

ones. The femora is bearing longitudinal ridges, the tibiae are straight and are of equal length with the tarsi, which are five-segmented and narrowing apically, the first tarsomere is the longest, and the fourth tarsomere is the shortest. The anterior margin of the forewing is almost straight, the costal field is equal to the subcostal one in its width. SC is terminating in the distal third of the wing, the R apex is weakly sinuous. RS starts in the basal third of the wing and terminates with three outruns. MA is three-branched, MP is two-branched, CuA<sub>1</sub> has two outruns and bifurcates near its midlength. The crossveins are simple and straight, the wing membrane is hairy. In the hindwing, the R base is strongly bent backward, SC is almost parallel to the R base. The abdomen is wide and not reaching the wing apices, the ovipositor is short and not extending beyond the abdomen apex. The cerci are short and very abruptly narrowing apically, their first segments are short (much wider than they are long), last segments are thin and elongated.

**Measurements**, mm: Body length, 12; forewing length, 11.5; hindwing length, 9.

**Comparison**. This new species differs from the type species *S. gravis* in its smaller pronotum, wider paranotalia, S-shaped and bent forwardly R apex, shorter posterior femora, and in shorter and abruptly narrowing apically cerci with short basal segments.

**Material**. Holotype.

*Sylvaprisca forta* Aristov, sp. nov.

**Etymology**. From Latin *forta* (stocky).

**Holotype**. PIN, no. 1700/3491, part and counterpart of moderately preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 6b). Medium-sized insects. The head is large and as long as it is wide, the eyes are not large, the antennae are thin, the first antennomere is enlarged. The pronotum is large, paranotalia are not preserved. The mesonotum is slightly longer than it is wide, the scutum is a rounded triangular almost as long as it is wide, the prescutum is small, the scutellar lobes are not adjoining, the scutellum is wide. The metanotum is of the same structure as the mesonotum is, but is somewhat larger. The legs are not elongated, each femur is bearing a longitudinal ridge. The anterior margin of the forewing is slightly convex, the costal field is equal to the subcostal one in width. R has long and strongly inclined anterior branches. RS starts in the basal third of the wing and has two to three branches,

the anterior of which may form an anastomosis with R. MA has one to two branches, MP and CuA<sub>1</sub> are two-branched. The wing membrane is hairy. The abdomen is fusiform, short and broad; the ovipositor is short and not extending over the abdomen tip. The cerci are short and gently narrowing apically (the first segment is longer than it is wide and twice as wide as the fifth), they consist of five to seven segments each.

**Measurements**, mm: Body length, 14; forewing length, 14; hindwing length, 12.

**Comparison**. It differs from the type species in the anterior branches of R being longer, short hind legs, and short and narrowing cerci. It differs from *S. focaleata* sp. nov. in a larger pronotum and in long basal segments of the cerci.

**Material**. Holotype.

### Subfamily Lemmatophorinae Sellards, 1909

#### Genus *Artinska* Sellards, 1909

*Artinska infigurabilis* Aristov, sp. nov.

Plate 2, fig. 2

**Etymology**. From Latin *infigurabilis* (irregularly shaped).

**Holotype**. PIN, no. 4987/3, part and counterpart of well-preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

**Description** (Figs. 7, 8). Small insects with a stout body. The head is large and hypognathous, the eyes are small. The antennae are long and narrowing apically, basal segments are somewhat longer than they are wide, the mandibles are acuminate. The pronotum is large and rounded, with a nearly straight anterior edge, the paranotal ring is narrow and slightly widens backward. The mesonotum is short (and noticeably wider than it is long), the scutum seems to be as long as it is wide, the scutellar lobes are not contiguous. The metanotum is similar to the mesonotum, but differs in its scutum being a rounded triangular. The legs are short, with armed tibiae and long tarsi. The anterior margin of the forewing is weakly convex, the costal field is equal to the subcostal one in its width, SC reaches the distal half of the wing. R has short anterior branches, is straight up to the RS base and then is sinuous. RS starts just before the wing midlength and has one or two branches. MA is simple, MP has one or two branches. The CuA base is free or forming an anastomosis with the media. CuA<sub>1</sub> is simple or bifurcating, CuP is simple, A<sub>1</sub> is simple, A<sub>2</sub> is simple or bifurcating. Crossveins are simple and straight. In the hindwing,

