 6; July 11, 1915. in grass, all tile-red.

#### HYDRACHNIDÆ.

##### *Eylais falcata* Koenike.

Bernard harbour, Northwest Territories, July 5, 1916, in pond; and between Bernard harbour and cape Krusenstern, Northwest Territories, July, 1916.

##### *Hydryphantes ruber* De Gerr.

Pond at Chantry island, Dolphin and Union strait, Northwest Territories, June 17, 1916.

##### *Thyas stollii* Koenike.

Bernard harbour, Northwest Territories, June 28, 1915; June 30, 1916, in pond; and pond at Chantry island, Northwest Territories, June 17, 1916.

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**Lebertia porosa** Thorell.

Bernard harbour, Northwest Territories, October 6-8, 1915; in stomach of *Salvelinus marstoni* Garm.

**Laminipes torris** Muller.

Herschel island, Yukon Territory, July 30, 1916, in pond; although no male is present, I feel sure it is this species.

**Curvipes reighardi** Wolcott.

Pond on Chantry island, Northwest Territories, June 17, 1916; pond at Herschel island, Yukon Territory, July 30, 1916; lake inland from Bernard harbour, Northwest Territories, August 10, 1915; pond at Bernard harbour, Northwest Territories, June 28, 1915; pond at Collinson point, Alaska, June 23, 1914; lake at Konganevik, Alaska, June 26, 1914.

## PARASITIDÆ.

**Parasitus bomborum** Oudemans.

Bernard harbour, Northwest Territories, on *Bombus*, June 16, 1916; June 25, 1915; July 2, 6, 9, 11, 1915; and on the catkins of *Salix*, July 2, 1915.

## ORIBATIDÆ.

**Galumna lucens** Koch.

Barnard harbour, Northwest Territories, May 25, 1916, on surface of pond; Pikumalerksiak island, near Cockburn point, Dolphin and Union strait, Northwest Territories, July 15, 1916, in moss.

**Scutovertex nigrofemoratus** Koch.

Bernard harbour, Northwest Territories, June 30, 1916, with spider cocoon under a stone.

**Scutovertex lineatus** Thorell.

Cockburn point, Northwest Territories, September 7, 1914, in colonies in depressions on under sides of flat stones near the seashore; not moving.

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## The Chilopoda collected by the Canadian Arctic Expedition, 1913-18.

BY RALPH V. CHAMBERLIN.

The Myriapod material secured by the Canadian Arctic Expedition and sent to me for report was collected in the Cape Nome region at Nome and Teller. Only two species are represented, both being chilopods, one of the order Lithobiomorpha and one of the Geophilomorpha. It is noted that other specimens were taken at Ketchikan in southern Alaska, and preserved dry; but these specimens were not included in the material transmitted for study.

All types described in this paper are in the Canadian National Collection of Insects, Ottawa.

Aside from members of the two orders above mentioned, the Scolopendromorpha are also represented, at least in the southern part of Alaska, as I have many specimens of *Otocryptops rubiginosus* Koch from Forrester island, a species occurring also in China and Japan as well as in other northern parts of North America, such as Canada, Minnesota, etc. The common *Otocryptops sexspinosus* Say also occurs. The chilopods now known to be found in Alaska are as follows:

- Otocryptops rubiginosus* Koch.
- Otocryptops sexspinosus* Say.
- Linotaenia chionophila* Wood.
- Arctogeophilus glacialis* Attems.
- Cryophilus alaskanus*, gen. et sp. nov.
- Gnathomerium melanonotum* Wood.
- Geophilus alaskanus* Cook.
- Pachymerium ferrugineum* Koch.
- Escaryus albus* Cook.
- Monotarsobius tricalcaratus* Attems.
- Ezembius stejnegeri* Bollman.
- Oabius uleorus* Chamberlin.
- Paobius boreus* Chamberlin.
- Ethopolys integer alaskanus*, subsp. nov.

