MEDDELELSER OM GRØNLAND
UDGIVNE AF
KOMMISSIONEN FOR VIDENSKABELIGE UNDERSØGELSER I GRØNLAND
Bd. 136 · Nr. 1

THE DANISH
ZOOGEOGRAPHICAL INVESTIGATION OF GREENLAND
Leader: Chr. Vibe

THE APHID FAUNA OF GREENLAND

BY

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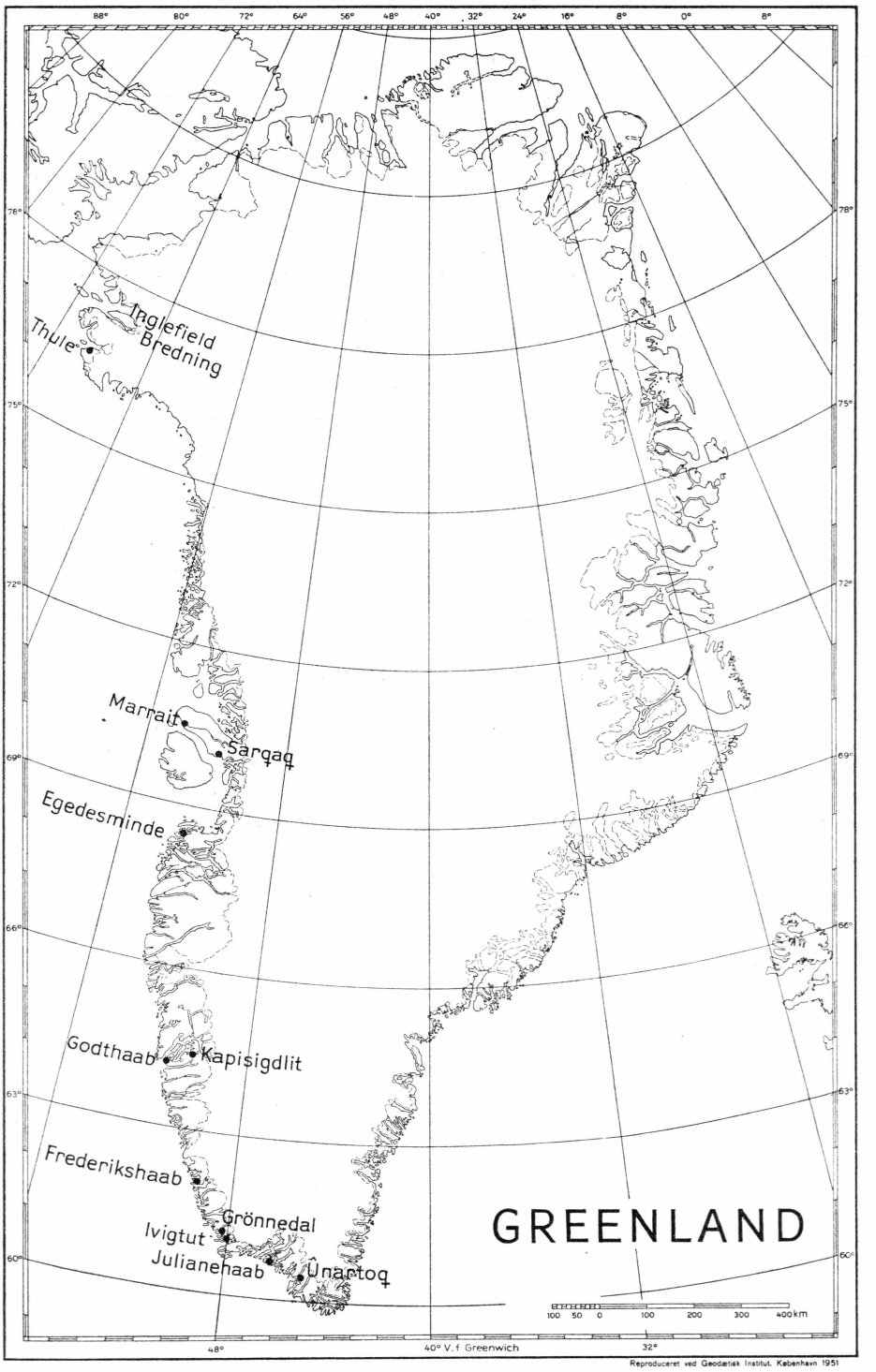
WITH 2 FIGURES IN THE TEXT AND 5 PLATES

KØBENHAVN
C. A. REITZELS FORLAG
BIANCO LUNOS BOGTRYKKERI
1952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INTRODUCTION

Few aphids were known from Greenland. ZETTERSTEDT's collection contains a specimen of *Euceraphis punctipennis* (Zett.), labelled Grønland, and also K. HENRIKSEN, 1939, records this species. E. RÜBSAAMEN recorded 2 species, viz., *Tychea groenlandica* Rübs. and *Cladobius populea* Kltb. *Tychea groenlandica* Rübs., here redescribed as *Pemphigus groenlandicus* (Rübs.), was generally supposed to be a synonym of *Trifidaphis phaseoli* (Pass.). The *Cladobius populeus* which RÜBSAAMEN described was most certainly not KALTENBACH's species (now *Pterocomma populea* (Kltb.)); I describe it here as *Pterocomma groenlandica* nov. spec.

In recent years CHR. VIBE as leader of the Danish Zoogeographical Investigation of Greenland has collected aphids on the Western Coast of Greenland and he submitted the material for identification. A surprisingly large number of species was taken and of most species so many samples that some knowledge of their biology has been obtained.

At present therefore 16 species and one subspecies are known, viz.:

1. *Acyrthosiphon boreale* nov. spec., host plant unknown.
2. *Acyrthosiphon brachysiphon* nov. spec., host plant Vaccinium uliginosum.
3. *Sitomyzus* nov. gen. *vibei* nov. spec., host plant Gramineae.
4. *Myzus* (*Nectarosiphon*) *polaris* nov. spec., host plant Cerastium alpinum.
5. *Myzodium modestum* (Hottes), host plant Polytrichum (commune).
6. *Cavariella borealis* nov. spec., host plant unknown.
7. *Paducia aterrima* nov. spec., host plant Salix.
8. *Pterocomma groenlandica* nov. spec., host plant Salix.
9. *Euceraphis punctipennis* (Zetterstedt), host plant Betula.
10. *Calaphis arctica* nov. spec., host plant Betula.
11. *Betulaphis pelei* nov. spec., host plant Betula.
12. *Thripsaphis* (*Trichocallis*) *vibei* nov. spec., host plant Carex.
13. *Thripsaphis* (*Thripsaphis*) *sensoriata* nov. spec., host plant Carex.
14. *Cinara juniperi* (De Geer), host plant Juniperus communis.

15a. *Pemphigus groenlandicus* (Rübsaamen), host plants Gramineae.
b. *Pemphigus groenlandicus* subspec. *crassicornis* nov. subspec., host plants Gramineae.
16. *Pemphigus salicicola* nov. spec., host plant Salix.

Some of these species, like *Myzodium modestum* (Hottes), *Euceraphis punctipennis* (Zetterstedt), and *Cinara juniperi* (De Geer) have a holarctic distribution. *Paducia* Hottes & Frison is known only from the nearctic region. *Thripsaphis* Gill. is both antarctic (New Zealand) and holarctic. The other genera all occur in the palaearctic and nearctic region. The Greenland representatives of these genera seem to be more nearly related to palaearctic species than to nearctic ones, but one should not overlook the fact that almost nothing is known of the aphidfauna of Northern North-America.

The biology of those Greenland aphids on which data are now available is often remarkable. It seems that in several species the cycle from egg to egg can be completed in 3—4 generations, so that one sample even contained fundatrices and sexuales of the same species. Also in milder climates a few exceptional species are known to form their sexuales in early summer, like those Greenland aphids at maximum day length and the highest temperatures of the year, but in Greenland this is evidently quite normal in aphids. The species of *Pemphigus* from Greenland undoubtedly form part of the cycle of a migrating species (primary host probably Populus), but in the absence of primary host plants they hibernate by viviparous apterae on roots of plants. However, they still are forming the autumn migrants which would produce the sexual generation on the bark of the absent primary host plants.

Even up to Thule aphids appear to multiply, as there, in September, an apterous male was taken, which unfortunately cannot be identified, nor described.

Of those species of which more than one adult specimen was present material is in the author's collection, while the holotypes are kept in the Zool. Museum of Copenhagen. When possible, cotypes have been designed taken from one sample.

1. **Acyrthosiphon boreale** nov. spec.

Apterous viviparous female.

Material: 4 more or less complete and several mutilated specimens. Body slender, spindle-shaped. Tergum very slightly but distinctly sclerotic, faintly yellowish, a little wrinkled. Dorsal hairs blunt, very short, on abd. tergite III about $^3/_8$ of basal diameter ant. of segment III; abd. tergite VIII with 6 hairs about as long as that diameter. Head smooth, pale. Frontal tubercles well developed, diverging, slightly rounded on inner side and there occasionally very indistinctly rough, and usually with 3 hairs. Median frontal tubercle very conspicuous. Antennae pale, gradually darker towards apex, hardly imbricated, about $^9/_{10}$—$1\,^1/_{20}$ times length of body; segment III usually on basal half with 2—9 slightly elevated, rather large rhinaria, irregularly placed in a single row; processus terminalis 1—$1\,^2/_9$ times segment III, $4\,^3/_4$—$5\,^2/_3$ times base of last segment. Hairs on segment III not half as long as basal diameter of the segment. Rostrum reaching just past middle coxae; ultimate segment normal, just (about $^1/_{16}$) longer than 2nd joint of hind tarsi, with 6—8 hairs besides the 3 apical pairs. Siphunculi colourless, 0.23—0.30 of length of body, a little shorter than ant. segment III, evenly slightly and bluntly imbricated from base to apex, with rather well developed flange. Cauda about half as long as the siphunculi, rather thick, not constricted, pale, with 7—9, usually 9 hairs. Legs with only the apices of the tibiae somewhat brownish, long; first tarsal joints all with 3 hairs.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments III	IV	V	VI
1.....	2.67	2.88	0.70	0.31	4&6	0.72	0.54	0.45	(0.15 + 0.80)
2.....	2.89	2.94	0.72	0.34	3&6	0.77	0.56	0.47	(0.16 + 0.77)
3.....	2.73	2.85	0.63	0.33	4&7	0.69	0.52	0.44	(0.15 + 0.84)
4.....	2.81	2.68	0.64	0.30	7&9	0.73	0.57	0.48	(0.14 + 0.75)

(1—4, Julianahaab, 17-VII-'49).

Discussion. The general aspect of this species is like a *Metopolophium* Mordv., but the last rostral segment is too long and hairy. In *Acyrthosiphon* Mordv. it strongly resembles *A. malvae* (Mosley), but in the

latter species the median frontal tubercle is less distinct and the last rostral segment is longer and more hairy. Until alate forms become known the definite generic position of the new species will remain uncertain. In no way does the species deviate from its more southern relatives. The host plant was not given.

2. **Acyrthosiphon brachysiphon** nov. spec.

Fundatrix.

Material: 8 specimens. Very much like the following form, but tergum frequently faintly sclerotic and irregularly smoky, though smooth. Frontal tubercles less developed. Antennae of 6, more rarely 5 segments, always much shorter than body; segment III with 0—3, but usually 1—2 small rhinaria near base; processus terminalis about two to nearly three times as long as base of last segment, if 6 ant. segments are present then a little shorter than segment III. Siphunculi cylindrical, sometimes a little attenuated near base, more rarely slightly tapering, not enlarged at base, faintly pigmented to darkish, slightly imbricated, with very small flange, $^1/_8$—$^1/_7$ of the body's length. Cauda a little paler than the siphunculi, very little shorter, with 5—7 hairs, usually in pairs with one hair dorsally near apex.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments III	IV	V	VI
1	2.42	1.77	0.32	0.29	1 & 2	0.47	0.26	0.31	(0.14 + 0.41)
2	2.02	1.66	0.28	0.26	1 & 1	0.41	0.24	0.28	(0.15 + 0.39)
3	2.36	1.62	0.32	0.31	0 & 0	0.39	0.24	0.27	(0.15 + 0.38)
4	2.03	1.60	0.28	0.24	1 & 0	0.39	0.25	0.30	(0.15 + 0.33)
5	1.96	1.62	0.26	0.21	1 & 2	0.39	0.30	0.29	(0.14 + 0.33)
6	2.31	2.01	0.29	0.28	2 & 3	0.47	0.23	0.30	(0.15 + 0.43)
7	2.07	1.46	0.28	0.23	0 & 3	0.39	0.23	0.28	(0.15 + 0.37)
8	2.22	1.67	0.28	0.27	2 & 3	0.62	0.30	(0.15 + 0.31)	

(1—3, Sarqaq, 26-VII-'49; 4—8, Kapisigdlit, 400 m, 13-VII-'50).