#### Explanation of Plate 2

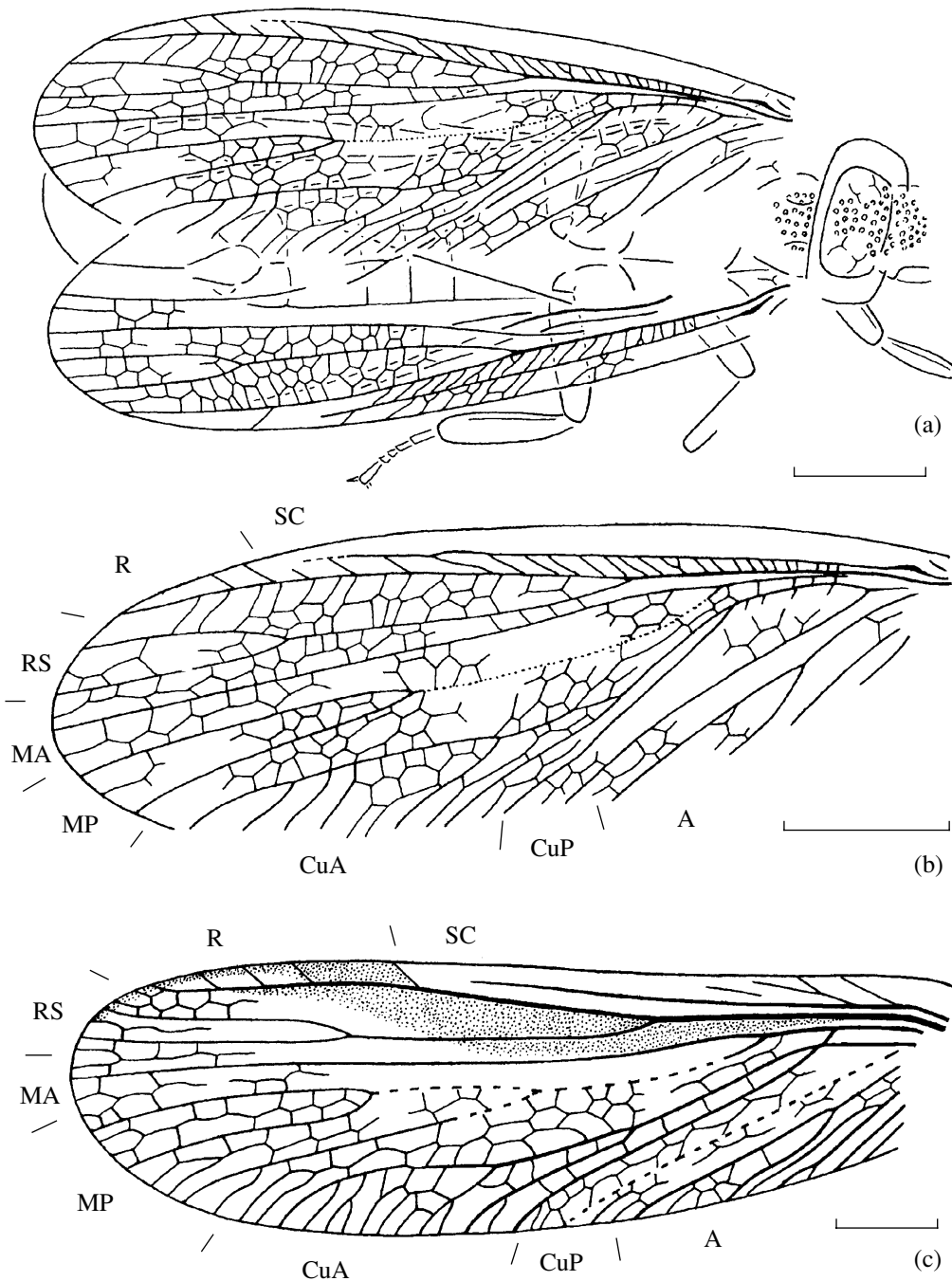
**Fig. 1.** *Sylvaprisca focaleata* sp. nov., holotype PIN, no. 4987/2; Tshekarda locality, ×10.

**Fig. 2.** *Artinska infigurabilis* sp. nov., holotype PIN, no. 4987/3; Tshekarda locality, ×1.5.

**Fig. 3.** *Neraphidia mitis* Novokshonov et Novokshonova, 1997, holotype PIN, no. 1700/643; Tshekarda locality, ×8.

**Fig. 4.** *Sylvafossor forcipatus* sp. nov., holotype PIN, no. 4987/11, general appearance; Tshekarda locality, ×4.5.

**Fig. 5.** *Sylvafossor forcipatus* sp. nov., holotype PIN, no. 4987/11, tip of abdomen; Tshekarda locality, ×13.



**Fig. 13.** Representatives of the genus *Sylvaphlebia*: (a, b) *S. tuberculata* Martynov, 1940, holotype PIN, no. 1700/1151: (a) general appearance; (b) forewing; (c) *S. fucata* sp. nov., holotype PIN, no. 4987/12, forewing. Scale bar 5 mm.

R is gently curved, RS is not forming an anastomosis with M and is having one or two outruns. MA and MP give two to three branches altogether, CuA is two-branched. The abdomen is short (as long as the meso- and metanotum combined), stout, and does not reach far along the wing apices. The male cerci are short, gently narrowing apically, and hairy. Basal segments are very short, distal ones are elongate. The ovipositor is

extending over the tip of the abdomen and broad. The female cerci are hairy.

**Measurements, mm:** Body length, 5.5–7; forewing length, 6–8; hindwing length, 5.5–6.

**Comparison.** This new species is close to *A. ovata* Sellards, 1909 in size and venation, but differs in narrower paranotalia (Carpenter, 1935, 1939). It is closest to *A. larisae*, differing in a larger pronotum with

narrower paranotalia, in a shorter mesonotum, the ovipositor extending over the tip of the abdomen, and in short basal segments of the male cerci.

**Material.** In addition to the holotype, paratypes PIN, nos. 1700/2042, 1700/2046, and 4987/4–4987/8.

Suborder Protoperlina Storozhenko, 1997

**Family Aliculidae Storozhenko, 1997**

**Genus *Neprotambia* Aristov, gen. nov.**

**Etymology.** From the generic name *Protambia*.

**Type species.** *N. truncata* sp. nov.

**Diagnosis.** Medium-sized insects. Anterior margin of wing convex, costal field narrower than subcostal one, anterior branches of SC form double row of cells near wing midlength. RS base situating in basal third of wing, field between MA and MP with simple crossveins, MA bas desclerotized. M fused with CuA at certain distance, CuA stem for the first time bifurcates near its midlength.

**Species composition.** Type species.

**Comparison.** It differs from the genus *Sojanopermula* (Storozhenko, 1992), in being smaller, anterior branches of SC forming a double row of cells, and the anastomosis between M and CuA. It is closest to the genus *Neraphidia* (Novokshonov and Novokshonova, 1997), from which it differs in the earlier origin of RS, M anastomizing with CuA, and earlier bifurcation of CuA.

*Neprotambia truncata* Aristov, sp. nov.

**Etymology.** From Latin *truncata* (truncated).

**Holotype.** PIN, no. 1700/1026, part and counterpart of well-preserved incomplete wing; Tsherkarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 9d). The costal field is more than twice as wide as the subcostal one near the RS base, SC has simple distal anterior branches and nearly reaches the wing apex. RS appears to have more than two branches, MA is simple prior to RS branching. CuA stem is nearly twice as long as the M and CuA anastomosis, CuP is straight, A<sub>1</sub> and A<sub>2</sub> are simple and curved toward the posterior margin of the wing. Crossveins are simple in the subcostal field and forming double rows of cells in fields between R and RS and between CuA and CuP.

