

	♀ ♀	♂ ♂
	mm.	mm.
Length of body.....	20.0-21.5	14.0-16.5
— pronotum.....	4.2- 4.8	3.0- 3.4
— elytra.....	22.0-23.5	17.5-18.0
— posterior femora.....	11.0-11.5	8.5- 9.0
— — tibiae.....	9.5-10.0	7.0- 7.5

GEOGRAPHICAL DISTRIBUTION.—Morocco, Algeria, Tunis.

SPECIMENS EXAMINED.—2 ♂♂ and 2 ♀♀.

Algiers: 1 ♀ (coll. Brunner von Wattenwyl); Oran, 1 ♂ (Finot);  
Oran, 25.VI, 1 ♂; Mecheria, 1 ♀ (Brunner von Wattenwyl).

44. *Sphingonotus eurasius eurasius* sp. n.

(Figs. 75, 76, 77).

1882. *Sph[ingonotus] callosus* Brunner von Wattenwyl, Prodr. Eur. Orth., p. 154, n.° 6 [Sarepta, Lower Volga; Syria: Jaffa; Algiers: Oran] (partim).
1884. *Sph[ingonotus] callosus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 196, 199, n.° 2 (partim).
1888. [*Sphingonotus*] *callosus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 76-77, n.° 3 (partim).
1889. *Sphingonotus callosus* Redtenbacher, Wien. Ent. Zeit., vol. viii, p. 24 [Turkmenistan: Ashkabad, Merv] (not Fieber).
1896. *Sphingonotus callosus* Zubowsky, Hor. Soc. Ent. Russ., vol. xxx, p. 184, n.° 7 [Turkmenistan: Bolshie Balkhany] (not Fieber).
- 1902-1905. *S[phingonotus] callosus* Jacobson and Bianchi, Priam. Lozhn, Ross. Imp., pp. 192, 273 (partim).
1910. *S[phingonotus] callosus* Kirby, A Syn. Cat. Orth., vol. iii, p. 272, n.° 8 (partim).
1913. *Sph[ingonotus] azurescens* Burr, Mittel. Kauk. Mus., vol. vii, p. 177 [Transcaucasus: Geok-Tapa] (not Rambur).
1914. *Sph[ingonotus] coerulans* L. f. *callosa* Uvarov, Rev. Russ. d'Ent., vol. xiv, p. 220 [Turkmenistan: Nukhur] (not Fieber).
1914. *Sphingonotus azurescens* Pylnov, Rev. Russ. d'Ent., vol. xiv, p. 274 [Ordzhokh (Batum district)] (not Rambur).
1915. *Sph[ingonotus] coerulans* Uvarov, Bull. Mus. Cauc., vol. ix, p. 87 [the lower part of a river Kuma (Ciscaucasus)] (partim).

1927. *S[phingonotus] callosus* Uvarov, Sar. Sred. Az., pp. 133, 138, figs. 145, 155, n.º 13 (not Fieber).  
1927. *Sphingonotus callosus* Salfi, Mem. Soc. Ent. It., vol. vi, Nr. 2, pp. 151, 157, pl. II, figs. 1-6 [Tripolitania: Bu Kamesh] (not Fieber).

♀ (type). Body medium, sturdy with sparse short hairs.

Head large, slightly constricted laterally, with dense punctures, strongly projecting above the pronotum. Eyes oval, weakly projecting sideways; their vertical diameter almost 1.5 times the horizontal one and equal to the subocular distance. Frons vertical. Frontal ridge weakly concave, wider between the antennae, obliterated halfway between the ocellus and clypeus; flat in profile; margins thick; surface with coarse punctures. Fastigium of vertex strongly sloping. Vertex with two concavities on the sides of the median keel, margins distinct; median keel distinct; maximum width of vertex 1.75 times the width of frontal ridge between the antennae. Temporal foveolae distinct, triangular, coarsely-punctured. Occiput sloping. Antennae thin, longer than head and pronotum together.

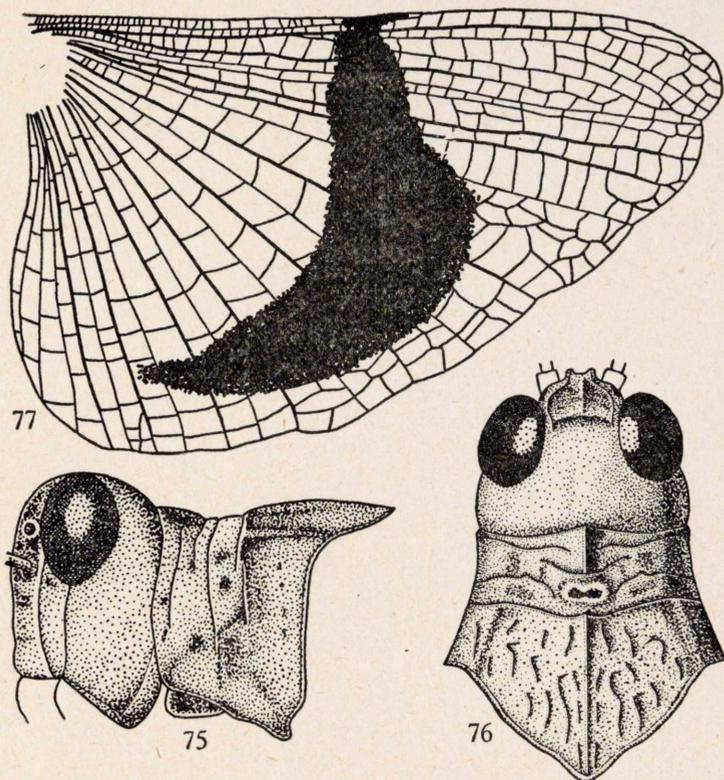
Pronotum constricted in prozona; transverse furrows distinct; the first furrow just behind the middle of prozona; the second furrow very deep in the middle; metazona convex with coarse punctures and distinct tubercles and wrinkles, its length almost 1.5 times that of the prozona; posterior angle slightly greater than 90°, pointed, only slightly rounded; shoulders weakly rounded; median keel greatly raised in front of the first furrow, ridge-like, absent between the furrows, distinct and linear in metazona. Lateral lobes of the prozona vertical; anterior margin weakly undulating, the lower anterior angle obtuse; posterior margin straight; lower posterior angle attenuated; lower margin with an excision at the anterior angle.

Sternum with sparse punctures, almost smooth, its width considerably greater than its length, width of interspaces between the lobes of meso and metasternum 2.25 times their length. Valvae of ovipositor with long pointed apices; the basal parts of the lower valvae slightly rough.

Elytra gradually narrowing towards the apex not reaching the apices of posterior tibiae; their length 5 times greater than their maximum width; venation dense; the apical part of the second branch of

the medial vein gives off 2-3 branches, intercalary vein is straight, parallel to the discoidal vein, finely granular. Wings elongated triangular with sparse venation, their length 1.66 times their maximum width.

Posterior femora thick; their length 3.5 times their maximum width, the upper margin with an excision in the apical part. Poste-



Figs. 75-77.—*S. eurasius eurasius*, type ♀.

rior tibiae only slightly shorter than femora, with 8 spines on the outer, 10 on the inner sides.

