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THE DANISH  
ZOOGEOGRAPHICAL INVESTIGATIONS OF GREENLAND

LEADER: CHRISTIAN VIBE

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ADDITIONS TO  
THE APHID FAUNA OF GREENLAND

BY

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KØBENHAVN  
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BIANCO LUNOS BOGTRYKKERI A/S

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In 1951 and 1952 Mr. CHR. VIBE collected more aphids on Greenland. Though part of the material belonged to species already described in Meddelelser om Grønland, vol. 136, no. 1, there were also 3 new species, of which one belongs to a new and very curious genus and one new subspecies. Also undescribed morphs of described species was collected. The new forms are described hereafter, with some notes on the rest of the material.

Mr. VIBE asked for a short note on the way in which the photographs were made. The specimens were prepared and mounted by the method described by me in Entom. Berichten, 1950, vol. XIII, p. 55—58. A double-length camera  $9 \times 12$  cm is placed over a very wide-tubed microscope. From the latter every lens but the  $8 \times$  objective is removed. Illumination with an arclight of which the lightbeam can be made exactly parallel (check by blowing smoke into the beam). Focussing preliminarily on a ground-glass plate, then with a scratched clean photographic plate and a hand lens, which modification of the usual coverslip-in-the-centre method permits of focussing on any detail in the field.

The material including the cotypes is divided between the Zool. Mus. of Copenhagen and the author's collection.

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### ***Acyrthosiphon brevicornis* nov. spec.**

#### **Fundatrix.**

Material: 1 specimen. Much like the following morph, but body broader. Frontal tubercles strongly diverging, low. Antennae of 5 segments, just over half as long as body. Siphunculi slightly thicker and comparatively shorter, legs, especially the tibiae, considerably shorter than in later apterae viviparae.

Measurements: Length of body: 2.13 mm; Ant.: 1.15 mm; Siph.: 0.28 mm; Cau.: 0.24 mm; Ant. segments:  $\frac{0.51}{\text{III}}$ ;  $\frac{0.20}{\text{IV}}$ ;  $\frac{(0.13 + 0.20)}{\text{V}}$  mm. (*Dryas*, Thule, 5-VII-1952).

## Apterous viviparous female.

Material: 41 specimens. Body rather broadly oval. Tergum hardly or not sclerotic, not pigmented, but the head faintly brownish yellow, smooth to faintly reticulated. Dorsal hairs inconspicuous, blunt, very short, only about  $\frac{1}{4}$  of basal diameter of ant. segment III, but caudad hairs longer, so that the 6—8 hairs on abd. tergite VIII are up to  $1\frac{1}{2}$  times that diameter. No spinal tubercles present. Head with rather low, diverging, nearly smooth frontal tubercles; sinus frontalis wide, with a very low, flattish median tubercle. Antennae of 6, rarely 5 segments, about  $\frac{3}{5}$  of length of body, rather evenly darkish brown, somewhat imbricated; segment III usually longer than segment VI, in 37 specimens without rhinaria, in two specimens with one small rhinarium near base; segment V usually longer than segment IV; processus terminalis  $1\frac{5}{6}$ — $2\frac{1}{2}$  times as long as last segment. Hairs on segment III rather short, blunt, up to nearly  $\frac{1}{3}$  basal diameter of the segment. Rostrum reaching past the middle coxae; last segment rather acute, about as long as second joint of hind tarsi, with 4—6 hairs besides the 3 apical pairs. Siphunculi colourless to brown, rather thick, slightly tapering to cylindrical, somewhat imbricated on distal  $\frac{3}{4}$  part, usually constricted just before the small flange, about  $\frac{1}{7}$ — $\frac{1}{6}$  length of body. Cauda pale, elongated conical, rather thick, not or hardly constricted, bluntish,  $\frac{3}{4}$ — $\frac{5}{6}$  of the length of the siphunculi, with 6—8 hairs. Legs short, pale brownish yellow to brown with the femora and tibiae distally darker, hind tibiae sometimes with a few pseudosensoria; first tarsal joints with 3 thorny hairs.

## Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments			
						III	IV	V	VI
1	1.94	1.42	0.32	0.26	0 & 0	0.39	0.26	0.27	(0.13 + 0.21)
2	1.92	1.44	0.31	0.22	0 & 0	0.39	0.22	0.26	(0.15 + 0.27)
3	1.98	1.49	0.34	0.23	0 & 0	0.41	0.20	0.31	(0.14 + 0.27)
4	2.27	1.52	0.38	0.26	0 & 0	0.47	0.23	0.28	(0.14 + 0.24)
5	2.11	1.46	0.33	0.26	0 & 0	0.41	0.24	0.26	(0.14 + 0.24)
6	2.10	1.49	0.38	0.28	0 & 0	0.46	0.18	0.29	(0.14 + 0.27)
7	1.85	1.30	0.29	0.24	0 & 0	0.34	0.17	0.27	(0.13 + 0.23)
8	1.83	1.22	0.31	0.22	0 & 0	0.48	0.23	(0.13 + 0.23)	
9	1.93	1.28	0.29	0.22	0 & 0	0.37	0.20	0.21	(0.11 + 0.22)
10	2.06	1.22	0.33	0.26	0 & 0	0.39	0.19	0.27	(0.13 + 0.30)
11	2.19	1.49	0.35	0.27	0 & 0	0.45	0.21	0.29	(0.11 + 0.26)
12	2.08	1.43	0.32	0.28	1 & 1	0.60 <sup>1</sup>	—	0.30	(0.13 + 0.23)
13	1.97	1.53	0.34	0.27	0 & 0	0.48	0.20	0.29	(0.13 + 0.27)

(1—8, *Dryas*, 5—VII—1952; 9, *Graminea*, Thule, 23-VII-1951; 10, 11, 13, no host plant mentioned, Thule, 23-VII-1951; 12, *Carex*, or *Graminea*, Bakkesø, Thule, 26-VII-1951).

