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SOME *APHIDIDAE* FROM HOKKAIDO (*HEMIPTERA*)

By

RYOICHI TAKAHASHI

高 橋 良 一

(With 7 text-figures)

The works by Prof. S. MATSUMURA, the late Mr. M. HORI and Mr. M. INOUYE form at the present time the basis of our knowledge of the *Aphididae* of Hokkaido. The descriptions of many species are, however, very unsatisfactory, and re-examination of them is especially needed for the progress of future investigation of these insects.

Dr. H. KÔNO has been kind enough to send me many specimens of the family taken by him in Hokkaido; and the results of my observations on some species in the collection are presented below. A few species from other sources are also included herewith.

I wish to express my deepest sense of gratitude to Dr. H. KÔNO for the valuable material. I take this occasion also to lament the death of Mr. M. HORI, whose devoted zeal has contributed much to the aphidology of North Japan, and *Chaitophorus horii* n. sp. is here described in commemoration of his efforts.

Pterocomma kônoi HORI n. sp. was recognized as a new species, but was not described, by the late Mr. HORI, and my diagnosis of it is included under the specific name adopted by him.

The cotype specimens are in the collections of Dr. H. KÔNO and the writer.

Macrosiphoniella yomogicola MATS.

Macrosiphum yomogicola MATSUMURA, Jl. Coll. Agr. Sapporo, XII, p. 401 (1917).

Winged viviparous female. Dorsal setae stiff or slightly curved, much shorter than the 2nd antennal segment. The 1st antennal segment large, much longer than wide, much larger than the 2nd; the 3rd imbricated, with 21–28 small circular sensoria mostly in a row on the basal two-thirds or more, and with many stiff setae, which are blunt or very slightly capitate apically, almost as long as, or shorter than, the width of the segment, and a little shorter than those on the head; the 4th lacking sensoria, as long as the 3rd, but longer than the 5th; the relative length of segments about as follows: III—75,

IV—75, V—58, VI—20+?. Abdomen with a few small dusky spots at the bases of setae on the lateral and posterior parts only. Cornicles long, rather slender, somewhat longer than the cauda, narrowed on the distal half, not expanded at the base, reticulate on the distal two-thirds, sometimes slightly curved, a little longer than the width of head including the eyes, much shorter than the 3rd antennal segment, black. Cauda large, stout, gradually tapering, not constricted, bluntly pointed apically, stouter than the cornicles, black, with many lateral setae. Legs very long, slender; tibiae with many stiff setae, which are as long as the width of tibiae; tarsi with 3 setae on the basal segment; femora dark.

Body 3.0 mm., 3rd antennal segment 1.2 mm. long, 0.042 mm. wide at middle, cornicle 0.623 mm. long, 0.085 mm. wide at base, 0.074 mm. wide at tip, 0.042 – 0.046 mm. wide at narrowest part near apex, cauda 0.554 mm. long, 0.185 mm. wide at base, hind tibia 3.2 mm., dorsal seta 0.046 – 0.051 mm.

Wingless viviparous female. Body elongate, oval, with a few small dusky spots at the bases of setae on the posterior part of abdomen. Head without granules. The 3rd antennal segment with 8 – 13 small or moderate sensoria near the base or on the basal one-third. Rostrum reaching the hind coxae; the distal segment much narrower and somewhat shorter than the penultimate, about 2.4 times as long as wide, tapering, pointed apically, with some pairs of long fine setae. Cornicles reticulate over the distal half, constricted at the base, straight. Other characters as in the alate form.

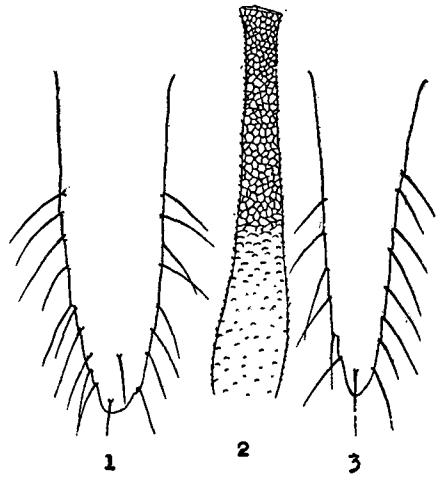

Fig. 1.

Macrosiphoniella yomogicola MATS.
Wingless viviparous ♀.
1. Cauda. 2. Cornicle.
Winged viviparous ♀.
3. Cauda.

Body 3.2 mm., 3rd antennal segment 1.25 mm., cornicle 0.678 mm. long, 0.123 mm. wide near base, 0.102 mm. wide at base, 0.069 mm. wide at apex, 0.051 mm. wide at narrowest part near apex, cauda 0.6 mm. long, 0.18 mm. wide at base, hind tibia 3.5 mm., dorsal seta 0.069 mm.

Host: *Artemisia* sp.

Habitat: Sapporo.

3 apterous and 3 alate viviparous females. 25. vi. 1938 (H. KÔNO).

