

NEW GENERA AND SPECIES OF LEAFHOPPERS (HOMOPTERA, AUCHENORRHYNCHA) FROM THE NORTHEAST OF THE USSR

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The article contains descriptions of six leafhopper species, one genus and one subgenus of the families Cicadellidae and Delphacidae from the Yakutian ASSR, Magadan Province and the Chukotsk National Territory. Of special interest among the species described below is *Hebecephalus atralbus*, sp. n., the third species of the genus found in the Old World and, moreover, a species that has no direct affinity to the Palearctic *H. changai* Dlab. and *H. pamiricus* Em., but is similar to the Alaskan *H. algidus* Del. et Dav., with which it forms a clearly delineated group. Since the North American origin of the genus is not, on the whole, in doubt, we have to acknowledge double penetration of the genus into Asia. The discovery of new species of the oligotypic genus *Stiroma*, in which only two species were previously known, is also of considerable interest.

The holotypes of the species described in the article are in the collection of the Zoological Institute, USSR Academy of Sciences in Leningrad.

Fam. CICADELLIDAE

Hebecephalus atralbus Emeljanov, sp. n. (Figs. 1-4).

A brightly colored species that has the general appearance and pattern of markings typical of the genus. Vertex appreciably broader than long, its anterior margin markedly obtuse-angled. Pronotum of approximately same length as vertex. Dark brown to black markings developed on a pale brown ground. Undersurface of body and legs almost entirely blackened, a few small light spots preserved on the face, on the lora, genae and postclypeus. Two small triangular apical spots on vertex, and behind them a longitudinal stripe interrupted in the middle, from the outer parts of each half of which a projection extends forward and usually merges with the outer angles of the apical triangular spots. Posterior half of vertex occupied by a pair of extensive spots that are rounded or practically rectangular. On the pronotum the merging dark spots are smaller in front and larger behind. Elytra with two light oblique bands and lightened apices. On the bands the veins are white, while the cells are semi-transparent; in the intervals between the bands the cells are practically black and the veins are brown or darkened, like the cells. The first band begins before the middle of the costal margin of the elytra and extends to the scutellum; the second is apparent behind the middle of the costal margin and extends to the posterior half of the clavus. On the anterior half of the clavus there is a rounded white spot on the common suture of the elytra.

In the structure of the genitalia the new species may be converged with *H. algidus* Del. et Dav. from Alaska and western Canada. These species are converged, in particular, by the characteristic shape of the stylus with its angularly curved apex. The new species is well distinguished from *H. algidus* by the long dorsal processes of the shaft of the aedeagus and the reduced ventral processes.

Length of ♂ 2.8-2.9 mm, of ♀ 3.1-3.3 mm.

Material. Yakutian ASSR, Nera River, 10 km NNW of Artyk, 14 July 1974, 20♂, ♀♀ (Yemel'yanov); Nera River at Balagannakh, 4-15 July 1974, 20♂, ♀♀, holotype ♂ (Yemel'yanov); Ust'-Nera, 2 July 1973, 1 ♂ (Vinokurov); left bank of Yana River at Verkhoyansk, 20-23 July 1974, 20♂, ♀♀ (Yemel'yanov). A species endemic to northeastern Yakutia.

Mongolojassus vinokurovi Emeljanov, sp. n. (Figs. 8-10).

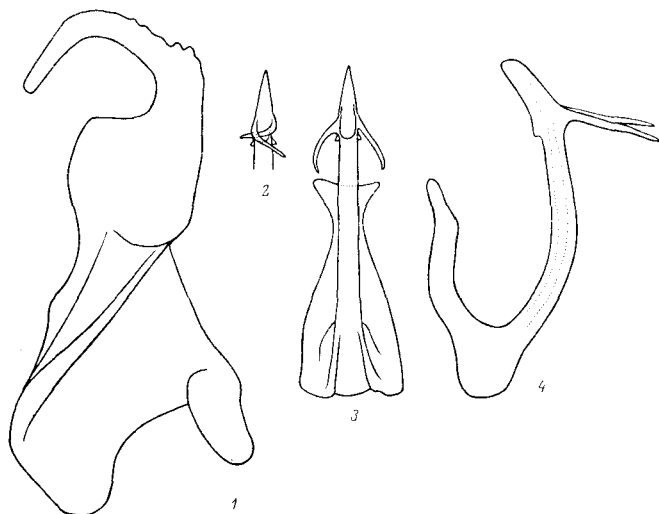
Similar to *M. adarroides* Lnv. (Figs. 5-7) and externally resembling it.