General coloration dirty-grey with brownish spots. Antennae greyish brown with light rings. Elytra coriaceous, almost transparent in the apical part; the basal third, complete median fascia and several spots in the apical third—brown; veins yellowish-brown. Wings transparent, bluish at base; the dark median fascia narrow, sinuate, wider in the middle, gradually narrowing in the direction of the inner margin, not reaching the inner and the posterior margins by a long distance;

apical part colourless; veins blackish at apex. Inner sides of posterior femora blackish-brown with two complete light bands; apex of inner surface blackish-brown. Posterior tibiae yellowish; apex of inner surface black.

♂ (allotype). As female, but smaller. The vertical diameter of the eye slightly greater than the subocular distance. Frontal ridge more strongly impressed than in female. Maximum width of vertex 1.5 times the width of frontal ridge between the antennae. Apical part of second branch of the medial vein of elytra gives off 1.2 branches.

	Type ♀ mm.	Allotype ♂ mm.	Paratypes ♀♀ mm.	Paratypes ♂♂ mm.
Length of body.....	24.5	16.5	19.0-25.0	13.0-17.0
— pronotum.....	4.5	2.8	3.0- 5.0	2.1- 3.0
— elytra.....	21.5	15.5	17.0-24.5	13.0-17.5
— posterior femora	12.0	8.5	9.0-13.0	7.0- 8.5
— — tibiae..	11.0	7.5	7.5-12.0	6.0- 7.5

PATRIA. — Volga region: Kamennyi Yar, Stalingrad district, 28.VIII.1927, 1 ♀; lake Sarpa, Stalingrad district, 7.VIII.1927, 1 ♀; Chernyi Bugor, Astrakhan region, 22.VII.1926, 3 ♀♀, 1 ♂; Bogdo mountain, Astrakhan region, 8.VIII.1926, 3 ♀♀, 2 ♂♂ (Predtetschensky).

Kalmyk region: Malo-Derbentovsky ulus, 5.VIII.1927, 1 ♀ (Titov).

N. Caucasus lower course of r. Kuma (Stavropol district), 2.VII.1911, 1 ♀; Achikulak, 28.VII.1911, 1 ♂ (Uvarov).

Transcaucasus: Geok-Tapa, 6.VIII.1904, 1 ♀ (Burr); Mugan, Djafar, 21.VII.1916, 1 ♀ (Demokidov).

Turkmenistan: Lama-Burun, 7.X.1894, 3 ♀♀ (Varenzov); Askhabad, 28.VI-31.VII.1896, 5 ♀♀, 5 ♂♂ (Zubovsky and Varenzov); Tiruza, 27-28.VI.1926, 1 ♀, 1 ♂ (Moritz); Annau, 22-23.VI.1896, 1 ♀, 1 ♂ (Varenzov); Kaakhka, 24.VI-31.VII.1932, 213 ♀♀, 119 ♂♂ (Egorev); Tedjen, 3.VII-27.VIII.1929, 39 ♀♀, 25 ♂♂ (Mistshenko and Predtetschensky) (including the type); Serakhs, 31.VII.1929, 2 ♀♀, 3 ♂♂; Dju-Dju-Klu, 3.VIII.1929, 2 ♂♂ (Predtetschensky); Komarov, 6.VII.1926, 1 ♀ (Moritz); Sara-Yazy, 23.VIII.1929, 1 ♂ (Pred-

tetshensky); Imam-Baba, 24.VIII.1929, 1 ♂ (Mistshenko); Bairan-Ali, 17.VI-7.VIII.1930, 7 ♀ ♀, 2 ♂ ♂ (Bogush).

British Baluchistan: Samangli, 30.VII.1932, 1 ♂.

This species is nearest to *Sph. nadigi* Uvarov (Morocco), and differs from it by strongly raised median keel of the pronotum, structure of the lateral lobes of the pronotum, straight intercalary vein in the discoidal area of elytra, and coloration of the inner surfaces of the posterior femora and that of tibiae.

It lives in loess deserts with scarce vegetation.

Brunner von Wattenwyl (1882) in his work speaks of two different species under the name of *Sph. callosus* Fieber: one species from Spain and another from Algeria, Syria and lower course of Volga.

I was able to prove that *Sph. callosus* described by Fieber (1853) from Spain is a synonym of *Sph. azurescens* (Rambur). Therefore it follows that the first species described by Brunner von Wattenwyl under the name *Sph. callosus* is really *Sph. azurescens*, while the second species remains unnamed (due to obliteration of the name *callosus* as a synonym), and I have called it *Sph. eurasius*. Due to the repetition of the mistake made by Fieber and by Brunner von Wattenwyl, several later authors quoted *Sph. eurasius* as *Sph. callosus*, and sometimes the species has been even confused up with *Sph. azurescens* (Burr, 1913; Ramme, 1929).

At present *Sph. eurasius* is known from the following places, in addition to the localities above quoted; North Africa (Algeria, Tripoli, Egypt); Palestine; Syria; North Persia; Uzbekistan; S. Turkey.

Specimens from Lama-Burun, Turkmenistan (Zubovsky's collection) have a very faint, almost obliterated dark band on the wings.

Type and allotype in Zoological Institute of the Academy of Sciences, Leningrad. Four paratypes (2 ♀ ♀, 2 ♂ ♂) in the British Museum (Nat. Hist.), London.

#### 44a. *Sphingonotus eurasius cyprius* subsp. n.

Very similar to the typical *Sph. eurasius eurasius*, differing from the latter in the following characters:

♀ (type). Vertex weakly concave. Posterior part of pronotum

with fine wrinkles and tubercles. Width of interspaces between meso and metasternal lobes is twice their length. Elytra reaching the apices of posterior tibiae; their length 2.6 times their maximum width. Length of wings twice their maximum width; wings narrow. Posterior femora fairly slender; their length 4 times their maximum width.

Coloration as in typical *Sph. eurasius eurasius*. Dark band on wings more narrow, not widening in the middle.

♂ (allotype). As female, but smaller.

	Type ♀ — mm.	Allotype ♂ — mm.	Paratype ♀ — mm.	Paratypes ♂♂ — mm.
Length of body.....	21.5	15.5	20.0	14.5-15.0
— pronotum.....	4.2	2.5	3.8	2.5- 2.7
— elytra.....	22.5	16.0	21.0	15.5-16.0
— posterior femora	10.5	8.5	10.0	7.8- 8.0
— — tibiae..	9.0	7.0	8.5	6.3- 6.5

PATRIA.—Cyprus: Limassol, 28.VIII-2.IX.1927, 2 ♀♀, 4 ♂♂ (Mavromoustakis) (including type).

Type and allotype in British Museum (Nat. Hist.) London. Two paratypes (1 ♀, 1 ♂) in the Zoological Institute of the Academy of Sciences, Leningrad.

#### 45. *Sphingonotus predtetschenskyi* sp. n.<sup>1</sup>

(Figs. 78, 79.)

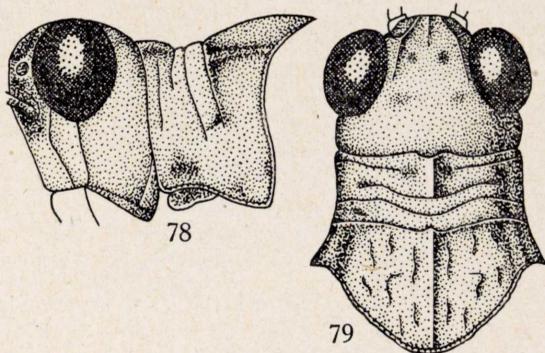
♂ (type). Body small, with sparse short hairs.