<sup>1</sup> Obsolete subdivision of segment III.



## Alate viviparous female.

Material: 7 specimens. Head pale brownish, darker around the ocelli, thorax brown, abdomen membranous with faintly brown, small pleural intersegmental sclerites and slightly more pigmented, small marginal sclerites. Antennae with wholly brown flagellum, considerably shorter than body; segment III on basal half to two-thirds with 4—6 normal rhinaria in a line, shorter than segment VI; segments IV and V subequal; processus terminalis mostly shorter than segment III,  $2\frac{1}{2}$ — $3\frac{1}{4}$  times as long as base of segment VI. Siphunculi more or less cylindrical, often thinnest in the middle, considerably thinner than in apterae, gradually darker smoky towards apex. Cauda much more slender and more acute than in apterae, faintly constricted. Femora dorsally mottled brown, darker towards apex; tibiae palest in the middle with blackish brown apices; hind tibiae sometimes with a few pseudosensoria. Wing normal; veins of forewings brown, very faintly shadowed. Other characters about as in apterous viviparous female.

## Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments			
						III	IV	V	VI
1	2.38	2.04	0.32	0.25	5 & 6	0.49	0.37	0.34	(0.17 + 0.48)
2	2.29	1.90	0.32	0.25	4 & 6	0.51	0.34	0.32	(0.15 + 0.40)
3	2.27	1.96	0.35	0.25	4 & 5	0.52	0.33	0.34	(0.15 + 0.44)
4	1.91	1.60	0.27	0.23	5 & 6	0.40	0.28	0.28	(0.13 + 0.33)
5	1.77	1.48	0.25	0.19	6 & 6	0.34	0.25	0.25	(0.12 + 0.38)

(1—2, *Graminea*, Thule, 23-VII-1951; 3, no host plant mentioned, Thule, 23-VII-1951; 4—5, *Carex* or *Graminea*, Bakkesø, Thule, 26-VII-1951).

## Oviparous female

Material: 3 specimens. Very much like apterous viviparous female, but processus terminalis comparatively longer, siphunculi more cylindrical and faintly brownish towards apex, cauda thicker and with one or two more hairs. Subgenital plate with many hairs over the whole surface. Hind tibiae with basal half considerably swollen, darker and with a great number of small pseudosensoria.

## Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments			
						III	IV	V	VI
1	1.85	1.50	0.34	0.22	0 & 0	0.37	0.22	0.29	(0.12 + 0.33)
2	2.21	1.69	0.35	0.23	0 & 0	0.40	0.32	0.30	(0.13 + 0.37)
3	1.72	1.25	0.30	0.20	0 & 0	0.29	0.21	0.20	(0.11 + 0.28)

(1, *Graminea*, Thule, 23-VII-1951; 2—3, no host plant mentioned, Thule, 26-VII-1951).

## Apterous male.

Material: 7 specimens. Body narrow. Head frontad of the paired ocelli brown, abdomen with only the same sclerites as alate females. Antennae usually longer than body, dark brown; segment III mainly along one half of its circumference with about 27—40 small, only slightly protruding rhinaria, much shorter than segment VI; segment IV with 13—23 similarly arranged rhinaria; segment V with rhinaria along one side, not in a line; processus terminalis  $2\frac{2}{3}$ —4 times base of segment VI. Siphunculi about as thick as in apterae viviparae but slightly more cylindrical, faintly dusky towards apex. Cauda shorter and more acute than in apterae viviparae. Legs as in alatae, hind tibiae frequently with a few pseudosensoria. Genitalia normal.

## Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Rhin. on segments			Ant. segments			
					III	IV	V	III	IV	V	VI
1	1.44	1.87	0.26	0.16	31 & 33	14 & 23	16 & 13	0.43	0.34	0.32	(0.14 + 0.47)
2	1.59	1.86	0.27	0.19	33 & 34	14 & 16	9 & 8	0.43	0.32	0.34	(0.13 + 0.47)
3	1.69	1.88	0.31	0.18	35 & 37	18 & 13	17 & 16	0.46	0.30	0.34	(0.13 + 0.49)
4	1.51	1.80	0.28	0.15	34 & 39	17 & 18	10 & 16	0.45	0.30	0.33	(0.13 + 0.43)
5	1.66	1.67	0.29	0.16	33 & 40	17 & 18	15 & 13	0.41	0.29	0.31	(0.13 + 0.36)
6	1.50	1.61	0.28	0.15	27 & 28	15 & 14	10 & 11	0.39	0.28	0.28	(0.14 + 0.35)

(1, *Graminea*, Thule, 23-VII-1951; 2—5, no host plant mentioned, Thule, 23-VII-1951; 6, *Carex* or *Graminea*, Bakkesø, Thule, 26-VII-1951).

Discussion. In most of the samples collected by Mr. VIBE at Thule some of these aphids were found, but one sample, collected in 1952, labelled *Dryas*, consisted exclusively of this aphid. It would seem that *Dryas* is the real host plant.