Macrosiphum solidaginis FAB.

Macrosiphum rudbeckiae ESSIG and KUWANA (nec FITCH), Proc. Calif. Acad. Sc., 4th ser., VIII, p. 52 (1918).

In the apterous viviparous female, sensoria on the 3rd antennal segment distributed only on the basal half or along the whole length except on the distal small part. Dorsal setae of the thorax and abdomen arising from distinct dusky spots. Distal setae of the rostrum nearly as long as the penultimate, about thrice as long as wide. Cornicles and cauda black. Femora black on the distal part, tibiae black on both ends.

Host: *Solidago virgaurea asiatica.*

Some specimens, 16. vii. 1938 (C. WATANABE).

In the aphids recorded by me as *Macrosiphum solidaginis* Fab. from Formosa (1935) and China (1928), the distal segment of rostrum is longer and more slender, being about 5 times as long as wide. They are identical with the aphids recorded by me under the name of *M. orientale* VAN DER GOOT from Blumea in Sumatra (1925) and by VAN DER MEHR MOHR as *M. solidaginis* FAB. from Vernonia in that island, and the species may be *M. orientale* VAN DER GOOT, the rostrum of which has not been described in detail. It is apparently related to *M. longirostris* GILLETTE et PALMER, differing, however, much in the colouration.

The aphis recorded by me as *M. rudbeckiae* FITCH from Saghalien (1924) has the distal segment of rostrum being longer than that of *M. solidaginis* FAB., but shorter than that of *M. orientale* VAN DER GOOT? from Formosa, China and Sumatra, and differs from the true *M. rudbeckiae* FITCH.

Aulacorthum magnoliae ESSIG et KUWANA

Rhopalosiphum magnoliae ESSIG and KUWANA, Proc. Calif. Acad. Sc., 4th ser., VIII, p. 59 (1918).

Amphorophora magnoliae TAKAHASHI, Aphid. Formosa, 2, Dept. Agr. Res. Inst. Formosa, Rept. Proc. 4, p. 86 (1923)

Rhopalosiphum sambucicola TAKAHASHI, Zool. Mag. Tokyo, XXX, no. 359, p. 372 (1918); ibid., Proc. Ent. Soc. Washington, XXI, p. 176 (1919).

Wingless viviparous female. Head granular on the venter. Frontal tubercles well developed, convex on the mesal side. A pair of very small rounded or conical tubercles present on the dorsum of head between the eyes in some specimens as in the alate form.

Host: *Sambucus racemosa.*

Habitat: Sapporo.

Some alate and apterous viviparous females, 3. vi. 1938 (H. KÔNO).

Hitherto unrecorded from Hokkaido. *Rhopalosiphum sambuci* Mats. may be this species, but the description by MATSUMURA much differs from the speci-

mens. The dorsal tubercles of the head between the eyes are also present in many specimens of *Aulacorthum perillae* TAKAH.

Cavariella kônoi n. sp.

Winged viviparous female. In specimens treated with caustic potash, head, antennae, thorax, cornicles, cauda and anal plate brown; abdomen with brown patches on the side, a large brown patch at the middle of dorsum, a pair of small patches on the 6th segment, and a band on the 7th and 8th; legs darker on the distal parts of tibiae and the tarsi. Head a little protruding on the middle of front, with 5 pairs of short stiff dorsal setae. Antennae imbricated, with a few small stiff setae; basal 2 segments almost as long as wide; the 3rd segment long, nearly as wide as the middle part of tibia, with 35–40, circular or oval, protruding, sensoria scattered over the whole length; the 4th with 3-8 sensoria; the 5th narrowed towards the base, without secondary sensoria; the relative length of segments about as follows: III—35, IV —12, V—9, VI—7+18. Rostrum not reaching the middle coxae; the distal segment longer than the penultimate, blunt apically, about 2.7–3 times as long as wide. Abdomen with a few short stiff setae in irregular rows, and granules on the lateral part and on the 8th segment. Dorsal tubercle on the 8th abdominal segment small, conical, wider than long, rounded apically, widened towards the base, not reaching the hind margin of the segment, with a pair of long apical setae. Cornicles long, gradually much swollen on the distal half, constricted at the apex, narrowest at the apical constriction in some specimens, roughly imbricated, corrugated on the basal narrower part, nearly as long as, or somewhat shorter than, the width of head including

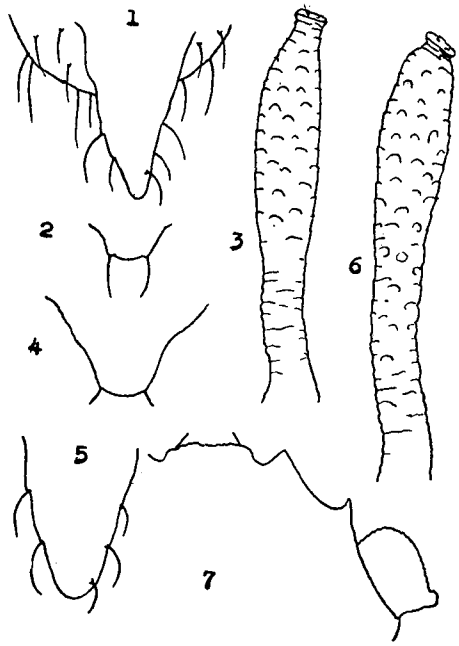

Fig. 2.