### GEOPHILOMORPHA.

One family, the Chilenophilidæ, is represented in the collection. Three other families of the order are also known to occur in Alaska. The Linotaeniidæ are represented by *Linotaenia chionophila* Wood, a species widespread in the northern United States and Canada and exceedingly close to, if not identical with, the well-known European *L. acuminata* Leach. This species appears to be common on Pribilof, Aleutian, Kadiak, Baranof, Popof and Forrester islands, etc., as well as at points on the mainland. The Schendylidæ have also a single known member here, namely, *Escaryus albus* Cook, which occurs on Pribilof island (St. Paul). The Geophilidæ proper are represented by two species, *Geophilus alaskanus* and *Pachymerium ferrugineum* (Koch), the first being known from Sitka and Forrester island, and the second from Yakutat bay and St. Paul island.

### CHILENOPHILIDÆ.

The existence of a group of geophiloid genera differing from typical geophils in having a strongly developed pleurosternal suture on each side of the second maxillary segment was pointed out by Attems in 1909<sup>1</sup>, this author designating

<sup>1</sup>"Zool. u. anthrop. Ergeb. einer Forschungsreise im West. u. Zent. Südafrika, Myriopoden", in Denks. med.-naturw. Ges. Jena, 1909, 14, p. 22.

the group as a subfamily, Chilenophilinae, in the Geophilidae, and in the same year also by Brölemann<sup>1</sup> who regarded the group as a subtribe, Ribautiina, under his tribe Geophilini. Since then the group has proved to be increasingly large and widespread. One genus has been previously recorded from Alaska, *Arctogeophilus glacialis* Attems being listed in the original account as occurring on both sides of Bering strait, namely, from Naniamo and Konyam bay on Seniavine sound on the Siberian side and from Port Clarence on the Alaskan. I suspect, however, that the specimens from the Alaskan side belong rather to the species described below as new, the two forms being very similar in size, structure and general appearance and both possessing thirty-nine pairs of legs, the two apparently to be distinguished only by critical examination. For the Alaskan species, after much hesitation, I have felt compelled to erect a separate genus, the only alternative being to assume that so experienced a student of the group as Graf Attems was mistaken in his observations on several characters of fundamental importance, which, in the absence of authentic material of his species I do not feel justified in doing. In addition, I have specimens of a species of a third genus from Forrester island, this being *Gnathomerium melanotum* Wood, a form common from California northward through Oregon and Washington into British Columbia. The position of the new genus among the other known genera of the Chilenophilidae may be indicated by means of the following key.

## KEY TO GENERA OF CHILENOPHILIDÆ.

- a* Anal legs with an additional article replacing the claw. (Lateral pieces of the labrum separated by the median piece.)
- b* Coxæ of second maxillæ very broadly and completely fused. Ventral pores in four areas. Coxopleural pores small and very numerous both above and below. *Telocricus* Chamberlin.
- bb* Coxæ of second maxillæ separated or at most weakly united by a membranous isthmus
- c* With no ventral pores; no finger-like process from distomesal angle of coxa of second maxillæ.
- d* A large lappet on coxa of first maxillæ in addition to one upon succeeding article; prosternum without chitinous lines. *Watophilus* Chamberlin.
- dd* Lappet present only on femuroid of first maxillæ; prosternum with chitinous lines. *Alloschizotaenia* Brölemann.
- cc* Ventral pores present; a finger-like process at distomesal angle of coxa of second maxillæ; first maxillæ without lappets. *Proschizotaenia* Silvestri.
- aa* Anal legs without such additional terminal article in place of the claw, either bearing claws or when clawless composed simply of the usual six articles distad of the coxopleura.
- b* Lateral pieces of labrum overlapping the median piece and in contact at the median line
- c* Ventral pores present; lappets of second maxillæ rudimentary; coxæ of second maxillæ wholly separated. (A clypeal area present.) *Chilenophilus* Attems.
- cc* No ventral pores; lappets of second maxillæ well developed; coxæ of second maxillæ more or less clearly united.
- d* No clypeal area present.
- e* Palpus of second maxillæ quadriarticulate. *Arctogeophilus* Attems.
- ee* Palpus of second maxillæ triarticulate. *Gnathomerium* Ribaut.
- dd* A clypeal area present. Palpus of second maxillæ triarticulate; anal legs clawless. *Cryophilus* gen. nov.
- bb* Lateral pieces of labrum not in contact at the middle line, more or less widely separated by the median piece.
- c* One or more clypeal areas present.
- d* No ventral pores present.
- e* Distoectal angle of tibia of palpus of second maxillæ prolonged and strongly chitinized. *Gnathoribautia* Brölemann.
- ee* Distoectal angle of tibia of second maxillæ not thus prolonged. *Taiyuna* Chamberlin.