Apterous viviparous female.

Material: 5 adults. Body slenderly, oval. Tergum membraneous, not pigmented, to slightly sclerotic, smoky, smooth, with short hairs, which on the anterior abd. tergites are only about $^5/_8$ of basal diameter of ant. segment III, longer towards the cauda; spinal hairs often not duplicated, abd. tergite VIII with 6 hairs. Head quite smooth, with rather short frontal tubercles and a wide frontal furrow; frontal tubercles with 0—2, rarely 3 hairs. Antennae somewhat longer than body, rather thick, brown, gradually darker from base to apex, almost smooth; segment III normally with 1—3 rhinaria near base, but in one specimen

with traces of ocelli with 3—5 rhinaria in a line; processus terminalis rather thick, about $3^1/_2$ times the base of segment VI, longer than segment III. Hairs on ant. segment III up to about half as long as its basal diameter. Eyes normal, rather large. Rostrum very short, reaching only just past the front coxae; apical segment short, only $^5/_6$—$^8/_9$ of the 2nd joint of hind tarsi, but with 4—7 hairs besides the 3 apical pairs. Siphunculi $^1/_6$—$^2/_{13}$ length of body, faintly attenuated at or just below the middle, so that they look slightly swollen, distinctly imbricated, sometimes with a few very much transverse hexagonal cells near the flange. Cauda rather slender, with 7 hairs, a little shorter than the siphunculi. Legs rather short, evenly brownish, with rather thick tibae; first tarsal joints of all legs with 3 hairs.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments III	IV	V	VI
1.....	2.18	2.35	0.40	0.36	3&5	0.53	0.41	0.39	(0.18 + 0.64)
2.....	1.76	1.95	0.28	0.23	1&2	0.40	0.35	0.34	(0.16 + 0.52)
3.....	2.72	2.49	0.40	0.36	4&4	0.53	0.48	0.45	(0.18 + 0.64)
4.....	2.70	2.56	0.38	0.37	1&3	0.55	0.46	0.44	(0.17 + 0.73)
5.....	2.44	2.69	0.40	0.34	3&4	0.62	0.50	0.46	(0.19 + 0.75)

(1, Sarqaq, 26-VII-'49; 2, Grønnedal, 400 m, 23-VIII-'50; 3—5, Ivigtut, 6-VII-'50).

Alate viviparous female.

Material: 1 specimen. Head and thorax dark sclerotic, abdomen membraneous with large dark marginal sclerites which are partly or nearly fused with large, dark, irregular pleural intersegmental sclerites; abd. tergite VII and VIII with sclerotic transverse bands. Antennae dark, smooth; segment III with 5 or 6 rhinaria, on one segment confined to basal half, on the other with one rhinarium far from the others on distal half. Siphunculi slightly distended on distal half, a little thinner on basal half, dark. Cauda more slender than in apterae viviparae, hardly or not paler than the siphunculi. Legs brown with the apical halves of the femora and the apices of the tibiae darker. Wings with normal venation. The veins rather dark, the basal ones very slightly bordered with brown. Other characters as in the preceding form.

Measurements. Length of body: 2.58 mm; Ant.: 2.52 mm; Siph.: 0.37 mm; Cau.: 0.31 mm. Ant. segments: $\frac{0.57}{\text{III}}, \frac{0.47}{\text{IV}}, \frac{0.41}{\text{V}}, \frac{(0.18+0.68)\,\text{mm}.}{\text{VI}}$

Rhin. on IIIrd ant. segment: 5 and 6. (Vaccinium uliginosum, Sarqaq, 26-VII-'49).

Oviparous female.

Material: 2 specimens. Tergum wholly colourless, membraneous, with small, faintly yellow pleural intersegmental sclerites. Cauda slightly

broader than in apterae viviparae. Hind tibiae rather swollen, with some 70—90 pseudosensoria, mainly on basal half. Other characters as in apterous viviparous female.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	III	Ant. segments IV	V	VI
1.....	2.38	2.36	0.38	0.29	2&2	0.53	0.40	0.43	(0.17 + 0.64)
2.....	2.34	2.48	0.40	0.29	2&2	0.52	0.41	0.43	(0.20 + 0.73)

(1—2, Vaccinium uliginosum, Ivigtut, 6-VII-'50).

Apterous male.

Material: 3 adults. Body slender. Tergum membraneous, but with distinct marginal sclerites, pleural intersegmental sclerites and mutually sometimes coalescing, very irregular spino-pleural bars connecting the intersegmental sclerites. All the sclerites blackish and almost smooth. Spinal tubercles present not only on abd. tergite VIII and vertex, but occasionally also on other tergites of the abdomen. Head dark, with rather angular frontal tubercles. Antennae much longer than body, blackish; IIIrd segment along one side with 27—52 rather flat rhinaria more or less in a double row, IVth segment with 20—31 rhinaria, Vth with 14—18 almost in a line. Siphunculi blackish, in one of the specimens with some fairly regular hexagonal cells at apex. Cauda darkish brown, with the basal halves of the femora and the middle portion of the tibiae paler brown. Genitalia normal. Other characters about as in the preceding forms.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	IV	V	Ant. segments III	IV	V	VI
1	2.00	2.59	0.28	0.25	27&34	20&25	16&14	0.64	0.49	0.45	(0.18 + 0.66)
2	2.03	2.61	0.23	0.23	45&?	24&?	17&?	0.60	0.45	0.38	(0.16 + 0.63)
3	1.93	2.65	0.29	0.22	47&52	30&32	15&18	0.67	0.49	0.45	(0.18 + 0.67)

(1—3, Grønnedal, 400 m, 23-VIII-'50).

Discussion. Four samples were sent in by Mr. VIBE, three from Vaccinium uliginosum, one without data about the host plant. From these samples it appears that this species a most remarkable biology for this species. The Ivigtut material from July 6th consisted of fundatrices, apterae viviparae and oviparae, which seems to suggest that as early as in the 3rd generation sexual forms begin to appear while the fundatrices are still living, though in Grønnedal males still occurred in the second half of August.

The species differs from all relatives by its short, almost flangeless siphunculi, while also the number of hairs on such a short last rostral segment is unusually high.

3. **Sitomyzus** nov. gen.

I erect this genus for *Sitomyzus vibei* nov. spec., a species which does fit in with any described genus known to me. The frontal tubercles have rectangular inner sides as in *Aulacorthum* Mordv., and they are scabrous, like the underside of the head. The tergum in apterae viviparae is sclerotic, not pigmented, but coarsely corrugated, more or less as in *Cavariella* del Guercio. The siphunculi are distinctly clavate, with a small flange. Ant. segment III normally has a few rhinaria. All the first tarsal joints have 3 hairs.

According to my key (Temminckia, vol. VIII, 1949, p. 228) to the genera related to *Amphorophora* Buckton the species would seem to be a *Rhopalosiphoninus* Baker, but its siphunculi are only slightly swollen, and the general aspect is very different. The species look like a *Metopolophium* Mordv., but with swollen siphunculi.

Sitomyzus vibei nov. spec.

Apterous viviparous female.

Material: 2 specimens. Body rather elongated oval. Tergum conspicuously sclerotic, with abd. tergites II—VI fused, not pigmented, coarsely corrugated. Dorsal hairs short, blunt, extremely short, only $^1/_5$ of basal diameter of ant. segment III; abd. tergite VIII with 4 longer hairs. Head slightly wrinkled dorsally, scabrous frontally-ventrally. Frontal tubercles well developed, with parallel inner sides, angular, scabrous on inner angles and ventrally, with 2—3 rather short hairs. Antennae much shorter than body, rather thin, scaly imbricated, gradually darker towards apex; segment III with 1—2 slightly protruding small rhinaria on the somewhat thickened basal third part; processus terminalis as long as segment III, $3^1/_2$ times the base of segment VI. Antennal hairs like those on dorsum of body. Rostrum not reaching the middle coxae; last segment short, just over $^2/_3$ of 2nd joint of hind tarsi, with two hairs besides the 3 apical pairs. Siphunculi about $^1/_6$ length of body, symmetrically swollen on distal half, attenuated towards apex, indistinctly imbricated, brownish pigmented, with small flange. Cauda thick, at base $2^2/_3$ times as wide as greatest width of the siphunculi, with usually 2 lateral pairs of hairs and 1—2 hairs dorsally. Legs with the femora apicad conspicuously scaly, not pigmented; first tarsal joints all with 3 hairs.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments III	IV	V	VI
1.....	2.63	2.03	0.47	0.28	1&2	0.45	0.35	0.36	(0.15 + 0.51)
2.....	2.79	1.83	0.47	0.28	1&2	0.44	0.31	0.31	(0.14 + 0.43)

(1, on grass at the settlement, Kapisigdlit, 4-VIII-'50; 2, on cultivated grass, Kapisigdlit, 31-VII-'50).

Alate viviparous female.

Material: 5 specimens. Head and thorax brownish sclerotic, abdomen with small, pale brown marginal sclerites, conspicuous, brown, sharply bordered pleural intersegmental sclerites and a very vague, in some specimens hardly visible spino-pleural complex of sclerites. Front nearly smooth. Antennae dark to blackish, a little shorter than body; segment I scabrous on inner side; flagellum imbricated; segment III with 4—9 elevated rhinaria in a single line; segment IV rather often with one rhinarium; processus terminalis considerably longer than segment III, $3^1/_2$—$3^7/_8$ times as long as base of segment VI. Siphunculi dark, nearly smooth with only near apex some transverse striae. Cauda with distal $^3/_5$ more slender than in apterae but still thick and blunt. No spinal or marginal tubercles present. Legs brown, the femora more spinulose than in apterae. Veins brown, venation normal. Other characters as in apterae viviparae.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	Rhin. on IV	Ant. segments III	IV	V	VI
1.....	2.57	2.34	0.45	0.24	4&7	0&0	0.49	0.46	0.44	(0.17 + 0.61)
2.....	2.61	2.45	0.45	0.26	8&9	1&1	0.53	0.46	0.45	(0.17 + 0.64)
3.....	2.56	2.39	0.48	0.27	6&6	0&0	0.52	0.46	0.45	(0.16 + 0.60)
4.....	2.57	2.41	0.45	0.27	6&8	1&0	0.56	0.47	0.41	(0.16 + 0.61)
5.....	2.64	2.39	0.47	0.26	7&7	0&0	0.51	0.47	0.43	(0.18 + 0.60)

(1—2, on grass at the settlement, 4-VIII-'50; 3—5, on cultivated grass, 31-VII-'50; all from Kapisigdlit).

Oviparous female.

Material: 2 specimens. Very much like apterous viviparous female, but tergum membraneous, wrinkled. Rhinaria sometimes absent on segment III of antennae. Hind tibiae hardly swollen, with about 25—35 normal pseudosensoria on basal half.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments III	IV	V	VI
1.....	2.30	1.71	0.44	0.21	1&1	0.35	0.30	0.30	(0.13 + 0.44)
2.....	2.24	1.68	0.43	0.22	0&0	0.36	0.28	0.27	(0.14 + 0.44)

(1—2, on grass at the settlement, Kapisigdlit, 4-VIII-'50).

Discussion. Two samples, both from unidentified species of grass, were collected at Kapisigdlit. The sample from 31-VII-'50 consisted of one apterous viviparous female and alate females, that taken 5 days later of 2 oviparae, one apterous viviparous female, and alate females.

Evidently, the cycle can be completed in 3—4 generations, since one of the oviparae contained almost mature eggs.

Confusion of this species with other species is hardly possible. Rather remarkable is the absence of spinal or marginal tubercles, as almost in all similar species at least on the abdominal segments II—IV marginal tubercles occur occasionally.

4. **Myzus (Nectarosiphon) polaris** nov. spec.

Apterous viviparous female.