Cavariella kônoi n. sp.

Winged viviparous ♀.

1. Cauda and anal plate. 2. Dorsal tubercle on abdomen. 3. Cornicle.

Wingless viviparous ♀.

4. Dorsal tubercle. 5. Cauda. 6. Cornicle. 7. Head.

the eyes, a little shorter than the 3rd antennal segment, over twice as long as the cauda. Cauda stout, tapering, rounded at the tip, about 1.6 times as long as wide, a little constricted on the distal part, with 5 or 6 long setae. Anal plate rounded, much wider than the cauda. Legs long; trochanters distinct from the femora; tibiae with many stiff setae, which are shorter than the width of tibiae, and with microtrichiae on the distal part; tarsi imbricated, with 3 setae on the basal segment.

Body 2.3—2.5 mm., head including eyes 0.475 mm. wide, antenna 1.4 mm., 3rd antennal segment 0.57 mm., distal segment of rostrum 0.162 mm., cornicle 0.42 mm. long, 0.074 mm. wide at swollen part, 0.037 mm. wide at base, cauda 0.16 mm. long; dorsal tubercle 0.065 mm. wide, hind tarsus 0.194 mm., dorsal seta on head 0.023 mm.

Wingless viviparous female. In specimens treated with caustic potash, body and its appendages pale, somewhat darker on the tarsi. Oblong, prominently corrugated over the dorsum; metathorax and basal 7 abdominal segments fused together. Head with a wide protuberance on the front, which does not extend beyond the frontal tubercles. Frontal tubercles very short. Antennae imbricated, 6-segmented; the 3rd segment long, narrower than the tibiae, lacking sensoria, with over 10 small stiff setae; the relative length of segments about as follows: III—24, IV—9, V—7, VI—6+14. Rostrum nearly reaching the hind coxae. Cornicles as in the alate form, but the basal part wider. Cauda stout, about 1.5 times as long as wide, tapering, rounded at the apex, stouter than the cornicles, with 5 long setae. Dorsal tubercle on the 8th abdominal segment small, similar to, but a little larger than, that of the alate form, not reaching the cauda. Tibiae a little widened at the apex. Other structures like the alate form.

Body 2.5 mm., head including eyes 0.485 mm. wide, antenna 1.15 mm., 3rd antennal segment 0.346 mm. long, 0.037 mm. wide, cornicle 0.51 mm. long, 0.083 mm. wide at swollen part, cauda 0.18 mm. long, 0.125 mm. wide, hind tibia 1.15 mm. long, 0.051 mm. wide about middle, hind tarsus 0.18 mm., dorsal seta on head 0.018 mm.

Host: Probably *Salix* sp.

Habitat: Sapporo.

Many specimens, 1938 (H.Kôno).

Related to *Cavariella capreae* Fab., differing in the smaller supra-caudal tubercle of the apterous form and in the dark cornicles of the alate; and different from *C. japonica* Essig et Kuwana in the longer cornicles distinctly clavate. Apparently differs from all other known species of the genus.

Rhopalosiphoninus tiliae MATS.

Rhopalosiphum tiliae MATSUMURA, Trans. Sapporo Nat. Hist. Soc., VII. p. 11 (1918).

Wingless viviparous female. Head not imbricated, a little convex at the middle of front, with 4 pairs of moderate stiff dorsal setae. Frontal tubercles a little convex on the mesal side. The 3rd antennal segment not imbricated, with 18–22 sensoria in an irregular row, or scattered, except on the basal and distal small parts; the 4th a little imbricated, without sensoria; setae on the antennae shorter than the width of the 3rd segment; the relative length of segments about as follows: III—52, IV—30, V—23, VI—8+43. Distal segment of the rostrum nearly as long as the penultimate, a little tapering, about twice as long as wide. Cornicles black, paler on the basal part in specimens treated with caustic potash, large, stout, much swollen, narrowest at the apex, imbricated on the distal part, about thrice as long as the cauda, shorter than the 3rd antennal sement, nearly as long as the width of head including the eyes. Cauda pale, very stout, slightly longer than wide, tapering, rounded apically, scarcely constricted, with 5 long setae, the basal part nearly as broad as the widest part of cornicle. Tarsi with 3 setae on the basal segment.

Body 3.0 mm., antenna 3.0 mm., cornicle 0.6 mm. long, 0.17 mm. wide at swollen part, 0.05 mm. wide at apex excluding flange, 0.092 mm. wide at base, cauda 0.19 mm., dorsal seta 0.046 mm.