**Measurements, mm:** Forewing length, about 15.

**Material.** Holotype.

**Genus *Neraphidia* Novokshonov et Novokshonova, 1997**

*Neraphidia mitis* Novokshonov et Novokshonova, 1997

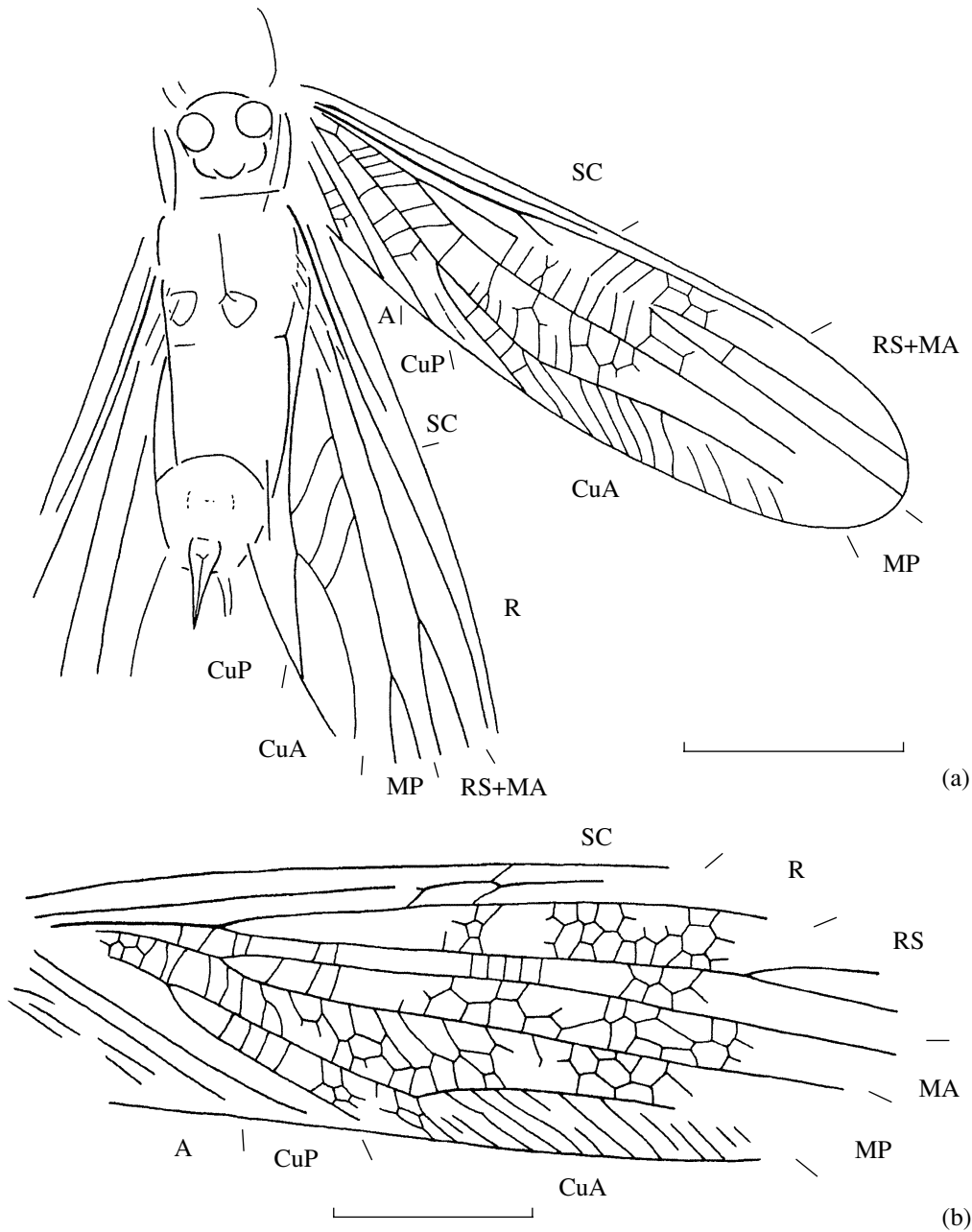
Plate 2, fig. 3

**Holotype.** PIN, no. 1700/643, part and counterpart of well-preserved forewing fragment; Tsherkarda locality; Kungurian, Koshelevka Formation.

**Redescription** (Figs. 9b, 9c). Medium-sized insects with a slender body. The head is hypognathous and relatively large. The antennae are filiform, the first antennomere is notably enlarged, basal antennomeres are nearly as long as it is wide, segments are gradually elongate, and distal antennomeres are three or four times as long as they are wide. The eyes are large and oval-shaped. The pronotum is a small, rounded trapezoidal, lacking paranotalia, and having a small incision at its anterior edge and a longitudinal suture. The forelegs are slender and moderately long. The mesonotum is approximately as long as it is wide, the prescutum is not large, the scutellar lobes are large and nearly contiguous. The metanotum is of the same structure and having a large triangular scutum. The anterior margin of the forewing is convex in the basal half of the wing and straight or slightly concave in the distal half, the apex is rounded, the posterior margin is convex. In the basal half of the wing, the costal field is several times as wide as the subcostal one. SC does not reach the wing apex, its anterior branches are closely approximate in the basal part of the costal field, others form an irregular double row of cells. R has several short anterior branches and is approximate to the anterior margin of the wing in the apical part of the wing. The RS base is situated near the wing midlength, RS has two to three branches. M is free and bifurcates into MA and MP early. The CuA base is closely approximate to the media, CuA ramifies, late forming a comb of four to six thin branches near the posterior margin of the wing. CuP is slightly curved, A<sub>1</sub> and A<sub>2</sub> are simple, A<sub>1</sub> is sinuous. Crossveins are rigid, simple, and scarce; most of them form regular double rows of cells. The anterior margin of the hindwing is straight, the apex is broadly rounded. SC and R are closely approximate and running parallel to the anterior margin of the wing, RS has three branches. Crossveins are simple or Y-shaped. The abdomen is slender and long; the abdominal segments are broad.

**Measurements, mm:** Body length, more than 21; forewing length, about 22; hindwing length, about 13.

**Remarks.** *N. mitis* has been described from the distal part of a forewing (Fig. 9c) as a representative of the family Protambiidae (Novokshonov and Novokshonova, 1997). The finding of a nearly complete specimen in subsequent collection (Fig. 9b) showed that this insect has a number of features that are not characteristic of protambiids. First of all, this is the absence of paranotalia (families including forms with and without paranotalia at the same time are not known among grylloblattids); also, these are a broad costal field and an earlier branching of the media. The comparison of *Neraphidia* with other grylloblattids proves its close affinity with *Sojanopermula* of the family Aliculidae, to which it has been transferred. The genus *Neraphidia* differs from *Sojanopermula* in the presence of a double row of cells in the costal field, smaller number of branches of the media, and CuA ramifies later and having more branches.