Vertex of approximately the same length as its width; its anterior margin acute-angled, practically a right angle. Pronotum slightly more than two thirds as long as vertex. Elytra slightly longer than abdomen in males, slightly shorter in females. Coloration and markings the same as in other species of the genus; brown spots on a pale whitish-yellowish ground. Brown striated markings clearly expressed on the frontoclypeus, spots on vertex weakly expressed, longitudinal stripes on pronotum only near the margins and in the middle in the posterior half. Elytra with white veins and brownish cells, which are darkened in places to produce dark brown spots forming the markings that are typical and uniform in all species of the genus.

The new species, like *M. adarroides* and unlike the other species of the genus, has the gonopore strongly shifted from the distal end of the aedeagus, but the shape of the aedeagal processes and the convex dorsal wall of the base of the aedeagus clearly distinguish it from *M. adarroides*.

Length of ♂ 2.9-3.0 mm, of ♀ 2.9-3.5 mm.

Material. Yakutian ASSR, around Yakutsk, Chuchurmuran, 12 July 1974, 20♂, ♀♀, holotype ♂ (Yemel'yanov); Kil'demtsy settlement, 20 km N of Yakutsk, 14 Aug. 1974, 10♂, ♀♀ (Yemel'yanov); 40 km N. of Yakutsk, 3 Aug. 1973, 5♂, ♀♀ (Vinokurov).



Figs. 1-4. *Hebecephalus atralbus*, sp. n.

1) Stylus; 2) distal end of aedeagus from above, position of processes in dry specimen boiled in alkali; 3) aedeagus from above, position of processes in specimen in water, previously boiled in alkali; 4) side view of aedeagus (in water).

As yet the bank of the Lena; it is replaced on the right bank by *M. jakuticus* Em., which belongs to a group of species having no direct affinity to *M. adarroides* and *M. vinokurovi*.

As yet the species has been found only on the left bank of the Lena; it is replaced on the right bank by *M. jakuticus* Em., which belongs to a group of species having no direct affinity to *M. adarroides* and *M. vinokurovi*.

Length of ♂ 2.8-3.0 mm, of ♀ 3.3-3.5 mm.

Material. Yakutian ASSR, near Khaptagay settlement, 28-30 June 1974, 20♂♂, ♀♀, holotype ♂ (Yemel'yanov); right bank of the Lena, 7 km below Olekminsk, 31- July-3 Aug. 1974, 1♂, 2 ♀♀ (Yemel'yanov).

Fam. DELPHACIDAE

Stiroma 17).

Stiroma lenensis Emeljanov, sp. n. (Figs. 11-15).

Subgenus *ANACHOROMA* Emeljanov, subgen. n.

Type-species *Stiroma staminata*, sp. n.

External *S. affinis* Fieb. Distinguished by the slightly narrower frons with more sharply projecting carinae. Also similar in the general pattern of the markings.

Externally very similar to *S. bicarinata* H.S. and *S. affinis* Fieb. Distinguished by the slightly narrower frons with more sharply projecting carinae. Also similar in the general pattern of the markings.

The subgenus is very similar in the main external morphological characters to *Stiroma* s. str., but differs appreciably in the structure of the genitalia.