Host: *Tilia japonica.*

Habitat: Teshio.

Two apterous forms, 10. vii. 1938 (H. KÔNO).

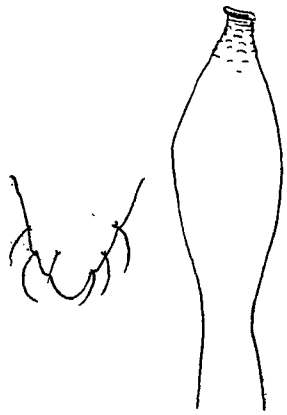

Fig. 3.
Rhopalosiphoninus tiliae MATS.
Wingless viviparous ♀.
Cauda and cornicle.

Rhopalosiphoninus hydrangeae MATS.

Rhopalosiphum hydrangeae MATSUMURA, Trans. Sapporo Nat. Hist. Soc., VII, p. 8 (1918).

Amphorophora hydrangeae TAKAHASHI, Aphid. Formosa, 2, Dept. Agr. Res. Inst. Formosa, Rept. 4, pl. III, B, figs. 10–13 (1923).

Wingless viviparous female. Head granular. Frontal tubercles convex mesally. Antennae with a few very small blunt setae; the 3rd segment imbricated, with 1 or 2 sensoria near the base; the 4th without sensoria; the relative length of segments about as follows: III—53, IV—39, V—30, VI—12+53. Distal segment of the rostrum slightly tapering, 2.5 times as long as wide.

Thorax and abdomen reticulate on the dorsum, with a few very small blunt setae. Cornicles stout, large, dusky and striate on the apical small part, much swollen gradually, narrowest at the apex, somewhat expanded at the base, shorter than the 3rd antennal segment, about thrice as long as the cauda, nearly as long as the width of head. Cauda distinctly longer than wide, tapering, rounded apically, with 2 slight constrictions on the distal part, and 6 long setae. Tarsi with 3 setae on the basal segment.

Body 2.4 mm., antenna 3.2 mm., cornicle 0.6 mm. long, 0.145 mm. wide at widest part, 0.037 mm. wide at apex excluding flange, 0.083 mm. wide near base.

Winged viviparous female. Head with 8 short setae and granules on the dorsum except near the hind margin. Frontal tubercles distinctly convex mesally. Abdomen with a large dusky patch on the dorsum, dusky behind the cornicles.

Host: *Hydrangea paniculata.*

Habitat : Sapporo.

Many apterous and alate forms, 29. vi. 1938 (H. KÔNO).

Rhopalosiphum donarium MATS.

Siphocoryne donarium MATSUMURA, Trans. Sapporo Mat. Hist. Soc., VII, p. 6 (1918).

Rhopalosiphum donarium HORI, Hokkaido Agr. Expt. St. Rept. no. 23, p. 54, Pl. 1, figs. 9—17 (1929).

Host: *Sorbaria randaiensis.*

Habitat: Sapporo.

Some alate females and nymphs, 19. v. 1938 (H. KÔNO); many specimens were also taken at Suigen, Korea, on a cherry tree (21. v. 1922; Nagahama), new to Korea.

Closely related to *Rhopalosiphum prunifoliae* FITCH, differing in the shorter setae on the body and in the shorter distal part of the last antennal segment.

Aphis sambucifoliae FITCH.

SANBORN, Kansas Univ. Sc. Bull., III, p. 52 (1904); SWAIN, Univ. Calif. Pub. Tech. Bull., Ent., III, p. 123 (1919); HOTTES and FRISON, St. Illinois Dept. Regist. Educ., Div. Nat. Hist. Surv. Bull. XIX, Art. III, p. 218 (1931).

Aphis sambuci MATSUMURA (nec L.), Jl. Coll. Agr. Sapporo, VII, p. 358 (1917); TAKAHASHI, Trans. Sapporo Nat. Hist. Soc., VII, p. 199 (1919); ibid., Zool. Mag. Tokyo, XXXII, p. 197 (1920); ibid., Aphid. Formosa 2, Dept. Agr. Res. Inst. Formosa, Rept. 4, p. 59 (1923).

Aphis horii TAKAHASHI, Aphid. Formosa 2, Dept. Agr. Res. Inst. Formosa, Rept. 4, p. 61 (1923) (New synonym).

Host: *Sambucus racemosa.*

Habitat; Nopporo.

Some specimens (M. INOUYE); M. HORI collected this species at Konuma, Saghalien (14. vii. 1933), from where it has not been recorded. Differentiated from *Aphis sambuci* L. by the more sensoria on the antennae of the alate form. *Aphis horii* TAKAH. described from *Cirsium* in Hokkaido is identical with this species, and the aphis seems to migrate between *Sambucus* and *Cirsium*, if the latter is its true food plant.

Pterocomma kônoi HORI n. sp.

