

Two new species of lace bugs, *Kalama kiritshenkoi* sp. n. and *Phaenotropis kobachidzei* sp. n., from mountain regions of Transcaucasia and Middle Asia (Heteroptera: Tingidae)

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Kalama kiritshenkoi sp. n. from Tajikistan and Kyrgyzstan (imagines and 5th instar larvae) and *Phaenotropis kobachidzei* sp. n. from Georgia and Turkmenistan (imagines) are described.

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Holotypes and paratypes of new species described in this paper are deposited in the collection of Zoological Institute, St.Petersburg (ZIN).

Kalama kiritshenkoi sp. n. (Figs 1, 2, 4)

Dictyonota (Alcletha) breviscula (nom. nud.): Kiritshenko, 1964: 186.

Holotype. ♂, forma brachyptera, **Tajikistan**, northern slope of Hissar Range, north-western bank of Iskanderkul' Lake, 23.VII.1947 (Kiritshenko).

Paratypes, forma brachyptera. **Kyrgyzstan**: 1 ♀, 3 larvae of 5th instar, Kirgizskiy Range (Alexandrovskiy Range previously), Tuyuk gorge, 22.VII and 20.VIII.1931 (Shnitnikov); 1 ♂, Fergana Range, Arslanbob, 29.VIII.1972 (Kerzhner); 1 ♂, Fergana Range, 5 km N of Gava, locality Ak-Terek, 1.IX.1937 (Kiritshenko); **Tajikistan**: 1 ♀, same data as in holotype; 1 ♂, southern slope of Hissar Range, Kondara River, tributary of Varzob River, 19.VIII.1972 (Kerzhner); 2 ♂, 1 ♀, southern slope of Hissar Range, Khodzha-obi-garm, about 60 km N of Dushanbe, 3 and 6.IX.1943 (Kiritshenko).

Description. Imago. Oval, rather broad, dorsally brown. Veins of hemelytra often blackish.

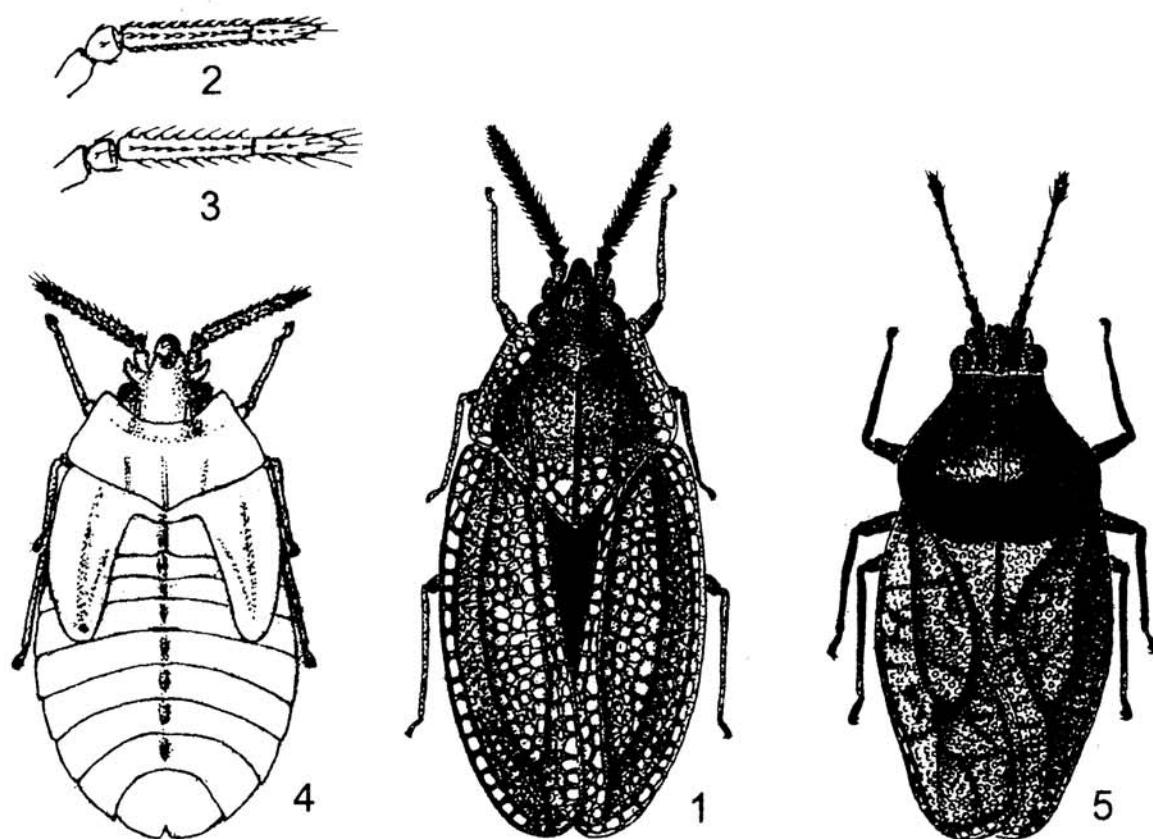
Head broad and short, 1.28-1.38 times as wide as long. Frons roughly rugged; vertex with arched yellowish smooth band after each eye. Frontal spines not longer than antennal segment I, with converging obtuse apices. A pair of minute occipital spines located far behind eyes and concealed under pronotal hood (vesicula). Antennal tubercles rather short, tapering, regularly and slightly curved towards head or almost straight, with obtuse or almost obtuse apices. Antennae (Fig. 2) thick, brown; antennal segment IV black or blackish brown. Antennal segments III-IV with large, oblique, curved spines bearing each a short