<sup>1</sup>"A propos d'un Système des Geophilomorphes," in Arch. de Zool. Exp. et Gen., 1909, ser. 5, 3, p. 327.

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- dd* Ventral pores present, these arranged in four areas. *Nesidiphilus* Chamberlin.
- cc* No clypeal area present. (Distoectal angle of coxæ of second maxillæ prolonged.)  
*d* No ventral pores present; distoectal angle of tibia of second maxillæ prolonged and strongly chitinized. *Brachygonarea* Ribaut.
- dd* Ventral pores present; distoectal angle of tibia of second maxillæ not thus prolonged.  
*e* Lappets present on first maxillæ. *Polygonarea* Attems.  
*ee* No lappets present on first maxillæ. *Ribautia* Brölemann.

### **Cryophilus, n. gen.**

Frontal suture absent or very vaguely indicated. Prebasal plate not exposed, the cephalic overlapping the basal. Dorsal plates bisulcate.

Antennæ short, filiform.

Clypeal area present, finely aerolated.

Labrum free, tripartite. Median piece distinct and of good size but completely overlapped and covered from below by the lateral pieces which are in contact at the median line. Lateral pieces fringed throughout with numerous, closely arranged, long spinescent processes.

Outer branch of first maxillæ distinctly biarticulate; bearing two membranous lappets of which the distal one is the larger in the genotype. Inner branch undivided, set off by a suture. Coxæ completely coalesced. Coxæ of second maxillæ weakly united at middle by a less chitinous isthmus; pleurosternal sutures strongly developed; pore mesad of anterior part of suture, opening through mesal edge of sclerite; palpus triarticulate, terminating in a large simple claw, none of the joints with processes.

Prehensors large, exposed at the sides and projecting well beyond the front margin of the head. Claw armed at base; femuroid also armed and the intermediate joints with weaker teeth.

Prosternum without chitinous lines. Anterior margin unarmed.

No ventral pores present.

Spiracles circular.

Last ventral plate of intermediate width, sides converging caudad, trapeziform. Tergite of last pediferous segment very broad, moderately narrowed and rounded caudad.

Coxopleuræ moderately inflated, not unusually elongate or exposed at sides of prescutum. Pores small and moderately numerous, mostly near edge of ventral plate.

Anal pores present, small.

Anal legs clawless; consisting of six joints beyond coxopleuræ.

Genotype: *C. alaskanus*, n. sp.

This genus is undoubtedly close to *Arctogeophilus*, established as a subgenus in *Geophilus* by Attems,<sup>1</sup> but now obviously distinct from the latter in generic and in subfamily or family standing. Attems' figure of the maxillæ of the genotype of *Arctogeophilus*, *A. glacialis*<sup>2</sup>, shows the palpi of the second pair as quadriarticulate, a condition in which, if correctly represented, the species is unique. Prof. Ribaut segregates the genus *Gnathomerium* from *Arctogeophilus* on the assumption of the correctness of this figure.<sup>3</sup> Aside from this character, with the doubt one can scarcely help feeling as to the exactness of Attems' figure, *Cryophilus* differs in the presence of distinct clypeal area, which is definitely denied to *Arctogeophilus* by its author. Also, the figure mentioned represents the segmental pore as enclosed on the mesal side,

<sup>1</sup> "Die Myriopoden der Vega Exped.," Arkiv för Zoologi, 1909, 5, p. 23.