Winged viviparous female. In a specimen treated with caustic potash, head, thorax, legs, cauda and anal plate dark brown, antennae brown, abdomen with brown dorsal bands and large brown lateral patches, cornicles pale brownish, body setae pale, colourless. Body with many long fine setae, which are as long as the basal antennal segment. Head not granular. Frontal tubercles very short. Dorsal ocelli separated from the eyes. Antennae with many long fine setae, which are longer than the width of the 3rd segment and as long as those on the head; the 1st segment nearly as long as wide; the 2nd somewhat longer than wide; the 3rd stouter than the 4th, a little narrowed on the distal small part, somewhat constricted just at the base, with 36 small or moderate circular sensoria scattered except on the basal and distal small parts; the 4th slightly imbricated, without sensoria; the relative length of segments about as follows: III—38, IV—18, V—17, VI—11+14. Rostrum stout, nearly reaching the middle coxae; the distal segment a little longer than the penultimate. Prothorax, basal 4, the 6th, and 7th abdominal segments with a rather large robust lateral tubercle, which is much wider than long, nearly conical (rounded at the apex), or rounded, sometimes divided on the distal part. Cornicles short, but almost cylindrical, about 4 times as long as wide, striate, not constricted at the apex, a little expanded at the base, gradually narrowed very slightly near the base, with a distinct flange at the tip, almost as long as the hind tarsi, somewhat shorter than the 4th antennal segment. Cauda large, almost as long as wide, rounded, a little shorter than the cornicles, with many setae. Wing veins normal, pale yellowish brown, thin; stigma pale brown; hind wings with 2 parallel obliques and 6 hooklets. Legs long, with many long fine setae, which are much longer than the width of tibiae; trochanters distinct; femora with many areolations; tibiae much stouter than the 3rd antennal segment, without spines at the apex; tarsi with 4 long setae and a shorter stout median one on the basal segment; empodial setae simple, not dilated.

Body 3.4 mm., antenna 1.75 mm., 3rd antennal segment 0.6 mm. long, 0.048 mm. wide about middle, cornicle 0.2 mm. long, 0.055 mm. wide, cauda 0.162 mm. long, hind tibia 0.069 mm. wide about middle, dorsal seta on head 0.09–0.115 mm., largest lateral tubercle 0.069 mm. wide at base.

Host: *Salix caprea.*

Habitat: Sapporo.

A single female and some young nymphs, 13. vi. 1938 (H. KÔNO).

Closely related to *Pterocomma populea* KALT., but differs in the cornicles not constricted apically, the shorter rostrum, the dorsal bands of abdomen being not broken, etc., and easily distinguished from *P. beülahensis* CKLL. by the shorter distal part of the last antennal segment. Different from *P. yezoensis* HORI in the shorter distal part of the last antennal segment, the stouter lateral tubercles, the cornicles not swollen, and in the colour; and from the description of *Melanoxanthus salijaponica* SHINJI in the absence of sensoria on the 4th antennal segment, the more sensoria scattered on the 3rd, the shorter rostrum, and in the cornicles not swollen. *Pterocomma coreana* OKAM. et TAKAH. differs from the present new species in the cornicles wanting a flange at the tip and in other structures.

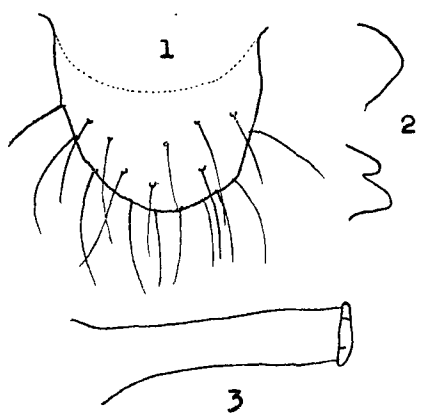

Fig. 4.

Pterocomma kônoi HORI n. sp.
Winged viviparous ♀.
1. Cauda. 2. Lateral tubercles.
3. Cornicle.

Chaitophorus horii n. sp.

Wingless viviparous female. Body narrow, resembling *Eulachnus* in shape, about 2.4 times as long as wide, broadest on the 2nd abdominal segment, not sclerotised, lacking granules, with numerous very stout dorsal setae, which are expanded and bifid at the tip, and are of 2 types, each arising from a very small tubercle; the larger setae very long, much longer than the short ones, subequal in length, stiff or slightly curved; the small setae variable in length. Head separated from the thorax, nearly straight on the front, with about 8 long setae and about 20 short ones on the dorsum; front scarcely convex at the middle, with 2 pairs of long setae, which are usually a little more slender than the dorsal, a little longer than the basal 2 antennal segments taken together, as long as those between the antennae, longer than those on the

posterior part of the dorsum of head. Eyes rather small, prominently protruding, not reaching the hind margin of head, with very small ocular tubercles. Frontal tubercles scarcely developed. Antennae short, not reaching the abdomen, slender, imbricated, usually 5-segmented, but sometimes with 6-segments, without long setae; basal 2 segments a little longer than wide; the 3rd segment wanting sensoria, with 1–4 short stiff setae, which are blunt at the tip and as long as, or slightly shorter than, the width of the segment; the 4th with a similar seta;