stiff hair at its apex; spines on antennal segment III arranged in 6 longitudinal rows, and most of their hairs shorter than spines at their bases. Length of segments (I-IV): 0.11-0.13, 0.1-0.13, 0.4-0.5, 0.23-0.27 mm. Ratio of length of antennal segment III to width of head 0.94-1.09 (♂) or 0.89-0.97 (♀).

Pronotal disc slightly convex; calli with very fine, white, flattened hairs. Pronotal carinae with one row of well expressed areolae. Hood (vesicula) distinctly higher than carinae, with straight or slightly concave anterior margin. Paranota wide, with 3 (♂) or 3-4 (♀) rows of areolae over the most of their length, usually rather strongly reflected upward.

Brachypterous. Metathoracic wings absent. Costal area of hemelytra rather narrow or very narrow (in some ♀) over the most part of their length, with one row of areolae, notably dilated and with several areolae of 2nd row at base only. Subcostal area with 4 rows of areolae (♂; the 4th row may be represented by 1-2 areolae in largest part of area) or 4-5 rows (♀). Areolae of almost all rows of this area rather small (especially in ♀), except areolae of the most external row. Discoidal area with 4 (♂) or 5 (♀) rows of areolae in its widest part. Sutural area rather narrow, usually with 2 rows of areolae over the most part of its length, uniseriate in its narrowest part (approximately in the middle of area length), quite often with 3 rows in widest part, near the apex of area. Inner margins of hemelytra widely spaced in most of their length and leaving visible dorsally a long triangular area of dorsal surface of abdomen.

Body ventrally and legs brown; abdomen of some specimens blackish.



Figs 1-5. *Kalama* and *Phaenotropis*. 1, 2, 4, *K. kirithsenkoi* sp. n.: imago (1); antenna of imago (2); 5th instar larva (4); 3, *K. tricornis* (Schrk.), antenna of imago; 5, *Ph. kobachidzei* sp. n., imago.

Length (mm): body 2.80-3.15, head 0.35-0.37. Width (mm): body 1.25-1.5, head 0.44-0.49 (σ) or 0.46-0.51 (φ), pronotum 1.1-1.2.

Larva (5th instar; Fig. 4). Oval, dorsally dirty-yellow or yellowish brown; antennal segment IV almost entirely and apices of tarsi black. Body dorsally with extremely short, suberected 3-, 4-, or 5-angular microscales and badly visible ordinary hairs located between them. Head with 4 rather large spines. Frontal spines almost cylindrical, with obtuse or slightly pointed apices, directed obliquely upward. Occipital spines slightly erected or almost adjacent to head, with almost acute apices, crossing posterior margins of eyes or even reaching the middle of their length. Antennal tubercles directed obliquely forward and outward, curved towards head. Antennae thick. Antennal segment I slightly, segment II strongly thickening towards their apices; segment III tapering in all its length; segment IV cylindrical and equal in thickness to segment III (the boundary between these segments almost indiscernible) in its basal half and tapering in its apical half. Segments II-IV with rather large spines bearing a hair at their apices; these spines on segments III and IV arranged in 6 regular rows. Spines on segment III and in basal half of seg-

ment IV angulately bent in their apical half; hairs very short, shorter than spines at their bases. Lengths of antennal segments (I-IV): 0.09-0.1, 0.07, 0.36-0.37, 0.2-0.33 mm.

