

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

A. F. EMELJANOV (YEMEL'YANOV)

The article contains descriptions of two new genera of the family Dictyopharidae, and also of 19 new species of the families Cixiidae (7 species), Dictyopharidae (3 species) and Issidae (9 species) found in Kazakhstan, Soviet Central Asia, Transcaucasia and Mongolia. The synonymy is also given for some species previously described in the composite genus *Oliarus* auct.

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

Fam. CIXIIDAE

Genus *PSEUDOLIARIUS* Haupt

Pseudoliarus strenuus Emeljanov, sp. n. (= *Oliarus interruptus*: Dub., 1966, non Hpt., 1917) (Figs. 5-6).

Similar to *P. fuscofasciatus* Mel. Vertex approximately parallel sided, its length along the middle approximately 1.5 times its width. Anterior margin of vertex projecting in a weak arc, practically straight, posterior margin distinctly obtuse angled, almost rectangular, notched. Intermediate keel of vertex joined to the lateral keels slightly behind the middle. Anterior keel of vertex and median keel of frons and clypeus smoothed. Face rather convex, elongate hexagonal, with rounded lateral angles, its length approximately 1.6 times its width, its width in the middle 2.2 times its width on top, its upper margin and the lower margin of the postclypeus of approximately the same width. Postclypeus projecting onto frons slightly above the level of the antennae, its upper protruding part rectangular with rounded angles.

Pronotum with narrow disc, its anterior margin little more than half the width of the vertex. Posterior margin of pronotum regularly and distinctly notched in an obtuse angle in the middle, roundly and obtusely convexly curved on the sides. Scutellum with moderately projecting keels, its anterior margin (along the pronotum) obtuse-angled, its posterior margin acute-angled, almost right angled. Elytra with straight costal margins nearly from the base. Numerous small granules on veins of elytra.

Pale, reddish or yellowish-brownish. Keels on head slightly lighter than the background; entire frons often lighter than postclypeus. Pronotum and tegulae lighter than head. Scutellum, conversely, darker - brown with light keels. Elytra transparent, veins slightly darkened, often with brown blurred spots on the crossveins. On the suture of the clavus there is a dark spot in front of the point at which the claval vein joins it; in more pigmented specimens this spot is the darkest middle part of a brownish band extending through the area.

Length ♂ 5.1-5.3 mm, ♀ 5.6-6.1 mm.

Genitalia. The species belongs to a group with a broad left basal process of the theca; it is distinguished from the similar *P. inornatus*, sp. n., and *P. oblitteratus* Kusn. (Figs. 1-4) by the lack of an upper tooth on it and by the undeveloped nature of the upper basal tooth on the right basal process of the theca.

Material. Kazakhstan, Gur'yev Province, Shetpe, 24 June 1969, 1 ♂ (Mityayev); Tadzhikistan, Kabadian, 18 June-13 July 1934, 1 ♂ - holotype, 2 ♀♀ (Gussakovskiy); Kurgan-Tyube, Vakhsh valley, 29 Aug. 1935, 1 ♂, 2 ♀♀ (Gussakovskiy); Ayvadh, 8 Aug. 1934, 1 ♀ (Gussakovskiy); Parkhar on the Pyandzh River, 22 Sept. 1934, 1 ♀ (Luppova).

Pseudoliarus inornatus Emeljanov, sp. n. (Figs. 1-2).

Very similar to *P. oblitteratus* Kusn. and *P. strenuus*, sp. n., similarly colored, darkening clearly expressed, but there is no band on the elytra even in the most darkly colored females.

Length ♂ 5.4-5.5 mm, ♀ 5.7-5.9.

Genitalia. The species belongs to the group having a broad tridentate left basal process of the theca. It is distinguished from the similar *P. oblitteratus* by the poorly developed upper basal tooth of the right basal process of the theca and a notch between the middle and lower teeth of the left basal process of the theca, displaced toward the lower tooth.

Material. Mongolian Peoples' Republic, East Gobi aymak, south shore of Lake Tenger-Nur, 5 Aug. 1971, 3 ♂♂, 1 ♀, holotype ♂ (Emeljanov, Namkhaydorzh).

Pseudoliarus croceus Emeljanov, sp. n. (Figs. 7-8).

This is a most brightly colored species. Externally it is morphologically very similar to *P. strenuus*, sp. n., and other species of the subgenus. It is greenish white with grayish-brown markings. Head, pronotum and tegulae pale, whitish with traces of brown markings. Scutellum light between keels, slightly brownish, keels whitish; scutellum dark, grayish brown on the outside of the keels. Elytra transparent, with slightly darkened longitudinal veins and strongly darkened crossveins on the membrane. Females have a dark V-shaped band on the elytra along the margin of the scutellum and a transverse widening band in the middle that frequently fails to reach the costal margins of the elytra. Venter brownish.

Length ♂ 5.1 mm, ♀ 5.2-6.1 mm.



Figs. 1-6.

1-2 - *Pseudoliarus inornatus*, sp. n.: 1 - aedeagus from above, 2 - left basal process of theca from the left; 3-4 - *P. obliteratus* Kusn.: 3 - aedeagus from above, 4 - left basal process of theca from the left; 5-6 - *P. strenuus*, sp. n.: 5 - aedeagus from above, 6 - left basal process of theca from the left. a, b, c - homologous teeth on the processes of the theca (Figs. 2-6, 8-9).

Genitalia. Distinguished by the long right additional basal process and narrow forked left basal process of the theca, the branches of which differ markedly in length and thickness, in contrast to the similar *P. verrucosus* Dub., 1970, (Figs. 9-10).

Material. Tadzhikistan, Tigrovaya Belka reservation, 17-19 Aug. 1961, 10 Aug. 1962, 9 Aug. 1968, 1 ♂ - holotype, 4 ♀♀ (Pripisnova); Uzbekistan, Khiva, 1 ♀ (Gussakovskiy).

Genus *PENTASTRIDIVS* Kirschbaum

Pentastiridius liocara Emeljanov, sp. n. (Figs. 11-12).

Vertex of approximately equal width in front and behind, appreciably narrower in the middle - its lateral margins gently and arcuately concave. Anterior keel of vertex indistinct, greatly smoothed, with the result that the intermediate keel, bent in an obtuse angle, appears as the anterior margin of the vertex. Face appreciably broader above than along the suture between the ante- and postclypeus. Median keel of frons greatly smoothed, median keel of postclypeus imperceptible, boundaries between frons and postclypeus practically indiscernible. Keels on scutellum smoothed, indistinct in places. Subapical setae present on hind tarsi only on the second segment, which has approximately 10 denticles, the first approximately 8.

Integument dark brown to black, with light keels and sclerite margins. On the head the sides of the frons and vertex and the intermediate keel are light, the median keel of the frons is sometimes slightly lighter than the background, the anterior keel of the vertex is not expressed in coloration. Keels of scutellum dark, not differing from the background in

color. Tegulae light. Elytra semitransparent, slightly milky-smoky, with brownish veins.

Length ♂ 3.3-3.9 mm, ♀ 3.8-4.3.

Genitalia. The structure of the genitalia is that typical for the genus. The right basal process of the theca is Γ-shaped, with slender apex and broad base. The distal segment of the aedeagus bears 2 teeth.

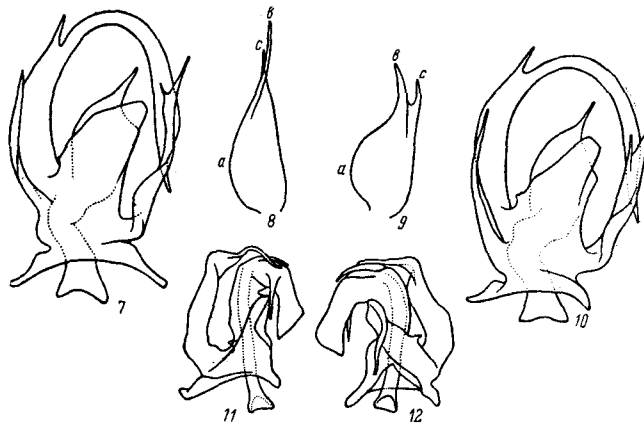
Distinguished from otherspecies of the genus by small size and by the structure of the head, which has smoothed sculpture.

Material. Kazakhstan, Dzhezkazgan Province, 40 km S. of Zhanaarka station (Atasu), 19 June 1960, 1 ♂ (Yemel'yanov); Karazhar on the Sarysu River near the mouth of the Karakengir, 8 June 1961, 1 ♂ (Yemel'yanov); Kirgizia. Naryn Province, Aktal 75 km W. of Naryn, 10 July 1966, many ♂♂ and ♀♀ including holotype ♂ (Yemel'yanov).

Genus *PENTASTIRA* Kirschbaum

Pentastira megista Emeljanov, sp. n. (Figs. 13-14).