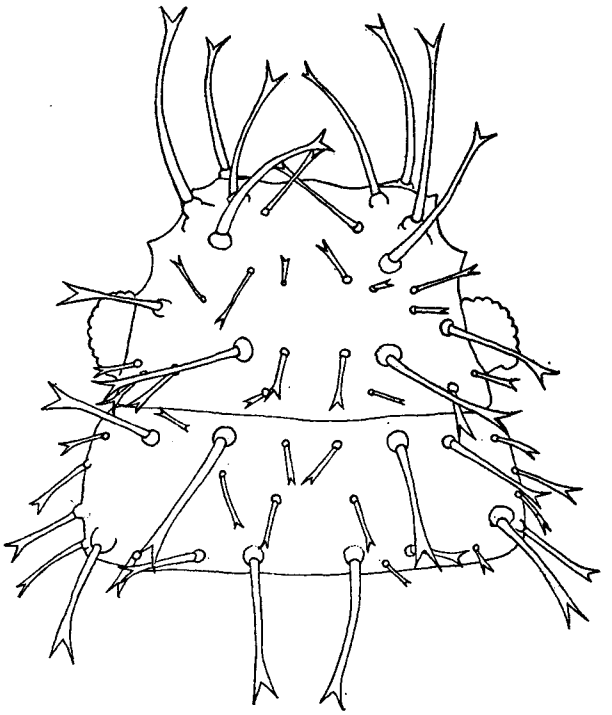

Fig. 5.

Chaitophorus horii n. sp.
Wingless viviparous ♀.
Head and pronotum.

the penultimate segment somewhat narrowed towards the base, with a rather small primary sensorium; the last segment with a few smaller setae; the relative length of segments about as follows: (5-segmented antennae) III—28, IV—12, V—11+23; (6-segmented antennae) III—20, IV—10, V—13, VI—12+27. Rostrum reaching the middle coxae, stout; the distal segment tapering, pointed

apically, longer than the penultimate, about 2.5 times as long as wide. Thoracic segments distinct, pronotum with 8 long setae in 2 rows and about 20 short ones; mesonotum longer than other thoracic segments, with about 8 long setae in 2 rows and numerous short ones; metanotum with about 8 long setae in a row and many short ones; basal 7 abdominal segments fused together, each with about 6 long setae in a row and many short ones on the dorsum; the 8th abdominal segment defined from the 7th, with about 6 very long simple setae and some shorter stout bifid ones on the dorsum. Cornicles nearly as long as wide, slightly expanded basally, truncate, reticulate, much shorter than the long dorsal setae. Cauda distinctly knobbed, with some long fine simple setae; the knobbed part slightly wider than long. Anal plate wide, scarce indented, with some long simple setae. Trochanters defined from the femora; femora short, scarcely imbricated, with a short stout seta at the distal end, which is curved and blunt, and with a few short setae, which are shorter than the width of femora; tibiae stout, much wider than the 3rd antennal segment, lacking spinules, with very long simple setae, which are longer than the width of tibiae and very few on the basal part; tarsi rather stout, slightly striate; hind tarsi with a short stiff median seta, 2 very long simple setae, and 2 shorter lateral setae on the basal segment, and about 6 long fine setae on the distal segment; empodial setae simple, not dilated, blunt at the tip.

Body 1.1–1.15 mm., head 0.14 mm. long, 0.280 mm. wide (including eyes), antenna 0.46 mm., 3rd antennal segment 0.014 mm. wide at middle, cornicle 0.03 mm. in diameter at apex, cauda 0.05 mm. wide at knobbed part, hind trochanter and femur together 0.23 mm., hind femur 0.031 mm. wide at middle, hind tibia 0.31 mm. long, 0.023 mm. wide at middle, hind tarsus 0.08 mm., long dorsal seta between eyes 0.09–0.12 mm., long dorsal seta on abdomen 0.09–0.115 mm., short dorsal seta on head about 0.014–0.023 mm.

Host: *Salix sachalinensis*.

Habitat: Sapporo.

Many apterous females, 1. vii. 1938 (H. KÔNO).

This species is characterised by the narrow body being provided with many very stout bifid setae, and by the antennae 5- or 6-segmented, with no long setae. Some species of *Chaitophorus* have been described from Japan by MATSUMURA and SHINJI, but their descriptions are different from this species. Apparently different from *Chaitophorus salicivorus* KOCH in the narrower body and other peculiar structures.

Periphyllus viridis MATS.

Chaitophorus viridis MATSUMURA, Trans. Sapporo Nat. Hist. Soc., VII, p. 111 (1919).

