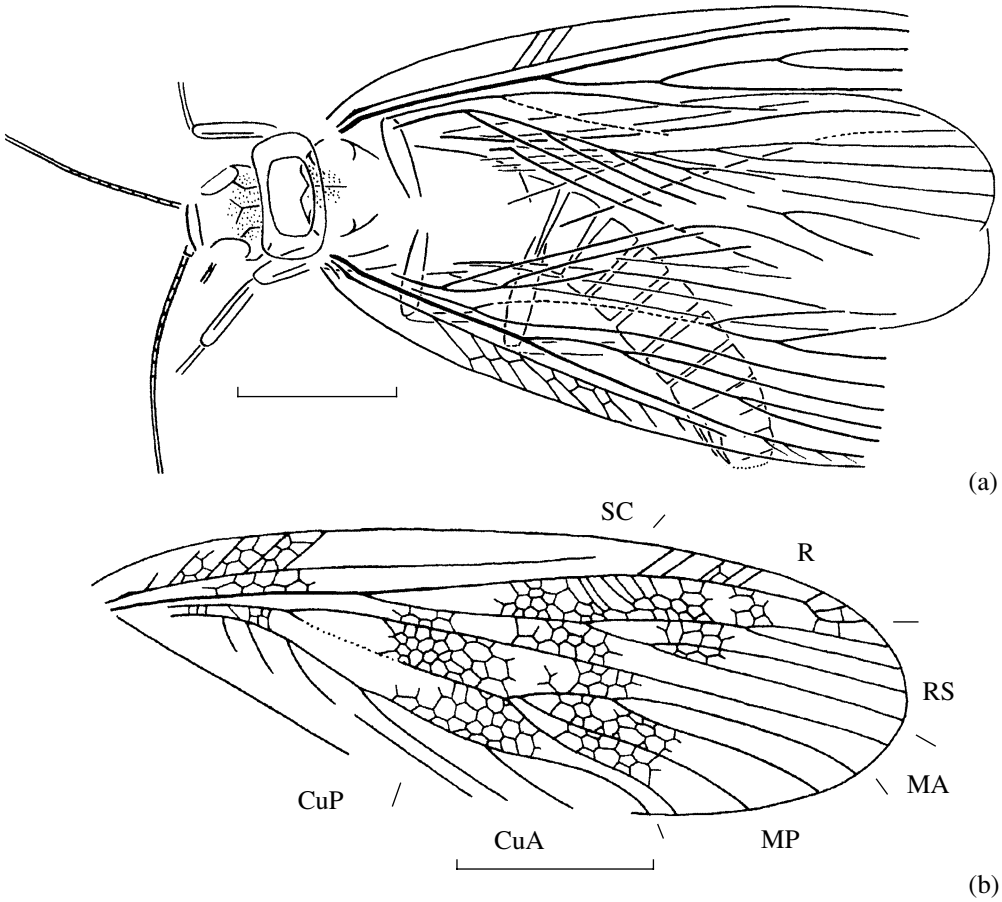

Fig. 25. *Sylviodes perloides* Martynov, 1940: (a) holotype PIN, no. 118/62, general appearance; (b) forewing specimen PIN, no. 4987/33. Scale bar 5 mm.

***Parasheimia truncata* Aristov, sp. nov.**

Plate 5, fig. 3

Etymology. From Latin *truncata* (truncate).

Holotype. PIN, no. 4987/27, part and counterpart of well-preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

Description (Fig. 22). The head is slightly longer than it is wide, the eyes are small, the maxillary palps are short, three-segmented, antennomeres are elongated and narrowing basally. The pronotum is trapezoidal, its anterior margin is almost straight and its lateral margins are convex. The mesoscutum has a small prescutum and large, round, nearly touching lobes. The anterior coxae are round and not large. The tibiae are slightly widened apically. In the forewing, SC is sinuous, and R is not extending over the wing apex. RS is simple and starting closer to the wing midlength, the interradial field is narrow. The media bifurcates at the same level with the RS base. MP is two-branched and heavily desclerotized, the apical portion of the posterior branch of MP is sinuous. In the hindwing, RS is simple and curved at points of crossvein insertions. The male abdomen is elongated, the female abdomen is fusiform and possessing thin and short cerci.

Measurements, mm: Body length, 5–7; forewing length, 4.5–7; hindwing length, 3.5–6.

Material. In addition to the holotype, paratypes PIN, nos. 4987/28, 29 from the same locality.