<sup>2</sup> Loc. cit.; pl. 1, f. 2.

<sup>3</sup> "Sur un Genre Nouveau de la Sous-tribu des Ribautiina," Bull. Soc. d'Hist. nat. et de Sci. biol. de Toulouse, 1910, 43, pp. 105, 106.

whereas in *Cryophilus* it opens freely through the mesal margin of the sclerite the caudomesal lobe not extending forward to its level.

***Cryophilus alaskanus*, n. sp.**

Colour fulvous throughout, the head of dilute ferruginous cast.

Body strongly narrowed caudad over posterior third, scarcely at all narrowed cephalad.

Cephalic plate widest in front of middle, sides evenly convex; anterior margin wide, arcuate, being concave on each side and protruding slightly between the antennæ; caudal margin truncate or very weakly convex. Longer than wide in ratio 22 : 17. Hairs very few and widely scattered, short.

Antennæ short, attenuated distad, 2.25 times longer than the cephalic plate. Last article of same length as the two preceding ones taken together.

Basal plate overlapped in front by the cephalic, its exposed area being 4 or 4.25 times wider than long.

Claws of prehensors when closed attaining or a little exceeding the distal end of the first antennal article. Claw armed at base with an acute, conical, only slightly darkened tooth. Femuroid armed at distal end with a smaller distally rounded tooth. The intermediate joints with smaller nodules.

Anterior margin of prosternum unarmed mesally slightly concave. Sides in front of rounded caudal cornes straight, slightly diverging cephalad. A little wider than long, the ratio being 9 : 8. Nearly 1.7 times longer than the height of femuroid on its ectal side.

Paired sulci of tergites deep. On some plates a pair of weaker intermediate sulci may be present but on most such are absent.

Presenta in anterior region short. Increasing in length to posterior end of middle region where they are moderately long, always less than half as long as the principal plate, the ratio not exceeding 1 : 2.5. Again decreasing in caudal region.

Spiracles all circular, moderate or small, decreasing gradually caudad.

Anterior ventral plates with a median longitudinal sulcus, the others without sulci. First seven plates with caudad margin angularly produced at middle, the process fitting into an excavation in the succeeding plate.

No ventral pores detected.

Legs of first pair very little smaller than the second ones.

Last ventral plate trapeziform. Caudal and lateral margins straight. Plate with width across anterior end equal to the length.

Pores of caxopleuræ small, about fourteen in number on each side; mostly near edge of ventral plate, a few isolated on side.

Anal legs, exclusive of caxopleuræ, not or scarcely longer than the penult, moderately crassate in the male; clothed with few long hairs and on ventral surface in the male with more numerous, fine short ones; clawless.

Pairs of legs, thirty-nine.

Length, 18-20 mm.

Locality: Nome, Alaska. Two specimens taken August, 1916. The field label states that the specimens were secured "under logs on tundra," and Mr. Johansen, the collector, notes in his journal that the species occurred "under loose stones, boards, etc., on tundra near town."

Aside from the differences indicated under the account of the genus, this species differs from *A. glacialis*, as described and figured in the original account, in various characters. Thus, the figure and text show the lappets of the first maxillæ of *A. glacialis* to be short, thick, and equal; in the present species they are much longer and proportionately more slender, that of the coxa being at the same time shorter and more slender than that of the succeeding joint, and the second lappet extending beyond the tip of the second joint of the branch, though falling much short of it in *glacialis*. The median region of the united

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coxae of the second maxillæ is narrower and apparently more membranous in *alaskanus* and the anterior margin presents a distinctly reentrant angle at the middle instead of being straight. The cephalic plate is broader anteriorly, the caudal angles more rounded, the anterior margin protruding forward between antennæ instead of being excavated or reentrant, and the hairs are fewer and finer. The exposed area of the basal plate is proportionately longer. There is the likelihood that the specimens secured by the Vega at Port Clarence belong to the present species rather than to the true *glacialis* as fixed by description and figures.