The largest species in the genus. Closely related to *P. major* Kbm. (Fig. 21) and similar to it. Vertex of approximately the same length in the middle as its width in front, width of vertex at the rear 1.5 times its width in front. Intermediate keel of vertex bent in a right angle, converged longitudinal keels connecting the intermediate keel with the anteromarginal keel practically merged. Face regularly hexagonal and elongate with rounded lateral (obtuse) angles; width of vertexal margin of frons equal to width of postclypeus at the boundary with the anteclypeus, width of face approximately 0.5.5-0.6 its length to the



Figs. 7-12.

7-8 - *Pseudoliarus croceus*, sp. n.: 7 - aedeagus from above, 8 - left basal process of theca from the left; 9-10 - *P. verrucosus* Dub.: 9 - left basal process of theca from the left, 10 - aedeagus from above; 11-12 - *Pentastiridius liocara*, sp. n.: 11 - aedeagus from above, 12 - aedeagus from below. a, b, c - homologous teeth on processes of theca (Figs. 2-6, 8-9).

interclypeal suture. Costal margins of elytra less strongly curved in the basal part than in *P. major*.

Color dark brown to black. Keels on head light, brownish, lateral keels of frons practically white, more broadly lightened. Epiclypeal lobes of frons completely light beneath the dark flat impressions - windows. Lateral keels of vertex more strongly lightened and more broadly lightened in the middle part. Margins and keels of prothorax and tegulae also lightened. Scutellum with only slightly lighter keels. Elytra semi-transparent, with dark brown veins and blurred brown spots at base of elytra, near the stigma and the crossveins and on the membrane, clavus also slightly darkened. Venter and legs brown to dark brown, margins of abdominal sclerites light.

Length ♂ 10.4-10.5 mm, ♀ 10.4-11.8 mm.

Genitalia. The species is very similar to *P. major* in the structure of the genitalia, but is distinguished by the presence of a well defined notch on the exterior-posterior margin of the left style.

Material. Azerbaydzhan, Alekseyevka, 12 km SW of Lenkoran, 27 June-13 July 1932, 3 ♀♀ (Znoyko), 17 Aug. 1938, 2 ♂♂, including the holotype (Vel'tishchev); Vagoy, 7 July 1932, 1 ♀.

Pentastira erebunii Emeljanov, sp. n. (Figs. 16-19).

Similar to *P. major* and other species of the genus. Vertex appreciably longer in the middle than its width in front, its width at the rear approximately 1.5 times its width in front. Intermediate keel of vertex bent in an acute angle, keels connecting it in the middle to the anterior margin of the vertex smoothed, forming an approximately square small cell. Face regularly hexagonal, with rounded lateral (obtuse) angles. Width of vertexal margin of frons and of postclypeus at the boundary with the anteclypeus equal; width of face approximately 1.7-1.8 times less than its length to the interclypeal suture.

Indistinguishable in coloration from *P. major* Kbm. and *P. megista*, sp. n.

Length ♂ 7.0-7.5 mm, ♀ 8.7-9.6 mm.

Genitalia. Well distinguished in the structure of the genitalia by the unformed right basal process of the theca, as well as by the shape of the left style, which is apically rounded and has a deep notch on the posterior margin.

Material. Armenia, near Yerevan; Dzhrvezh, Berdadzor River, 8-16 July 1935 (Ter-Minasyan and A. Rikhter), 27 July 1957 (V. Rikhter); holotype (♂) - Berdadzor River, 8 July 1969 (V. Rikhter); Vedi, 1 July 1969, 1 ♀ (V. Rikhter).

Genus *REPTALUS* Emeljanov

Reptalus Corpulentus Emeljanov, sp. n. (Figs. 22-24).

A large species of the genus, externally reminiscent of *Pentastira major* Kbm. Vertex of approximately the same length in the middle as its width in front, width of vertex at rear approximately 1.5 times its width in front. Intermediate keel of vertex bent at an obtuse angle, almost a right angle; keels connecting its distal end with the anterior margin of the vertex enclosing a small, approximately square cell. Anterior margin of vertex smoothed, fork of median keel of frons small. Face a regular elongate hexagon with rounded lateral obtuse angles, width of vertexal margin of frons and of postclypeus at the boundary with the anteclypeus equal, width of face approximately 0.6-0.7 its length and more than twice the width of the vertex in front.

Coloration brown to dark brown. Keels on head light, brownish, lateral margins of frons more broadly lightened. Lateral keels of vertex more broadly lightened behind the intermediate keel. Margins and keels of prothorax and tegulae also lightened. Scutellum



Figs. 13-14. *Pentastira megista* sp. n.

13 - aedeagus from above, 14 - aedeagus from below.

with weakly lightened keels. Elytra semitransparent, slightly milky-smoky, with brownish veins, of which the longitudinal veins have dark brown granules and light hairs. Small blurred brown spots are frequently to be seen at the branching point of the clavus, on the 1st branch of the cubitus and on the median vein at the same level; there is a similar small spot on the pterostigma; the crossveins and the terminal margin of the membrane are also darkened (brown). Undersurface of body and legs brown to dark brown, margins of sclerites and keels lightened.

Length ♂ 6.0-6.9 mm, ♀ 7.5-8.1 mm.

Genitalia. Anal tube broad, with large triangular projection at rear, to the left of which there is a lateral lobelike process with a broadly rounded apex; the adjacent margins of the two processes run parallel. Styles asymmetric, intricately shaped, characteristic of the genus *Reptalus*. Theca with a long arcuate right basal process running around the aedeagus and with an additional process extending transversely outward from below, from inside its base, and bending upward. Left basal process not developed, only a broadly rounded projection present. Distal segment of aedeagus bearing 4 teeth.

The species is well distinguished from other species of the genus by the structure of the processes of the anal tube.

Material. Turkmenia, 21 km from Ashkhabad along the road to Firyuza, 11 June 1972, 6 ♂♂ and 2 ♀♀, including the holotype ♂ (Danilovich).

NEW SYNONYMS AND NEW COMBINATIONS OF SPECIES PREVIOUSLY INCORPORATED IN THE COMPOSITE GENUS *OLIARUS* AUCT.

- Pentastiridius apicalis* (Uhl., 1896), comb. n.
= *Oliarus apicalis* Uhl., 1896
= *Oliarus apicalis* Kusn., 1937, syn. n.
= *Oliarus kusnezovi* Soós, 1954, syn. n.
- Pentastiridius breviceps* (Kusn., 1937), comb. n.
= *Oliarus breviceps* Kusn., 1937
= *Oliarus tesquorum* Em., 1969, n. nud.
- Pentastiridius dagestanicus* (Kusn., 1937), comb. n.
= *Oliarus dagestanicus* Kusn., 1937
= *Oliarus pygmaeus* Vilb., 1961, syn. n.
= *Oliarus kasakhstanicus* Em., 1964, syn. n.

- Pentastiridius ecarinatus* (Mit., 1971), comb. n.
= *Oliarus ecarinatus* Mit., 1971
- Pentastiridius formicarius* (Mit., 1967), comb. n.
= *Oliarus formicarius* Mit., 1967
- Pentastiridius halozylis* (Mit., 1971), comb. n.
= *Oliarus halozylis* Mit., 1971.
- Pentastiridius lukjanovitshi* (Kusn., 1937), comb. n.
= *Oliarus lukjanovitshi* Kusn., 1937
- Pentastiridius ovatus* (Metc., 1955), comb. n.
= *Oliarus lacteipennis* Kusn., 1937, n. pr.
= *Oliarus ovatus* Metc., 1955
- Reptalus beirnei*, n. nov.
= *Oliarus artemisiae* Beirne, 1950, non
Oliarus artemisiae Mats., 1914
- Reptalus nigricollis* (Kusn., 1935), comb. n.
= *Hyalesthes nigricollis* Kusn., 1935
- Reptalus flavinervis* (Kusn., 1937), comb. n.
= *Oliarus furcatus* var. *flavinervis* Kusn., 1937
= *Oliarus cuspidistylus* Dlab., 1961, syn. n.
- Reptalus nigronevrosus* (Kusn., 1937), comb. n.
= *Oliarus nigronevrosus* Kusn., 1937
= *Oliarus figuratus* Dlab., 1961, syn. n.
- Reptalus rufocarinatus* (Kusn., 1937), comb. n., stat. n.
= *Oliarus quinquecostatus* var. *rufocarinatus* Kusn., 1937
= *Oliarus quinquecostatus* var. *flavidus* Kusn., 1937, syn. n.
= *Oliarus quinquecostatus* var. *pallidus* Kusn., 1937, syn. n.
= *Oliarus bitinctus* Dlab., 1961, syn. n.
- Reptalus venustus* (Logv., 1969), comb. n.
= *Hyalesthes venustus* Logv., 1969
- Hyalesthes obsoletus* Sign., 1865
= *Oliarus lacotei* Dlab., 1970, syn. n.
- Pseudoliarus obliteratus* (Kusn., 1937), comb. n., stat. n.
= *Oliarus fuscofasciatus* var. *obliteratus* Kusn., 1937
= *Oliarus interruptus* Mit., 1971, non Hpt., 1917
- Eumecurus longivertex* (Kusn., 1937), comb. n.
= *Oliarus longivertex* Kusn., 1937
= *Eumecurus caudatus* Em., 1971, syn. n.
- Oliarus ecarinatus* Kusn., 1937

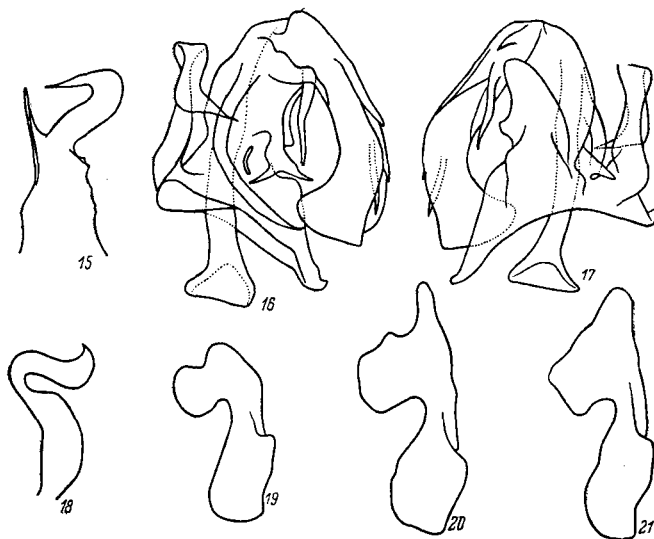
The type has not been preserved, with the exception of a part of the fore wing glued to a cardboard triangle on a pin, and the labels.