Explanation of Plate 5

Fig. 1. *Sheimia tshekardensis* sp. nov., holotype PIN, no. 4987/25; Tshekarda locality, ×5.

Fig. 2. *Pseudosheimia caudata* sp. nov., holotype PIN, no. 1700/1167; Tshekarda locality, ×8.

Fig. 3. *Parasheimia truncata* sp. nov., paratype PIN, no. 4987/28; Tshekarda locality, ×10.

Fig. 4. *Permostriga* sp., specimen PIN, no. 1700/867; Tshekarda locality, ×4.

Fig. 5. *Pectinokhosara sylvardembiodes* sp. nov., holotype PIN, no. 1700/3988; Tshekarda locality, ×3.

Fig. 6. *Depressopterum bardum* sp. nov., holotype SGM, PK-769-5; Barda locality, ×6.

***Parasheimia rotundata* Aristov, sp. nov.**

Etymology. From Latin *rotundata* (rounded).

Holotype. PIN, no. 4987/30, part and counterpart of well-preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

Description (Figs. 23a, 23b). The head is little wider than long, the scape is clearly enlarged. The pronotum is little wider than long, its lateral margins are convex. The mesoscutellar lobes are large and irregular, the basalars are large, the mesosternal medial suture is distinct. In the forewing, SC reaches to the distal third of the wing, R extends over the wing apex and is slightly curved at its tip. The RS base is situated in the basal third of the wing, RS has a short fork at its tip, the interradial field is broad in the distal third of the wing. The media bifurcates beyond the RS base. MP is simple and having a small desclerotized section at its base. CuP is straight, A_1 and A_2 are simple and weakly curved. In the hindwing, SC reaches the distal quarter of the wing, CuA is simple and curved backward.

Measurements, mm: Body length, 5.5–6; forewing length, 5.5–6.5; hindwing length, 4.5–5.5.

Comparison. It differs from the type species in having a shorter head, the quadrangular pronotum, scutellar lobes being irregular, R extending over the wing apex, wide interradial field, two-branched RS, and simple MP.

Material. In addition to the holotype, paratypes PIN, nos. 4987/31, 32 from the same locality.

Genus *Pseudosheimia* Aristov, gen. nov.

Etymology. From Greek *pseudo* (spurious) and the generic name *Sheimia*.

Type species. *P. caudata* sp. nov.

Diagnosis. Medium-sized insects. Head medium-sized, with large eyes and thin antennae. Pronotum wider than head, distinctly transverse, slightly narrowing backward, with longitudinal depressions along its margins. Mesonotum slightly elongated, with large oval-shaped scutum. Metanotum elongated, with transverse scutum. Tibiae slender, fore and middle tibiae equally long, hind tibiae longer, hind femora narrowing apically. In forewing, SC reaching wing midlength, RS forming anastomosis with MA, MP straight and running to wing apex. Abdomen elongated, cerci slender and long.

Species composition. Type species.

Comparison. It differs from other genera of this family in the combination of the wide and clearly transverse pronotum, elongated metanotum, MP running to the wing apex, and long cerci.

***Pseudosheimia caudata* Aristov, sp. nov.**

Plate 5, fig. 2

Etymology. From Latin *caudata* (tailed).

Holotype. PIN, no. 1700/1167, part and counterpart of well-preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

Description (Fig. 23c). The head is approximately as long as it is wide. The mesoscutellar lobes are large and not contiguous. The anterior margin of the forewing is straight, the costal field is as wide as the subcostal one. R is straight, CuA is simple and curved toward the posterior margin of the wing, CuP is curved toward the anterior margin. The hindwing has a similar shape.

Measurements, mm: Body length, 4; forewing length, 4.2; hindwing length, 3.5.

Material. Holotype.