## LITHOBIOMORPHA.

Of this order one family is represented in the collection made by the Canadian Expedition. Another family is also known to occur in the Alaskan fauna, the Ethopolidæ, in which a new subspecies of *Ethopolys* from Sitka is described below. It is very probable that members of the Henicopidæ will also be found in the region; for, though this family on the whole is particularly characteristic of the southern hemisphere, *Lamyctes* is not uncommon in north temperate latitudes and the Zygethobiine group is characteristically North American. This group embraces largely mountain-loving forms; and *Zygethobius* is already known to occur in the high mountains of British Columbia which should naturally carry its range into the present territory.

## LITHOBIIDÆ.

In addition to the species separately listed below, another species has been recorded from Port Clarence, which is very close to the locality from which the specimens of *E. stejnegeri* were secured by the Expedition. This is *Monotarsobius tricalcaratus* Attems. In the southern part of Alaska, namely from Forrester island, are also found *Oabius uleorus* Chamberlin and *Paobius boreus* Chamberlin.

**Ezembius** Chamberlin.

This genus was established for a group of subarctic species of which the one here listed is the genotype. The following Siberian species, among others, belong in the genus: *Ostiacorum*, *princeps*, *sulcipes*, and *scrobiculatus* Stuxberg.

**Ezembius stejnegeri** (Bollman).

1893. *Lithobius stejnegeri* Bollman, Bull. U.S. Nat. Mus., 46, p. 149

*Lithobius sulcipes* Bollman, loc. cit., p. 199.

1909. *Monotarsobius arcticus* Attems, Arkiv för Zool., 5, No. 3, p. 19.

*Lithobius (Archilithobius) haasei* Attems, loc. cit., p. 22.

Of this species Mr. Johansen secured three females at Teller, Alaska, on July 31, 1913, his note stating that they were found "under old sacks, tins, etc., on tundra behind town."

The species is widespread in this general region, and appears to abound particularly on Pribilof and other islands. After a study of considerable material, I am unable to detect more than one species and conclude that the *sulcipes* of Bollman, and certainly the *Monotarsobius arcticus* and *Lithobius (Archilithobius) haasei* of Attems, all described from Bering island, are one and the same as *E. stejnegeri*, which in turn, may prove to be identical with *sulcipes* Stuxberg (1875), if not, indeed, with the much earlier *L. sibiricus* of Gerstfeldt (1858).

## ETHOPOLIDÆ.

Occasion is taken to describe here a new Alaskan form of *Ethopolys*. As this is regarded as a subspecies of a new species occurring in Washington and Oregon, a description of the latter is also introduced.

**Ethopolys** Chamberlin.<sup>1</sup>

This genus includes a group of North American species known at present only from the region west of the Rocky mountains where they are common and range from southern California, Nevada, and Utah northward into Alaska.

**Ethopolys integer**, n. sp.

Dorsum mostly dark brown with the caudal plates darker; major plates often darkened over the lateral and caudal borders; major plates of posterior half of body typically with a distinct longitudinal median black stripe, this becoming more indistinct on the anterior plates. Head, as also in part the first dorsal plate in some, reddish brown to chestnut; a blackish median longitudinal stripe extending from caudal margin to frontal suture. Antennæ brown to light chestnut, paler distad. Venter light brown, the fourteenth and fifteenth sternites commonly of chestnut tinge. Prosternum and prehensors also of light chestnut tinge. Legs testaceous, the posterior pairs darker, brown to light chestnut.

Body of same form in male and female. About eight times longer than width of tenth plate. Head and first dorsal plate of same width and narrower than the tenth plate.

Head distinctly wider than long (86 : 79); widest a little caudad of lateral breaks. A V-shaped impression on caudal half of plate. Entire surface subdensely punctuate, the punctæ distinct.