Material: 4 specimens, slightly damaged. Body oval. Tergum distinctly sclerotic, slightly corrugated, colourless to faintly yellowish with pale brown pleural intersegmental sclerites. Dorsal hairs inverted-bottle-shaped, about half as long as basal diameter of ant. segment III, the 4 hairs on abd. tergite VIII about as long as that diameter. Frontal tubercles about intermediate between those of *M. persicae* (Sulzer) and *M. cerasi* (F.), well developed, protracted inwards, like the whole head scabrous, with 4—5 hairs, 2—3 of which are placed ventrally. Antennae about $^7/_9$ length of body, pale brownish yellow, gradually darker towards apex; segment I markedly scabrous on inner side; segment III without rhinaria; processus terminalis $2^1/_6$—$2^5/_6$ times base of segment VI, much shorter than segment III. Hairs on segment III up to almost half as long as basal diameter of the segment. Vertex sometimes with one or two spinal tubercles. Eyes normal. Rostrum reaching just past the middle coxae; apical segment rather long and slender, nearly $1^1/_3$ times as long as 2nd joint of hind tarsus, with 3—5 hairs besides the 3 apical pairs. Siphunculi about $^1/_5$ of the body's length, attenuated on basal third and at apex, so that they are distinctly swollen, coarsely bluntly imbricated over the whole surface, with a small flange; in pale specimens siphunculi colourless, in pigmented apterae siphunculi brown with the swollen area, especially on inner side, pale. Cauda thick, rather blunt, at most half as long as the siphunculi, pigmented like the base of the siphuncili, with 6—8 hairs. Legs colourless to brown, with the apices of the tibiae darker; first tarsal joints of fore- and middle legs with 3 hairs, of hind legs with 2 hairs which are about as long as the joint.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Ant. segments III	IV	V	VI
1.....	1.82	1.49	0.39	0.18	0.39	0.27	0.23	(0.12 + 0.32)
2.....	2.02	1.51	0.48	0.22	0.38	0.29	0.23	(0.13 + 0.30)
3.....	2.10	1.57	0.47	0.23	0.44	0.29	0.23	(0.12 + 0.32)
4.....	2.05	1.57	0.48	0.21	0.43	0.30	0.24	(0.12 + 0.32)

(1, "Vaccinium uliginosum", Sarqaq, 26-VII-'49; 2—4, Cerastium alpinum, Sarqaq, 28-VII-'49).

Alate viviparous female.

Material: 3 specimens. Head and thorax black sclerotic. Abdominal tergum membraneous, with marginal sclerites and a large spino-pleural central sclerite which partly coalesces with pleural intersegmental sclerites, and with sclerotic transverse bars on abd. tergite VII and VIII, i. e. with the sclerotisation typical of *Myzus* Pass. Head only dorso-laterally and frontally slightly scabrous. Antennae not much shorter than body, slightly uneven in outline, blackish; segment III with 12—18 slightly elevated rhinaria along one side, but not in a single row; segment IV with 1—4 rhinaria; V only with a primary rhinarium; processus terminalis comparatively longer than in apterae. Siphunculi much shorter than in apterae, conspicuously swollen, evenly pigmented. Cauda thinner, triangular, almost acute. Legs dark with the bases of the femora and most of the tibiae rather paler. Wings with pale, normal venation. Other characters as in apterae viviparae.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	Rhin. on IV	Ant. segments III	Ant. segments IV	Ant. segments V	Ant. segments VI
1...	1.70	1.63	0.28	0.16	14&15	1&1	0.43	0.30	0.24	(0.14 + 0.36)
2...	1.90	1.69	0.29	0.17	16&18	4&3	0.43	0.30	0.27	(0.14 + 0.39)
3...	1.83	1.64	0.28	0.16	12&12	2&2	0.43	0.29	0.23	(0.14 + 0.39)

(1—3, Cerastium alpinum, Sarqaq, 28-VII-'49).

Oviparous female.

Material: 1 damaged specimen. Very much like apterous viviparous female, but tergum membraneous, faintly wrinkled, with indistinct brownish pleural sclerites, otherwise colourless. Head and subgenital plate brownish. Antennae shorter than in apterae. Cauda very thick. Hind tibia (only one present) very slightly swollen, evenly pale brown, with 25 partly coalescing pseudosensoria on basal half.

Measurements: Length of body: 2.03 mm; Ant.: 1.31 mm; Siph.: 0.28 mm; Cau.: 0.16 mm. Ant. segments:

$$\frac{0.34}{\text{III}}, \frac{0.23}{\text{IV}}, \frac{0.19}{\text{V}}, \frac{(0.11 + 0.28\,\text{mm})}{\text{VI}}.$$

(Cerastium alpinum, Sarqaq, 28-VII-'49).

Apterous male.

Material: 1 specimen. Body rather narrow. Thorax dark sclerotic, in structure intermediate between that of an alate and that of an apterous aphid. Abdomen dorsally with rather large marginal sclerites and with rudiments of the central sclerotisation of the alate viviparous female,

ventrally with distinct, rather large, paired, scabrous submedian sclerites which sometimes coalesce on a few sternites. Antennae thick; segment III with 42 and 45 small rhinaria all round; IV with 18 and 19, V with 16 and 18 similar rhinaria. Cauda rather shorter than in alate females. Genitalia well developed. Other characters about as in alate viviparous female.

Measurements: Length of body: 1.51 mm; Ant.: 1.56 mm; Siph.: 0.28 mm; Cau.: 0.14 mm. Ant. segments:

$$\frac{0.40}{\text{III}}, \frac{0.29}{\text{IV}}, \frac{0.26}{\text{V}}, \frac{(0.12 + 0.34\ \text{mm})}{\text{VI}}.$$

Rhinaria see above. (Sarqaq, 25-VIII-'49, with an alate viviparous female).

Discussion. The material consists of 3 samples. One specimen was found in a tube containing *Acyrthosiphon brachysiphon* nov. spec. from Vaccinium uliginosum. Alatae 1—3 with apterae 2—4 and the ovipara were received in a tube containing small parts of plants which were identified by the Rijksherbarium, Leyden, as a form of Cerastium alpinum and a species of Carex. The ultimate rostral segment is not that of a Carex-feeder so that I assume that Cerastium alpinum is the true host. Cerastium spp. are, besides, hosts to a related species in Europe. The male was taken with an alate female, but again no host plant was mentioned.

Since sexual forms occur already in the last week of July, it would seem as if this species like other Greenland aphids can complete its cycle in a few, probably only 3 generations.

Morphologically the species is related to the European *Myzus* (*Nectarosiphon*) *caryophyllacearum* H. R. L., but in all its forms the cauda is thicker while the siphunculi are shorter. The alatae have a quite different sensoriation of the antennae. *M.* (*N.*) *polaris* n. sp. might be a boreal relative of the mentioned European species, which also infests several species of Cerastium.

5. **Myzodium modestum** (Hottes)

Apterous viviparous female.

Material: From Greenland: 1 specimen. Body broadly oval, rather swollen. Tergum (except the parts between the pro- and mesothorax, meso- and meta-thorax and areas around and ventrad of the bases of the siphunculi) blackish brown sclerotic, always somewhat wrinkled and mottled. Dorsal hairs extremely short, blunt; abd. tergite VIII usually with 4 longer hairs. Frontal tubercles little or not higher than the elevated middle of the front, covered by small blunt scales or nodules.

Antennae about $^5/_8$—$^2/_3$ length of body, dark brown like the abd. tergite, of 6, rarely 5 segments, with nodulous basal segments and bluntly imbricated flagellum; segment III without rhinaria; processus terminalis thin, about $2^1/_4$—3 times as long as base of last segment, usually longer than segment III. Hairs on segment III short, inconspicuous, about $^1/_3$ of basal diameter of the segment. Eyes normal. Rostrum rather long, reaching past the hind coxae; apical segment elongated, about $1^1/_2$ times as long as 2nd joint of hind tarsi, with 4 short hairs besides the 3 apical, longer pairs. Siphunculi darker than the abd. tergite, to quite black, about $^1/_5$ length of body, variable in shape, usually slightly curved inwards; the apex is a little constricted just before the flange and the rest may be gradually tapering from the base to the constriction, but sometimes also cylindrical, or even slightly attenuated near the middle, in which case they look slightly swollen; surface usually bluntly, sometimes rather acutely imbricated from near the base to near the apex, but apically often completely smooth with a few transverse striae before the wide flange. Cauda small, less than $^1/_4$ of the siphunculi, acuminate, pigmented like the abd. tergite, with 4 hairs, shape variable, usually more or less semi-circular with a narrow, slender, acute part superimposed, sometimes in dorsal view like an equilateral triangle. Legs brown like dorsum, rather slender; femora apically bluntly imbricated; first tarsal joints with 3, 3, 2 hairs.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Ant. segments III	IV	V	VI
1.....	1.77	1.19	0.38	0.085	0.30	0.17	0.17	(0.11 + 0.30)
2.....	1.55	1.02	0.34	0.075	0.22	0.14	0.15	(0.10 + 0.18)
3.....	1.52	0.98	0.31	0.07	0.23	0.14	0.13	(0.11 + 0.27)
4.....	1.49	1.00	0.31	0.07	0.24	0.14	0.13	(0.11 + 0.26)

(1, Carex?, Kapisigdlit, 600 m, 3-VIII-'50; 2, Polytrichum, Ede, Netherlands, 16-V-'43; 3, Polytrichum, Ede, 20-VI-'44; 4, Polytrichum, Heythuizen, Netherlands, VII-'39).

Alate viviparous female.

Material from Greenland: 8 specimens. Head and thorax blackish sclerotic, abdomen with a very large central sclerite which is usually linked with the marginal sclerites. Antennae black, about $^3/_4$ the length of body; segment III with 22—45 partly large, but slightly elevated rhinaria nearly all around the segment; segment IV with 7—13 rhinaria along one side, often in a row; segment V with 0—4 rhinaria; processus terminalis shorter than segment III. Siphunculi always black, thinner and less tapering, but still variable in shape as in apterae, usually indistinctly imbricated. Cauda with the basal part more cylindrical and

narrower, otherwise as in apterae. Venation of wings variable; media frequently branched only once and hind wings irregularly with one vein missing. Other characters as in apterae.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on segment III	Rhin. on segment IV	Rhin. on segment V	Ant. segments III	Ant. segments IV	Ant. segments V	Ant. segments VI
1...	1.81	1.31	0.29	0.09	29&33	9&9	1&0	0.37	0.19	0.19	(0.13 + 0.30)
2...	1.94	1.55	0.30	0.09	34&36	11&10	1&0	0.44	0.27	0.22	(0.11 + 0.36)
3...	2.00	1.47	0.31	0.10	28&31	11&12	1&2	0.43	0.25	0.20	(0.13 + 0.32)
4...	1.95	1.51	0.31	0.10	37&41	13&12	4&2	0.42	0.26	0.22	(0.11 + 0.34)
5...	1.72	1.36	0.28	0.09	22&26	8&7	1&0	0.38	0.22	0.19	(0.11 + 0.32)

(1, Carex?, Kapisigdlit, 600 m, 3-VIII-'50; 2, grass, Kapisigdlit, 6-VIII-'50; 3, Polytrichum, Ede, 16-V-'43; 4, Polytrichum, Heythuizen, VII-'39; 5, Polytrichum, Wageningen-Hoog, Netherlands, VII-'39).

Larvae.

Tergum membraneous, wrinkled. Legs with very short hairs, but the hind tibiae on distal half with a "comb" of very long, spiny hairs.

Discussion. Two samples of this little known species were taken in Greenland, both near Kapisigdlit, on grass, 6-VIII-'50 and on Carex?, 3-VIII-'50. The species does not live on these plants but on large species of Polytrichum and this explains why only one aptera, but 8 alatae were found. The species has been found in the U. S. A. (Minnesota), the Netherlands, Germany, and Austria. Only in North America and the Netherlands has its host become known. Since nothing has been published about its biology I add some data collected in the Netherlands. Hibernation as eggs apparently does not occur, but larvae and sometimes adult apterae may be found throughout the winter between the bases of the stems. Already in May an alate was taken, but in cultures this form appeared in great numbers in July only.

When examining Polytrichum only dead parasitized specimens are generally found, near the apex of the plants. The living specimens live much lower down on the plants and are generally very difficult to find. Polytrichum commune seems to be the most suitable host plant.

The name requires a discussion. The species was first described as *Carolinaia modestus* by HOTTES. In Carolinaia the hind wings have only one transverse vein. BÖRNER in 1950 described as *Myzodes rabeleri* nov. spec. what can hardly be anything but this species, and used it as type for the new subgenus *Myzodium* Börner. Another species, *M.* (*Myzodium*) *brevirostris* Börner, 1950, might be the same species, since *modestus* is sufficiently variable to cover the differences which BÖRNER describes for *rabeleri* and *brevirostris*. A third species with the media once branched, by BÖRNER described as *Schizomyzus lindneri* nov. gen. nov. spec.

according to the description could be included in *Myzodium*, but it has some peculiar characters, not mentioned in Börner's description, which justify a separate genus. *Schizomyzus lindneri* has a pointed, apically smooth processus terminalis, which has only one, rarely two, terminal bristles; this species lives on the moss Pleurozium schreberi. Its hibernating larvae have a strongly sclerotic tergum, unique in the family to which it belongs.