Fam. DICTYOPHARIDAE

Genus *CNODALUM* Emeljanov, gen. n.

Type species - *Sphenocratoides rugosus* Emeljanov, 1964.

Body moderately longitudinally elongate-oval, head rather elongate. The integument and the sculptural formations on it are typically coarse and uneven. Vertex projecting in front of the eyes for approximately 2/3 of its length. Contour of vertex rather angular, constituted of a broken line with rounded transitions, rather than by a smooth arc; lateral margins of vertex



Figs. 15-21.

15 - *Pentastira megista* sp. n., right basal process of theca from the right; 16-19 - *P. erebunii*, sp. n.: 16 - sedeagus from above, 17 - aedeagus from below, 18 - right basal process of theca from the right, 19 - left style from below and in front; 20 - *P. megista*, sp. n., left style from below and in front; 21 - *P. major* Kbm., left style from below and in front.

parallel between eyes, weakly converging in front of eyes, bending, converging subapically on the apex at an acute angle, bending again at the junction point of the lateral keels of the frons; middle segments of sides of vertex straight or even slightly concave. Median keel of vertex prominent. Vertex slightly convex in profile, horizontal in the anterior part. Frons concave in profile on the upper part, rather broad, elongate, with prominent keels, approximately parallel-sided from the clypeus to the upper margins of the eyes, narrowing above like an arrow toward the apex, intermediate keels running parallel to the lateral keels and converging apically. Frons flat to upper margin of eyes, above which its lateral lobes turn onto the lateral sides, so that the frons becomes trapeziform in cross section. Lateral lobes of frons approximately 2/3 width of median lobes throughout their extent. Apical callus small, longitudinal. Postclypeus projecting onto the frons in an arc or as an indistinct trapezium practically to the level of the lower margins of the antennae. Postclypeus rather flat with a prominent median keel. Width of pronotal disc approximately 1.5-1.7 times its length, lateral keels of disc weakly diverging rearward in the middle part, disappearing at the rear, bending outward, falling short of the posterior margin of the disc by approximately 1/3 the length of the pronotum; in front they bend to give way to the obtuse-angled anterior margin of the disc. Posterior margin of pronotum weakly obtusely concave on the whole, its margins slightly convex along the sides, straight in the middle. Scutellum moderately transverse, with three keels. Elytra with a coarse network of veins, among which more prominent longitudinal veins are distinguishable; sutural and sublateral keels prominent. Abdomen bearing sparse, but rather coarse black hairs above, its sublateral keels and median keel prominent, intermediate keels indistinct, appearing as flat irregularities. Punctures at site of larval sensory pits indistinct, not recordable.

Legs simple, comparatively stout and short. Hind tibiae with 4-6 lateral teeth.

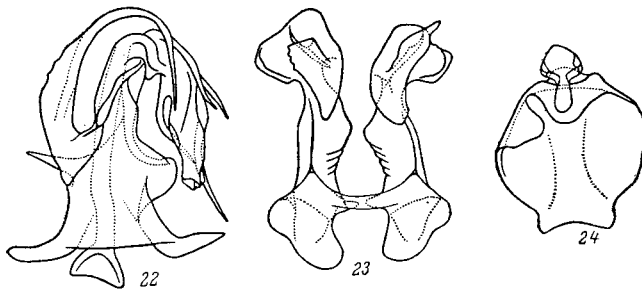
The genus is distinguished from the genus *Sphenocratus* Horv. in the structure of the male genitalia, the paired superior vesicles of the theca, the simple hooks of the aedeagus, lacking lateral processes, and some more minor characters. In the structure of the female genitalia the genus is distinguished by the digitiform appendage of the ventral lobe of the 3rd valve of the ovipositor. Cnodalum is apparently closer to the genera *Ranissus* Fiedb. and *Elysiaca* Em. than to *Sphenocratus* Horv., although it is obviously distinguished from the first two by general appearance.

The genus has one species, *Cnodalum rugosum* (Emeljanov, 1964), comb. n. (= *Sphenocratoides rugosus* Em.).

Genus *IPHICARA* Emeljanov, gen. n.

Type species - *Bursinia bouviere* Bergevin, 1913.

Body moderately longitudinally elongate-oval, slightly flattened dorsoventrally. Head rather broad, moderately elongate or rather long, projecting forward from the eyes, when viewed from the side, by 1-2 longitudinal diameters of the eye. Vertex broadening slightly anteriorly between the eyes, broadening more weakly anteriorly in front of the eyes or becoming parallel-sided and then converging parabolically on the apex. Median keel of vertex extremely prominent. Vertex shaped like a flat roof at the rear, becoming more steeply rooflike in front and usually roundly distended apically. When seen in side view the lateral keel of the vertex is weakly S-shaped; the apical part, the convexity of which is forward, is slightly steeper than the posterior part. The median keel is straight



Figs. 22-24. Reptalus corpulentus, sp. n.

22 - aedeagus from above, 23 - styles from above, 24 - anal tube from the rear and below.

or slightly concave at the rear, rather strongly convex apically. On the anterior part of the vertex its margins, which are more or less spread sideways, overhang the narrower frons and tempora. The apical callus is of medium size, triangular or trapeziform, with a broader upper (vertexal) margin. Frons approximately straight in profile, strongly convex in transverse section, trapeziform, its lateral keels, prominent throughout their length, slightly converging apically, where they indistinctly join the lateral keels of the vertex; the lateral lobes of the frons are visible from in front along the sides from the middle right to the apex. Inner lobes of frons parallel-sided basally, narrowing to a point apically. Lateral lobes of frons bearing two rows of sensory pits from a level slightly below the lower margins of the eyes to the distal ends, with pits of an additional middle row appearing near the apex; there is a single sensory pit at the clypeal ends of the intermediate keels. Postclypeus broad, weakly or moderately convex, projecting onto the frons slightly above the level of the antennae. Postocular keel prominent. Postocular swelling with rounded upper and lower margins, upper margin with a distinct oblique keel. Pronotum short and broad, generally falciform, its posterior margin uniformly and fairly strongly concave, its anterior margin on the whole convex, but notched behind the eyes. Pronotal disc approximately trapeziform, its anterior margin little more than half the width of the posterior margin and approximately 1.5 times the length of the median keel. Median keel and lateral keels of disc prominent, extending to the posterior margin of the pronotum. The disc has three sensory pits along each side. The scutellum has three distinct keels and a transverse row of 3-4 sensory pits outside the lateral keels; the pits reduce toward the outer margin. Elytra smooth, matte, with a prominent sublateral keel and often also a sutural keel, in which case the longitudinal veins on the corium form keel-like projections. Abdomen with prominent sublateral keels and a median keel above, usually without intermediate keels, although they are sometimes slightly apparent. Sensory pits on the inside of the sublateral keels clustered in threes on tergites IV-VII and singly on tergite III, with one sensory pit on the outside of the sublateral keels on tergites III-VII. Sides of pronotum flat, bearing one sensory pit below the keel on the posterior margin and two above. Legs of medium length, narrow. Hind tibiae with 4-6 teeth on outer margin.

Iphicara differs from Bursinia A. Costa in typically having a vertex that is straight rather than concave posteriorly, high lateral keels of the frons on the upper part of the face, lateral lobes of the frons that are

visible from in front throughout their extent, sensory pits on the abdominal tergites outside the sublateral keels and only three (rather than four) sensory pits on tergite VII.

The genus comprises the species Iphicara bouviere (Bergevin, 1913), comb. n. (= Bursinia bouviere Bergv.); Iphicara socors (Horváth, 1910), comb. n. (= Bursinia socors Horv.); Iphicara risleri (Bergevin, 1925), comb. n. (= Bursinia risleri Brgv.); Iphicara globiceps (Linnavuori, 1961), comb. n. (= Bursinia globiceps Lnv.).