Ocelli from twelve to nineteen in three or four series, but by far most commonly in four; e.g., 1+5, 6, 4, 3; 1+6, 5, 4, 3; 1+5, 5, 4, 2; 1+5, 4, 3, 2; 1+5, 4, 2; 1+6, 5, 3. Single ocellus much largest, clearly separated by a space from the others. Seriate ocelli distinct, regular, decreasing moderately ventrad and cephalad.

Antennæ reaching to from fifth to eighth segments, but mostly to the sixth or seventh. Articles twenty to twenty-four, long and cylindric. Ultimate article long and slender, a little shorter than the two preceding taken together.

Prosternum about 1.7 times wider than long. Chitinous lines well developed excepting toward caudal ends. Finely densely punctuate. Spine inserted on ventral surface a little caudad of the anterior edge; moderately short, uniformly attenuated to an acute point; much stouter than the ordinary bristles. Teeth conical; those adjacent to the diastema on each side largest. Most commonly three or four teeth ectad of diastema but also sometimes only two. Examples of dental formulæ are the following, the left side being represented first: 3-7+6-3, this being the commonest of number and arrangements; 3-6+6-3; 3-5+6-3; 4-6+6-4; 2-6+6-3; 2-6+6-2; 2-6+5-2.

All dorsal plates distinctly and rather coarsely punctuate, and, especially the caudal ones, rather finely rugose and irregularly tuberculate toward lateral borders, the median portion remaining nearly smooth excepting on the fifteenth plate.

Spines of first legs  $\frac{0, 0, 3, 2, 1}{0, 0, 2, 3, 2}$  to  $\frac{0, 0, 3, 2, 2}{0, 0, 2, 3, 2}$ ; of the second to tenth pairs,  $\frac{0, 0, 3, 2, 2}{0, 0, 2, 3, 2}$ ; of the eleventh,  $\frac{0, 0, 3, 2, 2}{0, 0, 3, 3, 2}$ ; of the twelfth,  $\frac{1, 0, 3, 2, 2}{0, 1, 3, 3, 2}$  or  $\frac{0, 0, 3, 2, 2}{0, 1, 3, 3, 2}$ ; of the thirteenth,  $\frac{1, 0, 3, 2, 2}{0, 1, 3, 3, 2}$ ; of the penult,  $\frac{1, 0, 3, 1, 1}{1, 1, 3, 3, 2}$  with two accessory claws; of the anal,  $\frac{1, 0, 3, 1, 0}{1, 1, 3, 2, 1}$ , claw single or with a very minute accessory claw. Last two pairs, or occasionally only the last pair, of coxæ laterally armed.

<sup>1</sup>Can. Entomologist, 1912, p. 13.

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Claw of female gonopods long and well curved, entire, with no trace of lateral teeth. Basal spines 3+3; acuminate from near middle of length, apically rounded. Length, 20 to 30 mm.

Localities: Washington state; Pullman and Wenatschee. Oregon: Corvallis.

This species seems to replace *E. sierravagus* north of Oregon. It is very close in general appearance and structure to the latter species.

#### ***Ethopolys integer alaskanus*, n. subsp.**

Though in *E. integer* proper the head and first dorsal plate are strongly and rather coarsely punctate, especially over the anterior portion of the head, these parts in the types of the Alaskan form as represented by the types are smooth and wholly without punctæ or nearly so.

Posterior angles of thirteenth dorsal plate weakly produced, those of the eleventh showing a more slight similar tendency.

The claw of the female gonopods in the two typical females has a distinct tooth on the inner side toward the distal end but none on the outer, being thus bipartite instead of essentially entire as in *integer* or tripartite as in *sierravagus*.