**Fig. 14.** Representatives of the genus *Sylvophenoptera*: (a) *S. perlongata* sp. nov., holotype PIN, no. 1700/872, general appearance; (b) *S. fimbriata* sp. nov., holotype PIN, no. 4987/14, forewing. Scale bar 3 mm.

**Material.** Holotype and specimen PIN, no. 4987/10 from the same locality.

*Neraphidia rigida* Aristov, sp. nov.

**Etymology.** From Latin *rigida* (rigid).

**Holotype.** PIN, no. 1700/940, part and counterpart of moderately preserved complete insect fragment; Tsherkarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 9a). Medium-sized insects. The mesonotum is slightly longer than it is wide, the

metanotum is of similar structure but somewhat larger. The posterior coxae are small, the posterior femora are slender and short. The anterior margin of the forewing is straight, the costal field is wider than the subcostal one and narrows apically. SC is long and having simple and straight (not forming a double row of cells) anterior branches. R is straight, the RS base is situated near the wing midlength. M separates early into simple, at least in the basal half of the wing, MA and MP. The abdomen is slender and slightly widened basally. The CuA base is closely approximate to M, the preserved part of CuA

is weakly sinuous, CuP is straight. Most of the crossveins form double rows of cells, crossveins are simple in basal parts of the MP and CuA and CuA and CuP fields. In the hindwing, SC is long, the R base is straight, RS is two-branched, and MA and MP are simple.

**Measurements, mm:** Forewing length, about 15.

**Comparison.** It differs from the type species in being smaller, the anterior margin of the forewing being straight, and in simple and straight anterior branches of SC.

**Material.** Holotype.

### Genus *Sojanopermula* Storozhenko, 1992

*Sojanopermula tshekardensis* Aristov, sp. nov.

**Etymology.** From the locality of Tshkarda.

**Holotype.** PIN, no. 1700/1151, positive impression of satisfactorily preserved forewing; Tshkarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 10a). Large insects. The anterior margin of the wing is convex, with the maximum convexity in the basal half. The costal field in the basal half of the wing is two to three times as wide as the subcostal one and lacking of an abrupt narrowing in its basal portion. SC has simple or dichotomizing anterior branches and reaches the distal quarter of the wing. RS starts in the basal third of the wing, ramifies for the first time in the distal third of the wing and has more than two branches. MA is simple or branches near the posterior margin of the wing, MP has three to four branches, a double row of cells is absent between MA and MP. The CuA base is closely approximate to M, CuA ramifies late and has three outruns. CuP is curved, A<sub>1</sub> and A<sub>2</sub> are straight and simple. Crossveins are simple and forming double or triple rows of cells in the fields between MP and CuA and between CuA and CuP.

**Measurements, mm:** Forewing length, 30.

**Comparison.** This new species differs from the type species *S. lucida* Storozhenko, 1992, in the absence of an abrupt constriction in the basal portion of the costal field, absence of a double row of cells between branches of the media, and CuP being curved.

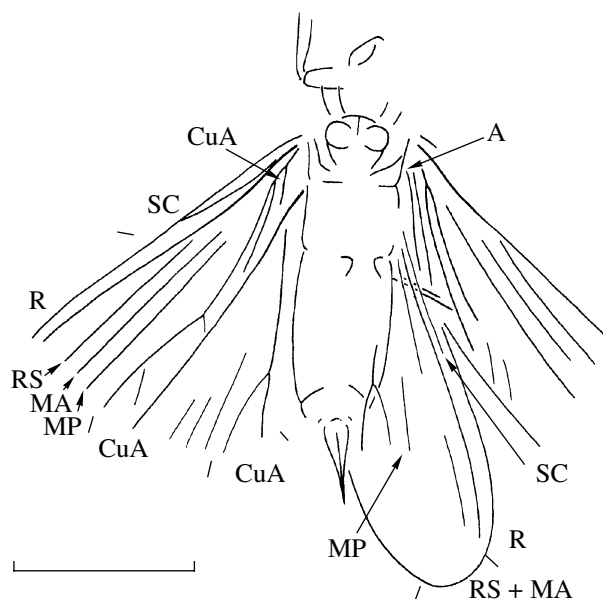
**Material.** Holotype.

*Sojanopermula minor* Aristov, sp. nov.

**Etymology.** From Latin *minor* (minor).

**Holotype.** PIN, no. 1700/4934, part and counterpart of satisfactorily preserved forewing fragment; Tshkarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 10b). Medium-sized insects. R is straight, with a slight bend near the RS base, which is situated in the basal third of the wing. RS is apparently having more than two branches, MA is simple or possessing a small terminal fork. MP is three-branched, the branches are sharply turning towards the posterior margin



**Fig. 15.** *Kungurocauda spinosa* sp. nov., holotype PIN, no. 1700/1041, general appearance. Scale bar 3 mm.

of the wing. CuA is smoothly curved and two-branched. CuP and anal veins are simple and straight. Crossveins are simple or forming double rows of cells.

**Measurements, mm:** Forewing length, about 23.

**Comparison.** It differs from the type species and *S. tshekardensis* sp. nov. in being smaller and from *S. tshekardensis* sp. nov. in the two-branched CuA.