6. **Cavariella borealis** nov. spec.

Apterous male.

Material: 1 specimen with one complete antenna. Body rather broad for a male. Head and thorax dark sclerotic; the thorax with typical pterothorax-sclerites and even a stump indicating a forewing. Abdomen with mutually just free dark spino-pleural sclerotic transverse bars from tergites III—VIII and with well developed marginal sclerites which on segments II—IV bear a small marginal tubercle; ventral marginal sclerites absent. Front normal. Antennae thick, about $^5/_6$ of the length of body, dark; segment III somewhat tuberculate, with 36 and 43 rather small rhinaria which are very irregularly distributed; IV with 19 and ? rhinaria, V with 16 and ? rhinaria, VI on base with 1 and ? rhinarium; processus terminalis just longer than base of segment VI Hairs on ant. segment III short, but rather acute, about $^1/_3$ of the diameter of the segment in the middle. Rostrum reaching to the hind coxae; apical segment just longer than 2nd joint of hind tarsi, with apparently only the 3 apical pairs of hairs. Siphunculi short, nearly $^1/_8$ length of body, dark, evenly dispersely and superficially imbricated, outer outline straight, inner outline evenly curved, with hardly developed flange. Abd. tergite VIII low-conical with a truncated conical processus, on top of which 2 hairs of about 0.02 mm are placed. Cauda rather slender, blunt, about $^3/_4$ of the siphunculi, with about 6 hairs. Genitalia normal. Legs rather dark; first tarsal joints with 3, 3, 2 hairs.

Measurements. Length of body: 1.33 mm; Ant.: 1.10 mm; Siph.: 0.16 mm; Cau.: 0.12 mm; Ant. segments:

$$\frac{0.34}{\text{III}}, \frac{0.18}{\text{IV}}, \frac{0.17}{\text{V}}, \frac{(0.13+0.14)\text{ mm}}{\text{VI}}.$$

Rhinaria vide description.

Discussion. No host plant was given for this species, of which a single male was taken at Inglefield Bredning, 9-IX-'39. As all *Cavariella* species which have been described live on Salix and/or Umbelliferae +

Araliaceae it is most probable that this species too lives on Salix or an Umbelliferous plant. Morphologically the species is nearest related to *Cavariella cicutae* (Koch) which completes its cycle on aquatic Umbelliferae in Europe. Differences between the males of either species are: the small rhinaria (large and evenly distributed in *cicutae*), the processus on abd. tergite VIII (reduced to an inconspicuous 2-haired tubercle in *cicutae*), the absence of normal wings (present in *cicutae*), and the chaetotaxy of the ultimate rostral segment (with 2 hairs on basal half in *cicutae*).

7. **Paducia aterrima** nov. spec.

Apterous viviparous female.

Material: 6 intact specimens. Body strongly swollen, especially dorsally. Tergum nearly wholly sclerotic; head and pronotum mutually free; mesonotum to abd. tergite VII covered by one large, seamless, blackish, quite smooth sclerite; abd. tergite VIII with a broad, slightly rough sclerotic transverse bar. Dorsal hairs long like the antennal hairs, fine, mostly straight, exceptionally bent or bifid, very numerous, irregularly arranged, but on abd. tergite VIII placed in a semi-double row along the posterior margin of the tergite. Tubercles present as follows: pronotum, sometimes meta- and mesonotum, and abd. segments I—VII with nearly, to quite flat marginal tubercles, the diameter of which is about $^1/_4$—$^1/_3$ the length of the nearest hairs; pronotum more dorsally with another (pleural) pair of smaller tubercles; head irregularly with a pair of spinal tubercles on vertex and 3 more pairs down the front; abd. tergite VII always with a pair of small spinal tubercles, slightly more laterally with a pair of larger (pleural) tubercles. Front as in *Pterocomma* Buckt. Antennae of 4 segments, dark, but the area near the rhinaria on segment IV in all specimens conspicuously pale; segments I—III completely smooth, segment IV imbricated; base of segment IV not, as is customary immediately past the rhinaria, attenuated into the processus terminalis, but gradually decreasing past the rhinaria into the cylindrical, curved processus terminalis; the latter with a few very short hairs, but the rest of the antennae up to the very processus terminalis covered with long hairs which are up to $2^1/_2$ times as long as the largest diameter of ant. segment III. Eyes rather small, the multicorneal part only 2—$2^1/_2$ times the triommatidion. Rostrum reaching past the middle coxae; apical segment rather blunt, as long as the 2nd joint of the hind tarsi, with about 6 hairs besides the 3 apical pairs. Siphunculi blackish, with the base usually thicker than the hind tibiae, then gradually increasing in width till just past the middle and rather suddenly constricted at apex, with wide, swollen flange, very thick-walled, coarsely, very superficially imbricated, but near the apex distinctly

imbricated to almost reticulated; largest diameter half the total length, smallest diameter (near apex) $^2/_5$ of the largest diameter. Cauda small and narrow, at the base little wider than the base of the siphunculi, attenuated towards the middle and then slightly thicker again, so that it consists of a conical basal half upon which an elongated-oval upper half is placed; the distal half with 5—6 hairs. Anal plate broad, normal. 3 Rudimentary gonapophyses present. Legs thick, dark, smooth; femora with many oval more transparent spots[1]); first tarsal joints of all legs with 3 hairs; empodial hairs normal. Colour of the whole insect probably shiny black.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Ant. segments III	IV
1	2.08	0.93	0.36	0.12	0.33	(0.12 + 0.33)
2	2.15	0.96	0.36	0.12	0.34	(0.13 + 0.32)
3	2.18	0.96	0.38	0.13	0.35	(0.12 + 0.32)
4	2.07	1.01	0.43	0.13	0.37	(0.13 + 0.34)
5	2.20	1.06	0.41	0.12	0.41	(0.12 + 0.35)
6	—	0.97	0.39	0.13	0.34	(0.12 + 0.33)

(1—6, Salix roots, Kapisigdlit, 22-VII-'50).

Discussion. Only one species of this genus, the genotype, *P. antennata* (Patch) was hitherto known. The apterous viviparous female was described by Patch, the alate viviparous female and oviparae by Hottes & Frison, 1931. It appears from these descriptions that *antennata* is very nearly related to *aterrima*, but some differences are evident. In *aterrima* spinal tubercles on the vertex are present in all examined specimens and at least some of the 3 pairs between the antennal bases and towards the clypeus. The siphunculi are quite different from the figure given by Hottes & Frison, especially the flange. As they do not mention a very conspicuous pale portion of ant. segment IV in *antennata* Patch, the differences seem to be sufficient to justify a new name for the Greenland material.

The location of the genus is not clear. It looks like a very abnormal *Pterocomma*, but the cauda of adults and the chaetotaxy of the embryos look like those of a normal Aphidina. Perhaps this genus should be regarded as a very primitive Aphidine. genus

8. **Pterocomma groenlandica** nov. spec.

Apterous viviparous female.

Material: 12 nearly all intact specimens. Body broadly oval, swollen. Head, broad sclerotic transverse bands across the thoracal nota (often

[1]) Not sensoria, as Hottes a Frison seem to believe.

interrupted on meso- and especially metanotum), rather small marginal abdominal sclerites, small scattered spinal sclerites on abd. tergites VI—VII (often fused on tergite VIII) all brown; small pleural intersegmental sclerites between the abd. segments blackish brown; the rest membraneaous, colourless. Dorsal hairs very numerous, blackish, long. Marginal tubercles, which are dark brown and rather high, but not much thicker than the pedestal of a hair, present on several abd. segments, but no spinal tubercles present. Front in the middle rather elevated. Antennae variable, about half as long as body, of 6 segments; segment III without rhinaria; processus terminalis $1^1/_3$—$1^2/_3$ times the base of last segment, subequal to segment IV; colour after clearing almost like that of the head, with the basal segments much darker and the base of segment III pale; segment II normally hairless dorsally, in total with 3—5 hairs; segment III with about 3—11 hairs directed outwards, with by far the majority of the hairs directed inwards; last segment on base with 1—3 very long hairs, otherwise with many short blunt hairs like those of the processus terminalis. Rostrum reaching the hind coxae. Siphunculi about $^1/_{12}$—$^1/_{10}$ length of body, $1^1/_2$—$1^2/_3$ times as long as 2nd joint of hind tarsi, variable in shape, but nearly always constricted at apex and a little attenuated on basal third part so that they appear slightly swollen, faintly wrinkled, with distinct imbrications towards apex, with distinct flange; pigmentation about like that of the sclerites on abd. tergite VI. Cauda rounded, about $^2/_3$ of the siphunculi, dark. Legs thick, short, dark like the intersegmental sclerites, with irregular paler areas on the femora in some specimens; in several specimens from Kapisigdlit the hind tibiae with a few psedosensoria, although embryos are often present and the subgenital plate is not divided; first tarsal joints with 4 long hairs and 1 short spine, but often one of the outer long hairs is missing on the hind tarsi.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Ant. segments III	IV	V	VI
1.....	2.88	1.51	.023	0.15	0.41	0.21	0.26	(0.17 + 0.28)
2.....	2.80	1.40	0.23	0.16	0.43	0.23	0.24	(0.16 + 0.26)
3.....	2.89	1.60	0.24	0.16	0.45	0.27	0.27	(0.17 + 0.27)
4.....	3.32	1.65	0.28	0.16	0.46	0.28	0.27	(0.17 + 0.29)
5.....	3.43	1.70	0.30	0.18	0.50	0.27	0.28	(0.18 + 0.31)
6.....	3.69	2.08	0.29	0.18	0.61	0.32	0.31	(0.20 + 0.33)
7.....	3.44	1.66	0.30	0.18	0.48	0.28	0.26	(0.19 + 0.27)
8.....	3.48	1.67	0.28	0.18	0.47	0.29	0.27	(0.19 + 0.26)
9.....	3.44	1.57	0.27	0.18	0.49	0.27	0.24	(0.15 + 0.22)
10.....	3.17	1.71	0.31	0.19	0.51	0.30	0.26	(0.19 + 0.26)

(1, host plant not stated, Ûnartoq Kloster, 9-VII-'48; 2—3, Salix, Marrait Nûgssuaq, 19-VII-'49; 4—10, Salix, Kapisigdlit, 27-VII-'50).

Alate viviparous female.

Material: 3 specimens. Head and thorax blackish sclerotic. Abdomen with rather large marginal sclerites. Broad spino-pleural transverse bands (sometimes medially incised on tergites I—VII) pale brown; small pleural intersegmental sclerites not much darker. Antennae longer and more slender than in apterae, otherwise similar; segment III along one side, not quite in a row, with 14—18 rather large rhinaria. Siphunculi basally more slender and therefore more swollen than in apterae, pigmented like the abdominal sclerites; cauda more elongated, blackish brown. Venation of wings normal, veins pale brownish. Legs blackish, only the very base of the femora pale. Other characters as in apterae viviparae.

Measurements: Length of body: 3.21 mm; Ant.: 1.66 mm; Siph.: 0.24 mm; Cau.: 0.19 mm; Ant. segments:

$$\frac{0.52}{\text{III}}, \frac{0.31}{\text{IV}}, \frac{0.33}{\text{V}}, \frac{(0.20 + 0.34)\,\text{mm}}{\text{VI}}.$$

Rhin. on IIIrd ant. segment: 14 and 18. (Host plant not stated, head of the fjord, Ûnartoq, 11-VII-'48).

Alate male.

Material: 6 specimens. Much like alate viviparous female, but smaller and more slender; spinopleural sclerotic bands across abdominal tergites much reduced, often very narrow or broken in the middle. Antennae relatively and absolutely longer; segment III along one side with 40—50 rather irregularly placed, fairly small rhinaria; segment IV with 15—21 rhinaria; V with 12—16, more regularly arranged than those on segment III; segment VI in one antenna with one secondary rhinarium. Siphunculi more slender and paler than in the other forms. Cauda and the strongly developed genitalia blackish brown.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on segment III	IV	V	VI	Ant. segments III	IV	V	VI
1	2.09	1.69	0.19	0.11	42&41	20&?	16&?	0&?	0.51	0.30	0.30	(0.17 + 0.26)
2	2.37	1.97	0.21	0.13	47&?	21&?	14&?	0&?	0.58	0.37	0.36	(0.20 + 0.29)
3	2.55	1.87	0.21	?	40&41	15&15	12&14	0&0	0.57	0.33	0.32	(0.18 + 0.30)
4	2.69	1.98	0.21	0.12	47&51	18&16	15&12	1&0	0.59	0.37	0.35	(0.21 + 0.30)
5	2.52	2.00	0.20	0.12	56&58	14&17	19&24	0&0	0.61	0.36	0.34	(0.19 + 0.32)
6	2.91	2.06	0.23	0.13	54&55	19&20	16&13	0&0	0.62	0.37	0.34	(0.21 + 0.33)

(1—6, Salix, Kapisigdlit, 6-VIII-'50).