Head with sparse fine punctures, strongly projecting above the pronotum. Eyes short oval, strongly projecting sideways; their vertical diameter slightly greater than the horizontal, and slightly greater than the subocular distance. Frons oblique. Frontal ridge strongly sulcate, almost parallel sided, weakly constricted below the ocellus, between the ocellus and clypeus widened, obliterated and not reaching

<sup>1</sup> I dedicate this interesting species to my first teacher S. A. Predtetschenskyi, the latest investigator of the faune of Iran and Beludjistan.

clypeus; margins distinct, thick; its surface smooth; almost flat in profile. Fastigium of vertex strongly sloping. Vertex very wide, concave; margins distinctly raised; median keel distinct; maximum width of vertex 2.5 times that of the frontal ridge between the antennae. Foveolae of vertex large, somewhat triangular, slightly concave. Antennae thin, longer than head and pronotum together.

Pronotum constricted in prozona, saddle-shaped; transverse furrows distinct; the first furrow just behind the middle of prozona; the second furrow coalescent with the first in the middle; interspace between the second (first) and third furrows with a concavity, interspaces between furrows rough; metazona convex with coarse punctures and coarse tubercles, its length almost equal to that of



Figs. 78-79.—*S. preatetshenskyi*, type ♂.

prozona; posterior angle obtuse rounded, its margins straight; shoulders projecting, rounded; median keel not strongly raised in front of the first furrow, absent between the furrows, linear in metazona; anterior margin with an excision in the middle. Lateral lobes of pronotum almost square, with minute dense punctures in the posterior part; anterior margin bisinuate; posterior margin weakly undulating, posterior lower angle attenuate; lower margin with a strong excision, weakly obliquely ascendant.

Sternum with sparse minute punctures; its width slightly greater than length; width of interspaces between meso and metasternal lobes 2.25 times their length. Lower parts of episternum of mesosternum with very sparse punctures.

Elytra narrow, narrowed towards the apex, reaching the apices of posterior tibiae; their length 5.5 times their maximum width; venation sparse; the apical part of the second branch of medial vein gives off 2 branches; intercalary vein straight, very distinct, parallel throughout its length to the discoidal vein, and very near the latter,

finely granular. Wings elongated, triangular, their length 1.77 times their maximum width; venation fairly sparse.

Posterior femora fairly thick; their length 3.3 times their maximum width. Posterior tibiae considerably shorter than posterior femora, with 8.9 spines on the outer, and 10-11 spines on the inner sides.

General coloration pale-grey. Head whitish with a brownish-black spot between the eyes.

Elytra slightly coriaceous; the faint basal fascia which does not extend beyond the median vein, and very faintly marked spots in the apical half—brownish-black; veins light. Wings blue at base; black band narrow, bent, not reaching the inner and posterior margin by a long distance, somewhat interrupted at the anterior margin, constricted posteriorly; apical part colourless; veins in apical part black. Inner surfaces of posterior femora greenish-blue with a darker spot next to the subapical light band; inner surface of apex black. Posterior tibiae yellowish-greenish-blue, with a light ring near base; inner surface of base black.

♀ (allotype). As ♂ but larger. Vertical diameter of the eye equal to subocular distance.

	Type ♂ mm.	Allotype ♀ mm.	Paratypes ♂♂ mm.
Length of body.....	18.5		16.5-19.0
— pronotum.....	3.3	3.9	3.0- 3.4
— elytra.....	17.5	19.0	16.5-18.0
— posterior femora.....	9.0	9.5	8.0- 9.5
— — tibiae.....	7.5	7.5	6.5- 8.0

PATRIA.—Arabia: Hada, 21.VI.1931, 1 ♀ (Philby).

Baluchistan: Pasni, 8.IV.1933, 2 ♂♂ (including type).

India: Punjab, Lyallpur, 16.X.1922, 1 ♂.

This new species is near to *Sph. eurasius eurasius*, differing from the latter by very wide vertex, characteristic structure of pronotum and strongly projecting almost round eyes.

Type and allotype in the British Museum (Natural History), London. One paratype (1 ♂) in the Zoological Institute of the Academy of Sciences, Leningrad.

46. *Sphingonotus nadigi* Uvarov.

1933. *Sphingonotus nadigi* Uvarov, Ann. Mag. Nat. Hist., Ser. 10, vol. xi, p. 602 [type ♀; Morocco].

♀. Head raised above the pronotum in profile. Frons oblique. Frontal ridge almost straight in profile; viewed from front it is generally broad, widened from the fastigium to ocellus, constricted below the ocellus, almost parallel sided in the rest, obsolete near clypeus; surface concave, very uneven; margins raised. Fastigium of vertex sloping, its surface strongly concave, with a well raised short median ridge which begins from the apex and bifurcates behind, separating three deep pits, two in front of and one between the eyes. Foveolae of vertex are on a strongly sloping plane, weakly concave, short, irregular. Occiput rugulose, especially near the eyes. Antennae somewhat longer than head and pronotum taken together.

Pronotum short and broad, strongly rugulose; anterior margin of prozona raised against the occiput like a collar and is followed by a deep and fairly broad submarginal furrow; transverse furrows deep; the interspace between the second and third furrows with a pair of low tubercles; metazona somewhat longer than prozona, with numerous distinct wrinkles; posterior angle obtuse, its margins slightly wavy; shoulders somewhat prominent but there are no regular lateral keels either in metazona or in prozona; median keel entirely absent in prozona, well raised and acute in metazona. Lateral lobes considerably higher than long; anterior margin bisinuate, slightly wavy; anterior angle about  $90^\circ$ , lower margin strongly ascending, sinuate in the anterior quarter; posterior angle slightly less than  $90^\circ$ , not rounded.

Elytra almost reaching the apex of hind tibiae; venation not very regular; intercalary vein near to the discoidal vein and approaching it still more towards the apex; the area behind it with about three rows of irregular cells.

Posterior femora with a slightly wavy upper carina, which is lowered in the apical quarter.

General coloration reddish-brown. Elytra reddish-brown in the basal quarter, paler in the rest, with a faint post-median fascia and a few spots in the apical third along the discoidal vein and the posterior

margin. Wings pale bluish, with a black fascia which does not reach the posterior margin and disappears immediately on turning inwards. Inner sides of posterior femora brownish in two basal thirds and with a brown preapical spot. Posterior tibiae bluish.

Male unknown.

	♀ (after Uvarov) — mm.
Length of body.....	22.0
— pronotum.....	4.5
— elytra.....	24.0
— posterior femora.....	11.0

GEOGRAPHICAL DISTRIBUTION.—MOROCCO.

Unfortunately I have not been able to see this peculiar *Sphingonotus*, but having a very good description by the author, I give it in a somewhat altered form.

47. *Sphingonotus maroccanus* Uvarov.

1930. *Sphingonotus maroccanus* Uvarov, Bull. Soc. Nat. Maroc, vol. x, p. 212, figs. 3, 4 [type ♂; Morocco: Arround].