Genus Nymphorgerius Oshanin

Nymphorgerius balchanicus Emeljanov, sp. n.

Moderately elongate-oval with a moderately elongate head. Length of vertex approximately twice its width, vertex projecting forward from the eyes for approximately half its length, its sides between the eyes appreciably convex, so that the greatest width of the vertex is approximately 1.2 times its width at the posterior margin; lateral margins of vertex also slightly convex in front of the eyes, converging apically like an arrow. Vertexal keels prominent, spaces between keels weakly groove-like. Vertex weakly convex in profile, approximately horizontal. Apical callus fairly large, slightly longitudinal. Frons straight in profile, postclypeus convex. Frons narrow in plane section, moderately elongate, its width on the level of the antennae approximately $2/5$ its length. Lateral margins of frons between eyes straight, converging upward, slightly concave below the eyes and convex opposite the antennae. Lateral lobes of frons gently groove-like in the middle part, visible from in front along the sides of the median lobes as narrow, upward tapering bands throughout the distance to the upper margins of the eyes, where they carry over onto the longitudinal vertical plane and are scarcely visible from in front. Lateral keels of frons distinct throughout their length, high opposite the antennae, low from the lower margin of the eyes and above. Intermediate keels of frons between eyes and slightly below approximately straight, parallel, converging higher up parabolically on the apex, diverging slightly lower down to the postclypeus, breaking off slightly above the margin of the postclypeus on the level of the upper margins of the antennae. Lateral lobes of frons bearing two rows of sensory pits above the level of the lower margins of the eyes; at the lower ends of the intermediate keels there is a single epiclypeal sensory pit externally on the level of the upper margins of the

antennae. Postclypeus moderately broad, convex, slightly swollen above between the epiclypeal lobes of the frons, projecting onto the frons to the level of the antennae, its median keel prominent throughout its extent. Pronotum with a weakly arcuate posterior margin. Pronotal disc projecting forward for approximately half its length, trapeziform, its lateral margin slightly convex, prominent all the way to the posterior margin. Median keel of disc approximately 0.6 as long as posterior margin and 1.5 times as long as anterior margin. Scutellum broad, transverse, with prominent longitudinal keels and sometimes with a pronounced anterior transverse keel. Sensory pits on lateral lobes small, set back appreciably from the lateral keels. Elytra smooth and shiny, without sutural keels and with sublateral keels developed only at the very base. Abdomen with a prominent median keel and sublateral keels, intermediate keels wanting; 3+1 sensory pits on tergites IV-VII, inner pit weakly defined, three pits above and randomly distributed pits on the sides of tergite VIII. Sides of pronotum with minute tubercles, sensory pits on sides 2/1. Legs long, narrow, linear; hind tibiae with 4-6 lateral teeth.

The general coloration is light brown above, lighter below. Head brownish above lower margins of eyes, vertexal areas slightly lighter. A black band extends across the upper part of the postclypeus, the epiclypeal lobes of the frons, the cheeks, and round and below the antennae; median keel of postclypeus and lateral keels of epiclypeal lobes of frons light all the way to the antennae. A whitish band extends above the black band along the lower part of the frons below the eyes and along the subocular keels. Lower part of postclypeus light, with brownish V-shaped bands, its lateral margins and lower margin blackened. Dark spots on anteclypeus; lower ends of lora usually blackened. Pronotum light, with darkened keels. The black band of the face is continued on the sides of the pronotum; the parts of the pronotum remaining light are the lower part below the level of the lower margin of cheeks - base of costa and the upper part above the line from the upper margin of the antennae to the posterolateral angle of the pronotum. The keel on the sides of the prosternum remains light, like its narrow anterior margin; the sensory pits are lightly bordered, a short light stria extends forward from the pit below the keel. The lower margin of the band forms a narrow rounded notch to the middle of the tubercles. The scutellum is as light and brownish as the pronotum. Elytra light brown, but noticeably darker than scutellum and pronotum. Epipleura dark brown from anterior margin, with the darkening gradually weakening to the rear and evening up with the remainder of the elytra, but traces of a reticulate pattern show through. The area at the base of the elytra inward from the epipleura, lying below the keel of the pronotum and continuing the dark band of the face and the sides, is also indistinctly darkened. The sublateral keel is lightened on the darkening as a bright stripe rapidly attenuating as the keel becomes smooth. Abdomen brown above, darker to dark brown along the margins, keels and emargination of sensory pits light; in addition, longitudinal light stripes are indicated along the sides and set away from the median keel and even lighter stripes through the inner sensory pits. The lateral area of tergites VI-VII is more abruptly darkened in females than the other areas. The pygofer of males has a pair of black spots along the sides; in females these spots are smaller and lie along the sides on the tergal part of segment VIII to the rear of the inner group of sensory pits of the previous segment. Females also have a pair of dark spots on the outer lobes of the 3rd valves

of the ovipositor laterad of the base of the anal tube.

Venter light, lacking distinct markings, distal ends of epimere of mesothorax slightly darkened. Fore and middle legs with light keels and more or less strongly darkened interstices, hind legs lighter, tibiae often completely devoid of markings.

Length ♂ 4.2-4.6 mm, ♀ 4.8-4.9 mm.

Distinguished from the similar *N. transcaucasicus* Sid. by the less prominent lateral keels of the frons, the lateral keels of the pronotal disc, which extend strictly to the posterior margin, the sensory pits of the scutellum, which are removed from the lateral keels, the presence of rudiments of sublateral keels on the elytra, the presence of a notch on the lower margin of the band extending across the tubercles, the darkening of the epipleura, a pair of spots on the pygofer and other characters.

Material. Turkmenia, Bol'shiye Balkhany, Seutili, 25 km NE of Nebitdag, 4 July 1973, 3 ♂ and 4 ♀ including the holotype ♂ (Yemel'yanov).

Along the steep flank of a dry stony gully, among *Ephedra equisetina*.

Nymphorgerius eburneolus Emeljanov, sp. n.

Squat-oval, with short head. Length of vertex 1.5-1.7 times its width, vertex protruding forward from the eyes for approximately one-third of its length, arrow-shaped with an acute-angled, narrowly rounded apex, its lateral margins gently curved, parallel in the posterior part between the eyes. Lateral keels and median keel of vertex prominent, spaces between keels more or less flat. Vertex strongly inclined forward in profile, weakly convex. Apical callus small, approximately equilateral. Frons straight in profile, postclypeus convex, acute angle between frons and vertex, almost a right angle. Frons broad, rather short, its length less than twice its width between the antennae, its lateral margins generally converging on the apex, convex opposite the antennae, concave below the eyes, straight higher up. Lateral lobes of frons recurved sideways and located in an oblique vertical plane from the clypeus to the distal ends and therefore visible from in front throughout their length. Lateral keels of frons prominent and high opposite the antennae, distinct but low higher up, approximately from the level of the lower margins of the eyes. Intermediate keels of frons ~~between eyes~~ straight, weakly converging upward, slightly diverging in an arc below the eyes and continued on the upper third of the epiclypeal lobes of the frons. Lateral lobes of frons bearing two rows of sensory pits from the level of the lower margins of the eyes and sometimes additionally separate pits of a third row, with one epiclypeal pit lower down at the level of the antennae, slightly above the ends of the intermediate keels. Postclypeus broad, greatly swollen, projecting onto the frons to the level of the upper margins of the antennae in females and slightly higher in males. Median keel of postclypeus prominent throughout its extent. Pronotum with weak, generally arcuate or obtuse-angled, roundly concave posterior margin, its ends slightly convex. Pronotal disc projecting forward for approximately half its length, approximately semicircular, its lateral margins convex, giving way imperceptibly to the anterior margin, median keel about half as long as the posterior margin and approximately as long as the anterior margin, the boundaries of which are, however, difficult to discern. Scutellum broad, transverse, with prominent longitudinal

keels and a distinct transverse keel along anterior margin. Scutellum without sensory pits. Elytra matte, slightly rugose, with a slightly projecting network of veins at the rear, sublateral keel prominent, sutural keel wanting or indicated posteriorly. Abdomen with a prominent median keel and sublateral keels and indistinct intermediate keels; 3+1 sensory pits on tergites IV-VII, segregated sensory pit weakly separated, three pits above and randomly distributed on the side of tergite VIII. Sides of pronotum without tubercles, matte, weakly convex. Sensory pits on sides of prosternum 2/1. Legs short, fore and middle femora and tibiae slightly dilated, more so on the fore than the middle legs. Fore coxae with a prominent obtuse-angled projecting outer margin. Hind tibiae with 4-5 lateral teeth.