Family Ideliidae M. Zalessky, 1928

Genus *Sylviodes* Martynov, 1940

***Sylviodes perloides* Martynov, 1940**

Holotype. PIN, no. 118/62, part and counterpart of well-preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

Redescription (Fig. 25). Medium-sized insects. The head is large, with large eyes. The maxillary palps are slender, the antennae are long, the first antennomere is enlarged, others are elongated. The pronotum is transverse and rectangular, the paranotal ring is narrow and having slightly concave anterior margin. The mesonotum is as long as it is wide, the scutum is rounded triangular and having a longitudinal suture. The prescutum is small, with an incision at its anterior margin, the scutellar lobes are small and round. The posterior part of the head and the anterior part of the mesoscutum are finely pitted. The metanotum is longer than it is wide. All legs are equally long. The anterior margin of the forewing is convex, the apex is rounded. The costal field is wider than the subcostal one and crossed with simple anterior branches of SC, which reaches the distal third of the wing. RS starts in the basal third of the wing and has three to four branches, MA is simple, MP has three to four branches. CuA has four to five branches, the distance between the forks is subequal, the anterior branch of CuA_1 is short, CuP is straight. Crossveins form a fine net of cells. The abdomen is slender and not reaching the apices of folded wing, the ovipositor is stout and not extending over the tip of the abdomen.

Measurements, mm: Body length, 25; forewing length, 20–26; hindwing length, 23.

Material. Besides the holotype, specimen PIN, no. 4987/33 from the same locality.

Genus *Micaidelia* Aristov, gen. nov.

Etymology. From Latin *mica* (little bit) and the generic name *Idelia*.

Type species. *M. minutissima* sp. nov.

Diagnosis. Medium-sized insects. Wing elongated, with straight anterior margin. Costal field wide

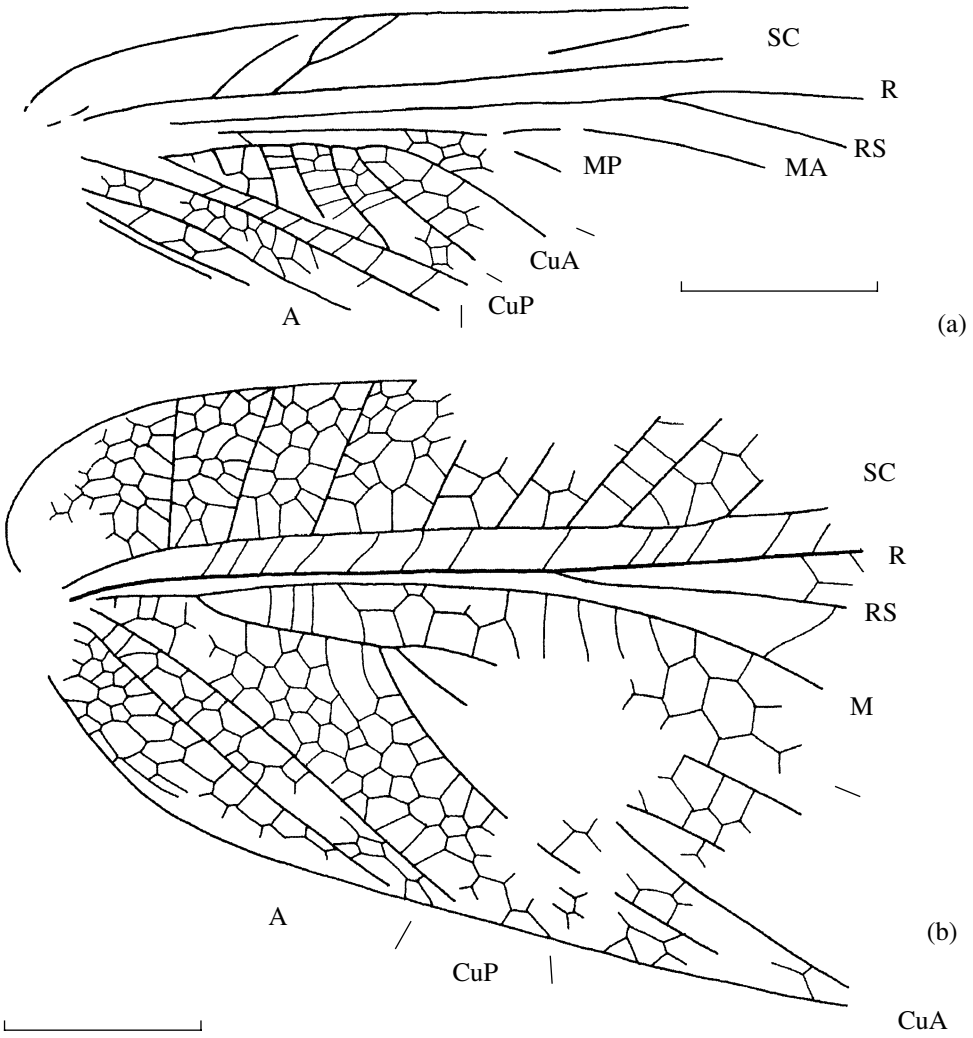

Fig. 26. Representatives of the families Ideliidae and Idelinellidae: (a) *Micaidelia minutissima* sp. nov., holotype PIN, no. 1700/3532, forewing fragment; (b) *Sylvastriga miranda* sp. nov., holotype PIN, no. 1700/933, forewing fragment. Scale bar 2 mm in Fig. 26a and 3 mm in Fig. 26b.