Winged viviparous female. In specimens treated with caustic potash, pale, without blackish areas, cornicles and cauda pale. Head without granules, with 2 pairs of long setae on the front, and about 12–15 very long ones on the dorsum, which are much longer than basal antennal segment. Frontal tubercles very short. The 3rd antennal segment with 9–18 rather small oval or circular sensoria not in a single row on the basal two-thirds or three-fifths except on the basal small part, and with about 18 or over 20 long setae, which are shorter than those on the head; the 4th without sensoria, with about 10 long setae; the relative length of segments about as follows: III—60, IV—43, V—34, VI—9+34. Rostrum stout, not reaching the middle coxae; the distal segment about 1.8 times as long as wide, a little longer than the penultimate, with 3 pairs of long setae. Pronotum with about 25 long setae. Cornicles distinctly longer than wide, constricted on the distal part, expanded basally, reticulate except on the basal small part, a little shorter than the longer bristles on the abdomen. Cauda broadly rounded on the hind margin, not constricted, with some long bristles, a pair of which is longer. Legs with many very long setae; tibiae sparsely with spinules on the distal part; tarsi with 6 or 7 setae on the basal segment; empodial setae flattened.

Body 3.0 mm., head including eyes 0.66 mm., antenna 2.9 mm., cornicle 0.23 mm. long, 0.065–0.069 mm. wide at narrowest part near apex, longer seta on head 0.277 mm.

Wingless viviparous female. Body oblong. Head without granules, with 6 pairs of very long dorsal bristles and 2 pairs of similar frontal ones, which are a little longer than the basal antennal segment. The 3rd antennal segment imbricated distally, lacking sensoria, with about 20 long setae; the relative length of segments about as follows: III—57, IV—38, V—34, VI—10+38. Cornicles, cauda and legs as in the alate form.

Body 3.8 mm., head 0.3 mm. long, 0.71 mm. wide (including eyes), antenna 3.3 mm., cornicle 0.23 mm. long, 0.059 mm. wide near apex, 0.162 mm. wide at base, cauda 0.143 mm. long, 0.225 mm. wide at base, 0.185 mm. wide at middle, dorsal seta on abdomen 0.23–0.25 mm.

Host: *Acer pictum.*

Habitat: Sapporo.

An apterous and some alate forms, 26. v. 1938 (H. KÔNO).

The aestivating nymph or dimorph has not been collected.

Sappocallis MATS.

Trans. Sapporo Nat. Hist. Soc., VII, p. 107 (1919); TAKAHASHI, Proc. Ent. Soc. Washington, XXXII, p. 3 (1930).

Winged viviparous female. Body with a few short simple setae. Head

with a small protuberance at the middle of front above the ocellus, wanting a projection on the venter. Frontal tubercles absent. Eyes normal. Antennae slender, 6-segmented, with a few small setae; distal part of the 6th segment nearly as long as the basal part. Pro- and mesonotum and abdomen with tubercles. Media on the fore wings only once branched, stigma truncate on the distal margin, hind wings with 2 oblique veins. Cornicles short, a little wider than long, truncate. Cauda knobbed. Anal plate bilobed. Trochanters defined from the femora; tibiae with spines at the tip; tarsi with setae on the venter and dorsun of the basal segment; empodial setae flattened.

Genotype: *Sappocallis ulmicola* MATS.

In the genus *Unipterus* HALL of the *Callipterinae*, media on the fore wings only once branched like *Sappocallis*, but head with no median protuberance above the front ocellus, stigma of the fore wings elongate, antennae shorter, dorsum with papillae, and cornicles shorter.

A *Myzocallis* on *Ulmus propinqua* in Saghalien (Konuma, 22. viii. 1937, M. HORI) is almost similar in colouration and structures to *Sappocallis ulmicola* MATS., but differs in the larger body, the pronotum with only a pair of tubercles instead of 2 pairs, and in the media on the fore wings being twice branched. The genus *Sappocallis* must be a form derived from such a *Myzocallis*.

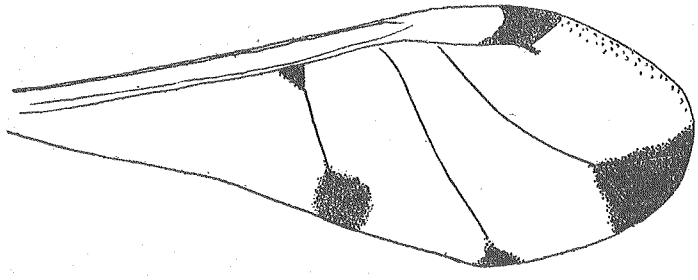

Fig. 6.

Sappocallis ulmicola MATS.

Fo e wing.

Euceraphis betulae L.

THEOBALD, Plant Lice Aphid. Gr. Brit., II, p. 373 (1927); HOTTES and FRISON, Sr. Illinois Dept. Regist. Educ., Div. Nat. Hist. Surv., Bull. XIX, Art. III, p. 249 (1931).

Host: *Betula japonica.*

Habitat: Sapporo.