Pronotum with a very low median carina and two hardly expressed, very low, short, lateral carinae. Medial and marginal spines absent. Anterior pronotal angles distinctly elongated, reaching posterior margin of eyes or extending forward beyond it. Sides of pronotum flattened in rather broad larval paranota; their margins slightly concave in anterior half. Each hemelytral lobe with 2 slightly or rather strongly raised longitudinal carinae converging forward and backward, or having V-like shape. Disposition of these carinae corresponds to that of carinae separating areas of hemelytra of imagines (subcostal, discoidal and sutural). Hemelytral lobes without marginal spines or tubercles. Mesonotum, metanotum and abdominal segment I each with one pair of minute medial tubercles. Abdominal tergites II-VII with one, very low median tubercle; tubercles on tergites VI-VIII elongate. Lateral margins of abdomen with small incisions in the borders of segments increasing in size towards the apex of abdomen. Posterolateral angles of segment VIII distinctly, but not strongly elongated.

Posterior margin of segment IX rounded, with small incision at apex.

Length (mm): body 2.46-2.57, head 0.36, pronotum 0.57-0.61. Width (mm): abdomen 1.23-1.26, head 0.5-0.51, pronotum 0.96-1.06.

Distribution. Mountains of Kyrgyzstan and Tajikistan. The species is sympatric with *K. tricornis*, which is recorded from mountain regions of W. Tajikistan: southern spurs of Hissar Range (environs of Dushanbe) and Khurkhu Range above Nurek (material of ZIN).

Comparison. The new species is similar to *K. tricornis* (Schrk.). The main differences between them are given in the following keys.

Imagines

- 1(2) Stiff hairs on antennal segment III rather long, not shorter than spines at their bases (Fig. 3). Antennal segment III longer (0.56-0.76 mm in ♂, 0.54-0.64 mm in ♀), 1.29-1.45 (♂) or 0.97-1.23 (♀) times as long as width of head. Antennal tubercles distinctly flattened at base, abruptly thinning in the middle of their length, directed outward or forward, but not curved toward head, with more or less pointed apices. Macropterous or submacropterous (Péricart, 1983). Costal area of hemelytra rather wide, with 2 rows of areolae in the whole length or with 1 row only in the narrowest place at middle; least often 2 rows of areolae are preserved only at base and at apex of area. Subcostal area with 2-3 (♂) or 3 (♀) rows of areolae or only with several areolae of the 4th row (♀); all areolae of this area rather large. Larger: 2.7-3.8 mm *K. tricornis* (Schrk.)
- 2(1) Stiff hairs on antennal segment III shorter than spines at their bases (Fig. 2). Antennal segment III shorter (0.4-0.5 mm), 0.94-1.09 (♂) or 0.89-0.97 (♀) times as long as width of head. Antennal tubercles rather short, tapering in their whole length, slightly curved toward head or almost straight, with obtuse or almost obtuse apices. Only brachypterous specimens known. Costal area of hemelytra rather narrow, with 1 row of areolae in the most part of its length, only at base with not numerous areolae of 2nd row. Subcostal area with 4 rows of areolae (♂; the 4th row may be represented by 1-2 areolae in largest part of area) or 4-5 rows (♀); all areolae of this area rather small (especially in ♀), except those of the most external row. Smaller: 2.46-2.57 mm *K. kiritshenkoi* sp. n.

Larvae

- 1(2) Frontal spines more or less pointed at apex. Stiff hairs on antennal segment III not shorter than spines at their bases. 2.5-2.6 mm *K. tricornis* (Schrk.)
- 2(1) Frontal spines with obtuse apex (Fig. 4). Stiff hairs on antennal segment III shorter than spines at their bases. 2.46-2.57 mm *K. kiritshenkoi* sp. n.

Phaenotropis kobachidzei sp. n. (Fig. 5)

Holotype. ♀, forma macroptera, Turkmenistan, western Kopetdagh, gorge Shekhin-Dere, 26.V.1964 (M. Loginova).

Paratype. ♀, forma macroptera, Georgia, near Tbilisi, railway station Gardobani, 21.VI.1948 (D. Kobakhidze).

Description. Oval; body 2.12-2.44 times as long as wide. Integument of dorsal surface of head and pronotal disc as well as integument of head, thoracic and abdominal segments ventrally and femora with light appressed or, partially, slightly erected, scale-like hairs.