**Material.** Holotype.

### Family Visheriferidae Novokshonov, Ivanov, Aristov, 2002

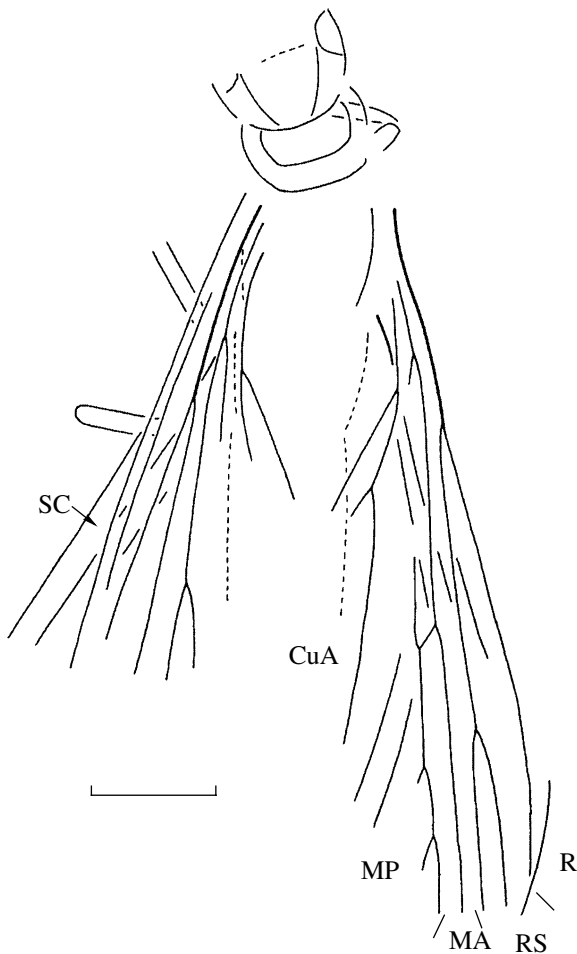
#### Genus *Visherifera* Novokshonov, Ivanov, Aristov, 2002

*Visherifera sylvaensis* Aristov, sp. nov.

**Etymology.** From the Sylva River.

**Holotype.** PIN, no. 1700/983, part and counterpart of well-preserved complete insect; Tshkarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 11). Small insects. The head is hypognathous, narrowing anteriorly, and approximately as long as it is wide. The antennae are filiform, the eyes are oval-shaped and small, and ocelli are present. The anterior femora are unmodified, each femur has a longitudinal ridge. The mesonotum is as long as it is wide, the scutum is short and rounded triangular, its lobes are very large, rhomboid, and not contiguous, the scutellum is small. The middle femora are longer than the anterior ones, but shorter than the posterior femora. The metanotum is elongated. The anterior margin of the forewing is straight, the apex is slightly acuminate. The costal field is wider than the subcostal one, SC reaches at least the distal third of the wing. R is straight prior to the RS base, then curved toward the anterior margin of the wing; it has short



**Fig. 16.** *Tshekardophlebia capitata* sp. nov., holotype PIN, no. 1700/2101, general appearance. Scale bar 2 mm.

anterior branches. The RS base is situated at the wing midlength, RS is two-branched, the fork is longer than the stem. MA is simple, the media is fused with simple CuA along a large portion. Crossveins form double rows of cells. The hindwing apex is less acute than the forewing apex. The abdomen almost reaches the wing apices, the angle between the cerci is almost 180°.

**Measurements**, mm: Body length, 11.5; forewing length, 11; hindwing length, 9.

**Comparison.** This new species differs from the type species *V. camura* Novokshonov *et al.*, 2002 in having smaller eyes and a simple MA.

**Material.** Holotype.

#### Family Probnidae Sellards, 1909

#### Genus *Sylvafossor* Aristov, gen. nov.

**Etymology.** From the Sylva River and Latin *fossor* (a digger).

**Type species.** *S. forcipatus* sp. nov.

**Diagnosis.** Medium-sized insects. Head prognathous, large, narrowing anteriorly, wider than it is long. Eyes large, mandibles large with acute teeth, mandibular palps short and three-segmented. Antennae filiform, quite short and narrowing apically, antennomeres short, just longer than they are wide. Pronotal boundaries not preserved, paranotal ring rounded trapezoid and narrowing posteriorly, anterior margin straight, lateral margins convex. Cervicalia small and narrowing posteriorly. Anterior tibiae widened, longer than the femora; the latter are fusiform and having small apical spurs; tarsi little shorter than tibiae, three-segmented, second tarsomere shortest, first and third tarsomeres equal, claws large. Mesonotum as long as it is wide, scutum lacking of clear subdivisions, anterior margin of prescutum convex, basalars large. Metanotum of similar structure; posterior coxae not large, conical; femora short, slightly slender than anterior ones. Anterior margin of forewing straight, apex rounded, posterior margin convex. In basal half of wing, costal field as wide as subcostal one; SC thickened basally and terminating in second third of wing. RS starting in basal third of wing, pectinate backward, and having four outruns. MA simple, MP two-branched and dichotomizing near wing midlength. CuA weakly sinuous, pectinate backward, and nearly reaching wing apex. CuP and A<sub>1</sub> straight and closely approximate. Anterior margin of hindwing straight, hindwing apices extending over forewing apices when wings folded. SC extending beyond wing midlength; R straight and weakly curved basally; RS branches near wing midlength and pectinate. Abdomen reaching forewing apices, slightly narrowing apically; first seven segments equal, eighth segment 0.5 times as long as previous ones. Cerci short and bent medially. First cercal segment considerably larger than others, its anterior edge leaning medially, other seven segments gradually becoming smaller, last segment rounded.

**Species composition.** Type species.

**Comparison.** It differs from the genus *Probnis* Sellards, 1909 (Storozhenko, 1998) in being larger, RS branches in both the fore- and hindwings, the MP fork being longer, CuA being curved smoother, smaller apical spurs on the fore tibiae, and first cercal segments being enlarged.

#### *Sylvafossor forcipatus* Aristov, sp. nov.

Plate 2, figs. 4 and 5

**Etymology.** From Latin *forcipatus* (forcepslike).

**Holotype.** PIN, no. 4987/11, part and counterpart of well-preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 12). The anterior tibiae are bearing large spines and rows of fine spinules near their apices. R has a small basal thickening in the forewing; MA is free or forming an anastomosis with RS; CuA<sub>1</sub> has five to six branches. RS has four branches in the

hindwing. A dark structure with a semicircular incision at the middle of the anterior margin is visible in the background of the ninth abdominal segment (possibly, part of the male genitalia).