Ground color pale, whitish. Head often brownish, with dark spots on the posterior-inferior part of the frons, but completely devoid of spots on the lower part of the postclypeus. Pronotum without markings. Scutellum with dark spots along the sides. Episterna of mesosternum and sides of metasternum also darkened. Elytra semitransparent, without markings. The abdomen with a pair of dark longitudinal stripes above, receding from the lateral margin, the outer margins of which are distinct, while the inner margins are blurred, advancing toward the median line of the body, to the point of fusion in the more deeply colored individuals, especially in males, in which only the median line on the upper surface of the abdomen usually remains light.

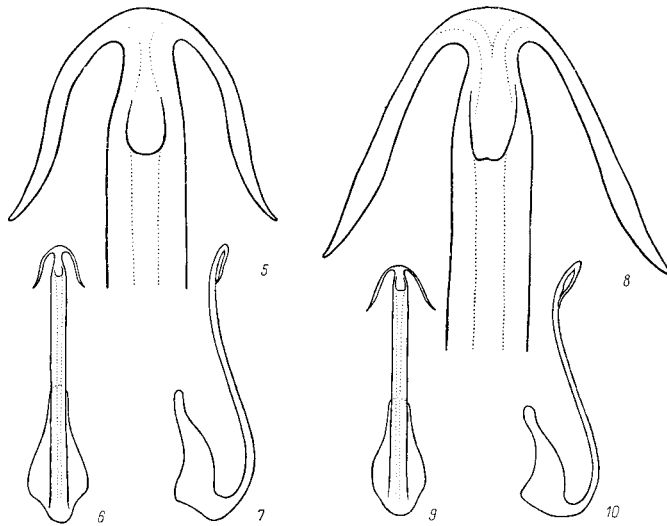
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Length of frons approximately twice its width, lateral margins of frons convex, upper and lower margins approximately the same. Frons widest around the middle. Intermediate carinae of frons distinct, nearer to each other than to the lateral carinae, converging below, merging indistinctly on the lower margin. Vertex transverse, its width 1.5 times its length. Structure of pronotum, scutellum and elytra the same as in *Stiroma* s. str.

The general structural plan of the pygophore and of the genitalia as a whole is the same as in the two species previously known. The styli lack a subapical tooth. Very typical features are the structure of the anal tube, which has strong, widely separated teeth; the teeth are converged in the other species) and the aedeagus, which has a long straight shaft.

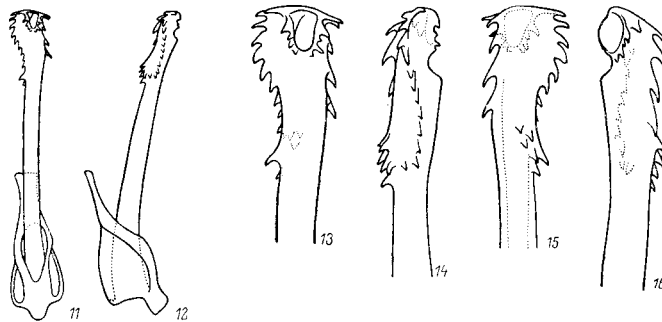
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Pygophore perceptibly canted onto lower side, with rounded-triangular outlines at the rear, broadening downward. Styli diverging at an acute angle and pressed closely against the posterior wall of the pygophore and slightly flattened in a direction parallel to it. Distal ends of styli slightly stopper-shaped—broadened and cut off. Beneath the styli the pygophore has a small two-peaked process; the lateral margins of the pygophore form a carinate rearward projection. The upper opening of the phragma bears two processes on the lower margin, separated in the middle by a notch. The anal tube is located in a shallow upper notch of the pygophore. The anal tube bears two arcuate hooklike processes below, the convex middle parts



Figs. 5-10.

5-7) *Mongolojassus adarroides* Lnv.: 5, distal end of aedeagus from above; 6, aedeagus from above; 7, side view of aedeagus; 8-10) *M. vinokurovi*, sp. n.: 8, distal end of aedeagus from above; 9, aedeagus from above; 10, side view of aedeagus.