The generic position is not quite clear. In some respects the species looks like a *Metopolophium*, but the chaetotaxy of the last rostral segment, the absence of spinal tubercles and the unusually small median tubercles on the front suggest closer relationship to *Acyrtosiphon*. In both genera it would stand apart because of its short processus terminalis and antennae.

The biology seems to be like that of most holocyclic aphids from Greenland. Apparently there are 3—4 generations per annum, of which the first two are apterous, the 3rd mainly alate and the 4th consisting of sexuales.

The following samples, all from Thule, are available:

Plant	Date	Fund.	Apt. viv.	Al. viv.	Males	Ovip.
Gramineae .....	23-VII-1951	—	1	2	1	1
no plant .....	23-VII-1951	—	3	1	4	1
Carex or Gramineae..	26-VII-1951	—	1	2	2	—
no plant .....	26-VII-1951	—	—	—	—	1
Salix .....	4-VII-1952	—	2	—	—	—
Dryas .....	5-VII-1952	1	31	—	—	—
no plant .....	5-VII-1952	—	2	—	—	—
no plant .....	20-VII-1952	—	1	—	—	—

### **Thuleaphis** nov. gen.

The new genus is erected for the new species *Thuleaphis acaudata*. It belongs in the group of genera related to *Anuraphis* DEL GUERCIO ("subtribe Anuraphidea" of SHAPOSHNIKOV). But it differs from all the known genera of this group by having only two hairs on the first tarsal joints of all legs, by its minute siphunculi and its conspicuous spinal tubercles on abdominal tergites VIII and VII and frequently on the vertex, occasionally on other abd. tergites. The sclerotisation of the abdomen in apterae is more or less as in *Appelia* BÖRNER.

### **Thuleaphis acaudata** nov. gen.

#### Apterous viviparous female.

Material: 3 specimens. Body very broadly oval, slightly depressed. Head dark sclerotic but an area around each compound eye membranous; thoracic and abdominal tergites with pairs of dark, rectangular, broad, spinal sclerites which coalesce to broad sclerotic bars from abd. tergite IV or V caudad; marginal sclerites small, slightly variolous like all the preceding sclerites; pleural intersegmental sclerites darker, granulated, small. Rather small, quite flat marginal tubercles present on pronotum and on the marginal sclerites of abd. tergites II—V, sometimes two on one sclerite. Spinal tubercles slightly larger and more elevated, present on abd. tergites VIII and VII, sometimes also on the head. Dorsal hairs short, blunt, half as long as the ventral hairs, but the 6—8 hairs on abd. tergite VIII acute and much longer. Front flat. Antennae of 5 or 6 segments, short, about  $\frac{1}{3}$  length of body, pale with dark basal segments and dark apex; IIIrd segment without rhinaria; processus terminalis about  $1\frac{1}{2}$  times base of last segment. Eyes normal. Rostrum reaching to just past middle coxae; last segment rather short and obtuse, about  $\frac{9}{10}$  of 2nd joint of hind tarsi, with 2—6 hairs besides the 3 primary pairs which stand rather far from apex. Siphunculi conical, dark, very short, about as long as their basal width or shorter, smooth,

with very distinct flange. Cauda hardly developed, several times wider than long, rounded, with about 8 long hairs. Legs short, dark brownish sclerotic with basal part of the tibiae paler; hairs short and sparse; first tarsal joints of all legs with 2 hairs. Stigmal pori not covered, rather wide, oval.

Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	1.71	0.57	0.03	0.04	0.14	0.05	0.07	(0.09 + 0.11)
2	1.55	0.56	0.03	0.04	0.14	0.05	0.06	(0.08 + 0.12)
3	1.60	0.55	0.03	0.04	0.18	0.06	(0.09 + 0.11)	

(1, *Salix*, Thule, 4-VII-1952; 2—3, *Graminea*, Thule, 23-VII-1951).

Alate viviparous female.

Material: 21 specimens. Head and thorax black sclerotic. Abdomen with a large, dark, laterally hardly incised spino-pleural central sclerite, which extends from abd. tergite III—VI, though rather often tergite VI has a more or less completely free sclerotic bar; tergites VII and VIII with free sclerotic transverse bars; marginal sclerites rather large, those of tergite IV with an extension ventrad. Antennae much longer than in apterae, about  $\frac{2}{3}$  length of body, of 6 segments, black with the very base of segment III pale; segment III with 10—16 partly transverse, not very protruding rhinaria of strongly different sizes, irregularly arranged; base of the segment conspicuously constricted; segment IV with 0—3 rhinaria, sometimes with one rhinarium placed near apex; processus terminalis about twice base of last segment, much shorter than segment III. Hairs on segment III just longer than half the diameter of segment IV in the middle. Siphunculi as in apterae, but cauda much narrower, semi-oval, at least twice as long as the siphunculi. Legs slender, blackish with most of the tibia brown. Wings with pale brown veins, the media rather often forked once. Other characters more or less as in apterous viviparous female.

Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Rhin.		Ant. segments			
					on III	IV	III	IV	V	VI
1	1.47	1.01	0.03	0.08	12 & 15	0 & 2	0.30	0.14	0.11	(0.09 + 0.22)
2	1.62	1.07	0.03	0.08	13 & 14	0 & 0	0.36	0.14	0.12	(0.11 + 0.23)
3	1.59	1.00	0.03	0.08	12 & 14	2 & 0	0.30	0.15	0.12	(0.09 + 0.20)
4	1.33	0.93	0.03	0.06	11 & 14	0 & 0	0.26	0.12	0.11	(0.09 + 0.21)
5	1.72	1.13	0.03	0.09	14 & 16	0 & 1	0.34	0.15	0.14	(0.13 + 0.24)
6	1.67	1.07	0.03	0.08	14 & 15	0 & 1	0.30	0.16	0.14	(0.12 + 0.25)

(1—3, *Graminea*, Thule, 23-VII-1951; 4—6, no host plant mentioned, Thule, 26-VII-1951).