♀. Body medium, sturdy with sparse hairs. Head with minute dense punctures, weakly projecting above the pronotum. Eyes oval, slightly projecting sideways; their vertical diameter 1.5 times the horizontal and equal to the subocular distance. Frons vertical. Frontal ridge almost flat, weakly concave at the ocellum; slightly widened between the antennae, weakly constricted below the ocellus, obliterated between the ocellus and clypeus; margins thick, widening posteriorly; surface near vertex with coarse punctures; flat in profile. Fastigium of vertex strongly sloping. Vertex fairly wide weakly concave; margins slightly raised, median keel weak; surface with coarse punctures at the frontal ridge; maximum width of vertex 1.5 times that of frontal ridge between antennae. Foveolae of vertex large, weakly concave, punctured. Antennae thin, considerably longer than head and pronotum taken together.

Pronotum constricted in prozona; transverse furrows deep; the

first furrow almost in the middle of prozona; the second furrow obliterated in the middle; interspace between 2<sup>nd</sup> and 3<sup>rd</sup> furrows with a deep pit in the middle; interspaces between furrows rough; metazona flat, on the same level as prozona, with very coarse tubercles and fine wrinkles, its length twice that of prozona; posterior angle a little greater than 90°, weakly rounded, its margins wavy; shoulders distinct, projecting; median keel weakly raised in front of the first furrow, absent between the furrows, linear in metazona. Lateral lobes vertical, with dense coarse punctures in the posterior part; anterior margin bisinuate, anterior lower angle obtuse, rounded; posterior margin straight, posterior lower angle widely rounded; posterior margin gradually ascending, weakly sinuate.

Sternum with fine sparse punctures; its width considerably greater than its length; width of interspaces between meso and metasternal lobes 2.5 times their length. Lower parts of meso-episternum with dense very shallow punctures. Valvae of ovipositor with somewhat blunt apices; basal parts of lower valvae punctured, smooth, without distinct callous tubercles.

Elytra narrowed at apices, not reaching the apices of posterior tibiae; their length almost 5.3 times their maximum width; venation sparse; the apical part of the second branch of median vein gives off three branches; intercalary vein straight, parallel to the discoidal vein, sometimes very near the discoidal vein at the apex, finely granular. Wings moderately wide, elongated triangular; venation very sparse; their length 1.75 times their maximum width.

Posterior femora moderately thick; their length almost 4 times their maximum width; upper margin with an excision at the apex. Posterior tibiae only slightly shorter than posterior femora, with 8 spines on the outer, 10 on the inner sides.

General coloration brownish-grey. Head and sides of pronotum grey-blue. Ocelli yellow. Antennae brown. Elytra slightly coriaceous; basal quarter, median transverse fascia and some indistinct spots in the apical half—brown; veins light. Wings transparent, blue with a wide black regularly bent fascia, which is narrowed posteriorly, not reaching posterior margin and inner margins by a long distance; apical part colourless; veins dark in the apical part. The inner surface of posterior femora, for the greater part black with two complete

light fasciae; inner surface of apex black. Posterior tibiae bluish with two wide brownish fasciae.

♂. As female, but smaller. Shoulders more prominent than in female. The apical part of the second branch of the medial vein gives off 2 branches. Posterior tibiae with 8-9 spines on the outer side. Apex of wings darker, greyish.

	♀ ♀ — mm.	♂ ♂ — mm.
Length of body.....	25.0-29.0	18.0-19.0
— pronotum.....	5.0- 5.5	3.7- 4.0
— elytra.....	26.0-27.0	19.0-19.5
— posterior femora.....	13.5-14.0	10.0-10.5
— — tibiae.....	12.0-12.5	8.7- 9.3

GEOGRAPHICAL DISTRIBUTION.—Morocco.

SPECIMENS EXAMINED.—3 ♀ ♀ and 2 ♂ ♂.

Morocco: Arround, VIII.1930, 1 ♀, 1 ♂ (Cockerell) (paratypes); Arround, 25.VI.1930, 2,000 met., 1 ♀, 1 ♂; Gr. Atlas, Dj. Ouched-dene; 2,000-2,800 met., 23-28.VI.1933, 1 ♀ (Zerny).

## XII. Group AZURESCENS

### 48. *Sphingonotus luteus* Krauss.

1893. *Sphingonotus azurescens* Ramb. var. *lutea* Krauss, Jahr. Ver. für Vaterl. Nat. Würt., vol. 49, p. xciv [types ♀, ♂; Algiers: Mecheria].
1894. *Sphingonotus sefrae* Finot, Bull. Soc. Ent. Fr., p. 12, n.° 1.
1896. *Sph[ingonotus] azurescens* (Ramb.) var. *lutea* Krauss und Vosseler, Zool. Jahrb., Abt. Syst., vol. ix, p. 535, Pl. 7, fig. 5.
1910. *S[phingonotus] luteus* Kirby, A Synon. Cat. Orth., vol. iii, p. 276, n.° 33.

♀. Body medium, with sparse hairs.

Head moderately projecting above pronotum, densely punctured. Eyes oval, weakly projecting sideways; their vertical diameter 1.5 the

horizontal one and equal to the subocular distance. Frons almost vertical. Frontal ridge slightly concave, somewhat widened between the antennae, slightly constricted below the ocellus, completely obliterated between the ocellus and clypeus; margins thick; surface densely punctured; flat in profile. Fastigium of vertex strongly sloping, almost vertical. Vertex wide, weakly impressed; median keel only slightly marked; margins raised; maximum width of vertex 1.5 times the width of frontal ridge between the antennae. Foveolae of vertex indistinct, punctured. Antennae fine, considerably longer than head and pronotum together.

Pronotum weakly constricted in prozona; transverse furrows distinct but not deep; the first furrow just behind the middle of prozona; metazona concave, finely and densely punctured, finely wrinkled; its length 1.5 times that of prozona; posterior angle almost  $90^\circ$ , weakly rounded; shoulders not projecting; median keel strongly raised in front of the first furrow, absent between the furrows; low and linear in metazona. Lateral lobes vertical; anterior margin bisinuate, anterior lower angle obtuse, rounded; posterior margin straight, posterior lower angle attenuate; lower margin obliquely ascendant, wavy.

Sternum finely and sparsely punctured, its width slightly greater than its length; width of interspaces between meso and metasternal lobes almost twice their length. Posterior parts of meso-episternum sparsely punctured. Valvae of ovipositor with pointed apices; basal parts of lower valvae smooth.

Elytra almost parallel-sided; their length almost 5 times their maximum width; venation fairly dense; the apical part of the second branch of medial vein gives off 2 branches; intercalary vein weakly sinuate approaching discoidal vein at the apex, finely granular. Wings elongate, triangular; their length almost 1.8 times their maximum width; venation sparse.

Posterior femora thick; their length almost 3.4 times their maximum width. Posterior tibiae slightly shorter than the femora, with 8 spines on the outer, 9-10 spines on the inner sides.

General coloration ochraceous-yellow. Head whitish. Ocelli yellow. Antennae yellow with brownish rings. Elytra slightly coriaceous; the basal third, median transverse fascia and some faintly marked spots in the apical part yellow-brown; veins light. Wings

yellow at bases, with a narrow, bent, blackish fascia in the middle, reaching the anterior margin, narrowing towards the inner margin, and not reaching the posterior and inner margin by a long distance; apical part colourless with black veins. Inner surfaces of posterior femora for the greater part blackish-brown with two complete light fasciae; sometimes the dark coloration is not well developed and the base is sometimes light; inner surface of apex blackish brown. Posterior tibiae yellow, with faint blue shade in the middle; inner surface of base black.

♂ as the female, but smaller. Vertical diameter of the eye greater than the subocular distance.