and crossed with simple or dichotomizing anterior branches of SC, distal of which strongly inclined. R straight, RS base near wing midlength. Media branches between RS base and separation of CuA into CuA_1 and CuA_2. CuA_1 branches late, CuP straight, three anal veins present.

Species composition. Type species.

Comparison. In being small and having distal branches of SC inclined forward, this genus resembles the monotypic genus *Anaidelia* Storozhenko, 1996, but differs from it in the early branching media and late branching CuA_1.

***Micaidelia minutissima* Aristov, sp. nov.**

Etymology. From Latin *minutissima* (smallest).

Holotype. PIN, no. 1700/3532, part and counterpart of satisfactorily preserved incomplete forewing; Tshekarda locality; Kungurian, Koshelevka Formation.

Description (Fig. 26a). CuA has four posterior branches before its separation into CuA_1 and CuA_2, the last of which is sinuous. A_1 is simple and curved, both branches of A_2 are closely approximate. Crossveins are simple or forming double rows of cells.

Measurements, mm: Forewing fragment length, 9; entire length, about 15.

Material. Holotype.

Family Idelinellidae Storozhenko, 1997

Genus *Sylvastriga* Aristov, gen. nov.

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

Type species. *P. miranda* sp. nov.

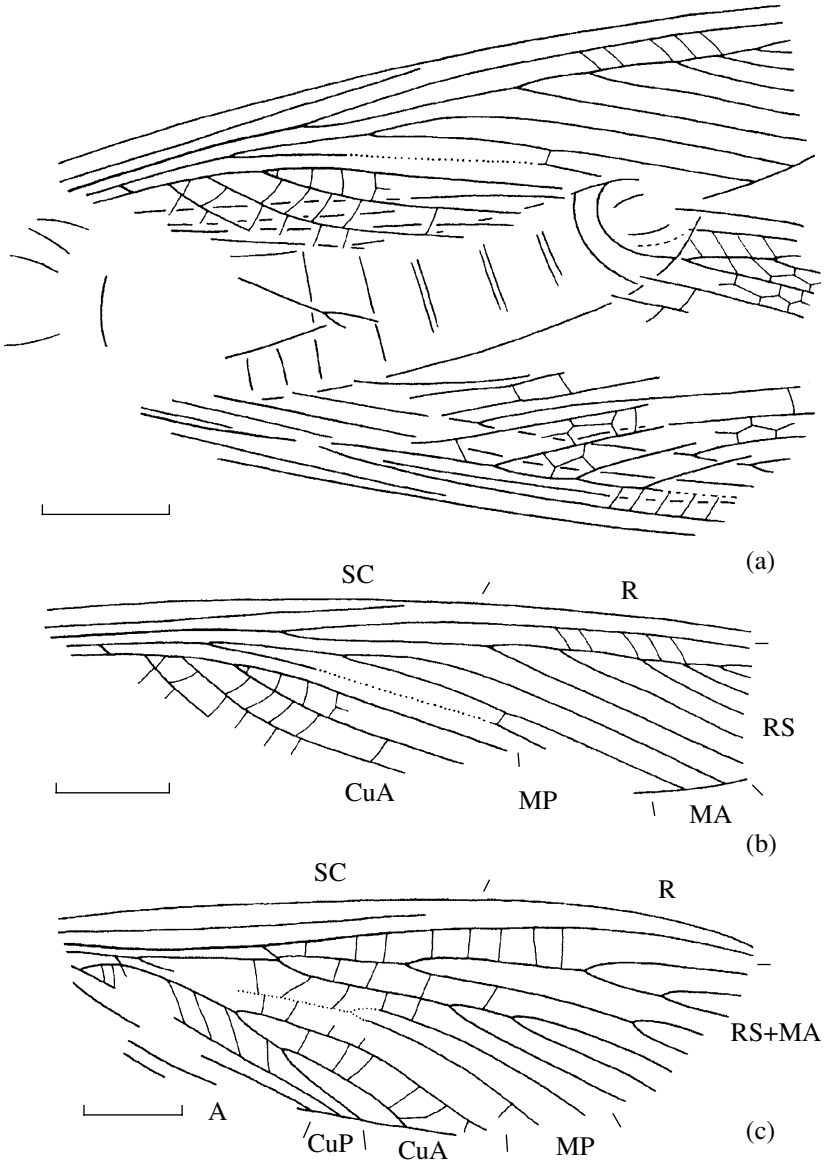

Fig. 27. Representatives of the family Megakhosaridae: (a, b) *Pectinokhosara sylvardembioides* sp. nov., holotype PIN, no. 1700/3988: (a) male, general appearance; (b) forewing; (c) *Parakhosara coalita* sp. nov., holotype PIN, no. 4909/9, forewing. Scale bar 5 mm in Figs. 27a and 27b, and 3 mm in Fig. 27c.

D i a g n o s i s. Anterior margin of wing weakly convex, posterior margin almost straight. Costal field very broad and crossed with anterior branches of SC, which are vertical in basal portion of wing and stronger leaning forward near wing midlength. RS starting in basal third of wing and smoothly curved. CuA_1 ramifies very early and immediately into three branches and has no less than four outruns. Intercubital field very broad, CuP and A_1 simple and straight.

S p e c i e s c o m p o s i t i o n. Type species.

C o m p a r i s o n. This new genus is closest to the genus *Permostriga*, from which it differs in M fused basally with CuA, the media branches late, and very early branching CuA_1.

R e m a r k s. One of the characteristics of the family Idelinellidae is very broad paranotalia, which are not typical of other grylloblattids. The anterior part of an insect that belongs to the genus *Permostriga*, judging by its venation, is showed in Pl. 5, fig. 4.