## Oviparous female.

Material: 1 specimen. Much like apterous viviparous female, but only the head and bands across abd. tergites VI—VIII brown sclerotic. Hind tibiae swollen over nearly their whole length, pigmented like the other tibiae, with numerous pseudosensoria over whole length.

Measurements: Length of body: 1.49 mm; Ant.: 0.61 mm; Siph.: 0.03 mm; Cau.: 0.04 mm; Ant. segments:  $\frac{0.15}{\text{III}}$ ;  $\frac{0.08}{\text{IV}}$ ;  $\frac{0.08}{\text{V}}$ ;  $\frac{(0.08 + 0.13)}{\text{VI}}$  mm. (*Graminea*, Thule, 23-VII-1951).

## Apterous male.

Material: 2 specimens. Body very elongated oval. Head dark sclerotic. Thorax dark sclerotic, the mesothorax with a subdivision faintly resembling that of alatae. Abdomen with a series of dark partly coalescing, broad to spino-pleural transverse bars and with marginal sclerites. In one specimen each marginal sclerite with a complex of coalescing marginal tubercles which therefore look like wax-glands. Antennae black, about length of body, of 5 or 6 segments (division between segment III and IV obsolete or abnormal); segment III (including IV) with some 48—52 mainly very small rhinaria; the larger rhinaria distinctly transverse; penultimate segment with 5—7 small rhinaria and also base of last segment with 5—7 secondary rhinaria. Cauda about intermediate between those of apterae and alatae. Genitalia normal, claspers blunt. Other characters about as in alatae.

## Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Rhin. on segment			Ant. segments		
					III—IV	V	VI	III—IV	V	VI
1	1.15	0.86	0.03	0.04	48 & 49	6 & 7	7 & 6	0.39	0.09	(0.11 + 0.16)
2	1.25	0.83	0.03	0.04	48 & 52	7 & 5	5 & 6	0.38	0.09	(0.09 + 0.15)

(*Graminea*, Thule, 23—VII—1951).

Discussion. Nearly all the specimens were present in tubes together with *Acyrtosiphon brevicornis*, presumably collected on grass. One aptera was found in a tube containing *Cavariella borealis* from *Salix*. Both plants are probably not the real hostplant. From the morphology a Rosaceous plant would seem to be the most likely host<sup>1</sup>).

***Cavariella borealis* H. R. L., 1952.**

In 1952, Meddelelser om Grønland, vol. 139, p. 16, this aphid was described from one apterous male. A number of samples collected in 1951 and 1952 by Mr. VIBE show that this species has a bewildering

<sup>1</sup>) The real host plant probably is *Sedum roseum*, which was discovered by Dr. F. H. JACOB of Harpenden, England.

variety of morphs. Two kinds of apterae viviparae were found. Besides normal alatae viviparae there exist brachypterous or rather almost apterous alatae which seem to replace the true alatae in some strains of this species. With the normal alate females normal alate males were taken, while the colonies with brachypterous alatae are associated with brachypterous males. In the oviparae there is no variation. A rather extensive description is wanted to cover this polymorphism.

#### Apterous viviparous female.

Material: 10 intact specimens. The two not sharply demarcated forms are referred to as A and B. Body depressed, very broadly oval, length  $\pm 1\frac{1}{4}$  times maximum width (A), to oval, length  $\pm 1\frac{2}{5}$  maximum width (B). Tergum more (B) or less (A) thickly sclerotic, almost colourless, covered with more (B) or less (A) shallow pits, with only head, pronotum, mesonotum and abd. tergite VIII free, the other tergites fused to a shield. Dorsal hairs very short with blunt to spear-shaped apices. Antennae in (A) of 5 or 6 segments, in the latter case often with indistinct or obsolete division between III and IV, about  $\frac{1}{3}$ — $\frac{3}{8}$  length of body; processus terminalis at most as long as base of segment IV, in (B) distinctly of 6 segments, slightly longer and with the processus terminalis at least as long as base of VI. Last segment of rostrum only with the 3 apical pairs of hairs. Siphunculi in (A) cylindrical or with a sudden attenuation towards apex, sometimes also slightly attenuated on basal half and then rather symmetrically swollen; in (B) slightly swollen on distal half and the swelling remarkably asymmetrical; always coarsely bluntly scaly, with a small flange; length about  $\frac{1}{7}$ — $\frac{1}{6}$  of body. Cauda thick, very blunt, about  $\frac{5}{9}$ — $\frac{2}{3}$  of the siphunculi, with 5, rarely 4 hairs, all laterally arranged. Legs short, pale; first tarsal joints all with 3 hairs. Supracaudal process variable in shape, more conical in (A)-forms, more cylindrical in (B)-forms.

#### Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	2.28	0.78	0.37	0.21	0.22	0.11	0.10	(0.12 + 0.11)
2	2.13	0.77	0.33	0.20	0.23	0.11	0.09	(0.11 + 0.09)
3	2.30	0.78	0.34	0.19	0.24	0.11	0.09	(0.11 + 0.09)
4	2.08	0.76	0.34	0.19	0.21	0.11	0.10	(0.12 + 0.09)
5	1.88	0.71	0.30	0.17	0.19	0.09	0.10	(0.10 + 0.12)
6	1.91	0.73	0.30	0.16	0.19	0.10	0.10	(0.11 + 0.12)
7	0.74	0.76	0.29	0.15	0.21	0.12	0.09	(0.12 + 0.11)
8	2.01	0.69	0.33	0.16		0.26	0.09	(0.12 + 0.11)
9	2.32	0.71	0.32	0.20		0.28	0.10	(0.11 + 0.11)
10	2.01	0.73	0.32	0.19		0.32	0.09	(0.11 + 0.09)

(1—6, 9, *Salix*, Thule, 4-VII-1952; 7—8, *Salix*, Thule, 27-VII-1951; 10, *Carex*, Thule, 5-VII-1952).

## Alate viviparous female.

Material: 14 rather complete specimens. Head and thorax black sclerotic, abdomen from tergite III to VII with a row of dark, broad transverse sclerites which are mutually more or less fused, especially in the middle; on the anterior margins of these bars, i. e., almost intersegmentally, occasionally small tubercles of unknown nature occur; marginal sclerites rather large with a darker centre, sometimes on segments I—V with a tubercle; intersegmental sclerites sharply bordered, granular or gland-like. Antennae blackish, about  $\frac{5}{9}$ — $\frac{5}{8}$  length of body; segment III longer than IV + V, with 12—24 scattered, slightly tubercular rhinaria; IV with 3—7 rhinaria along one side; V with 0—3 rhinaria; processus terminalis usually longer than base of segment VI; rarely division between segments III and IV obsolete. Siphunculi dusky, darker towards apex, usually distinctly clavate with asymmetrical swelling, the apices curved outwards, superficially and rather acutely imbricated, about  $\frac{1}{9}$ — $\frac{1}{8}$  length of body. Cauda conical, darkish, slightly attenuated on distal half, not acute,  $\frac{2}{3}$ — $\frac{3}{4}$  of the siphunculi. Supracaudal process reduced to a tubercle bearing two hairs. Venation of wings usually normal, pigmented as typical for the genus. Legs slender; femora dark except at base, apicad imbricated; tibiae pale with acutely imbricated, dark apices and smoky bases.

## Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Rhin. on segments			Ant. segments			
					III	IV	V	III	IV	V	VI
1	2.00	1.12	0.23	0.15	18 & 19	3 & 4	3 & 0	0.41	0.17	0.12	(0.13 + 0.15)
2	2.01	1.12	0.22	0.15	15 & 17	5 & 5	2 & 3	0.39	0.18	0.12	(0.13 + 0.16)
3	1.98	1.15	0.23	0.15	13 & 15	6 & 4	3 & 1	0.39	0.16	0.15	(0.14 + 0.17)
4	1.84	1.03	0.21	0.14	15 & 15	5 & 5	3 & 3	0.35	0.17	0.12	(0.12 + 0.14)
5	1.97	1.08	0.22	0.15	21 & 17	5 & 5	1 & 1	0.36	0.16	0.12	(0.14 + 0.16)
6	1.91	1.15	0.22	0.15	23 & 18?	5 & 6?	2 & 3	0.41	0.18	0.13	(0.13 + 0.16)
7	2.01	1.09	0.21	0.16	16 & 13	3 & 5	2 & 2	0.36	0.18	0.14	(0.14 + 0.15)
8	1.98	1.16	0.24	0.16	24 & 23	7 & 3	3 & 1	0.41	0.18	0.14	(0.13 + 0.16)
9	2.26	1.32	0.26	0.19	23 & ?	7 & ?	3 & ?	0.47	0.22	0.15	(0.16 + 0.17)
10	1.79	1.11	0.21	0.14	15 & 12	4 & 4	2 & 1	0.34	0.18	0.14	(0.15 + 0.17)
11	1.98	1.13	0.20	0.14	20 & 18	4 & 3	1 & 2	0.39	0.16	0.14	(0.14 + 0.16)
12	1.83	1.09	0.23	0.17	18 & ?	4 & ?	1 & ?	0.37	0.17	0.14	(0.14 + 0.14)

(1—9, *Salix*, Thule, 4-VII-1952; 10—11, *Carex*, Thule, 5-VII-1952; 12, *Papaver*, Thule, 5-VII-1952).

## Brachypterous alatae or intermediates.

Material: 7 specimens. General structure like that in normal alatae, with a normal pterothorax and generally some sac-like rudiments of wings without venation. Sclerotisation of abdominal tergite usually more compact than in normal alatae. Antennae much as in alatae,

with, however, a much wider variation in sensoriation; segment III with 1—19 rhinaria; IV with 0—6; V with 0—3. Positively correlated with the number of rhinaria is the degree of attenuation of the cauda; negatively correlated with the number of rhinaria is the degree of development of the supracaudal process. Apices of tibiae less distinctly spinulose-imbriated.

Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Rhin. on segments			Ant. segments			
					III	IV	V	III	IV	V	VI
1	1.99	1.14	0.26	0.17	10 & ?	1 & ?	1 & ?	0.38	0.18	0.15	(0.15 + 0.13)
2	2.17	1.04	0.29	0.19	3 & 1	0 & 0	0 & 0	0.37	0.15	0.14	(0.14 + 0.12)
3	2.00	0.96	0.24	0.17	1 & 0	0 & 0	0 & 0	0.32	0.14	0.12	(0.13 + 0.12)
4	1.88	1.10	0.27	0.19	19 & 16	6 & 5	1 & 3	0.38	0.16	0.13	(0.13 + 0.16)
5	1.72	1.11	0.26	0.16	16 & 16	4 & 4	1 & 2	0.38	0.15	0.12	(0.15 + 0.16)
6	1.86	1.02	0.26	0.16	15 & ?	5 & ?	2 & ?	0.34	0.17	0.11	(0.13 + 0.14)

(1—3, Thule, 8-VII-1952; 4—6, Thule, 6-VII-1952).

Oviparous female.

Material: 34 specimens. Much like apterous viviparous female, but tergum membranous and variolous. Anterior part of head, small marginal sclerites, small spinal sclerites on abd. tergite VII, and notably the supracaudal process and the undivided subgenital plate more or less brownish pigmented. Antennae always of 6 segments. Siphunculi rather variable in shape, slightly swollen or almost cylindrical, but always rather conspicuously attenuated at apex, pale to brownish, towards the apex slightly darker. Abd. tergite VIII with 6—8 hairs besides the two on the process. Cauda with 7—11 hairs. Hind tibiae thick over their whole length, more or less cylindrical, pigmented like the other tibiae or slightly darker, with a large number of pseudosensoria over nearly their whole length but almost only on inner side, anyway with none on outer side.

Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	2.13	0.79	0.30	0.18	0.23	0.11	0.11	(0.12 + 0.11)
2	1.87	0.67	0.27	0.17	0.17	0.09	0.09	(0.09 + 0.09)
3	1.80	0.64	0.28	0.18	0.19	0.06	0.09	(0.09 + 0.09)
4	2.04	0.73	0.30	0.19	0.21	0.09	0.09	(0.11 + 0.09)
5	2.07	0.73	0.32	0.19	0.20	0.09	0.10	(0.11 + 0.11)
6	1.97	0.75	0.30	0.20	0.21	0.09	0.11	(0.11 + 0.09)
7	2.05	0.73	0.32	0.18	0.21	0.10	0.10	(0.10 + 0.11)
8	2.30	0.79	0.32	0.21	0.24	0.10	0.10	(0.11 + 0.11)

(1—6, *Salix*, Thule, 27-VII-1951; 7, Thule, 6-VII-1952; 8, *Salix*, Thule, 4-VII-1952).



## Apterous male.

Material: 3 nearly complete specimens. The original description gives the number of hairs on the first joint of the hind tarsi as two; the recently caught specimens have distinctly 3 hairs on all the first tarsal joints, as in all the other morphs. The number of hairs on the cauda is 4—5. The rhinaria vary as follows: ant. segment III with 31—46; segment IV with 10—19; segment V with 9—15; segment VI with 1—4 on basal part.

## Alate male.

Material: 1 specimen. Like an apterous (brachypterous) male, but with complete, normal wings. Rhinaria vide measurements. Processus terminalis about  $1\frac{1}{2}$  times base of VIth segment. Siphunculi more swollen, with thinner base. Supracaudal processus reduced to a tubercle as in alate viviparous female, with rather long, acute hairs.

Measurements: Length of body: 1.52 mm; Ant.: 1.19 mm; Siph.: 0.17 mm; Cau.: 0.12 mm; Ant. segments:  $\frac{0.35}{\text{III}}$ ;  $\frac{0.19}{\text{IV}}$ ;  $\frac{0.17}{\text{V}}$ ;  $\frac{(0.13 + 0.20)}{\text{VI}}$  mm. Rhin. on III: 41 and 49; on IV: 18 and 13; on V: 15 and 9; on VI: 2 and 2. (*Salix*, Thule, 4-VII-1952).

Discussion. Several data on the biology are now available. The species lives on the underside of the leaves of *Salix*. Oviparae are already present in the first days of July, and a sample taken in the end of July consists almost only of sexuales. This definitely excludes migration. The scarcity of apterae viviparae and males as compared to the large number of alatae viviparae and oviparae in the samples suggests that most of the apterae taken are androparae, the alatae and intermediates gynoparae. If one considers the fact that all other species of *Cavariella* known to live on *Salix* are migrating, one may probably compare the unusually high frequency of intermediates to similar phenomena in *Dysaphis de- vecta* (Wlk.) (HILLE RIS LAMBERS, Tijdschr. Plantenz., vol. 51, pp. 57—66).

In the measurements of apterae viviparae no. 5 and 6 relate to (B)-forms, the others to (A)-forms.

The following samples are available: *Salix*, Thule, 27-VII-1951, 32 oviparae, 2 apt. males, 2 apterae viviparae; *Salix*, Thule, 9-VII-1952, 7 apterae viviparae, 9 alatae viviparae, 1 ovipara, 1 alate male, 1 nearly-moulted alate male; no host plant mentioned, Thule, 6-VII-1952, 5 intermediates, 1 apterous male, 1 ovipara; *Papaver*, Thule, 5-VII-1952, 1 alata vivipara; *Carex*, Thule, 5-VII-1952, 1 aptera vivipara, 2 alatae viviparae; no host plant mentioned, Thule, 8-VII-1952, 3 intermediates. The record from *Carex* may be ascribed to an error in labelling, while that from *Papaver* probably relates to a stray alata.

**Aphis nivalis** nov. spec.

Apterous viviparous female.