	♀ ♀ — mm.	♂ ♂ — mm.
Length of body.....	20.5-22.0	15.5-19.0
— pronotum.....	4.5- 5.0	3.2- 4.0
— elytra.....	24.0-24.5	17.0-21.0
— posterior femora.....	11.8	8.5- 8.6
— — tibiae.....	10.5	7.2

GEOGRAPHICAL DISTRIBUTION.—Algeria.

SPECIMENS EXAMINED.—I ♂ and I ♀ (types).

Algeria: Mecheria, I ♀, I ♂ (Brunner von Wattenwyl).

#### 49. *Sphingonotus tricinctus tricinctus* (Walker).

1870. *Oed[ipoda] tricincta* Walker, Zoologist (2), Ser. V, p. 2300, n.° 35 [types ♀, ♂; Egypt, Sinai].
1884. *Sph[ingonotus] balteatus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, p. 203 (partim).
1896. *Sph[ingonotus] azurescens* Krauss und Vosseler, Zool. Jahrb., Abt. Syst., vol. ix, Nr. 4, p. 534 (partim).
1909. *S[phingonotus] balteatus* Werner, Zool. Jahrb., Abt. Syst., vol. xxvii, p. 114 (partim).
1910. *S[phingonotus] tricinctus* Kirby, Synon. Cat. Orth., vol. iii, p. 272, n.° 5.
1913. *Sphingonotus balteatus* Rehn, Bull. Soc. Ent. Egypte, p. 46 (nec Serville!).

1924. *S[phingonotus] tricinctus* Uvarov, Min. Agr. Egypt, Bull. Nr. 41, p. 24, Pl. II, figs. 30,31.
1930. *Sphingonotus tricinctus* Salfi, Arch. Zool. Ital., vol. xiv, p. 402 [Barka: Cirene].

♀. Body medium, fairly sturdy, with sparse hairs.

Head with fine and sparse punctures, almost smooth, not strongly projecting above the pronotum. Eyes short ovals, weakly projecting sideways; their vertical diameter only slightly greater than the horizontal, and equal to the subocular distance. Frons vertical. Frontal ridge almost flat, weakly concave at the ocellus, widened between the antennae, constricted below the ocellus, and obliterated at the clypeus; in profile hardly projecting at the bases of antennae; margins thick, smooth; surface with very sparse fine punctures. Fastigium of vertex greatly sloping. Vertex slightly impressed, elongated, smooth; margins weakly raised; median keel absent; maximum width of vertex almost 1.5 times the width of median keel between the antennae. Foveolae of vertex indistinct, smooth. Antennae smooth, only slightly longer than head and pronotum together.

Pronotum constricted in prozona; transverse furrows shallow, the first furrow just behind the middle of prozona, the second furrow very deep in the middle, interspaces between furrows rough; metazona slightly convex with dense, very fine punctures and very delicate wrinkles, its length 1.75 times that of prozona; posterior angle almost 90°, rounded; shoulders weakly projecting; median keel slightly raised in front of the first furrow, absent between the furrows, very low in metazona. Lateral lobes vertical, delicately punctured in metazona; anterior margin bisinuate, anterior lower angle obtuse, posterior lower angle strongly attenuate; lower margin obliquely-ascendant wavy.

Sternum with fine and sparse punctures, its width only slightly greater than its length; width of interspaces between meso and metasternal lobes 1.5 times their length. Lower parts of meso-episternum with dense and coarse punctures. Valvae of ovipositor with short pointed apices; basal parts of lower valvae punctured, smooth.

Elytra slightly narrowed towards apices, reaching the apices of posterior tibiae; their length almost 6 times their maximum width; venation dense in the basal part, sparse in the apical; the apical part of the second branch of the medial vein gives off 2-3 branches; inter-

calary vein slightly bent, at the apex near to the discoidal vein, finely granular. Wings elongate-triangular, gradually narrowed towards the apex, with sparse venation; their length almost 1.75 times their maximum width.

Posterior femora slender; their length 4 times their maximum width. Posterior tibiae only slightly shorter than posterior femora, with 8 spines on the outer, 10 on the inner sides.

General coloration yellowish-brown. Head whitish. Ocelli yellow. Antennae light with brownish rings. Elytra opaque; basal third, faint transverse median fascia and several indistinct spots in the apical part—brownish; veins light. Bases of wings colourless, with a wide black fascia, which is very much wider at the inner margin, leaving free only a small part at the anterior margin, reaches the inner margin and just does not reach the posterior margin; it is narrowed at the anterior margin; apical part colourless with darkish veins. Inner surfaces of posterior femora brown with two light fasciae, one of which is sometimes incomplete; apex dark-brown. Posterior tibiae dirty pale-blue, with a light ring at the base; inner surface of bases black.

♂. As the female but smaller. Antennae considerably longer than head and pronotum together. The apical part of the second branch of the medial vein gives off 2 branches.

	♀ ♀ mm.	♂ ♂ mm.
Length of body.....	23.0-25.5	16.5-20.5
— pronotum.....	4.5- 5.0	3.3- 3.8
— elytra.....	25.5-26.5	21.0-21.5
— posterior femora.....	11.5-12.0	9.0-10.5
— — tibiae.....	10.0-10.5	7.5- 9.0

GEOGRAPHICAL DISTRIBUTION. — Algeria, Tunis, Tripoli, Barka, Egypt, Sinai.

SPECIMENS EXAMINED.—6 ♀ ♀, 7 ♂ ♂.

Algeria: Ain-Sefra, 1 ♀, 1 ♂; Mecheria, 1 ♀, 1 ♂ (Brunner von Wattenwyl).

Tunis: 1 ♀, 1 ♂ (Staudinger).

Tripoli: Gherran, 13.VII.1906, 2 ♀ ♀, 1 ♂ (Klaptocz).

Barka: Dernah, 19-24.VIII.1906, 1 ♀, 1 ♂ (Klaptocz); Bengom, 9.IX.1906, 1 ♂ (Klaptocz).

Egypt: El Dabaa, 13.IX.1916, 1 ♂ (Hare).

49a. *Sphingonotus tricinctus angulatus* Uvarov.

1922. *Sphingonotus angulatus* Uvarov, Ent. Mont. Mag., Ser. 3, vol. VII. p. 84, fig. 1 [type ♀; Palestine, Transjordan].

1923 (1924). *Sphingonotus tricinctus angulatus* Uvarov, Bull. Soc. R. Ent. Egypt, p. 201.

As typical race *Sph. tricinctus tricinctus*, but differs from it in the following characters.

♀. Vertex rhomboid wide, slightly wrinkled, meso-episternum below sparsely and finely punctured. Elytra just not reaching to the apices of posterior tibiae; their length 5.5 times their maximum width.

Coloration as in the typical race. Bases of wings blue, the black fascia leaving free a third of the wing. Inner surfaces of posterior tibiae blue.

♂. As the female, but smaller. Similar to the male of the typical race.

	♀ ♀ — mm.	♂ ♂ — mm.
Length of body.....	22.5-27.0	17.5-18.0
— pronotum.....	4.0- 5.0	3.0- 3.8
— elytra.....	23.0-27.0	17.5-20.0
— posterior femora.....	10.5-13.0	8.5-10.5
— — tibiae.....	9.0-11.5	7.5- 9.0

GEOGRAPHICAL DISTRIBUTION.—Syria, Palestine, Transjordan.