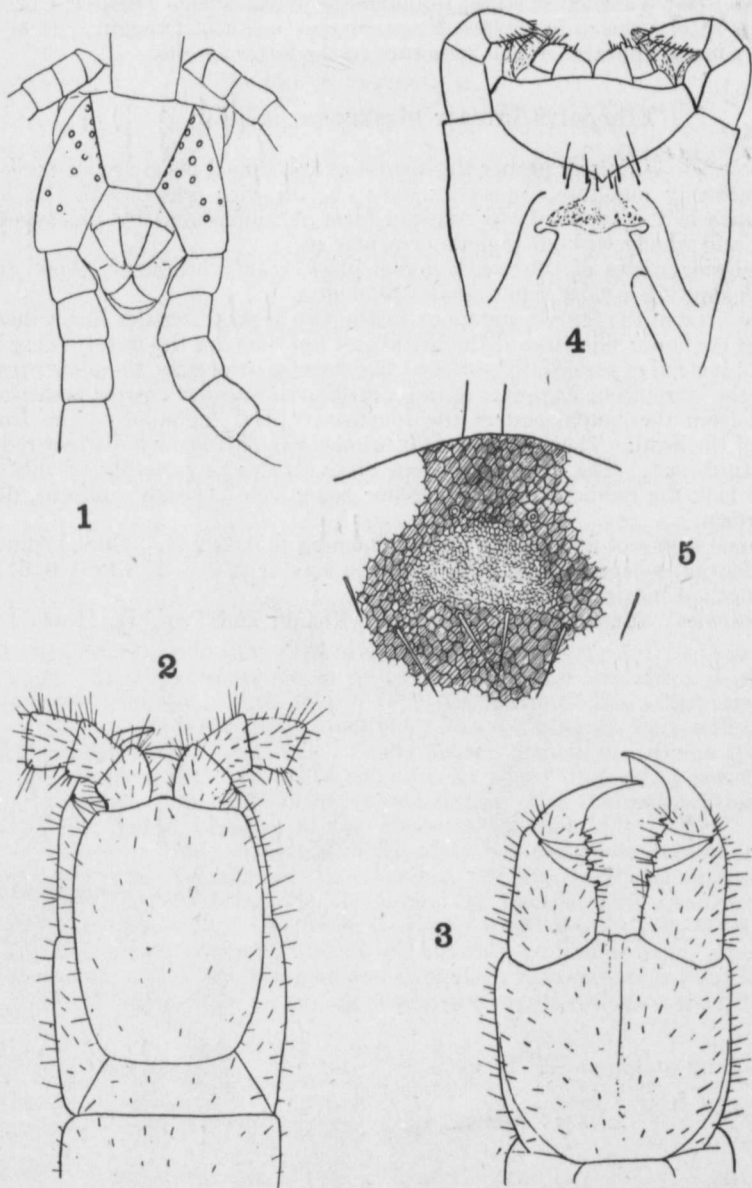
In the types from Forrester island a median dorsal black stripe is distinctly marked from the caudal end of the fourteenth plate cephalad to the frontal suture of the head. These specimens in whole or in part show a distinct reddish or chestnut cast. The specimens from Sitka (males presumably of this subspecies) lack the reddish tinge, the colour being a dull, nearly uniform, dusky olive brown.

Dorsal spines of first legs in Sitka specimens 0, 0, 2, 2, 1. Dorsal spines of second legs in specimens from both localities may be 0, 0, 3, 2, 1 or 0, 0, 3, 2, 2.

Length of maximum female, 23 mm.

Localities: Alaska, Forrester island (Ronald and Prof. H. Heath); and Sitka.

Chilopoda collected by the Canadian Arctic Expedition, 1913-18.



## EXPLANATION OF PLATE IV.

- Fig. 1. *Cryophilus alaskanus* Chamberlin, ventral view of caudal end.  
 2. *Cryophilus alaskanus* Chamberlin, dorsal view of head and prehensors.  
 3. *Cryophilus alaskanus* Chamberlin, ventral view of prehensors.  
 4. *Cryophilus alaskanus* Chamberlin, maxillae.  
 5. *Cryophilus alaskanus* Chamberlin, clypeal area.