***Sylvastriga miranda* Aristov, sp. nov.**

E t y m o l o g y. From Latin *miranda* (amazing).

H o l o t y p e. PIN, no. 1700/933, part and counterpart of well-preserved forewing fragment; Tshekarda locality; Kungurian, Koshelevka Formation.

D e s c r i p t i o n (Fig. 26b). The costal field is five times as wide as the subcostal one. CuA_2 is gently

curved toward the posterior margin of the wing. A_2 is vanishing among the archedictyon. In the basal part of the wing, crossveins form an archedictyon that transforms into double or triple rows of cells by the wing midlength; crossveins are simple in the subcostal field.

Measurements, mm: Forewing fragment length, 14; entire length, about 30.

Material. Holotype.

Family Megakhosaridae Sharov, 1961

Genus *Parakhosara* Storozhenko, 1993

Parakhosara coalita Aristov, sp. nov.

Etymology. From Latin *coalita* (fused).

Holotype. PIN, no. 4909/9, part and counterpart of well-preserved incomplete wing; Tshekarda locality; Kungurian, Koshelevka Formation.

Description (Fig. 27c). Medium-sized insects. The anterior and posterior margins of the wing are straight. The costal field is as wide as the subcostal one, SC is running over the wing midlength. RS is short and fused with the anterior branch of the media; in total, RS+MA has eight and more branches. The media is connected to CuA owing to M_5, MP is two-branched. CuA bifurcates for the first time near its midlength, CuA_1 is simple, CuA_2 has two outruns. CuP and A_1 are straight, A_2 is apparently having two branches. Crossveins are simple.

Measurements, mm: Forewing length, about 21.

Comparison. The new species is closest to *P. martynovi*, but differs from the latter in the presence of the anastomosis of RS+MA and in the two-branched CuA_2 alongside with the simple CuA_1.

Material. Holotype.

Genus *Pectinokhosara* Aristov, gen. nov.

Etymology. From Latin *pectinata* (pectinate) and the generic name *Khosara*.

Type species. *P. sylvardembioides* sp. nov.

Diagnosis. Medium-sized insects. Wings strongly elongated. Anterior margin of forewing straight; in basal part of wing, costal field wider than subcostal one; Sc straight and terminating at wing midlength. RS starting in end of basal third of wing, regularly pectinate, and having six branches. Media connected to CuA owing to M_5, MA branches early and having two outruns, MP simple. CuA pectinate and having four branches, CuA_1 bifurcating very early, almost near its very base. Crossveins simple or forming double rows of cells.

Species composition. Type species.

Comparison. It differs from all known megakhosarid genera in the combination of the short SC, regularly pectinate RS and very early branching CuA_1.