Material: 5 specimens. Body rather broadly oval. Tergum nearly smooth, membranous, but the head, rather large marginal sclerites on the thorax, the stigmal plates, very small marginal sclerites on abdomen, and narrow bars across abd. tergites VII and VIII rather dark sclerotic. Very small marginal tubercles present on pronotum, abd. segments I and VII. Dorsal hairs on abd. tergite III about  $\frac{5}{7}$  of diameter of IIIrd ant. segment, those on tergite VIII about as long as that diameter; abd. segments II—IV with 2 pairs of marginal, 1 pair of spinal hairs on tergites V—VIII and 1 pair of spino-pleural hairs with occasionally a spinal hair on abd. tergites II—IV. Front rather W-shaped, with low frontal tubercles and strongly convex median part. Antennae imbricated, a little more than half as long as body, brownish with each segment of the flagellum gradually darker towards its apex; segment VI about as long as segment III, with the processus terminalis  $1\frac{1}{3}$ — $1\frac{3}{4}$  times the basal part. Hairs on ant. segment III about half as long as the diameter of the segment in the middle. Rostrum nearly reaching the hind coxae; last segment with 2 hairs besides the 3 apical pairs, almost exactly as long as 2nd joint of hind tarsi. Siphunculi blackish, rather thick, conical, about  $\frac{1}{13}$ — $\frac{1}{11}$  of the length of the body, very superficially evenly acutely imbricated, with a small flange. Cauda especially basad darkish, much paler than the siphunculi and a little longer, elongate conical to just tapering, not constricted, with 7—11 hairs of which the more basal ones are shorter and thinner. Legs brownish with the tibiae darker near apex, with some fine long hairs on the undersides of coxa, trochanter and femur, much shorter and more adpressed hairs on the dorsal side of the femora towards apex and on the tibiae; first tarsal joints with 3, 3, 2 or 3, 2, 2, hairs. Subgenital plate with two hairs on anterior half, and about 8—10 hairs along posterior margin in two series with a wide bare gap between them.

## Measurements in mm

No.	Body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	2.01	1.05	0.17	0.19	0.29	0.18	0.16	(0.11 + 0.17)
2	2.03	1.08	0.18	0.20	0.31	0.17	0.16	(0.11 + 0.18)
3	2.02	1.13	0.18	0.19	0.31	0.20	0.18	(0.11 + 0.18)
4	1.84	0.89	0.14	0.18	0.23	0.14	0.14	(0.10 + 0.17)
5	2.02	1.12	0.16	0.19	0.30	0.19	0.18	(0.13 + 0.17)

(1—3, *Epilobium*, Sdr. Strømfj. (BW 8), 2-VII-1951; 4—5, no host mentioned, other data the same).

Discussion. Because of its short processus terminalis, thick short siphunculi, etc., the species is easily recognisable. It comes in what BÖRNER (1952, Mitt. Thür. bot. Ges., Beiheft 3, p. 245) calls "Subgen. Medoralis sensu stricto".

***Thripsaphis vibei* subsp. *arctica* nov. subsp.**

A rather large sample of a *Thripsaphis*, collected in 1952, is very similar to the material of *Thripsaphis vibei* H. R. L. from which that species was described. There are, however, certain differences not only between the apterae, but also between the alatae of both collections and that makes it unlikely that these differences could be ascribed to the samples being of different generations of the same species. The two samples of *T. vibei* sensu stricto mutually do not differ to any extent and they are rather large. Therefore, it is also unlikely that the 1952 sample is part of one rather variable species. For those reasons I place it in a separate subspecies, *Thripsaphis (Trichocallis) vibei* H. R. L. subsp. *arctica* nov. subsp. The subspecies is intermediate between *T. vibei* H.R.L. and *T. cyperi* (WLK.). I recorded it as a subspecies of the latter from Iceland.

Apterous viviparous female.

Material: 4 specimens. Of about the same size as the main species, but slightly more slender, particularly the posterior half of the body. The groups of waxglands of abd. tergite VII which cover nearly the posterior half in the main species, are only distinct in the middle. Antennae considerably more slender and somewhat longer, viz., 0.40—0.50 of the length of the body in the main species, about 0.55—0.65 in the subspecies. Also the legs slightly longer, the hind tibiae in the main species on their basal half with only here and there a spinule, but in the subspecies rather evenly spinulose from base to apex, especially on their anterior surface. Other characters more or less as in the main species.

Measurements in mm

No.	Body	Ant.	Rhin. on III	Ant. segments			
				III	IV	V	VI
1	2.51	1.55	1 & 1	0.49	0.29	0.24	(0.17 + 0.16)
2	2.72	1.50	0 & ?	0.46	0.28	0.26	(0.17 + 0.14)
3	2.28	1.57	3 & 3	0.40	0.24	0.21	(0.16 + 0.15)
4	2.57	1.45	3 & 3	0.44	0.26	0.22	(0.17 + 0.16)

Alate viviparous female.

Material: 2 specimens. On posterior half of abd. tergite VII groups of about 10—18 transparent porous pustules (waxglands) around each

of the two pleural hairs, but in alatae of the main species transversely oval fields of about 60—120 pustules each. The more anterior tergites evenly spinulose and only here and there with a transparent porous pustule (waxgland) near a dorsal hair, but in the main species rather spinulose and with very distinct groups of waxglands mainly around the posterior hairs of each tergite. Hind tibiae in the main species only on distal  $\frac{1}{3}$ — $\frac{2}{5}$  distinctly spinulose, on basal half smooth, but in the subspecies over distal half distinctly spinulose and dorsally (in lateral view) nearly up to the base. Other characters rather as in alatae of the main species.