Integument invariably pale, yellowish, with indistinctly expressed dark markings. A dark brown to black band continued on the sides of the prothorax extends across the upper part of the postclypeus, the epiclypeal lobes of the frons and the cheeks near and below the antennae. Above the black band along the lower part of the frons there is a whitish band beneath the eyes and along the subocular keels. The remainder of the frons from the level of the lower margins of the eyes is slightly darkened, with the darkening sometimes condensed to form a blurred spot in the middle below, between the intermediate keels. Brownish V-shaped markings are noticeable on the postclypeus. Boundary between ante- and postclypeus darkened. On the sides of the pronotum, but only beneath the keel, is a continuation of the dark band of the face; the only parts remaining light here are the lower part of the sides below the level of the lower margins of cheeks - base of costa and the upper anterior angle beneath the keel. Sensory pit lightly bordered. Scutellum weakly, but distinctly darkened. Elytra with a light band in the middle behind the apex of the scutellum, anterior and posterior margins of band blurred, elytra weakly darkened in front of the band, more weakly than the scutellum, but more strongly darkened behind the band. Sublateral keel bordered basally by dark lines. Weak dark markings sometimes present on upper surface of abdomen, darkened laterad of the median keel and along the posterior margins between the intermediate keels, and also around the sensory pits outside their light border and externally from the sublateral keels; all the keels remain light. The sides of the tergal part of segment VIII and the outer lobes of the 3rd valve of the ovipositor above are darkened in females. The venter lacks distinct markings. Fore and middle coxae darkened on basal half outside the keels. Fore femora and tibiae with dark mottling on femora clustered into indistinct bands subapically and basally, and also on tibiae, apically and basally; the markings on the middle legs are the same but far less strongly expressed. Tarsi of fore and middle legs slightly darkened. Brown mottlings to be seen here and there on hind femora and tibiae.

Length ♂ 3.1-3.8 mm, ♀ 3.5-3.8.

Distinguished from *N. horváthi* Osh., which is similar, by its appreciably smaller size, blunter head, slightly rugose elytra, the absence of tubercles on the sides of the pronotum and the distinct band across the face and the sides of the pronotum, without a notch on its lower margin in the region of the tubercles.

Material. Turkmenia, 7 km SW of Archman, 20 July 1973, 1 ♂ (Yemel'yanov); near the Bakharden cave, 17 km SE of Bakharden, 20 July 1973, 60 ♂♂ and ♀, including holotype ♂ (Yemel'yanov); 10 km NNE of Firyuza, 21 July 1973, 1 ♂ and 4 ♀♀ (Yemel'yanov);

Akarcheshme, 35 km WNW of Lake Yeroylanduz, 10 Aug. 1973, 15 ♂♂ and ♀♀ (Yemel'yanov); Kyzyl'dzhar, N of Yeroylanduz, 11 Aug. 1973, 30 ♂♂ and ♀♀ (Yemel'yanov).

Genus *SCIRTOPHACA* Emeljanov

Scirtophaca bungei Emeljanov, sp. n.

Squat-oval, with a short head. Length of vertex one-third greater than its width, vertex projecting forward from the eyes for approximately one-third - two-fifths of its length, its sides approximately parallel between the eyes, bending initially more steeply in front of the eyes, thereafter gently and converging on the apex at an acute angle, practically a right angle. Vertex with prominent keels, spaces between keels concave. Vertex straight in profile, perceptibly inclined forward. Apical callus small, weakly extended. Frons weakly convex in profile, as is the postclypeus. Frons rather broad and short, its length slightly less than twice its width. Frons slightly diverging downward, slightly more strongly in males. Lateral keels of frons straight or slightly concave, intermediate keels of frons approximately parallel in the middle part, diverging slightly near the clypeus, continued along the sides from it for some distance, parabolically converging apically above the eyes. Median lobes of frons of approximately the same width as the lateral lobes. Lateral lobes of frons deflected to the sides throughout their length, more strongly apically, bearing two rows of sensory pits above the level of the lower margins of the eyes, with one epiclypeal pit lower down approximately on a level with the antennae and another higher up on a level with the middle of the distance between the antennae and the eyes. Postclypeus broad and convex, slightly more strongly developed in males than in females, projecting onto the frons approximately to the level of the lower margins of the eyes or slightly lower. Pronotal disc projecting in an arc in front, its approximate width slightly greater than its length. Posterior margin of pronotum generally weakly concave, slightly convex along the sides. Scutellum transverse, with three prominent keels, lateral keels joined in front by a transverse keel extending along the anterior margin of the scutellum; one fairly large sensory pit on the lateral lobes, separated from the keel. Elytra smooth, with a poorly apparent network of veins, sutural keels wanting, sublateral keels prominent. Abdomen with a prominent median keel and sublateral keels, intermediate keels wanting. Sides of pronotum without tubercles. Legs simple, short; hind tibiae with 3-5 lateral teeth.

Integument pale brown in the main or greenish pale brown, sometimes with brown to dark brown markings. On the head of more strongly pigmented individuals a dark brown band extends across the upper part of the postclypeus, the epiclypeal lobes of the frons and the cheeks near and below the antennae and is continued on the sides of the pronotum; above the dark band a narrow whitish band extends along the lower part of the frons below the level of the eyes and beneath the eyes across the subocular keels; the face above this band is weakly brownish. There are perceptible narrow brownish V-shaped markings on the lower part of the postclypeus; the boundaries between the post- and anteclypeus are darkened, and there are dark spots on the anteclypeus. Vertex and pronotum pale brown, without markings. The sides of the pronotum bear a continuation of the dark band of the face; they are darkened from the upper margin to the level of the lower margins of cheeks - upper end of pleural suture of mesosternum; the sensory pits are lightly

bordered; the anterior end of the upper submarginal keel of the sides also bears a light spot. Scutellum more strongly darkened than prosternum. The elytra bear dark reticulate markings along the projecting network of veins. Epipleura of metathorax darkened on upper half. Abdomen darkened to brown or practically dark brown, bearing rows of light blurred small spots along the sides of the median keel, separated from it, each side of the inner segregated pit; other spots converged, sensory pits narrowly lightly bordered; sublateral keels also invariably remaining light; 9th tergite of females darkened along sides and bearing a dark small spot in the middle. Venter, like dorsum, usually light, lacking markings. In darker individuals blurred dark spots may be seen on the metasternum and hind coxae; the spaces between the keels on the legs are darkened.

Length ♂ 3.6-3.9 mm, ♀ 3.4-4.3 mm.

Similar to *S. junatovi* Em. and practically indistinguishable from it in external appearance. Also similar to *S. junatovi* in the structure of the genitalia, but clearly distinguished by the small teeth uniformly distributed over the surface of the lower vesicles of the theca; in *S. junatovi* the teeth are large and all located on the lateral surfaces of the vesicles.

Material. Georgia, Vashlovan reservation, 29 June 1972, 1 ♂, holotype and 1 ♀ (Gegechkori). Azerbaydzhan. 38 km W of Baku, 30 June 1973, 2 ♂♂ and 2 ♀♀ (Logvinenko); Nakhichevan ASSR, Dzhul'fa, 29 July 1970, 3 ♂♂ and 4 ♀♀ (Logvinenko); Dzhul'fa (Darasham), 25 Aug. 1932, 1 ♂ (Ryabov); Dzhuga near Dzhul'fa, 4 July 1931, 1 ♀ (Ryabov).

Fam. ISSIDAE

Genus *PHASMENA* Melichar

Phasmena cardinalis Emeljanov, sp. n. (Fig. 25).

This is a large member of the genus *Phasmena* with a greatly elongated head. The cephalic process is more or less straight or slightly recurved rearward, projecting obliquely upward and forward. The vertex is straight in profile or slightly concave apically, the frons slightly convex, more so apically. The vertex is rectangular, its length approximately 4 times its width, its lateral margins subapically slightly concave, at which point the vertex is slightly narrowed. Vertex slightly concave, its median keel indistinct. Frons very elongate, broadening slightly downward in the lower part, the part above the eyes approximately 1.5 times the length of the lower part from the upper margin of the eyes. Frons gently roof-like in transverse section, median keel prominent, intermediate keels wanting. Pronotal disc gently longitudinally concave in a groove on the basal middle part; median keel not prominent. Lateral areas of disc indistinctly longitudinally projecting like keels, bounding the concavity of the middle part and serving as a continuation of the lateral keels of the vertex. Scutellum bearing 4 smoothed keels: outer longitudinal keels approximately parallel, lying on the continuation of the lateral keels of the vertex and the pronotum; inner pair of keels extending from anterior margin equidistant from each other and from the outer keels; originally parallel they subsequently diverge in an arc rearward and rest against the posterolateral margins approximately at a right angle.

Geniculate projections of elytra prominent, located in anterior third, lateral margins of elytra to the rear

of the projections slightly concave or straight if viewed from above. The anterior branch of the radius (more precisely ScR) extends along the crest of the geniculate projection; the costal area lying below the crest is turned under onto the lower side.

Color predominantly brown, with strongly developed dark brown markings. Vertex and preocular area usually darkened, with light keels, face usually lighter, especially on lower part. Postclypeus brownish, with light keels. Pronotum and scutellum also darkened, with light keels. Elytra with more or less light veins and light mottling and spots between the merging dark spots; light spots with the pattern usual for the Issidae are frequently distinguishable against the dark ground. A light band interrupted in the middle extends from the costal margin across the geniculate projections to the first vein of the clavus before the junction; thereafter the elytra are lightened along the elytral suture on the clavus and along the claval suture to the rear of the band. Along the costal margin to the rear of the geniculate projection there is an extensive light triangular spot and on the posterior part of the elytra a crescentiform light band on each elytron, with its convexity forward, and with one end extending onto the margin of the wing to the rear of the apex of the clavus, the other at the apex of the vein R₂(Rs). In some males the elytra are uniformly red or yellowish orange, without markings. Venter, including coxae, more or less light. Legs darkened between keels, distal parts of tibiae and tarsi entirely darkened.