Discussion. This species must be nearly related to *Pterocomma ringdahli* Wahlgren, of which one specimen only, an alata, is known

from Sweden. But the processus terminalis in our material is comparatively longer, the number of rhinaria much smaller, while the antennal hairs are 3 times the largest diameter of ant. segment III, not 2 times as in *P. ringdahli* Wahlgren. The size of WAHLGREN's specimen in alcohol is about 4 mm, but that of our specimens (alatae are not larger than apterae in this genus) 2.80—3.69 mm. Therefore, it is justifiable to describe it as a new species. Two alatae were taken on Salix, Grönnedal, 4-VII-1950.

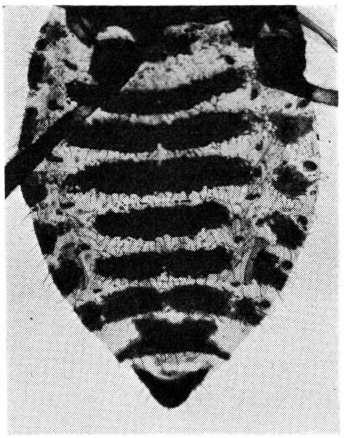

Fig. 1. *Pterocomma groenlandica* nov. spec., al. viv. fem., × 23.

The biology of this species seems to be quite simple. No distinct fundatrices were found in the available material. From 9—27 July apterae viviparae were taken, of which the last collected specimens showed intermediate characters between apterae viviparae and oviparae. This together with the date of collecting of males, August 6th, which then were just born (not all pigmented), shows that also in this species only 3 or 4 generations per annum occur in Greenland.

9. **Euceraphis punctipennis** (Zetterstedt).

E. WAHLGREN, 1939, Opuscula Entomologica, p. 6, says that one of the specimens of *Aphis punctipennis* Zetterstedt in the Zetterstedt collection at Lund is labelled "Grönland", and that this specimen is *Euceraphis betulae* L. But *betulae* L. is a *Glyphina*, and what authors have called *Euceraphis betulae* L. should be named *Euceraphis punctipennis* (Zetterstedt) (synonym: *nigritarsis* v. Heyden). See also K. HENRIKSEN, 1939, Meddelelser om Grønland, vol. 119, *Aphis* (*Callipterus*) *punctipennis* Zetterstedt.

Two samples from Greenland are available, one from Betula glandulosa, Julianehaab, Birkedalen, 17-VII-'48, one from Betula sp.,

Julianehaab, Qagssiarssuk, 29-VII-'48. Only alatae belonging to the 2nd or 3rd generation and some larvae were collected. They differ very little from European specimens. There are no local sclerites on the abdomen. The marginal tubercles are slightly larger and more slender than in my specimens, and the rhinaria a little less numerous, but these differences are so small that it is not justifiable to describe them as a distinct geographical form.

Some of the larvae show something which I have never seen in aphids. Here and there, roundish brown sclerotic spots with a small hole in the centre are present dorsally on the abdomen. Under these sclerites a small membraneous sac extends into the body. This sac is much swollen, and strongly constricted where it seems to open into the porus in the small sclerotic spot. These spots may easily be mistaken for small hair-bearing sclerites ("scleroites") but only exceptionally are they placed near the base of a dorsal hair in these larvae; in other larvae true scleroites are visible.

They look like cavities formed by some parasites like females of *Strepsiptera*, etc., but as they were not noticed before the material was cleared their nature cannot be examined. In adults no trace of this symptom could be found.

10. **Calaphis arctica** nov. spec.

Apterous viviparous female.

Material: 2 adults and several larvae. Body elongated, rather spindle-shaped, not depressed. Tergum membraneous, but provided with pigmented sclerotic spots (scleroites) on each of which a hair is placed. Dorsal hairs about 0.070—0.085 mm long, thick, stiff, with enlarged or swollen apices, placed on large bases on the tuberculoid scleroites; larvae cephalad siphunculi with 6 hairs per segment, but adults with 8—11 hairs per segment on tergites II—V, in which case 6 hairs are longer than the others. Frontal tubercles well developed, more conspicuous by the thick bases of several hairs placed there. Antennae a little shorter than the body, slightly darker than the head, darker towards apex with the apices of segment IV—VI not very conspicuously darker; flagellum evenly finely imbricated; segment III with 5—6 large, round, flat rhinaria in a row, not near base, but on distal $^2/_3$—$^1/_2$ part of the segment; processus terminalis about twice as long as base of segment VI, about as long as segment V. Hairs on segment III with rather acute apices, about 0.010—0.015 mm long. Rostrum reaching the middle coxae; apical segment short, with 2—4 hairs besides the 3 apical pairs. Siphunculi short, conical, colourless, smooth,

with very wide, thick flange. Cauda with a strong constriction which divides it into a basal triangular part and an apical almost globular part; the minimum width of the constricted part is nearly $^2/_3$ of the maximum width of the globular part. Subanal plate with a median incision of about 0.035 mm. Legs rather long, pale with the exception of a small dark area at the bases of the tibiae; tibiae somewhat imbricated, spinulose near apex and at the very apex with 4 short, bluntish thorns; first tarsal joints ventrally near distal margin with two spiny long hairs and one short spine, more laterally with two thinner hairs and between these with one hair, dorsally with 0—2 hairs, in total with 6—8 hairs.

	Measurements in mm					Ant. segments			
No	Length body	Ant.	Siph.	Cau.	Rhin. on III	III	IV	V	VI
1.....	2.04	1.92	0.09	0.17	5&5	0.60	0.35	0.33	(0.16 + 0.32)
2.....	1.90	1.77	0.08	0.15	6&6	0.56	0.33	0.31	(0.16 + 0.32)

(1—2, Betula nana, Grönnedal, 400 m, 4-VII-'50).

Discussion. The generic location of this species is beyond doubt, as it is very nearly related to the genotype. It seems to differ from all described members of the genus by the arrangement of the rhinaria on ant. segment III in the apterous adults, as in all other described species the rhinaria begin rather near the base of ant. segment III. The specimens collected are not fundatrices because the accompanying larvae have a processus terminalis of about the same comparative length.

11. **Betulaphis pelei** nov. spec.[1])

Apterous viviparous female.

Material: 2 specimens. Body oval, somewhat depressed. Tergum sclerotic, quite smooth, in one specimen more or less smoky on the meso- and meta-thorax, brownish on the middle abd. tergites, in the other specimen quite pale. Dorsal hairs rather thick, blunt, very short, only $^1/_2$—$^3/_5$ of basal diameter of ant. segment III; the spinal hairs of tergite VI as long as that diameter; but the 6 hairs on abd. tergite VIII 2—$2^1/_4$ times that diameter; marginal hairs on segments III, IV and sometimes V 1—$1^1/_2$ times that diameter; but those more caudate as long as those on the abd. tergite VIII; all the knobbed hairs thick and with knobbed apices. Front with 3 pairs of knobbed hairs which

[1]) By request of Chr. Vibe this nov. sp. is named after a young Greenlander, Pele Knudsen from Sarqaq, member of the Danish Zoogeographical Expedition, who lost his life by an accident.

all are about $2^1/_6$—$2^1/_4$ times basal diameter of ant. segment III; all frontal hairs on mutually free, conical bases or tubercles, which do not touch; the lowest pair closest to each other, the upper pair slightly farther apart, the middle pair widely apart. Antennae about half as long as body, pale with darker apex, of 6 segments (but probably sometimes with 5 segments); segment III slightly longer than IV + V; processus terminalis just longer than base of segment VI (measured from distal margin of rhinaria). Hairs on antennae inconspicuous, blunt, short, $^1/_3$ of basal diameter of ant. segment III. Rostrum not reaching the middle coxae. Siphunculi pale to brownish, truncated conical, smooth, with rather wide flange. Cauda triangular with convex sides, acuminate. Anal plate bilobed. Legs pale; tibiae between the hairs with a few spinules near apex; first tarsal joints with 5 hairs ventrally.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Ant. segments III	IV	V	VI
1.....	1.73	0.83	0.05	0.10	0.28	0.14	0.12	(0.10 + 0.08)
2.....	1.51	0.79	0.05	0.09	0.25	0.12	0.12	(0.09 + 0.085)

(no 1 is the pigmented specimen).

Alate viviparous female.

Material: 17 more or less intact specimens. Head and mesothorax dark brown. Abdomen with faintly brown marginal sclerites, sometimes with transverse rows of intersegmental sclerites between tergites III/IV and V/VI. All dorsal hairs rather long, fine, acute. The frontal hairs on smaller tubercles than those in apterae. Antennae rather dark brown, of 6 segments, but sometimes the division between segments III and IV abnormal or obsolete, $^5/_8$—$^3/_4$ length of body; segment III with 7—12 (average: 9.6) large, transversely oval rhinaria only on basal $^2/_3$ part; the part past the rhinaria conspicuously and suddenly thinner; all the rhinaria with a fringe of minute hairs or spinules. Antennal hairs a little longer than in apterae, acute, thin. Abd. segments I—IV with large, low, marginal tubercles, on the oral surface of which the slightly scabrous marginal sclerites are placed, while caudad and slightly dorsad of the apex a marginal hair is present. Siphunculi brown, faintly spinulose-imbricated, with hardly developed flange. Cauda truncated, rounded, brown. Anal plate dark, bilobed. Subgenital plate pale. Legs dark; tibiae dispersely spinulose over distal $^1/_3$—$^3/_5$ part; first tarsal joints besides with 5 ventral ones with two long dorsal hairs. Wings with pale brown veins; venation normal, but the 2nd fork of the media rather near the apex of the wing.

Measurements in mm

No	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments III	IV	V	VI
1.....	1.81	1.21	0.06	0.10	10&10	0.49	0.23	0.23	(0.11 + 0.10)
2.....	1.74	1.34	0.06	0.09	11&11	0.51	0.28	0.21	(0.11 + 0.09)
3.....	1.87	1.28	0.06	0.10	10&11	0.47	0.25	0.21	(0.12 + 0.09)
4.....	1.82	1.15	0.06	0.10	8&12	0.56	0.23	(0.11 + 0.10)	

Discussion. In a sample taken on Betula nana, Sarqaq, 12-VII-'49, nearly all specimens were alatae, but two apterae viviparae (not fundatrices) and one intermediate between alate and aptera were included. The species resembles *B. helvetica*[1]), but in the latter species in the apterae only the lower frontal hairs stand on free tubercles, while the basal tubercles of the four other hairs are fused to a pair of transverse ridges on each of which two hairs are inserted. The tergum of *B. helvetica* is slightly, but distinctly, rough. Especially the alatae of the new species differ from the brachytrichous forms of *B. quadrituberculata* (Kltb.) by the different sensoriation of the antennae.

12. **Thripsaphis (Trichocallis) vibei** nov. spec.

Apterous viviparous female.

Material: 40 more or less intact specimens. Body about 2.35—2.75 mm long, with the maximum width about $^2/_5$ of that length, depressed. Tergum mottled, dark to blackish sclerotic, with a membraneous median line from the middle of mesonotum to anterior margin of abd. tergite III; abd. tergites III—VI completely fused, the other tergites free; tergite covered by very low, rounded nodules of which here and there around the spinal pleural hairs and marginal hairs, along posterior margin of tergite VII and on tergite VIII small or larger groups are transparent; the transparent ones are probably wax-pores; abd. tergite VIII with strongly converging sides, with straight hind margin. Head with convex front. Antennae blackish, about $^3/_7$—$^1/_2$ length of body; segment III about $^2/_3$—$^3/_4$ of the width of head plus eyes, with 0—4 inconspicuous rhinaria, each surrounded by a pale area, placed on distal half; 24 antennae show 1 rhinarium, 23 show 2, 15 show 0, 3 show 3 and 3 show 4 rhinaria; ant. segment VI about $1^4/_7$ times as long as second joint of hind tarsi. Hairs on ant. segment III rarely more than half the diameter of the segment. Rostrum reaching the mesosternum. Siphunculi mere pori on the middle of the abd. tergite VI. Cauda very strongly constricted, the distal part not longer than wide, with some

[1]) Originally described as *Betulaphis quadrituberculata* subspec. *helvetica* H. R. L.