Measurements in mm

No.	Body	Ant.	Rhin. on III	Ant. segments		V	VI
				III	IV		
1	2.36	1.63	10 & 10	0.54	0.32	0.29	(0.19 + 0.15)
2	2.60	1.86	9 & 10	0.60	0.37	0.32	(0.19 + 0.16)

Oviparous female.

Material: 10 specimens. More slender and smaller than apterae viviparae. Abdominal tergites III—VI rarely completely fused, usually with membranous intersegmental perforations and often lateral incisions, so that completely free tergites may result. Ant. segment III in 2 specimens with undivided abdominal shield with one rhinarium, otherwise without rhinaria. Very large waxglands extending from abd. sternite V to sternite VII present underneath the siphunculi. Hind tibiae very slightly swollen on basal  $\frac{1}{2}$ — $\frac{3}{5}$  and there with some 30—50 roundish pseudosensoria. Otherwise very much like apterous viviparous female.

Measurements in mm

No.	Body	Ant.	Rhin. on III	Ant. segments		V	VI
				III	IV		
1	2.65	1.49	0 & 1	0.45	0.24	0.27	(0.17 + 0.16)
2	2.17	1.21	0 & 0	0.34	0.19	0.20	(0.15 + 0.14)
3	2.26	1.02	0 & 0	0.35	0.21	0.20	(0.14 + 0.12)
4	2.42	1.14	0 & 0	0.37	0.22	0.22	(0.17 + 0.14)
5	2.67	1.19	0 & 0	0.41	0.24	0.23	(0.17 + 0.14)
6	2.45	1.34	0 & 0	0.39	0.23	0.24	(0.16 + 0.14)
7	2.39	1.39	0 & 0	0.43	0.23	0.23	(0.17 + 0.15)
8	2.47	1.38	0 & 0	0.41	0.23	0.23	(0.16 + 0.14)
9	2.40	1.32	0 & 0	0.39	0.22	0.20	(0.17 + 0.14)

Apterous male.

Material: 1 specimen. Body small and very narrow, a little more than 3 times as long as its maximal width. Tergital sclerotisation as in

oviparous female. Antennae about  $\frac{2}{3}$  length of body, with the small rhinaria along one side; segment III with 8 and 10 rhinaria; IV with 5 and 3; V with 7 and 7; VI with 4 and 3 secondary rhinaria on basal part. Distinct groups of some 8—10 waxglands present around the posterior spinal and pleural hairs on abd. tergites I—VI, but those on VII notably larger, composed of some 30—40 glands. Subgenital plate not deeply incised. Genitalia normal.

Measurements: Length of body: 1.80 mm; Ant.: 1.21 mm; Ant. segments:  $\frac{0.37}{III}$ ;  $\frac{0.19}{IV}$ ;  $\frac{0.19}{V}$ ;  $\frac{(0.16 + 0.13)}{VI}$  mm. Rhinaria vide description.

Discussion. The material described here was taken from *Carex*, Narsarsuaq, BW I, 31—VII—1952. It contained one ovipara which evidently has been killed by a Hymenopterous endoparasite, probably a Chalcid judging from the blackness of the aphid. It is doubtful whether the male belongs to the subspecies, for its waxglands as well as the spinulosity of the hind tibiae are rather more like those in some forms of the main species.

New records of species already described in 1952.

1. *Myzus (Nectarosiphon) polaris* H. R. L. Several samples from *Gramineae*, Thule, 23/27-VII-1951, in toto 41 alatae viviparae and 3 oviparous females. Like the original description, but rhinaria on ant. segment III varying from 10—19 and segment IV very frequently without rhinaria. Two alatae have 5 ant. segments, one with 9 and 9 rhinaria on basal  $\frac{2}{3}$  part, arranged in single file, the other (with atrophied wings) with 3 and 7 rhinaria.
2. *Pterocomma groenlandicum* H. R. L. Thule, 23-VII-1951, 1 alate female, 2 males; idem, 26-VII-1951, one male; idem, 5-VII, 8-VII, 10-VII-1952, one alate female each; idem, 17-VII-1952, one male; Umanak, 3-VIII-1951, 5 males, 1 ovipara; Sdr. Strømfj. (BW 8), 2-VII-1952, 2 alate females, one apterous larva. The ovipara, until now unknown, very much like the apterous viviparous female, but the hind tibiae very thick and with hundreds of tubercular pseudo-sensoria.
3. *Euceraphis punctipennis* (Zett.). Sdr. Strømfj. (BW 8), 2-VII-1952, 3 alatae viviparae.
4. *Pemphigus salicicola* H. R. L., roots of *Salix herbacea*, Upernavik, 10-VII-1951, 25 apterae viviparae, a few larvae.
5. *Calaphis arctica* H. R. L. This species was recently found in considerable numbers on *Betula nana* in Southern Bavaria by Dr. BACHMAIER.

6. *Acyrtosiphon brachysiphon* H. R. L. was in 1957 and 1958 collected in small numbers at Maran (1800 m) near Arosa in Switzerland on *Vaccinium uliginosum*. It lives on the underside of the leaves.
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Corrigenda to the Aphid Fauna of Greenland, Meddelelser om Grønland, vol. 136, no. I, 1952, p. 9, second line. Between "does" and "fit" insert: "not". p. 26, after "1—4", head of the fjord "Unartoq" read: 11-VII-1948; same line, instead of "7—VIII—1950" read: 7-VII-1950.