**Measurements**, mm: Body length, 21; forewing length, 17; hindwing length, 16.

**Material**. Holotype.

#### Family Sylvaphlebiidae Martynov, 1940

#### Genus *Sylvaphlebia* Martynov, 1940

#### *Sylvaphlebia tuberculata* Martynov, 1940

**Holotype**. PIN, no. 99/4b, part and counterpart of well-preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

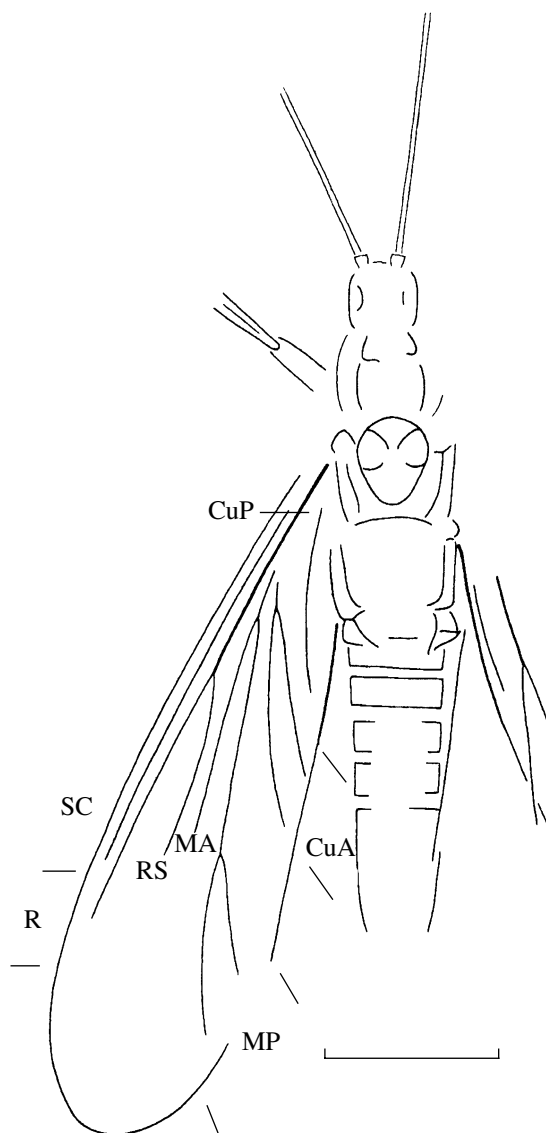
**Redescription** (Figs. 13a, 13b). Medium-sized insects. The head is medium-sized, the eyes are large. The pronotum is almost rectangular, transverse, 1.5 times as wide as it is long, the paranotia are narrow. The legs are medium long, each femur and tibia has a longitudinal ridge, the tibiae are fusiform. The mesonotum is as long as it is wide, the scutum and its lobes are unclear. A part of the head, the pronotum and mesoscutum are covered with small tubercles. The middle legs are as long as the forelegs. The metanotum is similar to the mesonotum in size; the hind legs are the longest, the tibiae are widened. The tarsus is five-segmented; the first and fifth tarsomeres are the largest, the fourth tarsomere is the smallest. The anterior margin of the forewing is weakly convex, the apex is slightly acuminate, the costal field is somewhat wider than the subcostal one. SC has a thickening at its base, reaches the distal third of the wing, its anterior branches are simple and forming a double row of cells. R has two simple anterior branches, RS starts in the beginning of the middle third of the wing and is two-branched. The base of the field between MA and MP is widened, MA is simple, MP has two outruns. CuA is smoothly curved before separating into branches. CuA branches are closely approximate, CuA<sub>1</sub> is dichotomizing near its midlength, the basal branch is simple, the distal one is pectinate and reaches almost to the wing apex, creating six branches, CuA<sub>2</sub> is simple. The field between CuA and CuP is basally widened, A<sub>1</sub> and A<sub>2</sub> are having two branches each. Crossveins in the subcostal field are simple or leaning anteriorly, those in other fields form double or triple rows of cells. In the hindwing, SC runs into the distal half of the wing, R is weakly sinuous basally, CuA is straight. The abdomen does not reach the apices of folded wings, the ovipositor is short and stout.

**Measurements**, mm: Body length, about 19; forewing length, 18; hindwing length, 15.

**Material**. Holotype.

#### *Sylvaphlebia fucata* Aristov, sp. nov.

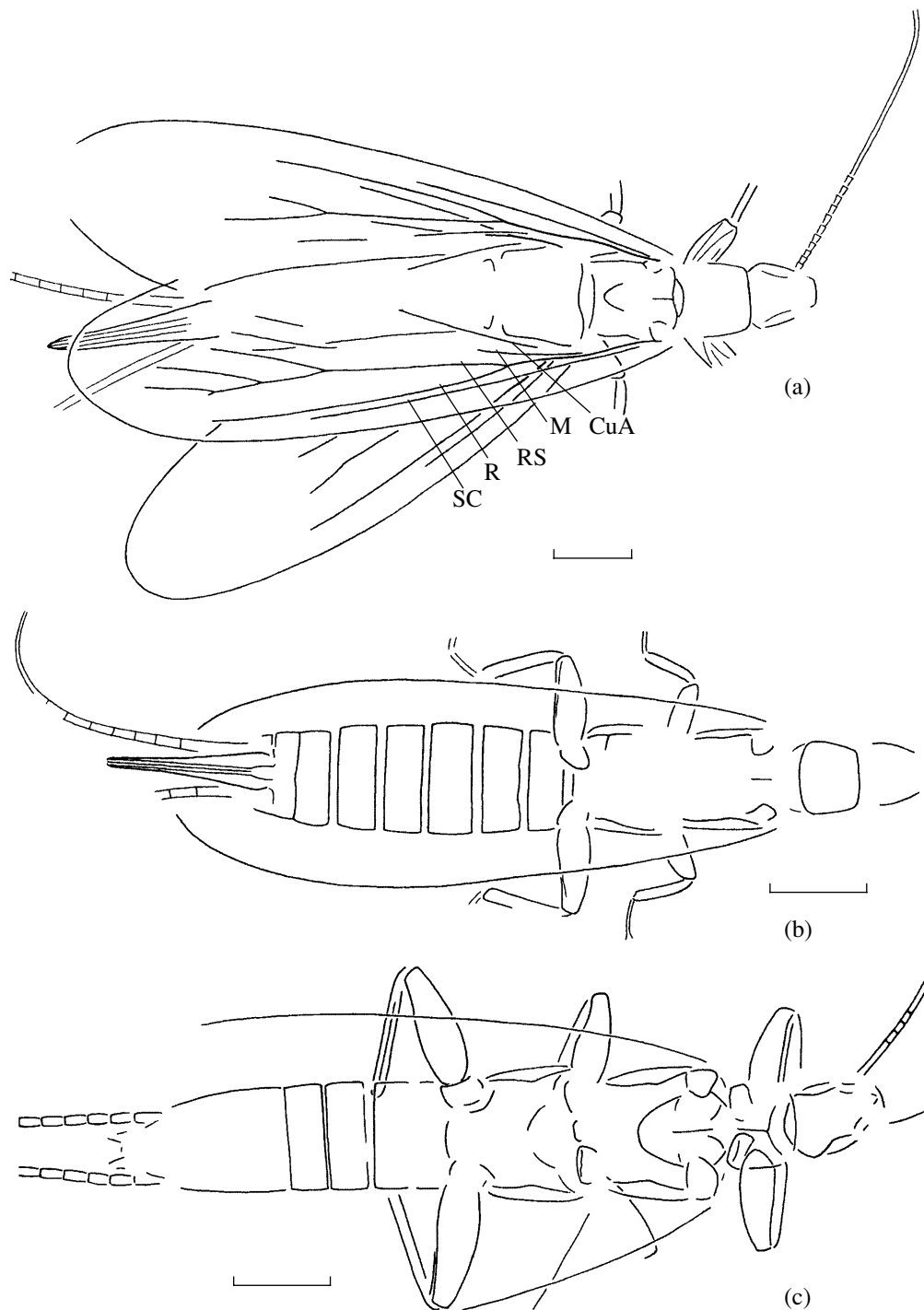
**Etymology**. From Latin *fucata* (dyed).