Figs. 11-16. *Stiroma lenensis*, sp. n.

11) Aedeagus from below, 12) side view of aedeagus, 13-16 distal end of aedeagus: 13, from below; 14, from the left; 15, from above; 16, from the right.

of which are slightly overlapping; the distal ends of the processes extend downward and sideward. The bases of the processes lack a sclerotized connective. The aedeagus is strongly bent onto the dorsal side and has a ventrally located basal projection or thickening, as in many species of the genus *Achorotile* Fieb.

Consequently, the new subgenus is distinguished from the nominate subgenus by the general shape of the pygophore, the flattened appressed styli, the process located on the undersurface of the pygophore and the shale of the aedeagus.

Stiroma (*Anachoroma*) *staminata* Emeljanov, sp. n. (Figs. 18, 21-24).

Pale brown, frons and especially postclypeus between carinae often darker brown. Pronotum,

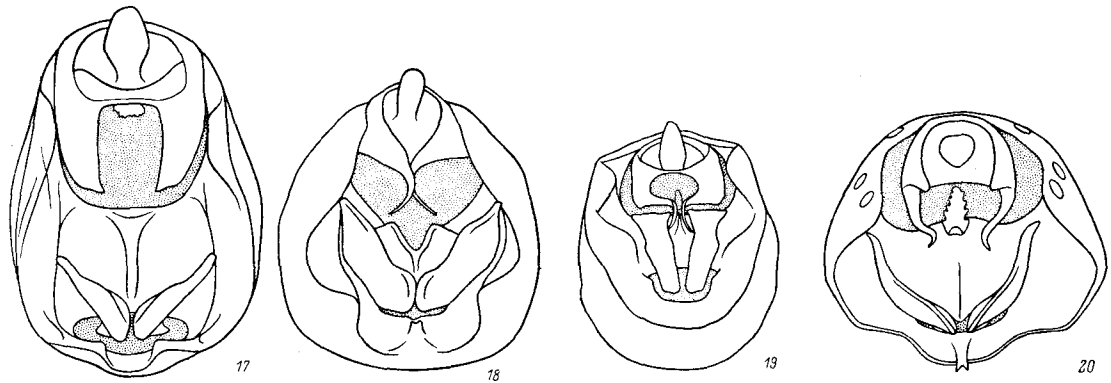
scutellum and elytra without markings. Legs apically — tarsi and distal part of tibiae — slightly darkened. Abdomen in males entirely dark brown to black, in females darkened above from the base and from the lateral margins, becoming less dark caudad and toward the median line.

Length of ♂ 2.4-2.6 mm, of ♀ 3.0-3.1 mm.

Material. Magadan Province, Ust'-Omchug, 29-30 June, 1971, 11 ♂, 3 ♀, holotype ♂ (Gorodkov).

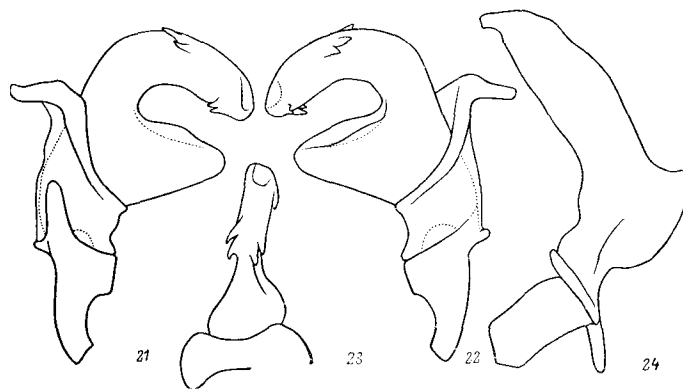
Achorotile caecianta Emeljanov, sp. n. (Fig. 20).

Female unknown. Dark brown, practically black, with small whitish spots in places. Sensory pits on face and indistinct lines laterad of the carinae lightened to brown. Middle part of vertex behind the



Figs. 17-20. Pygophore from the rear.