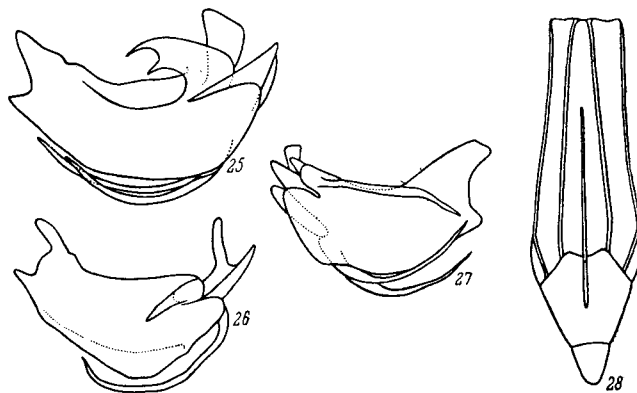
Length ♂ 4.4-5.1 mm, ♀ 5.8 mm.

This is the longest-headed species in the genus. It is similar to the long-headed species *Ph. telifera* Mel., the type-species of the genus, but in *Ph. telifera* the frons is strongly concave slightly above the eyes and the part of the frons above the eyes is of approximately the same length as the lower part. Other members of the genus *Phasmena* have an appreciably shorter head.

Material. Turkmenia, Ipaykala, 12 km E of Karaul, 16-19 July 1973, 32 ♂♂ and 1 ♀, including the holotype ♂ (Yemel'yanov); 7 km SW of Archman, 20 July 1973, 1 ♂ (Yemel'yanov). On *Atraphaxis* sp.

Phasmena tardiviva Emeljanov, sp. n. (Fig. 26).

A small *Phasmena* species with a moderately elongate head. Cephalic process, seen in side view, slightly recurved forward, its vertexal margin straight, slightly ascending, the frontal margin distinctly concave, with its maximum curvature opposite the upper margins of the eyes. Vertex rectangular, its length approximately twice its width. Vertex longitudinally gently impressed with a more or less distinct median keel, anterior margin of vertex slightly concave or concave with a weak projection in the middle. Frons rectangular, its length approximately three times its width, its upper margin appreciably concave. The part of the frons above the eyes is 2/5 of its total length. Lower part of frons approximately flat, upper part gently convex, rooflike. Intermediate keels distinct, lying slightly nearer the median keel than the lateral keels, merging with the median keel in an arch above the eyes, falling far short of the upper margin of the frons. The convexities on the pronotum lying on the continuation of the lateral keels of the vertex are gentle and inconspicuous, not appearing as keels. Only an outer pair of keels is developed on the scutellum. The structure of the elytra and the legs is the same as in other species of the genus.



Figs. 25-28.

25 - *Phasmena cardinalis*, sp. n., side view of aedeagus; 26 - *Ph. tardiviva*, sp. n., side view of aedeagus; 27 - *Ph. breviscula*, sp. n., side view of aedeagus; 28 - *Ph. alosa* sp. n., frons and clypeus.

On the whole markings of brown to dark brown merging spots are developed against a pale brownish or greenish background. Vertex and preocular area darkened, but the keels remain light, and there are two small light spots located apically on the vertex with their apices extending rearward from the anterior margin. A small dark spot is segregated on the preocular area in front of the eye. On the frons there is a row of small rounded dark spots indicating the sites of the larval sensory pits only laterad of the intermediate keels. Upper part of frons more strongly darkened, lower boundary of the darkened area extending from the apex of the median keel obliquely downward and outward, isolating the dark triangles of the lateral angles of the frons, lightened in the middle and darker along the edges. Pronotal disc and scutellar disc light, lateral parts darkened. There is sometimes a blurred darkened area on the discs taking the form of longitudinal stripes extending along the sides of the light median keel, which is not morphologically developed on the scutellum. There are large dark spots on the elytra formed by the almost total fusion of smaller spots, and lighter spots on which there are scattered small dark spots; the veins are invariably fairly light, but lighter on the light spots, where they are indistinguishable from the background, and darker on the dark spots, where they appear light against the dark ground. A transverse light spot is distinguishable on the elytra, extending from the geniculate projection to the first claval vein, and there is a light longitudinal stripe along the suture of the elytra, lying inside the second claval vein in front and disappearing on the terminal margin of the wing, and a light spot lying in front of a line extending from the posterior margin of the geniculate swelling to the apex of the posterior branch of the median vein; the spot extends rearward only as far as the apical cells, which are darkened, and on the costal margin it rounds two dark spots from above: an anterior spot lying in front of the apical part of vein R₁(ScR₁), and a posterior spot lying at the apex of vein R₂(Rs). The anterior small spot is narrow, longitudinal, the posterior one transverse; these dark spots are separated by a narrow projection of the light spot. Venter light, femora and tibiae darkened between keels and only in the middle parts removed from the articulations.

Length ♂ 3.0-3.3 mm, ♀ 3.4-3.9 mm.

The new species is distinguished from *Ph. telifera* and *Ph. cardinalis*, sp. n., by a much shorter head, from *Ph. nasuta* Mel. by the parallel-sided frons, not narrowing apically, from *Ph. nigrodorsalis* Sid. by the longer frons, which is concave in profile with intermediate keels developed throughout its extent, and a narrower vertex - the length of the vertex is approximately twice its width in *Ph. tardiviva*, only 1.7 times in *Ph. nigrodorsalis*.

Material. Kazakhstan: Mangyshlak Province, Manashi River, 35 km SSW of Beyneu, 9-10 Sept. 1973, 5 ♂♂ and 8 ♀♀ (Yemel'yanov); Sandy, 35 km SSW of Sayutes, 11 Sept. 1973, 50 ♂♂ and ♀♀, including holotype ♂ (Yemel'yanov); Karatau mountains, 20 km E of Onda, 13 Sept. 1973, 11 ♂♂ and 6 ♀♀ (Yemel'yanov, Volkovich); Baskuduk, 15 km WNW of Ushtagan, 15 Sept. 1973, 1 ♂, 2 ♀♀ (Yemel'yanov); Karagiye, 30 km W of Zhetybay, 16 Sept. 1973, 1 ♀ (Yemel'yanov). Karakalpakia: 13 km NW of Karakalpakia station, 8 Sept. 1973, 5 ♂♂ and 5 ♀♀ (Yemel'yanov); 55 km NW of Zhaslyk (Tuleya), 8 Sept. 1973, 1 ♂ and 1 ♀ (Yemel'yanov); 17 km NW of Zhaslyk, 7 Sept. 1973, 3 ♀♀ (Yemel'yanov); 20 km SE of Zhaslyk, 7 Sept. 1973, 1 ♂ and 1 ♀ (Yemel'yanov); 75 km SE of Zhaslyk, 7 Sept. 1973, 5 ♂♂ and 1 ♀ (Yemel'yanov). On *Atraphaxis* spp. at all collection points.

Phasmena breviscula Emeljanov, sp. n. (Fig. 27).

A small *Phasmena* with a rather short head. Vertex slightly ascending, longitudinally gently impressed, straight in profile, rectangular in front, its length approximately 1.5 times its width, anterior margin with weakly and bluntly projecting apex. Median keel of vertex weak or scarcely expressed. Frons, viewed from the side, approaching vertex at an acute angle. Front almost flat, with straight, upward converging lateral margins, width of frons below approximately 1.5 times its width above. Width of frons below approximately half its length. Median keel of frons prominent, intermediate keels not developed. Length of part of frons above the eyes half its width. Pronotum with a gentle and broad longitudinal groove

in the middle part bearing a pair of impressions near the middle, lateral parts of pronotum also gently convex. Scutellum with only two outer keels. Elytra of the usual structure.

Ground color of body whitish, brownish or greenish, sometimes with brown to dark brown markings of the customary pattern for the genus. On the vertex there are two longitudinal dark stripes along the sides of the median keel and two oblique stripes extending from the anterior angles to the median line on the anterior part of the vertex. Preocular areas darkened from the vertexal margin in the form of a band with a small dark spot below it in front of the eye. A dark band on upper margin of frons with the form of the letter W, small dark spots on lateral lobes of frons on the site of the nymphal sensory pits. Lateral parts of pronotum and scutellum darkened. Elytra with dark and light spots in the usual pattern. In front a light spot, gently crescentiform, with its convexity facing rearward, extends from the geniculate projection to the point of fusion of the claval veins; to its inside and rear there is a light lanceolate longitudinal spot along the suture of the elytra, followed by an indistinct transverse spot on the membrane and a longitudinal spot near the costal margin to the rear of the crescentiform spot and in front of the spot on the membrane. Venter without distinct markings, only the middle parts of the femora and the tibiae between the keels sometimes darkened.