**Fig. 17.** *Euresca elegans* sp. nov., holotype PIN, no. 1700/873, general appearance. Scale bar 5 mm.

**Holotype**. PIN, no. 4987/12, part and counterpart of well-preserved forewing; Tshekarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 13c). Medium-sized insects. The anterior margin of the wing is concave in the basal half of the wing, the apex is rounded, the posterior margin is convex. The costal field is wider than the subcostal one. SC has heavily inclined simple or dichotomizing anterior branches and terminates in the middle third of the wing. R has four to five simple anterior branches; the field between MA and MP is not widened basally; MA is simple; MP has three outruns. CuA is straight before separating into branches, connected to the media due to M<sub>5</sub>; the distal branch of CuA<sub>1</sub> is short and has six thin interconnected with crossveins branches; CuA<sub>2</sub> is



**Fig. 18.** *Kungurembia brevicervix* sp. nov.: (a) holotype PIN, no. 1700/796, female, general appearance; (b) paratype PIN, no. 1700/954, female, general appearance; (c) paratype PIN, no. 4987/16, male, general appearance. Scale bar 2 mm in Figs. 18a and 18b and 1 mm in Fig. 18c.

simple. The field between CuA and CuP is not widened basally;  $A_1$  is two-branched;  $A_2$  has four outruns. Cross-veins form double or triple rows of cells. A pigmented strip runs beneath R, entering the pterostigma.

**Measurements, mm:** Forewing length, 16.

**Comparison.** It differs from the type species in the anterior margin of the forewing being concave, shorter SC, fields between MA and MP and between CuA and CuP being not widened, and a greater number of  $A_2$  branches.



**Material.** Holotype.

**Genus *Sylvophenoptera* Aristov, gen. nov.**

**Etymology.** From the Sylva River and the generic name *Phenopterum*.

**Type species.** *S. perlongata* sp. nov.

**Diagnosis.** Small insects. Pronotum quadrangular, paranotalia narrow. Mesonotum as long as it is wide, scutum rounded quadrangular, prescutum convex, scutellar lobes medium-sized, distinct, rounded, not contiguous, scutellum small. Metanotum longer than it is wide, posterior coxae large and rounded triangular. Forewing elongated, with straight anterior margin, rounded apex, and weakly convex posterior margin. Costal field slightly wider than subcostal one, SC terminating near wing midlength, R closely approximate to costa in distal third of wing. RS starting near wing midlength or in basal third, forming anastomosis with MA or free. At wing base, media connected to CuA by  $M_5$ . CuA straight prior to bifurcation, basal branch simple and straight, distal branch fractured, reaching wing apex, having dense comb of thin branches without crossveins. CuP,  $A_1$ , and  $A_2$  simple. Numerous crossveins simple or forming double rows of cells in radial and medial fields. Anterior margin of hindwing straight, SC reaching wing midlength, R without basal bend, RS forming anastomosis with MA, RS+MA and MP branches late, CuA two-branched and bent. Long sinuous crossveins between MP and CuA. Abdomen short and massive, ovipositor stout and rather long, cerci short and weak.

**Species composition.** Type species and *S. fimbriata* sp. nov.

**Comparison.** This new genus is closest to *Phenopterum* Carpenter, 1950 (Storozhenko, 1998). It differs from the latter and other genera of the family in narrower forewing and costal field, short SC, distal part of R being closely approximate to the costa, presence of  $M_5$ , and a large number of simple crossveins as well as in the presence of RS+MA anastomosis in the hindwing. Additionally, it differs from the monotypic genus *Brnia* Kukulová, 1964 (Storozhenko, 1998) in the quadrate pronotum, a shorter abdomen, and long ovipositor.

***Sylvophenoptera perlongata* Aristov, sp. nov.**

Plate 3, fig. 1

**Etymology.** From Latin *perlongata* (longest).

**Holotype.** PIN, no. 1700/872, part and counterpart of well-preserved complete insect without head; Tsherkarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 14a). RS starts in the basal third of the wing. MA and MP are simple. CuA ramifies near its midlength. The distal branch of CuA is curved anteriorly after the fracture and having a comb of 12–13 straight or weakly curved branches.  $A_1$  and  $A_2$  are

straight. In the hindwing, the costal field is wider than the subcostal one, RS+MA and MP are two-branched.

**Measurements,** mm: Body length, 8; forewing length, 10.5; hindwing length, 9.

**Material.** Holotype.

***Sylvophenoptera fimbriata* Aristov, sp. nov.**

Plate 3, fig. 2

**Etymology.** From Latin *fimbriata* (fringed).

**Holotype.** PIN, no. 4987/14, part and counterpart of well-preserved incomplete wing; Tsherkarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 14b). The posterior margin of the forewing is nearly straight. The costal field as wide as the subcostal one, SC has straight anterior branches and reaches the distal third of the wing. RS is free, starting in the basal quarter of the wing, branches late, terminating with two outruns; MA and MP are simple. CuA ramifies in the basal third, the distal branch has a clear fracture, reaches nearly the wing apex, has a comb of more than 14 branches. CuP and  $A_1$  are straight and simple,  $A_2$  has four or more branches. Crossveins form double or triple rows of cells in the majority of fields.