17) *Stiroma lenensis*, sp. n., 18) *S. staminata*, sp. n., 19) *Verriculus molestus*, sp. n., 20) *Achorotile caeciata*, sp. n.



Figs. 21-24. *Stiroma staminata*, sp. n.

21-23) aedeagus: 21, from the left; 22, from the right; 23, from above; 24) stylus, plane surface.

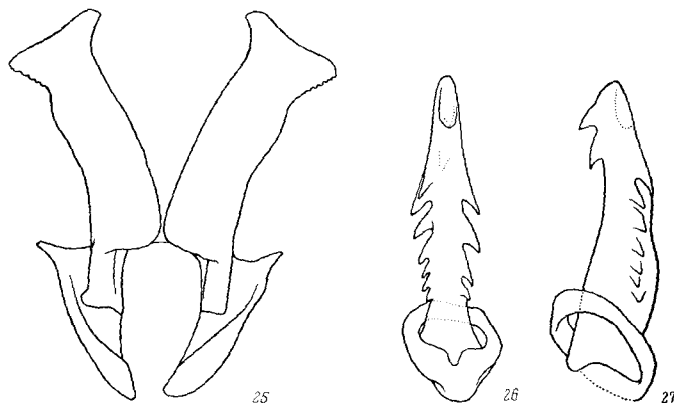
transversely zigzag the adjacent areas of the frons located on the vertex. The pronotum has two light longitudinal stripes laterad of the median carina. The sensory pits on the abdomen are slightly lightened, while the posterior margins of tergites III and V are greatly lightened, to a whitish tinge, receding inward beyond the line of the inner sensory pits on the posterior tergites. The middle carinae of tergites III-V are similarly lightened. Undersurface of body and especially distal parts of legs lighter — dark brown and brown; posterior wall of pygophore also lighter than upper surface of body and upper parts of

With the exception of the external genitalia, the species is externally very similar to other species of the genus — *A. albosignata* Boh., *A. subarctica* Scudd. (*A. albosignata*: Vilb., 1971, non Boh.). In genital structure it is more similar to the North American *A. curvata* Beam. and *A. acuta* Scudd., to judge by the published descriptions (Beamer, 1954; Scudder, 1963). Pygophore obliquely truncate at rear, deflected onto lower

transversely zigzag carina lightened to whitish, like the adjacent areas of the intermediate carinae of the frons located on the surface of the vertex. The pronotum has two light longitudinal stripes laterad of the median carina. The sensory pits on the abdomen are slightly lightened, while the posterior margins of tergites III and V are greatly lightened, to a whitish tinge, receding inward beyond the line of the inner sensory pits on the posterior tergites. The middle carinae of tergites III-V are similarly lightened. Undersurface of body and especially distal parts of legs lighter — dark brown and brown; posterior wall of pygophore also lighter than upper surface of body and upper parts of pygophore.

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to the plane of the truncation it is rounded; viewed strictly from the rear it is rounded-triangular, with a straighter lower side and a more broadly rounded upper side. The carina bordering the lower wall of the pygophore is unbroken, bounded at the sides of the broad, relatively shallow dorsal notch by short, broad, rounded lobes recurved inward onto the posterior wall. Lateral margins of pygophore gently concave laterad of the styli. On the undersurface beneath the styli the pygophore bears a small two-peaked process. The phragma completely lacks a vertical median carina. Anal tube broad, submerged in the pygophore, without a sclerotized connective below. Lower processes of tube widely separated, their distal ends slightly converging downward, processes forming an S-shaped curve in the longitudinal plane, with the distal ends extending forward. Styli simple, long and narrow, with simple narrow distal ends, as in *A. acuta*. Aedeagus also similar to that of *A. acuta*. The new species is distinguished from *A. acuta*, which is the most similar, primarily by the structure of the anal tube, with its widely separated lower processes; it is distinguished from other similar species by the long styli.



Figs. 25-27. *Verriculus molestus*, gen. et sp. n.