SPECIMENS EXAMINED.—3 ♀ ♀ and 3 ♂ ♂.

Syria: 2 ♀ ♀, 2 ♂ ♂ (Coll. Brunner von Wattenwyl).

Palestine: Haifa, 14.VII.1921, 1 ♀ (Buxton); Chedera, 20.IV.1926, 1 ♂ (Bodenheimer).

Occurs on elevated sandy places among very sparse vegetation containing *Verbascum*, *Polygonum*, *Prosopis*, etc. [Uvarov, 1923, (1924)].

50. *Sphingonotus azurescens azurescens* (Rambur).

1838. *Gryllus azurescens* Rambur, Faune Ent. d'And., vol. II, p. 83, n.° 9, Pl. 7, fig. 3 [types ♀, ♂; Spain: Malaga].
1853. *O[edipoda (Sphingonotus)] callosus* Fieber, Lotos, vol. III, p. 125, n.° 12 (Synon. nov.).
1876. *Sph[inctonotus] azurescens* Bolivar, Sin. Ort. Esp. Port., pp. 153, 155, n.° 2 [Portugal].
1882. *Sph[ingonotus] azurescens* Brunner von Wattenwyl, Prodr. Eur. Orth., p. 152, n.° 3 (partim).
1884. *Sph[ingonotus] azurescens* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. XXVIII, Nr. 9, pp. 197, 203, n.° 9 (partim).
1896. *Sph[ingonotus] azurescens* Krauss und Vosseler, Zool. Jahrb., Abt. Syst., vol. IX, p. 534 [West Algiers] (partim).
1902. *Sphingonotus diadematus* Vosseler, Zool. Jahrb., Abt. Syst., vol. XVI, p. 376, n.° 45, Pl. 17, figs. 13 a, b; Pl. 18, fig. 12 (Synon. nov.).
- 1902-1905. *S[phingonotus] azurescens* Jacobson and Bianchi, Priam. Lozh. Ross. Imp., pp. 192, 274.
1910. *S[phingonotus] azurescens* Kirby, Synon. Cat. Orth., vol. III, p. 276, n.° 32.
1910. *Sphingonotus azurescens* R. var. *arenarius* Burr, Syn. Orth. W. Eur., p. 62, n.° (not Lucas).

♀. Body medium, fairly sturdy with sparse hairs.

Head with scattered fine punctures, strongly projecting above the pronotum. Eyes, short oval, weakly projecting sideways; their vertical diameter slightly greater than the horizontal one, and a little smaller than the subocular distance. Frons vertical. Frontal ridge slightly concave, widening between the antennae, slightly constricted below the ocellus, absent between the ocellus and clypeus; flat in profile; margins thin, smooth; surface punctured. Fastigium of vertex sloping. Vertex smooth, weakly concave; its margins weakly raised; median keel distinct; maximum width of vertex 1.5 times the width of frontal ridge between the antennae. Foveolae of vertex distinct, triangular, weakly punctured. Antennae fine, slightly longer than head and pronotum together.

Sternum strongly constricted in prozona, weakly saddle-shaped; transverse furrows distinct; the first furrow just behind the middle of prozona; interspaces between the furrows slightly wrinkled; metazona

with coarse punctures and with fine wrinkles; its length almost twice that of prozona; posterior angle obtuse, somewhat pointed, its margins weakly undulating; shoulders rounded; median keel slightly raised before the first furrow, absent between the furrows, very low and linear in metazona. Lateral lobes vertical; anterior margin weakly undulating, anterior lower angle obtuse, rounded; posterior margin straight, posterior lower angle rounded, sometimes slightly attenuated; lower margin weakly undulating, obliquely ascendant.

Sternum with scattered fine punctures, its width slightly greater than its length; width of interspace between mesosternal lobes twice its length, width of interspace between metasternal lobes 2.5 times its length. Valvae of ovipositor with elongated pointed apices; basal parts of lower valvae with distinct callous tubercles.

Elytra narrowed towards the apex, not quite reaching the apices of posterior tibiae; their length 5.5 times their maximum width; venation dense, irregular; apical part of the second branch of the medial vein gives off 2-3 branches; intercalary vein slightly bent, near to discoidal vein at the apex, finely granular. Wings elongated, triangular, with sparse venation; their length 1.8 times their maximum width.

Posterior femora fairly thick, their length 3.8 times their maximum width. Posterior tibiae slightly shorter than the femora with 8 spines on the outer, 10 on the inner sides.

General coloration grayish or reddish. Head whitish. Ocelli yellow-brown. Antennae brownish with light rings. Elytra transparent in the apical part; basal third, narrow transverse median fascia and several faint spots in the apical half—brownish; veins light. Bases of wings blue or bluish with a curved black fairly wide fascia (the width of which greatly varies), narrowed at the inner margin, somewhat widened in the middle, not quite reaching the posterior and inner margin; apical part colourless with black veins. Inner sides of posterior femora brownish-black with two light fasciae, one of which may be very faint (*Sph. callosus* Fieber). Posterior femora blue with a light fascia at the base; inner side of base black; tarsi whitish.

♂ as ♀ but smaller. Vertical diameter of the eye equal to subocular distance. Antennae almost 1.5 times longer than head and pronotum together.

Coloration as in ♂.

	♀ ♀ — mm.	♂ ♂ — mm.
Length of body.....	22.5-27.5	15.5-22.5
— pronotum.....	4.0- 5.0	3.2- 4.5
— elytra.....	22.5-30.0	17.5-22.5
— posterior femora.....	10.5-12.5	8.5-10.5
— — tibiae.....	9.5-11.5	7.5- 9.5

GEOGRAPHICAL DISTRIBUTION.—Portugal, Spain, Morocco, Algeria, Tunisia, Tripoli and Barka.

SPECIMENS EXAMINED.—21 ♀ ♀ and 22 ♂ ♂.

Spain: Sierra de Guadarrama, VIII.1926, 2 ♀ ♀, 3 ♂ ♂ (Uvarov); Vaciamadrid, Madrid, 15.VII.1924, 1 ♀, 2 ♂ ♂ (Ebner); Ucles, 2 ♀ ♀; Malaga, 2 ♀ ♀, 3 ♂ ♂ (Coll. Brunner von Wattenwyl); Granada, Gabia la Grande, 4.VIII.1924, 1 ♀, 1 ♂; Granada, Orjiva, 5.VIII.1924, 1 ♀, 1 ♂ (Ebner).

Morocco: Fedala, 4.VII.1930, 1 ♂ (Werner); Gr. Atlas, Goundata, 1,200 met., 15-20.VI.1933, 2 ♀ ♀, 3 ♂ ♂ (Zerny).

Algeria: Oran, 16.VII-18.IX.1880, 3 ♂ ♂; Nemours, 11.VIII.1880, 2 ♀ ♀; Lalla Marghnia, 21.VII.1880, 2 ♀ ♀, Mecheria, 6 ♀ ♀, 5 ♂ ♂ (Coll. Brunner von Wattenwyl).

50a. *Sphingonotus azurescens arenarius* (Lucas).

1849. *Oedipoda arenarius* Lucas, Expl. Sc. Alg. Zool., III, p. 35, n.º 60. Pl. 4, figs. 1, 1 a [types ♀, ♂; Algeria].
1884. *Sph[ingonotus] arenaria* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 196, 202, n.º 6.
1888. *Sph[ingonotus] arenarius* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 77, 79, n.º 6.
1910. *S[phingonotus] arenarius* Kirby, Synon. Cat. Orth., vol. III, p. 274. n.º 20.