3 alate viviparous females, 10. vi. 1938 (H. KÔNO). The specimens well

agree with the European ones in my collection. Hitherto unrecorded from Japan. *Euceraphis kabae* MATS. (syn. *E. japonica* ESSIG et KUWANA) also occurs on the same host in Hokkaido, which is distinguished from *E. betulae* L. in possessing numerous sensoria on the 3rd antennal segment, and in the numerous long fine setae on the body and its appendages, in the alate viviparous female.

Betacallis MATS.

Trans. Sapporo Nat. Hist. Soc., VII, p. 110 (1919); TAKAHASHI, Proc. Ent. Soc. Washington, XXXII, p. 7 (1930).

Winged viviparous female. Body with some long simple setae. Head not granular, with no ventral projection. Frontal tubercles short, but large, more developed and slightly convex on the mesal side. Antennae long, very slender, 6-segmented, wanting microtrichiae, with some short setae; secondary sensoria oval, but primary ones longitudinally elongate, very narrow, surrounded with a row of short setae, distal part of the last segment very long. Eyes normal. Front ocellus not visible from above. Abdomen with lateral tubercles. Cornicles short, but much longer than wide, a little broadened towards the base, with a wide flange at the tip, a bristle arising from the basal part. Cauda constricted basally. Anal plate distinctly indented. Legs with many long fine setae; trochanters defined from the femora; tibiae with microtriciae on the distal part and spines at the apex; tarsi with 5 or more setae on the basal segment; empodial setae flattened. Wing veins normal, stigma long, lonceolate.

Genotype: *Betacallis alnicolens* MATS.

This genus was formerly regarded as a synonym of *Drepanaphis* DEL GUERCIO by me, but differs from it in the very narrow longitudinal primary sensoria and in the legs covered with long fine setae; and is different from *Euceraphis* WALK. in the longer cornicles, the primary sensoria being elongate and narrow, the distal part of the last antennal segment very long, the anal plate distinctly indented etc. The nymph possesses long capitate setae on the body.

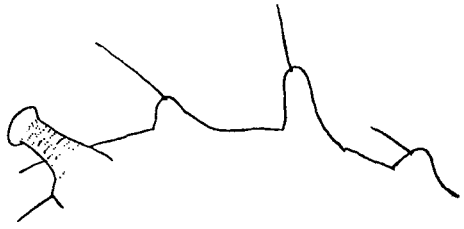

Fig. 7.
Betacallis alnicolens MATS.
Winged viviparous female. Lateral tubercles of abdomen and cornicle.

Myzocallis sasae MATS.

Jl. Coll. Agr. Sapporo, VII, p. 372 (1917).

Winged viviparous female. Head with a stout projection on the venter, and a shallow protuberance on the front above the ocellus. Rostrum very short, extending slightly beyond the anterior coxae. Wings a little clouded along the veins. Tibiae with 3 spines at the apex.

Host: *Sasa* sp.

Habitat: Sapporo.

Some alate forms and nymphs, 25. vii. 1938 (H. KÔNO).

Myzocallis taiwanus TAKAH. on bamboo in Formosa is only a variety of this species.

Doraphis populi MASKELL

Sphaerococcus populi MASKELL, Trans. New Zealand Inst., XXX, p. 248 (1898); FERNALD, Cat. Cocc. World, 87 (1903); KUWANA, Coll. Essays for Nawa, Gifu, p. 168 (1917).

Hormaphis populi TAKAHASHI, Zool. Mag. Tokyo. XXXII, p. 14 (1920).

Doraphis populi MATSUMURA et Hori, Trans. Sapporo Nat. Hist. Soc., X, p. 112(1929); MORDVILKO, Ergebn. u. Fortschr. Zool., VIII, p. 262 (1935).

Nipponaphis populi Ferris, Microent., I, p. 15 (1936).

Wingless viviparous female. Body nearly circular when seen from above, convex dorsally, strongly sclerotised, without setae, with many very small teeth in a row along the whole margin, which are robust, rounded apically, broadened towards the base and wider than long. Dorsum densely with mosaic-like structures. Head, thorax and basal 7 abdominal segments entirely fused together. Frontal horns absent. Antennae rudimentary, 2-segmented, on the venter of head. Eyes submarginal, rudimentary, of 2 facets. Abdomen small, the 8th segment defined from the 7th, rounded on the free margin. Cornicles wanting. Cauda constricted basally, rounded. Anal plate deeply bilobed. Spiracles absent on the abdomen. Legs very short, the anterior 2 pairs without tarsi, posterior tarsi 2-segmented, without claws.

Winged viviparous female. Trochanters fused with the femora; tibiae without spines at the apex. Rostrum very short, obtuse apically.

Host: *Populus* sp.

Habitat: Sapporo.

Some apterous females (aleyrodiform females), 2. vi. 1938 (H. KÔNO).

The apterous form of this species was originally described as a Coccid from material collected by KOEBELE at Nikko, Japan.