10—16 hairs. Subanal plate widely and deeply bilobed. Legs dark, rather thick; tibiae with apicad more distinct spinules; first tarsal joints with 5 hairs; empodial hairs sinuated, hairlike.

No	Measurements in mm						
	Length body	Ant.	Rhin. on III	Ant. segments III	IV	V	VI
1	2.64	1.32	2&2	0.41	0.22	0.20	(0.16 + 0.13)
2	2.40	1.06	1&2	0.35	0.16	0.15	(0.12 + 0.11)
3	2.41	1.23	1&1	0.39	0.20	0.15	(0.15 + 0.13)
4	2.43	1.19	0&0	0.38	0.19	0.19	(0.14 + 0.12)
5	2.67	1.25	1&1	0.40	0.20	0.18	(0.15 + 0.12)
6	2.54	1.21	1&1	0.36	0.20	0.17	(0.15 + 0.11)
7	2.41	1.17	3&4	0.37	0.18	0.17	(0.15 0.12)
8	2.43	1.13	1&0	0.35	0.17	0.17	(0.15 + 0.12)

(1—4, head of the fjord, Ûnartoq; 5—8, Carex, Frederikshaab, 7-VIII-'50).

Alate viviparous female.

Material: 4 specimens. Head and thorax black sclerotic, abdomen with transverse bars across each tergite; these bars from tergites III—VI very broad and partly fused, on tergites I, II, VII and VIII partly corrugated and disintegrated; marginal sclerites except on tergite VI free. Tergite locally spinulose and wax-pore zônes very distinct there. Abd. tergite VIII very broadly rounded. Antennae about as in apterae viviparae, a little longer; segment III throughout its length with 7—10 rhinaria like those in apterae, but often 2 rhinaria on a common pale zône. Wings narrow and long, with the veins in the fore wings faintly bordered; fore wings with normal venation, in the hind wings often the basal one of the obliques bifurcated or absent. Other characters as in apterae viviparae.

No	Measurements in mm						
	Length body	Ant.	Rhin. on III	Ant. segments III	IV	V	VI
1	2.51	1.41	8&9	0.49	0.28	0.22	(0.16 + 0.13)
2	2.38	1.34	7&8	0.41	0.27	0.20	(0.15 + 0.12)
3	2.49	1.57	7&10	0.55	0.31	0.22	(0.18 + 0.13)

(1—3, Carex, Frederikshaab, 7-VII-'50).

Discussion. This new species is nearly related to *Thripsaphis* (*Trichocallis*) *cyperi* (Wlk.). In the Greenland species the body is comparatively shorter and broader, while the number of rhinaria is much smaller than in *cyperi* Wlk. "*Allaphis caricis amurensis* Mordv." must be nearly

related, but evidently the antennae in *amurensis* both in apterae and alatae are longer, according to MORDVILKO's description.

13. **Thripsaphis (Thripsaphis) sensoriata** nov. spec.

Alate viviparous female.

Material: 1 specimen. Body elongated. Head and thorax dark sclerotic; abdomen with broad, dark sclerotic, mutually free transverse bars and with large marginal sclerites. All sclerotic parts with numerous rather acute nodules or spinules. Front very little protruding. Antennae dark, the whole flagellum evenly spinulose; processus terminalis very short; secondary rhinaria also present on segments IV and V. Hairs on ant. segment III considerably longer than half the median diameter of the segment. Eyes, rostrum and siphunculi as normal for the genus. Abd. tergite VIII with posterior margin very slightly concave. Cauda strongly knobbed. Subanal plate deeply bilobed. Legs rather dark, with femora, tibiae and tarsi completely spinulose; first tarsal joints with 5 hairs; empodial hairs distinctly foliate.

Measurements: Length of body: 2.04 mm; Ant.: 1.00 mm; Ant. segments: $\frac{0.28}{\text{III}}, \frac{0.14}{\text{IV}}, \frac{0.18}{\text{V}}, \frac{(0.19+0.074)\,\text{mm}}{\text{VI}}$. Rhin. on segment III: 6 and 8; on IV: 2 and 2; on V: 1 and 1.

Discussion. A single alata of this species was received, collected at Sarqaq "on Betula nana or Salix", 8-VII-'49. The true host, however, is undoubtedly a Carex sp., on which all members of this group feed. The species differs from all described forms by the occurrence of rhinaria on the ant. segments IV and V, so that a description based on one specimen is justified. The short processus terminalis agrees with that in *Thripsaphis* (*Allaphis*) *thripsoides* H.R.L.

14. **Cinara juniperi** (De Geer).

Two samples from Greenland, both from Juniperus communis, were received, collected at Tassiussak, 24-VII-1889 and Kapisigdlit, 25-VII-'50. The material agrees in every detail with specimens from several localities in Europe. Only apterae viviparae, belonging to the 2nd generation were taken.

15. **Pemphigus groenlandicus** (Rübsaamen, 1898).

Various samples of *Pemphigus* from grass roots agree fairly well with RÜBSAAMEN's description of *Tychea groenlandica.* Two different

types of apterae and, to some extent, alatae can, however, be distinguished in the material from Greenland.

In one form, with rather long antennae and a distinct processus terminalis, ant. segment III is usually longer than II; in the other form, with shorter antennae, the processus terminalis is often very short and ant. segment III slightly shorter than segment II. RÜBSAAMEN's drawing of an antenna looks like that of the first mentioned form, but the processus terminalis is more or less intermediate between the two forms.

There is no reason to describe both forms as separate species, but until more samples are available they may be considered to be subspecies. Both are described in some detail.

15a. **Pemphigus groenlandicus** (Rübsaamen, 1898) sensu stricto.

Apterous viviparous female.

Material: 8 mature and many immature specimens. Body very broadly oval, almost round in some specimens, 1.60—2.06 mm long. Dorsal hairs very short and inconspicuous. Head usually without waxglands or with one very small pair on vertex. Abdomen with distinct waxglands, viz., 4 glands on each of tergites III—VI, 2 glands on tergite VII; the glands on tergite III smaller than the others and sometimes partly lacking, the other glands rather uniform in size per specimen, but variable in different specimens, roundish to transversely oval, with the distance between the inner margins of the spinal pair on tergite VI about as large as the longest axis of the glands; in one specimen on tergite VI a spinal gland fused with a lateral gland; the hair on each gland about 0.012—0.015 mm long. Antennae variable in length, about $^1/_4$ length of body, of 5, exceptionally 6 segments; interrelation of segments very variable; in the large specimens (hibernating apterae?) segment III nearly as long as last segment, but usually much shorter; segment II conspicuously long and slender, frequently as long as segment III and always longer than penultimate segment; processus terminalis distinct; if measured from the distal margin of the rhinaria about $^1/_5$—$^1/_4$ of the length of the basal part. Antennal hairs short and scarce; segment II with 2—4 hairs, usually on distal half. Rostrum short, not reaching the middle coxae; ultimate segment short, about 0.10—0.115 mm long, rather blunt, with only 3 apical pairs of hairs present; stylets including their bases about 0.45 mm long. Siphunculi absent. Cauda not developed, with 2 short hairs. Legs short, first tarsal joints with 2 spines and on the fore and middle legs also with a thinner hair; 2nd joint ventrally very slightly spinulose, but 1st joint entirely smooth.

No	Measurements in mm Length body	Ant.	Ant. segments I	II	III	IV	V	VI
1.....	1.91	0.52	0.062	0.083	0.090	0.051	0.077	0.154
2.....	1.84	0.51	0.057	0.088	0.132	0.081	0.156	
3.....	2.06	0.56	0.066	0.094	0.154	0.081	0.167	
4.....	1.62	0.40	0.059	0.079	0.079	0.053	0.127	
5.....	1.92	0.44	0.053	0.081	0.103	0.066	0.141	
6.....	1.66	0.38	0.053	0.068	0.075	0.053	0.127	
7.....	1.62	0.44	0.055	0.079	0.101	0.062	0.143	
8.....	1.91	0.47	0.048	0.081	0.114	0.077	0.151	

(1—8, grass roots, Kapisigdlit, 27-VII-'50).

Alate viviparous female (sexupara).

Material: 1 specimen. Head and thorax black sclerotic, the rest membraneous, colourless. Head without waxglands, mesonotum with two small oblong glands; small marginal glands present on abd. tergites V—VII and a single narrow transverse median gland on tergite VIII. Antennae of 6 segments; segment VI slender and rather cylindrical, with the processus terminalis about $^1/_4$—$^2/_7$ of the basal part; rhinaria normal. Rostrum very short, but last segment more slender than in apterae, with 2 inconspicuous hairs besides the 3 apical pairs. Siphunculi absent. Cauda a little more developed than in apterae. Legs rather slender, blackish; first tarsal joints of all legs with an apical pair of rather long hairs, on the fore and middle legs with a much shorter hair between these, and more basally ventrally on the fore legs 2 rather long hairs, on the middle and hind legs one rather long hair; ergo on the first tarsal joint of the fore legs with 5 hairs, of the middle legs with 4 hairs, of the hind legs with 3 hairs; tarsi distinctly spinulose. Wings with the media not branched.

Measurements: Length of body: 1.51 mm; Ant.: 0.61 mm; Ant. segments: $\frac{0.055}{\text{I}}, \frac{0.072}{\text{II}}, \frac{0.158}{\text{III}}, \frac{0.079}{\text{IV}}, \frac{0.079}{\text{V}}, \frac{0.167 \text{ mm}}{\text{VI}}$. Rhinaria on segment III: 4 and 6; on IV: 2 and 2.

Discussion. The material described above was collected on grass roots, Kapisigdlit, 27-VII-'50. It is very uniform and there is no doubt that the alata belongs with the apterous forms. No 1 of the measured apterae is larger than the others and has a comparatively longer ant. segment III; this might be a hibernated specimen. In the alata an embryo without mouthparts is indistinctly visible, which means that it is a sexupara.

A single aptera from Kôrqut (Godthaab), 28-V-'44, no host plant mentioned, agrees very well with the material described above. The antennae are quite similar, but the waxglands more transversely oval.

The biology of this species on Greenland apparently is simple. It is still capable of migrating (to Populus), as the sexupara shows. Perhaps *Pemphigus borealis* Tullgren is the corresponding form on Populus. But the date of collection of the aptera from Kôrqut shows that it certainly also hibernates on grass roots by viviparous froms.

Tychea groenlandica Rübsaamen is generally considered to be a synonym of *Trifidaphis phaseoli* Pass., a species which lays its eggs on Pistacia mutica and which occurs in Europe and America on the roots of Dicotyledonous plants in ants' nests. On this synonymy MORDVILKO 1934, Arch. f. Naturgeschichte, Abt. B, vol. III, Heft I, p. 57 based a theory: "*Trifidaphis phaseoli* Pass. for instance (primary host Pistacia mutica) persisted in Greenland upon roots of plants (*Tychea groenlandica* Rübsaamen, 1898) from the time when Pistacia could exist there, that is when 4 Rhus species and other plants occurred there." This example is often quoted, but we know now that the example was not based on facts, for *groenlandica* is not in the least related to *phaseoli* Pass.

15b. **Pemphigus groenlandicus** subspec. **crassicornis** nov. subspec.

Apterous viviparous female.

Material: 16 adults and several larvae. Very much like the main species but usually more elongated. Antennae only $^{2}/_{11}$—$^{1}/_{4}$ of length of body, usually of 5 segments, but segment III frequently with traces of a subdivision; segment II $1^{3}/_{5}$—$2^{1}/_{20}$ times as long as its width in the middle; segment III not much longer than II; segment IV in specimens with 5 segments almost globular, with a small, round rhinarium; processus terminalis only $^{1}/_{6}$—$^{1}/_{5}$ of basal part of last segment including the rhinaria.

Measurements in mm

No	Length body	Ant.	Ant. segments I	II	III	IV	V	VI
1.....	1.98	0.48	0.048	0.079	0.088	0.048	0.062	0.150
2.....	1.86	0.46	0.048	0.077	0.114	0.066	0.152	
3.....	1.84	0.37	0.057	0.079	0.066	0.048	0.123	
4.....	1.70	0.36	0.061	0.070	0.066	0.035	0.123	
5.....	1.92	0.35	0.052	0.079	0.057	0.044	0.119	
6.....	1.73	0.38	0.052	0.077	0.073	0.051	0.123	

(1—2, grass roots, Egedesminde, 9-VI-'49; 3—6, Kapisigdlit, 30-VII-'50).

Alate viviparous female (sexupara).