Pectinokhosara sylvardembiodes Aristov, sp. nov.

Etymology. From the generic name *Sylvardembia*.

Holotype. PIN, no. 1700/3988, positive impression of satisfactorily preserved complete insect without head and wing apices; Tshekarda locality; Kungurian, Koshelevka Formation.

Description (Figs. 27a, 27b). The mesoscutum is rounded triangular. The metanotum is as long as it is wide, the prescutum is very short. The anterior margin of the hindwing is straight, SC is reaching the wing midlength, RS is pectinate and having five to six branches, CuA is forked. The abdomen is elongated but not reaching the apices of folded wings.

Measurements, mm: Preserved body fragment length, 21; forewing length, about 26; hindwing length, about 22.

Material. Holotype.

Family Liomopteridae Sellards, 1909

Genus *Parasylviodes* Martynov, 1940

Parasylviodes tetracladus Martynov, 1940

Holotype. PIN, no. 118/55, part and counterpart of well-preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

Redescription (Fig. 28a). Medium-sized insects. The head is large and much longer than it is wide. The eyes are large, the mandibles are stout, with one large and acute tooth and several small teeth. The maxillary palps are long, with elongated segments. The antennae are long and thin, the antennomeres are elongated. The pronotum is small, nearly as long as it is wide, rounded rhomboidal. The paranotal ring is round, broad, and widens posteriorly. The mesonotum is as long as it is wide, the scutum is unclear and triangular with a convex prescutum, the basalars are large. The metanotum is similar, but shorter. The forelegs are the shortest. The hind legs are elongated, the tibiae are longer than the tarsi. The anterior margin of the forewing is convex, the apex is acuminate. The costal field is broad and crossed with numerous simple or dichotomizing anterior branches of SC, which is apparently reaching the distal third of the wing. RS starts near the wing midlength, the interradial field is broad, RS has a regular posterior comb of four branches that runs to the wing apex, MA is simple and gently curved. The abdomen is short, with narrow segments. The ovipositor is rather long, slender, and slightly curved. The cerci are short, one-segmented, narrowing apically, and covered with hairs.

Measurements, mm: Body length, 16.5; forewing length, 17; hindwing length, 14.

Material. Holotype.

Genus *Khosarophlebia* Martynov, 1940

Khosarophlebia sylvaensis Martynov, 1940

Holotype. PIN, no. 99/29, positive impression of satisfactorily preserved hindwing fragment; Tshekarda locality; Kungurian, Koshelevka Formation.