Head 1.5-1.69 times as wide as long, black. Eyes brown. Head with two pairs of light with black bases, very thin, rather short spines: frontal and occipital. Frontal spines approximately half as long as antennal segment I. Occipital spines very short (holotype) or extremely short and hardly visible (paratype). Frontal spines directed forward, with slightly diverging apices (right spine is deformed in holotype). Occipital spines directed obliquely upward. Frons and vertex convex, descending rather abruptly outward, i.e. toward eyes. Bucculae rather strongly produced in front of apex of clypeus, high (lateral view). Antennae thin, dark brown; segment III very thin and lighter than others; segments II-IV covered with light, sparse, slightly erected hairs, which are short on segments II-III and longer on segment IV. Length of antennal segments (I-IV): 0.1, 0.09, 0.34, 0.19 mm (holotype); ratio of length of segment III to width of head 0.67.

Pronotum convex, with a very low median carina bearing one row of extremely small, hardly visible areolae at the boundary of pronotal disc and the base of posterior triangular process, or, in addition, at the level of pronotal calli. Pronotal carina almost entirely light, only at apex of posterior pronotal process blackish. Anterior margin of pronotum almost straight, slightly concave in the middle, without hood, very narrowly light, with one row of extremely small, hardly visible areolae resembling punctures. Posterior pronotal process light, with blackish stripes or small spots along its margins and with blackish apex of median carina. Lateral pronotal margins without flattened paranota, only with very narrow, light carina bearing one row of hardly visible vestiges of areolae.

Macropterous form. Hemelytra distinctly but not very strongly produced beyond the apex of abdomen, with small areolae. Many veins or their parts brown or blackish brown. Veins *R+M* and *R+M+Cu* separating the areas of hemelytra rather strongly raised as carinae. Vein *Cu* declining towards the apex of hemelytra and disappearing near it. Costal area of hemelytra narrow, with one row of small areolae, the latter elongate in the most part of area. Subcostal area broad, slightly convex, abruptly sloping outward, with 5-6 rows of areolae in the widest part on a considerable distance. Discoidal area rather short and broad, with 6 irregular rows of areolae, or with several

areolae of the 7th row in the widest part (holotype). Sutural area with approximately 10 irregular rows of areolae in the widest part. Body ventrally and legs brownish black; tibiae (at least posterior ones) slightly paler toward their apices. Lower half of bucculae, posterior margins of pro- and mesothoracic sternites and hypocostal plate light. Tibiae with short, light, flattened and ordinary, thin hairs. Rostrum very short, not reaching or hardly reaching middle coxae.

Length of body (mm): 2.17-2.5. Width (mm): body 1.025, head 0.43-0.44, vertex 0.24-0.26, pronotum 0.9-0.925.

Comparison. The holotype and paratype of the new species were previously recorded as *Ph. cleopatra* (Horv.) (Péricart, 1983). An examination of the material of *Ph. cleopatra* from Israel (Beer Sheva, clew desert; Eilat), Mali (Sévare) and South India (Chikkaballapura) revealed the following differences between *Ph. cleopatra* and *Ph. kobachidzei*:

- 1(2) Subcostal area of hemelytra with 4 rows (σ), or only with 2-3 areolae of 5th row (φ) in its widest part. Width of head 0.38-0.39 mm (σ , φ), of vertex 0.18-0.19 (σ) or 0.2 (φ) mm. Frontal spine 0.7-0.8 times as long as antennal segment I. Slightly smaller: body length 2.02-2.13 mm ***Ph. cleopatra*** (Horv.)
- 2(1) Subcostal area (only females are known) with 5-6 rows of areolae in the widest part (anterior to middle and in anteapical sinus). Width of head 0.43-0.44 mm, of vertex 0.24-0.25 mm. Frontal spine about half as long as antennal segment I. Slightly larger: body length 2.17-2.5 mm ***Ph. kobachidzei*** sp. n.

Three Palaearctic species of *Phaenotropis* were known till now (Péricart & Golub, 1996). The Mediterranean *Ph. parvula* (Signoret) (I examined material from France and Spain) differs from *Ph.*

kobachidzei in the posterior pronotal process almost entirely black, except light spot at its apex; most of veins of hemelytra brownish or black; bucculae only slightly projecting in front of apex of clypeus, black, with light lower margin; femora and tibiae with rather long, light, flattened hairs; head narrower: width 0.36-0.39 mm (σ , φ).

Ph. eckerleini (Wagn.) described from Algeria and also known from Egypt, Tunisia and Iraq (I examined material from Algeria) differs from *Ph. kobachidzei* in the antennae much longer (length of antennal segment III 0.43-0.47 mm; this segment 1.2-1.3 times as long as width of head); antennal segment III light entirely, or except its base; legs distinctly longer; tibiae brownish yellow.

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