**Measurements,** mm: Forewing length, about 14.

**Comparison.** It differs from the type species in being larger, in the early origin of RS, the absence of the RS+MA anastomosis, early branching CuA, greater number of  $A_2$ , and crossveins forming double or triple rows of cells in the majority of fields.

**Material.** Holotype.

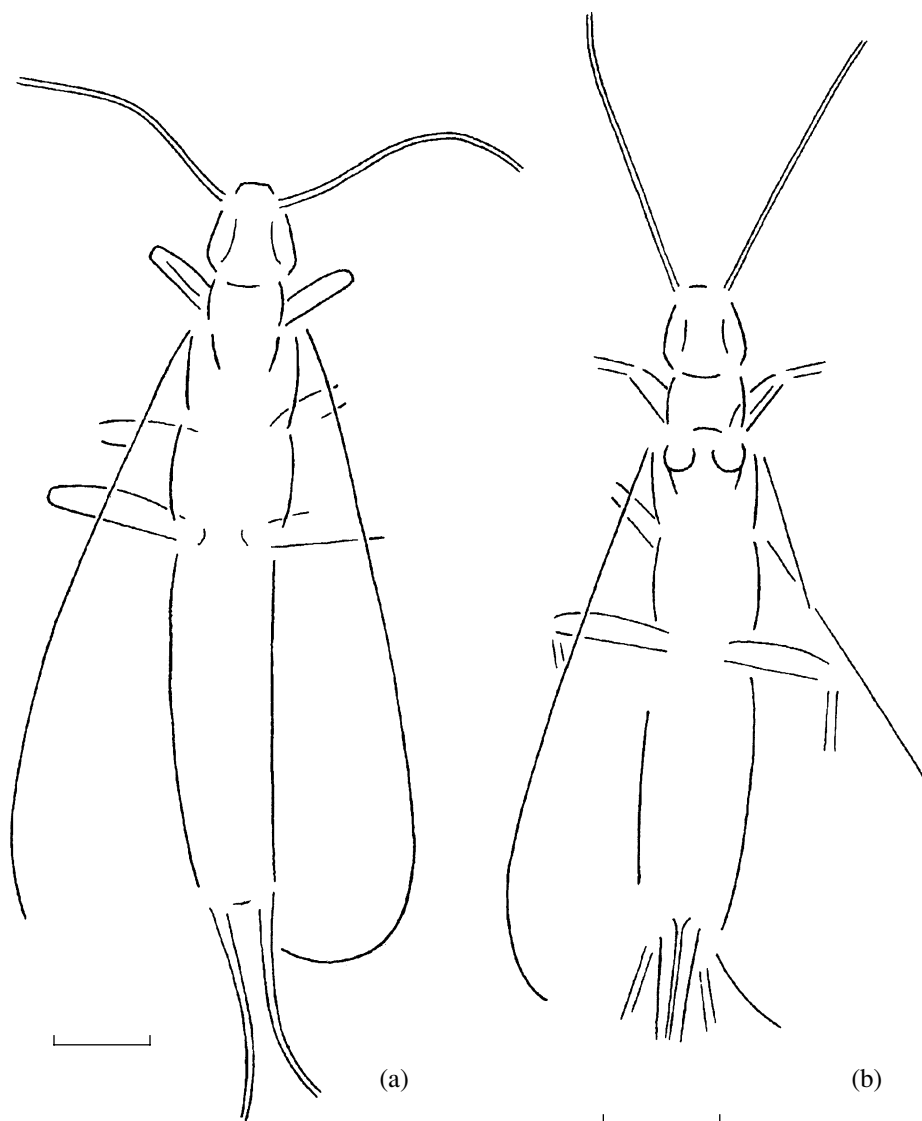
**Genus *Kungurocauda* Aristov, gen. nov.**

**Etymology.** From the Kungurian Stage and Latin *cauda* (tail).

**Type species.** *K. spinosa* sp. nov.

**Diagnosis.** Small insects. Head small, with large eyes. Pronotum transverse, widens anteriorly, paranotalia narrow. Anterior femora thickened, anterior tibiae slightly bent. Mesonotum transverse, scutum rounded, with small prescutum and large round almost touching lobes. Metanotum as long as it is wide, posterior coxae small, rounded triangular, each femur with longitudinal ridge. Anterior and posterior margins of forewing straight, SC very short and terminating in basal quarter of wing. R sinuous; RS starting in basal third of wing; RS, MA and MP simple prior to distal quarter of wing. CuA ramifies very early, its branches closely approximate, distal branch long and curved almost without fracture. CuP straight,  $A_1$  simple and sinuous. Anterior margin of hindwing straight, apex rounded. SC not reaching wing midlength; RS forming anastomosis with MA; CuA two-branched. Abdomen short, ovipositor stout and rather long.

**Species composition.** Type species.



**Fig. 19.** *Kungurembia pallida* sp. nov.: (a) holotype PIN, no. 4987/19, male, general appearance; (b) paratype PIN, no. 4987/21, female, general appearance. Scale bar 1 mm.

**Comparison.** It differs from all genera of the family in its very short SC and very early ramifying CuA with long distal branch, which has almost no fracture; additionally, from all genera except for *Sylvophe-noptera* gen. nov., in being smaller.

***Kungurocauda spinosa* Aristov, sp. nov.**

Plate 3, fig. 3

**Etymology.** From Latin *spinosa* (thorny).

**Holotype.** PIN, no. 1700/1041, positive impression of satisfactorily preserved complete insect without wing apices; Tshekarda locality; Kungurian, Koshelevka Formation.

**Description** (Fig. 15). In the forewing, RS, MA, and MP are parallel. In the hindwing, RS, MA, and MP are apparently simple; CuA is straight before separating into branches, then is sinuous.

**Measurements, mm:** Body length, 7; forewing length, 8; hindwing length, 7.

**Remark.** Comb branches are almost not preserved on the distal branch of CuA.

**Material.** Holotype.

**Genus *Tshekardophlebia* Aristov, gen. nov.**

**Etymology.** From the locality of Tshekarda and the generic name *Sylvaphlebia*.