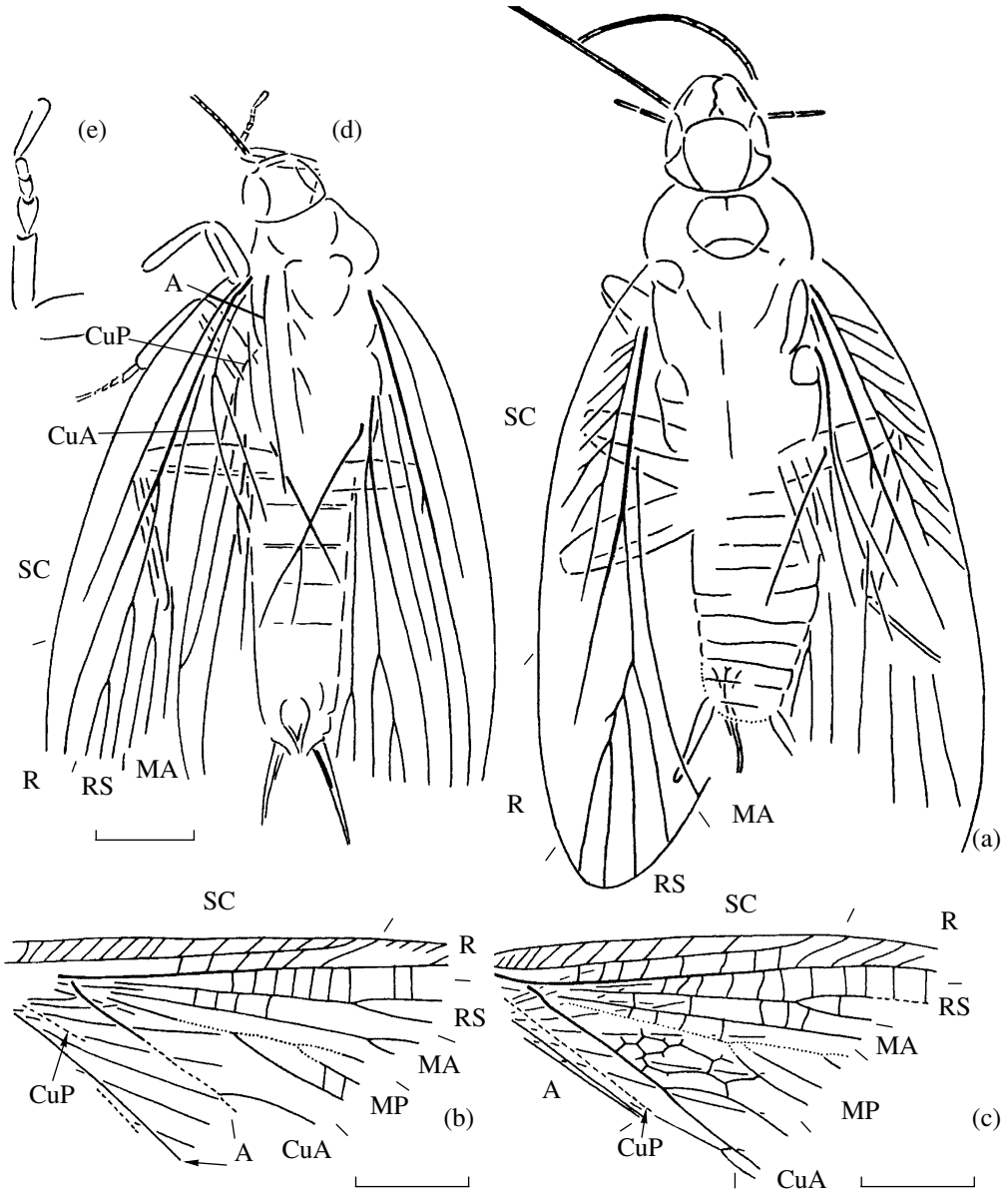

Fig. 28. Representatives of the family Liomopteridae: (a) *Parasylviodes tetracladus* Martynov, 1940, holotype PIN, no. 118/55, female, general appearance; (b–e) *Khosarophlebia sylvaensis* Martynov, 1940: (b) holotype PIN, no. 99/29, hindwing fragment; (c) specimen PIN, no. 4987/34, hindwing fragment; (d) specimen PIN, no. 4987/35, female, general appearance; (e) specimen PIN, no. 4987/34, middle tarsus. Scale bar 5 mm in Figs. 28a–28d, Fig. 28e out of scale.

Redescription (Figs. 28b–28e). Medium-sized insects. The head is large, with very large eyes, the antennae are thin, the antennomeres are slightly lengthened. The pronotum is somewhat wider than long, trapezoidal, narrowing posteriorly, and having convex lateral edges. The paranotal ring has slightly concave lateral margins and abruptly widens backward. The mesonotum is transverse, the scutum is triangular, with large lobes. The metanotum is larger and elongated. The femora are slightly thickened, the tarsus is five-segmented, the first tarsomere is the largest, the fifth one is smaller, the others are small and subequal. The anterior margin of the forewing is convex, the costal field is approximately twice as wide as the subcostal one. SC terminates in the distal third of the wing. RS starts near the wing midlength and has three to four branches, MA has not less than three outruns. CuA_1 ramifies late, CuP and A_1 are straight. The anterior margin of the hindwing is straight, the costal field is slightly wider than the subcostal one and crossed with straight and simple anterior branches of SC, which terminates in the distal third of the wing. R is nearly straight, with