Very similar to the typical *Sph. azurescens azurescens*, differing from it in the following characters:

♀. Head with dense and large punctures. Frons slightly sloping. Fastigium of vertex strongly sloping, almost vertical. Me-

stazona of pronotum with dense fine punctures and very fine wrinkles. Basal parts of lower valvae of ovipositor punctured, without distinct callous tubercles. Length of elytra 6 times their maximum width; venation sparse and regular.

General coloration as in the typical race. Inner sides of posterior femora, for the greater part, gray with a black spot in front of the light preapical fascia; apex darkened.

♂ as ♀, but smaller.

	♀ ♀ mm.	♂ ♂ mm
Length of body.....	26.5-32.0	16.0-24.0
— pronotum.....	4.2- 5.0	3.0- 3.5
— elytra.....	26.0-27.0	17.5-18.5
— posterior femora.....	11.5	8.5
— — tibiae.....	10.0	7.5

GEOGRAPHICAL DISTRIBUTION.—Algeria.

SPECIMENS EXAMINED.—4 ♀ ♀ and 2 ♂ ♂.

Algeria: Maison-Carrée, IX.1926, 3 ♀ ♀, 1 ♂ (Balachovsky) (British Museum); Algiers, 1 ♀, 1 ♂ (Staudinger).

This subspecies has been described by Lucas (1849) as a separate species. On examining the small series at my disposal, I have been able to establish the species of Lucas is only a subspecies of *Sph. azurescens*.

Habitat.—Dunes on the Mediterranean shores.

50b. **Sphingonotus azurescens linosae** Salfi.

1927. *Sph[ingonotus] azurescens linosae* Salfi, Boll. Soc. Nat. Nap., vol. xxxix, p. 140, n.º 3 [type ♀; Island Linosa].

Similar to the typical *Sph. azurescens azurescens*, but differs from it in the following characters:

♀. Head wrinkled. Frons weakly sloping. Fastigium of vertex strongly sloping almost vertical. Vertex wrinkled. Elytra shorter; their length 5 times their maximum width. Coloration as in the typi-

cal subspecies. Wings with some indications of a black fascia. Posterior tibiae yellowish. Male unknown.

	♀ (after Salfi) — mm.
Length of body.....	23.0
— pronotum.....	4.6
— elytra.....	24.5
— posterior femora.....	11.2

GEOGRAPHICAL DISTRIBUTION.—Island Linosa.

Unfortunately, the absence of material does not allow me to determine accurately the relationship of this subspecies.

#### 51. *Sphingonotus uvarovi* Chopard.

1923. *Sphingonotus uvarovi* Chopard, Ann. Soc. Ent. Fr., vol. xcii, p. 273. fig. 9, pl. 4, figs. 14, 15 [types ♀, ♂; Corsica].

♀. Body small, sturdy with dense long hairs.

Head with scarcely visible punctures, strongly projecting above the pronotum. Eyes almost round; their vertical diameter almost equal to the horizontal one and 1.5 times smaller than the subocular distance. Frons vertical. Frontal ridge flat; margins thick; surface with scattered punctures. Fastigium of vertex strongly sloping, almost vertical. Vertex very weakly impressed, margins obliterate; median keel almost absent; maximum width of vertex slightly greater than width of frontal ridge between the antennae. Foveolae of vertex indistinct, almost absent. Antennae fairly thick, slightly thickening towards the apex, length slightly greater than that of head and pronotum together.

Pronotum without a constriction in prozona; transverse furrows distinct; the first furrow almost in the middle of prozona, the second furrow confluent with the first in the middle; metazona flat with coarse punctures and very slight wrinkles; its length 1.5 times that of prozona; posterior angle obtuse, widely rounded, shoulders rounded; median keel scarcely marked before the 1<sup>st</sup> furrow, absent between the furrows, weak and linear in metazona. Lateral lobes vertical;

anterior margin weakly undulating, anterior lower angle obtuse, rounded; posterior margin straight, posterior lower angle widely rounded, somewhat dentate; lower margin obliquely-ascendant, with a slight excision.

Sternum with scattered punctures; its width considerably greater than its length; width of interspaces between the meso and metasternal lobes 2.5 times greater than their length. Lower parts of mesopisternum densely punctured. Valvae of ovipositor with elongated pointed apices; basal parts of lower valvae almost smooth.

Elytra reaching the apices of posterior tibiae; their length almost 5.6 times their maximum width; the apical part of the second branch of the medial vein gives off 2 branches; intercalary vein curved, very near the discoidal vein at the apex, finely granular. Wings elongated, triangular, with sparse venation; their length almost 1.75 times their maximum width.

Posterior femora slender, their length almost 4 times their maximum width. Posterior tibiae only slightly shorter than the femora, with 8 spines on the outer, 10 on the inner sides.

General coloration ashy-gray. Head whitish. Ocelli yellowish-brown. Antennae brown with light rings. Elytra transparent; basal third, narrow medial transverse fascia and some spots in the apical part—dark brown; veins light. Bases of wings faintly bluish, veins light. Inner surfaces of posterior femora for the greater part blackish-brown with two complete light fasciae; inner side of apex light. Posterior tibiae greenish-blue, with a light ring at the base, the inner side of the base greenish-blue.

♂ as the female, but smaller. Head more coarsely punctured than in the ♀. Vertical diameter of the eye only slightly shorter than the subocular distance. Frontal ridge obliterated at clypeus. Elytra not quite reaching the apices of posterior tibiae.

	♀ ♀ — mm.	♂ ♂ — mm.
Length of body.....	20.5-21.0	14.0-14.5
— pronotum.....	3.2- 3.5	2.5- 2.8
— elytra.....	18.5-20.0	14.5-15.5
— posterior femora.....	8.5- 9.0	7.0- 8.5
— — tibiae.....	7.5	6.0

GEOGRAPHICAL DISTRIBUTION.—Corsica.

SPECIMENS EXAMINED.—I ♀ and I ♂.

Corsica: Propriano, IX-1922, 1 ♀, 1 ♂ (Chopard) (paratypes).

Lives on sand on the sea-shore.

### XIII. Group COERULANS

#### 52. *Sphingonotus coerulans coerulans* (Linné).

(Figs. 16, 21, 80.)

1767. *Gryllus (Locusta) coerulans* Linné, Syst. Nat., vol. 1, part II, p. 701, n.° 48 [types ♀, ♂; Germany, Sweden].
1775. *Gryllus coerulans* Fuessly, Verz. Schweiz. Ins., p. 23 [Switzerland].
1781. [*Gryllus Locusta*] *coerulans* Schrank, Enum. insect. Aust. indig., p. 247, n.° 471 [Austria].
1785. *Acrydium cyaneum* Fourcroy, Entom. Paris, part I, p. 180, n.° 1 [France].
1791. *Acrydium coerulans* Olivier, Encyclop. method., vol. vi, p. 225, p.° 45 [Italy] (partim).
1839. *Oedipoda coerulans* Burmeister, Handb. Ent., vol. II, p. 641, n.° 2 [Belgium].
1846. *Oedipoda coerulans* Fischer de Waldheim, Ent. Imp. Ross., vol. IV, p. 268, n.° 11, Pl. XV, fig. 1 [Middle Russia].
1884. *Sphingonotus coerulans* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 196, 200, n.° 3 (partim).
- 1902-1905. *S[phingonotus] coerulans* Jacobson and Bianchi, Priam. lozhn. Ross. Imp., pp. 192, 273 (partim).
1910. *S[phingonotus] coerulans* Kirby, A Synon. Cat. Orth., vol. III, p. 273, n.° 11 (partim).
- (1911) 1912. [*Sphingonotus*] *coerulans intermedia* Ramme, Berl. Ent. Zeits., vol. 56, p. 9, Pl. I, figs. 7 a-d (partim).
1922. [*Sphingonotus coerulans* L.] var. *defasciata* Puschnig, Carinthia, II, 31 Jahrg., p. 34, n.° 4 (Synon. nov.).