Material: 2 older, 1 just molted specimen and one nymph. Like alatae of the main form, but ant. segment VI much swollen towards the rhinaria, so that the largest diameter (near the rhinaria) may be

more than twice the smallest (at base); processus terminalis very short and thick, beginning abruptly, only $^2/_9$—$^2/_{13}$ of basal part of last segment; segment III with 3—6 large, transverse rhinaria, IV with 2—3 rhinaria.

Measurements in mm

No	Length body	Ant.	Rhin. on III	Rhin. on IV	Ant. segments I	II	III	IV	V	VI
1.....	2.03	0.74	5&6	2&2	0.057	0.083	0.198	0.110	0.110	0.185
2.....	1.88	0.54	5&6	2&2	0.057	0.077	0.167	0.074	0.088	0.171
3.....	1.89	0.66	3&4	2&2	0.061	0.077	0.167	0.105	0.083	0.171

(1—2, on grassroots, Kapisigdlit, 30-VII-'50; 3, idem, 16-VIII-'50).

Discussion. The three samples on which the description is based are fairly uniform, but the specimens from Egedesminde in general show a thicker second antennal segment than the other samples of apterae. In most apterae the pigmented part of the subgenital plate is both cephalad and caudad emarginated and often divided into two parts, while in the main species almost only the anterior margin of the pigmented part is emarginated. Besides in the subspecies the anterior margin of this plate has 4—6 stout hairs in a row, and some of the more median hairs along its posterior margin are often only 0.0044 mm long, i. e. half as long as the more lateral ones. In the main species 6—10 hairs occur on the anterior half, and these are hardly stouter than the hairs along the posterior margin, which are all of about the same length. This, besides the obvious differences in relative length of the second ant. segment, should help to distinguish the subspecies.

16. **Pemphigus salicicola** nov. spec.

Apterous viviparous female.

Material: 21 specimens and several larvae. Body rather large, broadly oval, about 1.60—2.35 mm long. Head, antennae and legs often darkish sclerotic, the rest colourless. Waxglands on the head very small or completely absent, but the abdomen with large, widely separated, transversely oval waxglands, arranged as in *P. groenlandicus*. Antennae usually more or less distinctly of 6 segments, rather thick, about $^2/_9$—$^2/_7$ of the length of body; segment II at most $1^4/_5$ times as long as its maximal width; if 6 segments present, then segments III, IV and V short; the penultimate segment always strongly attenuated towards base, with a distinctly transversely oval primary rhinarium; last segment rather long, with often remarkably elongated processus terminalis; the latter, if measured from the distal margin of the rhinaria, may measure up to $^1/_3$ of the rest of the segment. Antennal hairs short and

inconspicuous. Rostrum reaching just past the middle coxae; apical segment about 0.1 mm long, about parallel-sided, with suddenly rounded, very blunt apex, with usually only 3 apical pairs of hairs, rarely with 2 more hairs; stylets about 0.55 mm long. Legs rather long, uniformly

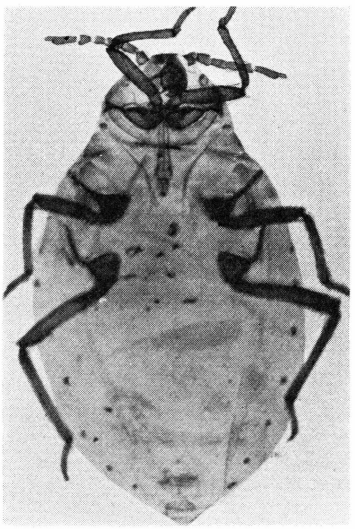

Fig. 2.. *Pemphigus salicicola* nov. spec., apt. viv. fem., × 26.

dark; first tarsal joints with 2 short spines and on the fore legs also with a thinner spine and along distal margin a row of hardly visible spinules or nodules.

Measurements in mm

No	Length body	Ant.	Ant. segments I	II	III	IV	V	VI
1.....	2.23	0.53	0.061	0.088	0.079	0.057	0.070	0.176
2.....	2.02	0.54	0.066	0.082	0.066	0.066	0.079	0.180
3.....	2.15	0.53	0.066	0.079	0.082	0.061	0.068	0.167
4.....	2.17	0.52	0.061	0.082	0.066	0.070	0.066	0.178
5.....	2.34	0.62	0.066	0.088	0.101	0.074	0.088	0.198
6.....	2.19	0.57	0.070	0.088	0.092	0.070	0.074	0.180
7.....	2.33	0.58	0.070	0.083	0.088	0.074	0.074	0.187
8.....	2.25	0.54	0.070	0.070	0.083	0.070	0.066	0.180
9.....	1.92	0.49	0.061	0.078	0.074	0.057	0.066	0.158
10.....	1.69	0.45	0.057	0.082	0.101	0.061	0.158	
11.....	1.90	0.51	0.066	0.088	0.132	0.061	0.162	
12.....	1.79	0.42	0.052	0.070	0.092	0.052	0.149	
13.....	1.64	0.45	0.049	0.079	0.110	0.061	0.145	
14.....	1.81	0.51	0.061	0.082	0.132	0.070	0.167	

(1—4, "Grass roots", Egedesminde, 9-VI-'49; 5—8, roots of Salix herbacea, Grönnedal, 400 m, 4-VI-'50; 9—11, Salix roots, Kapisigdlit, 7-VIII-'50; 12—14, idem, 22-VIII-'50).

Discussion. The sample from Egedesminde is a mixture of two fortunately quite different *Pemphigus*, one with a very long processus terminalis, the other with an extremely short processus terminalis. The three samples from roots of Salix are specimens with rather long processus terminalis and like similar specimens from Egedesminde these have a row of darker dots along the distal margin of the first tarsal joints which is not present in the other Pemphigus-like aphids from Greenland. Numbers 1—8 are more darkly pigmented than the others and all have distinctly 6 segmented antennae and a longer processus terminalis; these specimens are supposed to be hibernating apterae.

Recently BÖRNER has described *Parathecabius salici-radicis* Börner from the roots of Salix polaris, collected in the Eastern Alps. The characters of *Parathecabius* are present in *Pemphigus salicicola* nov. spec., but I fail to see in what respect *Parathecabius* differs from *Pemphigus* Hartig. The species *salici-radicis* Börner apparently differs by larger size and shorter hind tibiae. A third species occurs on Salix in England.

Færdig fra trykkeriet den 24. maj 1952.

PLATES

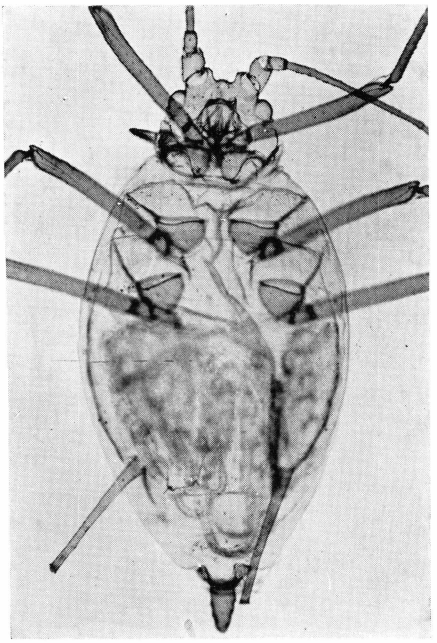

Fig. 3. *Acyrthosiphon boreale* nov. spec., apt. viv. fem., × 26.

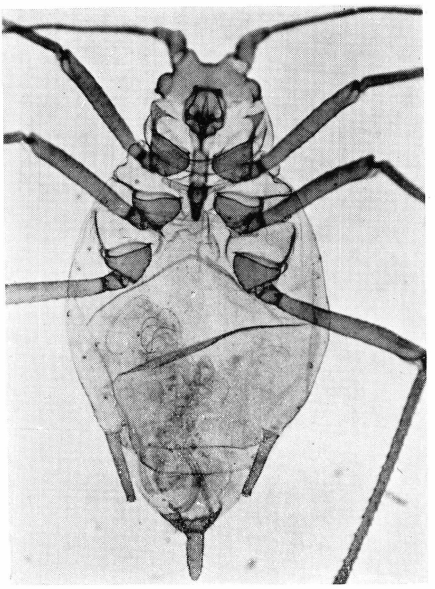

Fig. 4. *Acyrthosiphon brachysiphon* nov. spec., apt. viv. fem. × 28.

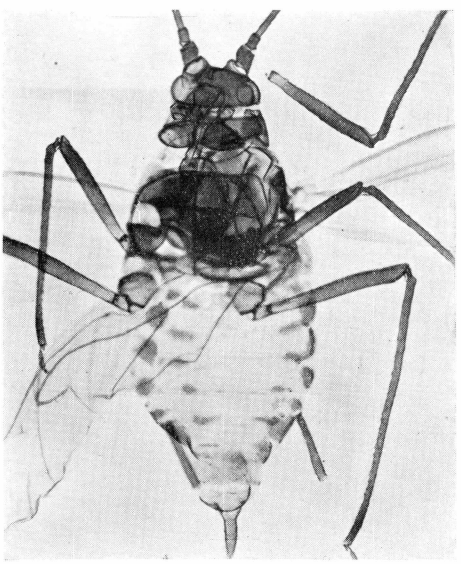

Fig. 5. *Acyrthosiphon brachysiphon* nov. spec., al. viv. fem., × 25.

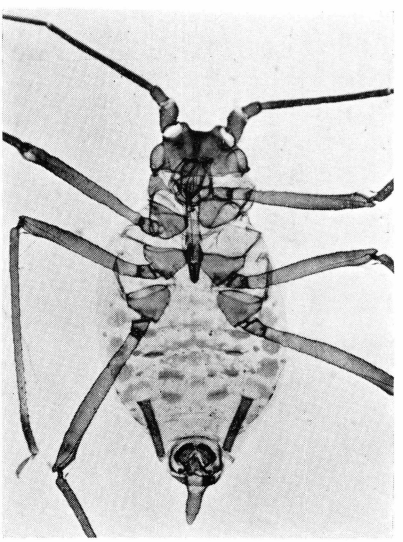

Fig. 6. *Acyrthosiphon brachysiphon* nov. spec., male, × 27.

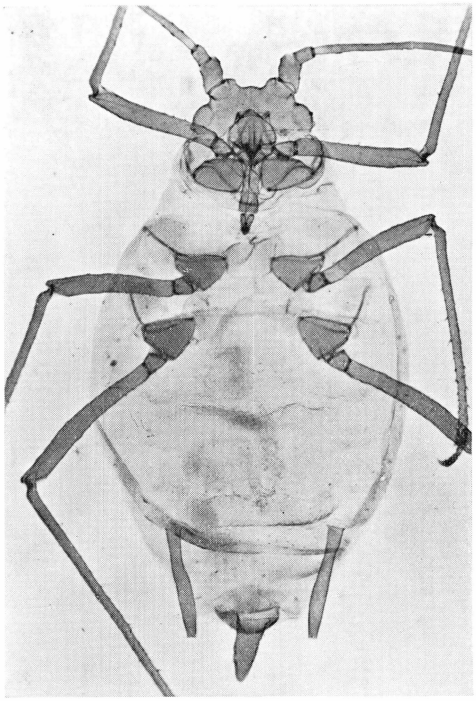

Fig. 7. *Sitomyzus vibei* nov. spec., apt. viv. fem., × 28.

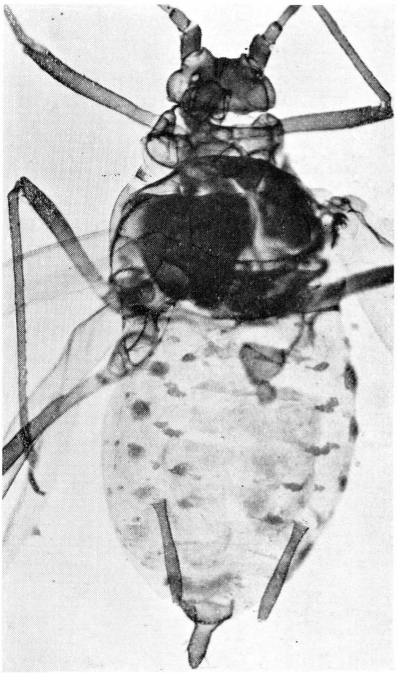

Fig. 8. *Sitomyzus vibei* nov. spec., al. viv. fem., × 28.