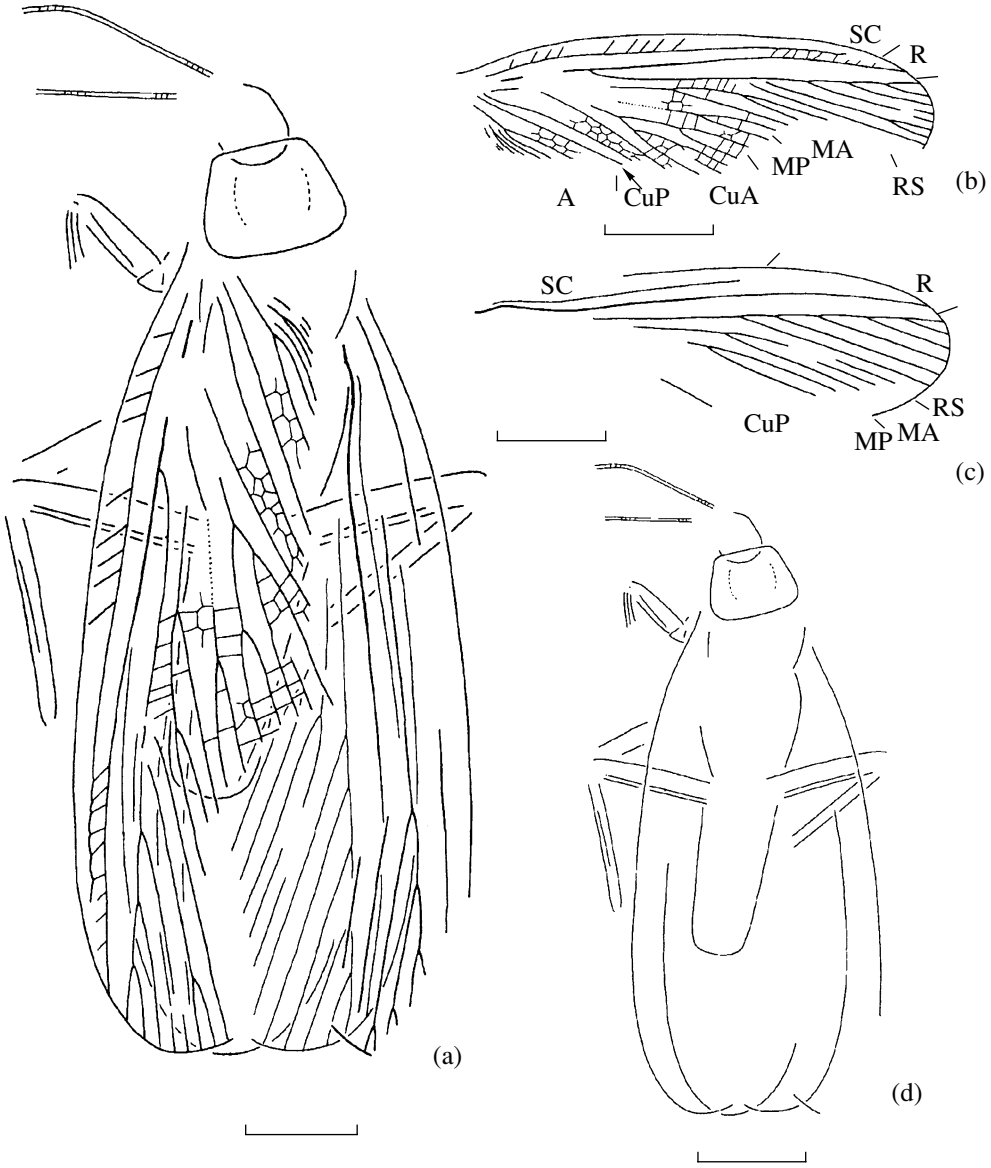

Fig. 29. *Ornaticosta novokshonovi* sp. nov., holotype PIN, no. 4987/36: (a) general appearance, (b) forewing, (c) hindwing, (d) details of body structure (venation omitted). Scale bar 5 mm.

simple and slightly curved anterior branches. RS and MA are two-branched, MP has three or four branches, CuA is two-branched. The anal fan is not large; crossveins are simple or form a net of cells in the medial field. The abdomen is elongated and not reaching the apices of folded wings. The ovipositor is very short and not protruding over the tip of the abdomen, the cerci are one-segmented and acuminate.

Measurements, mm: Body length, 28; forewing length, about 35; hindwing length, about 30.

Material. In addition to the holotype, specimens PIN, nos. 1700/996 and 4987/34, 35 from the same locality.

Genus *Ornaticosta* Sharov, 1961

Ornaticosta novokshonovi Aristov, sp. nov.

Plate 6, fig. 2

Etymology. In the memory of paleoentomologist V.G. Novokshonov.

Holotype. PIN, no. 4987/36, part and counterpart of well-preserved complete insect; Tshekarda locality; Kungurian, Koshelevka Formation.

Description (Fig. 30). Medium-sized insects. The head is small, as long as it is wide, the antennae are long and thin, antennomeres are almost as long as it is wide. The pronotum is similar to head in its size, rounded, as long as it is wide; the paranotal ring is trapezoidal, with rounded corners, widens posteriorly. The