25) Styli from the rear, 26) aedeagus from below, 27) aedeagus from the left.

Length of ♂ 2.1 mm.

Material. Chukotsk National Territory, 24 km SE of Pevek, 1 July 1963, 1♂, holotype (Gorodkov); Pevek, 30 June 1963; 1♂ with greatly damaged abdomen (Gorodkov).

Genus *VERRICULUS* Emeljanov, gen. n.

Type-species *Verriculus molestus*, sp. n.

The genus is, apparently, similar to the genera *Muellerianella* Wgn. and *Terthronella* Vib., especially to the latter. The head, pronotum and scutellum have distinct carinae that are smoothed only where the frons gives way to the vertex. The length of the vertex is slightly greater than its width. The length of the frons is approximately twice its width in the middle; it narrows slightly upward and downward. The antennae, when drawn out downward, extend apically to the boundary between the frons and the clypeus. Pronotum slightly shorter than vertex, its posterior margin slightly concave. The lateral carinae are disks turning outward, with the posterior ends disappearing beyond the eyes, falling short of the posterior margin by approximately half the length of the pronotum in this region. The scutellum is approximately 1.5 times as long as the pronotum; its median carina is smoothed in the posterior half. Elytra abbreviated, apically rounded, longitudinal veins clearly standing out. The elytra reach tergite IV in ♂, tergite V in ♀. In ♂ abdominal tergite VIII is retracted beneath VII-VI and not apparent from above, tergite VII is narrowed and also covered laterally by VI. The legs are of the usual structure, with two lateral teeth on the hind tibiae and 2 + 3 apical teeth; there are only 3-4 small widely separated teeth on the margin of the spur; the 1st tarsal segment has 2 + 5 apical teeth.

Pygophore cylindrical in cross section, moderately elongate, its posterior wall truncated downward, dorsal notch for anal tube broad and deep, carinate lateral margins of posterior wall of pygophore forming rounded lobes at the boundary with the upper notch. Anal tube with a narrow sclerotized connective below at the rear, in front of which are teeth with widely spaced bases. Teeth arcuate, apically pointed,

initially running together, then bending inward, meeting, thereafter bending back, slightly diverging. The styli extend obliquely back and upward, diverging slightly; they broaden slightly toward the truncate distal ends.

Aedeagus straight, slightly flattened laterally, approximately symmetrical (or slightly asymmetrical, bearing 2 ventrally located rows of teeth on the sides, left row distally concluded by an additional tooth, number of teeth in basal part of left row also greater — teeth more closely spaced. Dorsally and subapically the distal end of the aedeagus bears two strong recurrent teeth in a longitudinal row. Gonopore ventral and subapical, slightly shifted to the right.

In the shape of the pygophore and styli the new genus is very similar to *Muellerianella* and *Terthronella*, but it does not have a notch on the lateral posterior margins of the pygophore. It is also distinguished from them by the armature of the anal tube and the structure of the aedeagus. The aedeagus of *Muellerianella* is zigzagged and bears not teeth but processes of a non-homologous nature, while in *Terthronella* it is slender and long with one asymmetrical long recurrent process.

Verriculus molestus Emeljanov, sp. n. (Figs. 19, 25-27).

Females uniformly light brown, only tip of proboscis, 3rd tarsal segments and anal stylus darkened. Males also mainly light brown, but with darkened abdomen and sides of metathorax. Abdomen blackened above, with light lateral margins, triangular small spots on each tergite along the median line and 2-3 light posterior tergites (VI-VII-(VIII)). Pygophore also blackened, with a light border of the anal notch.

Length of ♂ 1.9-2.0 mm, of ♀ 2.3-2.4 mm.

Material. Yakutian ASSR, Khaptagay, 30 km SSE of Yakutsk, 29-30 June 1974, 5♂, 5♀, holotype ♂ (Yemel'yanov); Ust'-Nera, 3 July 1974, 1♂ (Narchuk).

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