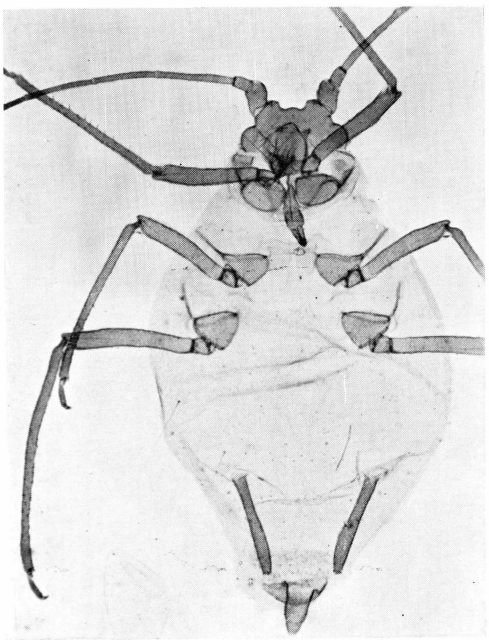

Fig. 9. *Sitomyzus vibei* nov. spec., ovip. fem., × 28.

Fig. 10. *Cavariella borealis* nov. spec., male, × 28.

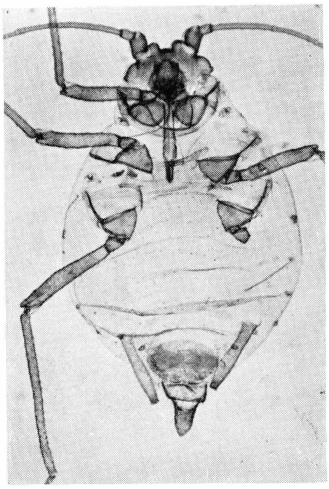

Fig. 11. *Myzus* (*Nectarosiphon*) *polaris* nov. spec., ovip. fem., × 28.

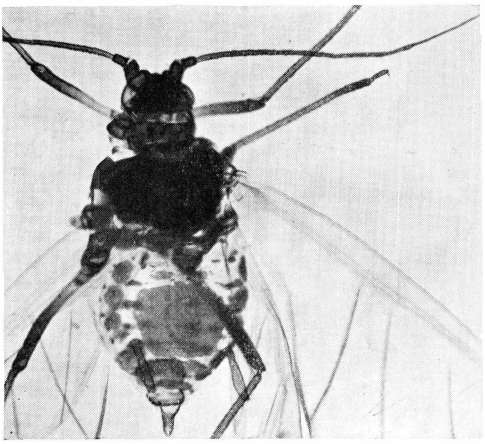

Fig. 12. *Myzus* (*Nectarosiphon*) *polaris* nov. spec., al. viv. fem. × 28.

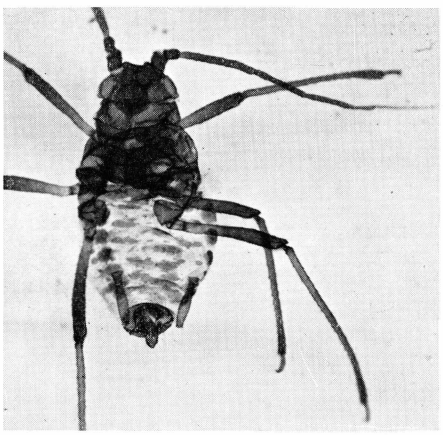

Fig. 13. *Myzus* (*Nectarosiphon*) *polaris* nov. spec., male, × 28.

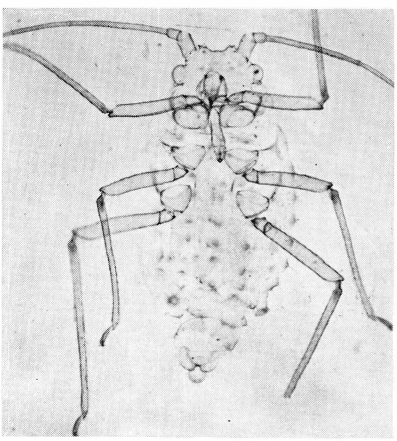

Fig. 14. *Calaphis arctica* nov. spec., apt. viv. fem., × 26.

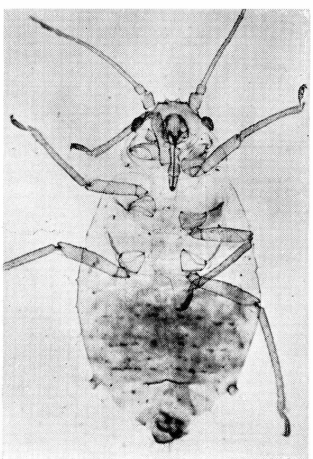

Fig. 15. *Betulaphis pelei* nov. spec., apt. viv. fem., × 28.

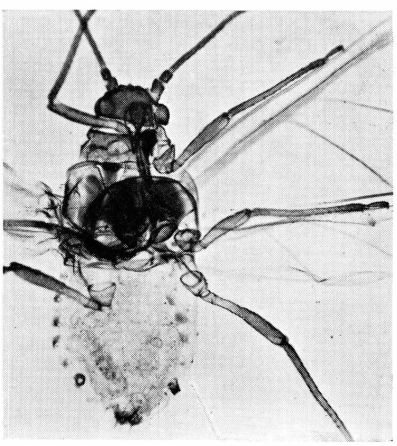

Fig. 16. *Betulaphis pelei* nov. spec., al. viv. fem., × 28.

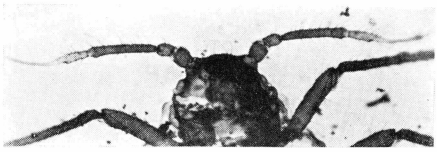

Fig. 17. *Paducia aterrima* nov. spec., head of apt. viv. fem., × 28.

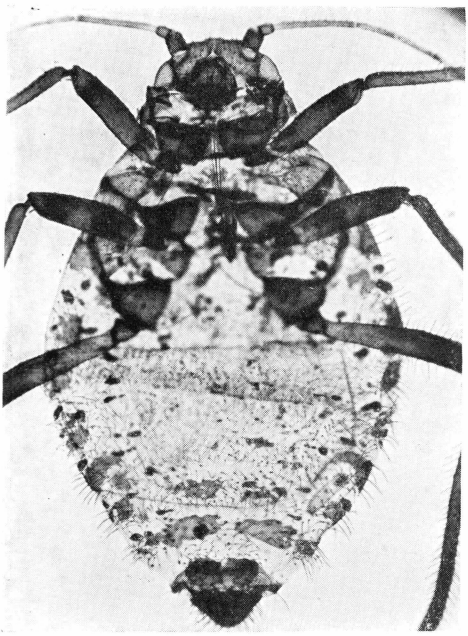

Fig. 18. *Pterocomma groenlandica* nov. spec., apt. viv. fem., × 23.

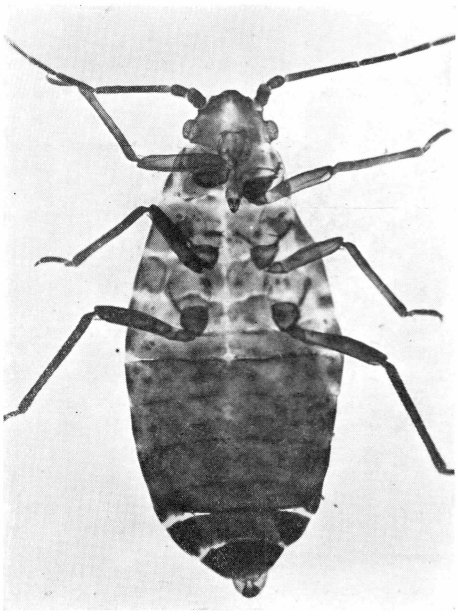

Fig. 19. *Thripsaphis* (*Trichocallis*) *vibei* nov. spec., apt. viv. fem., × 26.

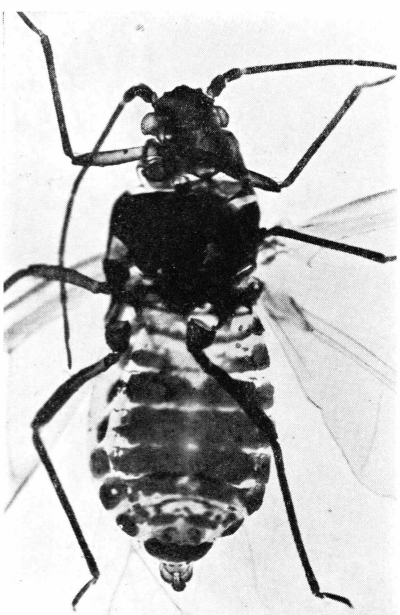

Fig. 20. *Thripsaphis* (*Trichocallis*) *vibei* nov. spec., al. viv. fem., × 27.

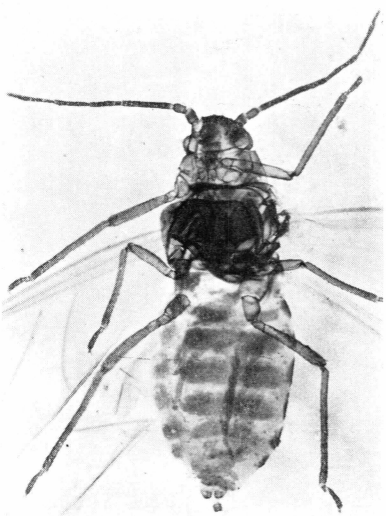

Fig. 21. *Thripsaphis* (*Thripsaphis*) *sensoriata* nov. spec., al. viv. fem., × 25.

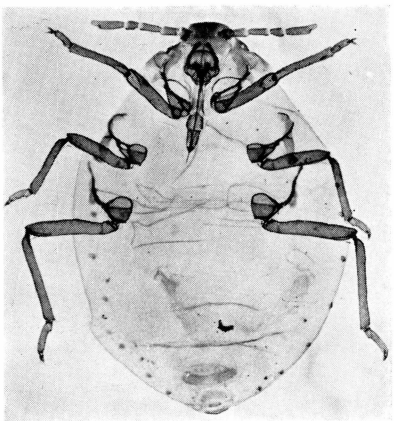

Fig. 22. *Pemphigus groenlandicus* (Rübsaamen), apt. viv. fem., × 32.

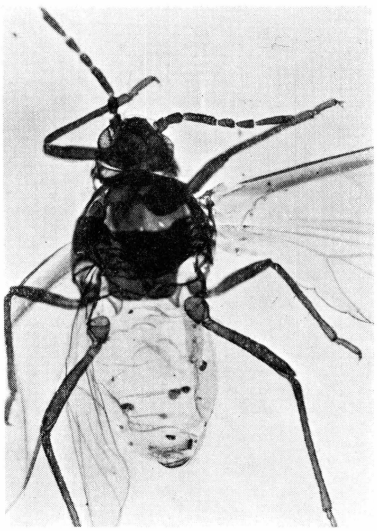

Fig. 23. *Pemphigus groenlandicus* (Rübsaamen), al. viv. fem., × 23.

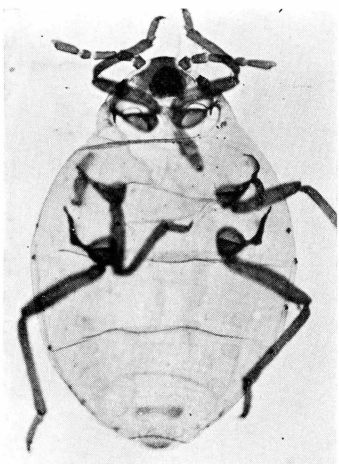

Fig. 24. *Pemphigus groenlandicus crassicornis* nov. subspec., apt. viv. fem., × 28.

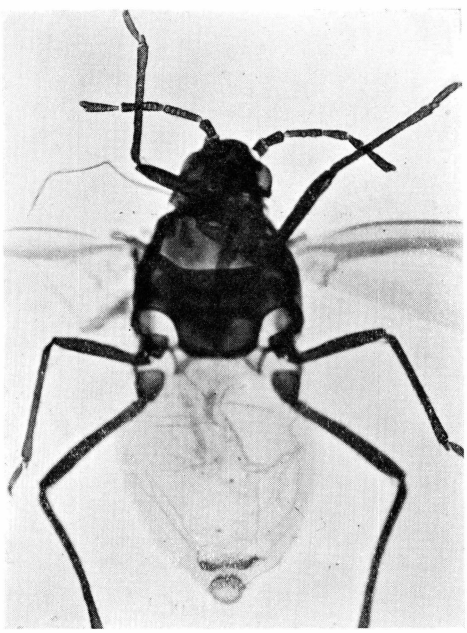

Fig. 25. *Pemphigus groenlandicus crassicornis* nov. subspec., al. viv. fem., × 32.