Length ♂ 3.0-3.1 mm, ♀ 3.7-3.8 mm.

The new species is similar to *Ph. nigrodorsalis* Sid., but is distinguished by a shorter head, the length of the vertex being no more than 1.5 times its width, and the width of the part of the frons in front of the eyes being twice its length, whereas in *Ph. nigrodorsalis* the length of the vertex is approximately twice its width, and the length of the part of the frons in front of the eyes slightly exceeds its width. It is distinguished from *Ph. nasuta* Mel. by the much broader vertex and the lack of intermediate keels that are developed on the lower part of the frons in *Ph. nasuta*.

Material. Turkmenia, Krasnovodsk Province: 15 km NNE of Kuulimayak, 21 Sept. 1973, 4 ♂♂ and 1 ♀ (Yemel'yanov); 40 E of Krasnovodsk, 23 Sept. 1973, 43 ♂♂ and ♀, including holotype ♂ (Yemel'yanov).

Phasmena alosa Emeljanov, sp. n. (Fig. 28).

A very large, strongly laterally compressed *Phasmena*, with a rather long head. Vertex ascending and elongate, narrowing slightly apically, with weakly concave lateral margins, deeply impressed, with a slender median keel; length of vertex approximately 2.5 times its basal width. Frons concave in profile, gently roof-like in cross-section below, more convex above, trapeziform. Frons narrowing from the level of the lower margins of the antennae to the upper margins, its lateral margins straight, converging rather steeply on the postclypeus below the antennae. Greatest width of frons below practically twice its least width on its upper margin, part of frons above eyes only slightly shorter than the remainder. Frons with prominent keels; median keel disappearing slightly above the eyes. Intermediate keels extending parallel to the lateral keels, equally removed below from the median keel and the lateral keels, equally removed above from each other and from the lateral keels and distinctly merging with the upper margin of the frons. Pronotum with a gentle broad, longitudinal impression in the middle part and similar convexities along the sides. Outer keels on scutellum prominently,

inner keels indistinct. Head not so large relative to the body as in other species of the genus, although it is long, and the elytra appear more extensive than in other species.

General coloration brownish-grayish, markings absent or consisting of indistinctly projecting darker spots. Vertex darkened between keels, frons also darkened, with a blurred light spot in its middle part, between the eyes and inward from the intermediate keels. Clypeus also darkened between the keels. Small dark spots on pronotum on the site of the larval sensory pits and a longitudinal median dark stripe. Lateral parts of scutellum darkened, markings on middle part concealed by a wax film that is also developed, although less strongly, on the pronotum and vertex. Elytra with lighter veins, and with dark mottling and indistinctly developed dark spots, with weakly expressed lighter areas. Markings more contrasting on anterior part of elytra, where a light crescentiform spot characteristic of the genus is to be seen between the dark spots.

Venter without markings, only femora and tibiae bearing dark merging spots in the spaces between the light keels.

Length ♂ 5.0-5.8 mm, ♀ 6.0 mm.

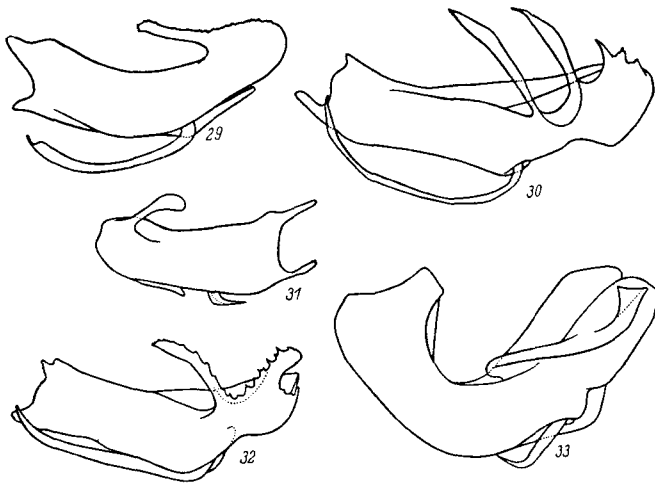
The species is clearly distinguished from all other species of the genus by the prominent keels of the frons and by their disposition, in particular by the lack of a median keel on the upper part of the frons and by the completely separated upper ends of the well developed intermediate keels.

Material. Tadzhikistan, "Tigrovaya Balka" reservation, at the foot of Buri-Tau, 12 Oct. 1966, 1 ♀ caught on white sexual (Kankina); Chilicher-Chashma, 30 km SW of Shaartuz, 31 May-1 June 1975, 4 ♂♂, including holotype (Volkovich).

Genus *CELYPHOMA* Emeljanov

Celyphoma corrugata Emeljanov, sp. n. (Fig. 29).

Vertex concave, its length about two-thirds its width, lateral margins parallel or diverging forward slightly. Anterior margin of vertex weakly angularly convex, consisting of three weakly concave, approximately equivalent segments, arranged over all in a gentle arc, posterior margin of vertex uniformly and gently concave. There is a weak groove on the site of the longitudinal median keel of the vertex. Frons longitudinally and transversely weakly convex, its upper margin rather strongly concave, the lateral margins convex, its greatest width opposite the antennae; height of frons slightly exceeding its width; lower margin, the border with the postclypeus, obtusely concave. Median keel of frons prominent, intermediate keels smooth, extending approximately parallel to the lateral keels and closer to them than to the median keel. The three segments of the anterior margin of the vertex are bounded by the apical intermediate keels of the frons. Pronotum with a weak longitudinal keel in the middle. Scutellum with contrasting keels of both pairs - outer keels straight and longitudinal, inner keels arcuate, their posterior ends diverging sideways. Elytra apparently rugose and warped; the veins project in a roof-like and carinate manner; the cells are concave. Posterior claval vein initially running parallel to the anterior vein, then turning steeply and entering the anterior vein at



Figs. 29-33.

29 - *Celyphoma corrugata*, sp. n., side view of aedeagus; 30 - *C. dilatata*, sp. n., side view of aedeagus; 31 - *C. nigromontana*, sp. n., side view of aedeagus; 32 - *C. coelimontana*, sp. n., side view of aedeagus; 33 - *Brachyprosopa transcaspia*, sp. n., side view of aedeagus.

a right angle. Elytra diverging behind the clavus along the suture, not surpassing the tip of the abdomen.

Integument pale, brownish; dorsum, especially elytra, covered with dark mottlings and small spots. Frons mottled only on the outer lobes. Transverse light crescentiform spots are to be seen on the elytra extending from the geniculate projection to the point where the claval veins merge; mottling slightly dispersed around the posterior-inferior margin where, however, the inner margin of the peripheral vein is shaded by clusters of mottlings between the ends of the longitudinal veins.

Length ♂ 3.3-3.7 mm, ♀ 3.8-4.4 mm.

Well distinguished from other species of the genus by the contrasting rugose elytra. In the structure of the genitalia the species is similar to *C. karatepica* Dlab., from which it is distinguished by the rounded, weakly developed apex of the theca.

Material. Kirgizia, Naryn Province, Aktal, 75 km W of Naryn, 10 July 1966, 22 ♂♂ and ♀♀, including holotype ♂ (Yemel'yanov, Kerzhner).

Celyphoma dilatata Emeljanov, sp. n. (Fig. 30).

Body large and broad. Vertex transverse, transversely weakly concave, its width approximately twice its length. Lateral margins of vertex parallel, anterior margin approximately straight, posterior margin arcuately concave, so that the length of the vertex in the middle is approximately two thirds of its length at the eyes. Median keel of vertex not expressed. Frons slightly longer than broad, lateral margins of vertex convex, frons widest approximately on the level of the antennae. Upper margin of frons weakly arcuate, lower margin more strongly obtusely concave. Frons rather flat, with a prominent median keel but without intermediate keels. Pronotum broad and short, its length in the middle approximately equal to the length

of the vertex. Median keel of pronotum not prominent, with two impressions to the sides of it. Scutellum with prominent lateral outer keels and a longitudinal groove in the middle broadening at the rear, lateral margins of groove formed by indistinct median keels which are closer together than in other species of the genus. Venation of elytra normal, longitudinal veins expressed as fairly regular keels, transverse veins also often projecting, but considerably less strongly than longitudinal veins. Costal margins anteriorly not turned under to the body beneath the geniculate projections, prominently spread sideways, with the result that this species differs appreciably in general appearance from what is usual in the genus. Elytra distinctly closed to the distal ends. Hind tibiae bearing two lateral teeth.

Color brown, with dense dark brown mottling. A light transverse arcuate convexity is distinguishable on the frons above the stripe. Venter also more or less darkened, legs, and especially femora and tibiae, uniformly darkened to dark brown. Abdominal sternites darkened in the middle, bearing separate small dark spots along the sides.

Length ♂ 4.0-4.4 mm, ♀ 4.9-5.2 mm.

Distinguished from other species of the genus by the transverse vertex, the sideways spread costal margins of the elytra and the structure of the aedeagus, the theca of which bears two pairs of long subapical processes, whereas other species have only one pair or a forked process.

Material. Tadzhikistan, Kvak, 35 km N of Dushange, 2000 m, 8 June-21 July, 1937, 5 ♀♀, 2 ♂♂, including holotype ♂ (Gussakovskiy); 5 July 1956, 1 ♂ (Denisova, Ivanova); Kondara, 2 and 7 July 1937, 1 ♂, 1 ♀ (Gussakovskiy); Kvak-Ruydasht, 2 July 1943, 1 ♂ (Kirichenko); Ruydasht, 4 July 1943, 1 spec. (Kirichenko).

Celyphoma coelimontana Emeljanov, sp. n. (Fig. 32).

Vertex concave, its length about two-thirds its width, lateral margins approximately parallel or diverging forward slightly. Anterior margin of vertex weakly and uniformly convex, posterior margin concave, often more strongly so inside than anterior margin, vertex shorter in the middle than at the eyes. A weak groove on site of longitudinal keel of vertex. Frons practically flat, its upper margin obtusely concave, like its lower margin. Median keel of frons prominent, intermediate keels almost entirely smoothed. Structure of pronotum, scutellum and elytra the same as in other species of the genus, especially *C. fruticulina* Em.

Dark brown, with blurred small spots and mottlings, mottling on elytra usually denser. In strongly pigmented specimens the face is darkened by merging mottling, and the keels are not distinguishable; the vertex is darkened, but its keels, including the median keel, remain light. There are sparser and larger mottlings on the pronotum on the site of the nymphal sensory pits. Lateral parts of pronotum and scutellum darkened. A proportion of individuals have inconspicuous markings consisting of large lighter spots differentiated on the elytra. A crescentiform transverse spot is usually apparent extending from the geniculate projection to the point at which the claval veins merge; its posterior and superior margins are often more heavily shaded by clustered mottling; a longitudinal spot is sometimes apparent along the suture of the elytra to the inside of the second claval vein and a lighter posterior-inferior area of the wing is apparent. Venter and legs without distinct markings.

Length ♂ 3.0-3.7 mm, ♀ 3.5-4.2 mm.

The species is similar to *C. karatepica* Dlab. in the structure of the genitalia, but is distinguished by the straight, rather than steeply curved theca and the serrate upper margin of the distal part of the theca.

Material. Kirgizia, Naryn Province; Tashtebe, 25 km NW of Naryn, 8 May 1966, 19 ♂♂ and ♀♀, including holotype ♂ (Yemel'yanov); mouth of Atbashi River; 12 July 1966, 1 ♂ and 1 ♀ (Yemel'yanov); 66 km W of Naryn, 12 July 1966, 1 ♀ (Yemel'yanov); Aktal, 75 km W of Naryn, 10-11 July 1966, 4 ♂♂ (Yemel'yanov, Kerzhner).

Celyphoma nigrimontana Emeljanov, sp. n. (Fig. 31).

The species is very similar to *C. fruticulina* Em. and *C. atomata* Mit. in structure and coloration, and is externally practically indistinguishable from them. It is similar to *C. atomata* in the structure of the genitalia, but distinguished by short thecal processes, less than half the length of the theca, and by their shape, in that the pedicel of the processes is slightly narrowed, while the apex is slightly capitate.

Length ♂ 3.1-3.5 mm, ♀ 3.5-4.1 mm.

Material. Kazakhstan, Karatau, 20 km N of Kentau, 25 May 1966, 13 ♂♂ and ♀♀, including holotype ♂ (Yemel'yanov).

Genus *BRACHYPROSOPA* Kusnezov

Brachyprosopa transcaspia Emeljanov, sp. n. (Fig. 33).

Body compact. Vertex transverse, its length approximately two-fifths its width, anterior margin

weakly and obtusely convex, posterior margin equally arcuately concave, lateral margins diverging forward. Median keel of vertex not expressed or its site occupied by a weak groove. Frons nearly perpendicular, longitudinally convex, its upper from the level of the eyes recurved rearward and visible from above; frons transversely weakly convex. Lateral margins of frons more or less uniformly convex, frons widest below the eyes above the antennae. Upper margin of frons gently and arcuately concave, lower margin more deeply and obtusely concave, slightly narrower than upper margin. Median keel of frons low, often not developed at all on lower third, intermediate keels of frons weakly indicated, running parallel to the lateral keels and twice as close to it in the middle as to the median keel. Clypeus moderately swollen, without a median keel. Pronotum broad, transverse, its length in the middle approximately 1.5 times the length of the vertex. Median keel of pronotum prominent. Scutellum with rather variable indistinct keel-like convexities; it is also usually possible to see convexities of the lateral keels and a median convexity bifurcating to the rear. Elytra with outward recurved margin of costal area and developed lower costal keel simulating a spurious precostal area that disappears behind the geniculate convexity. Terminal margin of elytra rather uniformly rounded.

Dorsum pale brown, frequently with more or less developed dark brown or brown markings. Head usually brown, keels slightly lighter, a pair of small light spots on the frons to the sides of the median keel between the eyes; dark mottling apparent on lateral lobes of frons. Pronotum brown with a lighter median keel and dark mottlings on the site of the nymphal sensory pits. Scutellum without distinct markings, with lightened areas on the site of the keels. Elytra without markings or in other instances with indistinct dark and light spots. Anterior (lower) half of costal area, and the entire area to its rear invariably light. Dark spot on basal half of wing at the origin of R and M extending to their first branching points and spot in middle part of clavus. On the posterior part of the wing there is a transverse irregular spot below, beginning from the first branch of Sc+R to the rear of the geniculate projection and extending to the first branch of the cubital vein. Anterior margin of spot with two deep notches separated by a projection extending into the region of the first branch of the median vein, posterior margin with one deep notch. Terminal margin of elytra bearing a row of dark spots between the ends of the longitudinal veins. Venter and legs light, brownish or greenish, without distinct markings.

Length ♂ 3.4-3.8 mm, ♀ 4.0-4.7 mm.

Distinguished from *B. umnovi* Kusn., and also from *B. bicornuta* Kusn. by the broad precostal area, the uniformly rounded terminal margin of the elytra and the structure of the genitalia. In *B. transcaspia* the aedeagus is shorter with short apical projections of the theca and dorsal recurrent lobes, which are not present in *B. umnovi* and *B. bicornuta*.

The above characters distinguishing the new species from *B. umnovi* and from the similar *B. bicornuta*; primarily the broad spurious precostal area and the recurrent lobes of the theca show that the new species is considerably segregated and merits being treated as representing a distinct subgenus - *Tautoprosopa*, subgen. n., type-species *Brachyprosopa transcaspia*, sp. n.

Material. Kazakhstan, Mangyhslak Province, Sandy, 35 km SSW of Sayutes, 10 June 1973, 5 ♂♂,

1 ♀♀, including holotype ♂ (Yemel'yanov); Karatau mountains, 20 km E of Onda, 14 June 1973, 1 ♂ and 1 ♀ (Yemel'yanov); Baskuduk, 15 km WNW of Ushtagan, 17 June 1973, 1 ♂ and 1 ♀ (Yemel'yanov); Karapine, 30 km W of Zhetybay, 19 June 1973, 1 ♂, 1 ♀ (Yemel'yanov); Yel'shibek, 135 km E of Aksu, 23 June 1973, 1 ♂ and 1 ♀ (Yemel'yanov); Turkmenia,

Krasnovodsk Province, Chagyl, 29 June 1973, 1 ♂ (Yemel'yanov); Mount Irsarybaba, 28 km SW of Chagyl, 1 ♀ (Yemel'yanov); "Arman-Saad - Kizil-Arvat", 1896, 1 ♂ (Anger); Kizyl-Atrek, May 1947, 1 ♀ (Borkhsenius); Igdedzhik, 7 km NW of Karakaly, 23 June 1952, 1 ♂ (Kir'yakova); Ashkhabad Province, Archman, 1896, 1 ♂ (Anger).

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including holotype ♂ (Yemel'yanov); Karatau
mountains, 20 km E of Onda, 14 June 1973, 1 ♂ and
1 ♀ (Yemel'yanov); Baskuduk, 15 km WNW of Ushta-
tau, 17 June 1973, 1 ♂ and 1 ♀ (Yemel'yanov); Kara-
tau, 30 km W of Zhetybay, 19 June 1973, 1 ♂, 1 ♀
(Yemel'yanov); Yel'shibek, 135 km E of Aksu, 23
June 1973, 1 ♂ and 1 ♀ (Yemel'yanov); Turkmenia,

Krasnovodsk Province, Chagyl, 29 June 1973, 1 ♂
(Yemel'yanov); Mount Irsarybaba, 28 km SW of
Chagyl, 1 ♀ (Yemel'yanov); "Arman-Saad - Kizil-
Arvat", 1896, 1 ♂ (Anger); Kizyl-Atrek, May 1947,
1 ♀ (Borkhsenius); Igdedzhik, 7 km NW of Karakaly,
23 June 1952, 1 ♂ (Kir'yakova); Ashkhabad Province,
Archman, 1896, 1 ♂ (Anger).

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