♀. Body medium, sturdy, with sparse hairs.

Head not projecting at all above the pronotum, densely and coarsely punctured. Eyes small, oval, very weakly projecting sideways; their vertical diameter only slightly greater than the horizontal and shorter than the subocular distance. Frons vertical. Frontal ridge concave, widening between the antennae, constricted below the

ocellus, obliterated between the ocellus and clypeus; flat in profile; margins thick; surface coarsely punctured. Fastigium of vertex sloping. Vertex concave, margins distinct, median keel weak; maximum width of vertex almost 1.75 times the width of frontal ridge between antennae. Foveolae of vertex fairly distinct, punctured. Antennae fairly thick, almost equal to length of head and pronotum taken together.

Pronotum weakly constricted in prozona; transverse furrows distinct; the first furrow just behind the middle of prozona; metazona slightly convex with coarse punctures and fine wrinkles, its length almost twice that of prozona; posterior angle a little greater than  $90^\circ$ , weakly rounded; shoulders rounded; median keel very weakly raised before the first furrow, thin and linear in metazona. Lateral lobes weakly vertical, coarsely punctured in metazona; anterior margin undulating, anterior lower angle obtuse; posterior margin straight posterior lower angle attenuated, sometimes only slightly so; lower margin almost straight, obliquely-ascendant.

Sternum coarsely and fairly densely punctured; its width slightly greater than its length; width of interspace between mesosternal lobes 1.5 times its length, that between metasternal lobes twice its length. Lower parts of meso-episternum coarsely and densely punctured. Valvae of ovipositor with short pointed apices; basal parts of lower valvae smooth, with scattered punctures.

Elytra narrowing to the apices, just reaching, or not quite reaching, the apices of posterior tibiae; their length almost 5.6 times their maximum width; venation sparse, irregular; the apical part of the second branch of the median vein gives off 2-3 branches; intercalary vein straight, parallel to the discoidal, sometimes slightly curved, a little nearer to the discoidal vein at the apex, finely granular. Wings elongated, triangular, with sparse venation, their length almost 1.89 times their maximum width.

Posterior femora slender, their length almost 4 times their maximum width. Posterior tibiae only slightly shorter than femora, with 8 spines on the outer, 10 on the inner sides.

General coloration dark gray with an admixture of brown. Head whitish. Ocelli yellow. Antennae brownish with light rings and bases. Elytra slightly transparent; basal third, median fascia and

several scattered spots blackish-brown; sometimes the fasciae and spots absent; veins light. Bases of wings blue; veins in the apical part black. Inner sides of posterior femora black with one, or sometimes two, light fasciae (one incomplete); inner surface of apex black. Posterior tibiae blue or dirty blue with a light fascia; inner surface of base black.

♂ as ♀, but smaller. Head weakly projecting above pronotum. Vertical diameter of the eye almost equal to subocular distance. Frontal ridge more strongly concave than in the ♀, obliterated at the clypeus, but sometimes reaching the latter. Antennae longer than the head and pronotum together.

	♀ ♀ mm.	♂ ♂ mm.
Length of body.....	23.0-31.0	14.0-26.0
— pronotum.....	4.2- 6.0	3.0- 4.2
— elytra.....	22.0-33.0	16.0-25.0
— posterior femora.....	10.0-13.5	7.0-10.0
— — tibiae.....	8.0-12.0	6.0- 9.0

GEOGRAPHICAL DISTRIBUTION. — Western Europe (from Southern Sweden to the North of Spain, North Italy, Greece and the Western coast of Black Sea; Middle and Southern part of European U. R. S. S. (except Volga region); Crimea; North Caucasus.

52 a. *Sphingonotus coeruleans exornatus* Nedelkov.

1882. *Sph[ingonotus] coeruleans* Brunner von Wattenwyl, Prod. Eur. Orth., p. 150, n.º 1 [Greece] (not Linné).  
 1888. *Sph[ingonotus] coeruleans* L. var. *A*, Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, p. 79, n.º 5 [Sicily].  
 1907. *S[phingonotus] coeruleans* var. *exornatus* Nedelkov, Period. Spis. na Bulgarsk. Knizhn. Druzh., vol. LXVIII, p. 422 [types ♀, ♂; Bulgaria: Burgas, Shores of the Black Sea].

As the typical race *Sph. coeruleans coeruleans*, differing from it by the following characters:

♀. Maximum width of vertex slightly greater than the width of

frontal ridge between the antennae. Intercalary vein sometimes slightly curved.

Coloration as in the typical race. Wings sometimes with a diffuse dark fascia. Inner sides of posterior femora for the greater part black with 2 complete light fasciae. Posterior tibiae dirty white, sometimes with bluish shade.

♂. As female but smaller. Similar to ♂ of the typical race.

	♀ ♀ — mm.	♂ ♂ — mm.
Length of body.....	23.5-30.0	17.5-21.0
— pronotum.....	4.5- 5.5	2.7- 3.3
— elytra.....	23.0-29.5	17.0-20.0
— posterior femora.....	11.5-14.5	8.0- 9.0
— — tibiae.....	10.5-13.5	7.0- 8.0

GEOGRAPHICAL DISTRIBUTION.—South Italy, Sicily, Greece, Eastern Bulgaria, S. W. Ukraine, W. Crimea.

SPECIMENS EXAMINED.—30 ♀ ♀, 28 ♂ ♂.

S. Italy: Naples, 1 ♀ (Zeller).

Sicily: Messina, 1 ♀, 1 ♂; Syracuse, 2 ♀ ♀, 1 ♂ (Zeller).

Greece: Athens, 2 ♀ ♀, 1 ♂; Peloponnes, 2 ♀ ♀, 2 ♂ ♂ (Coll. Brunner von Wattenwyl).

Bulgaria: Burgas, VII, 1 ♀, 1 ♂ (Nedelkov) (types).

S. W. part of European U. R. S. S.: Odessa region, Kujalnitsky liman, 3.X.1926, 1 ♀ (Znoiko); Domashevka, Odessa region, 9.IX.1925, 3 ♀ ♀, 6 ♂ ♂ (Aksinin); Peresyp, Odessa region, 23.VIII.1925-16.IX.1928, 7 ♀ ♀, 7 ♂ ♂ (Znoiko); Luzanovka, Odessa region, 15.VIII-25.VIII.1925, 4 ♀ ♀, 2 ♂ ♂ (Znoiko); Near Odessa, 16.VIII-3.X.1925, 5 ♀ ♀, 7 ♂ ♂ (Aksinin and Troyakina); Eupatoria, Moinak lake 2.VIII.1914, 2 ♀ ♀ (Artobolevsky).

This subspecies has been described by Nedelkov (1907) as a variety of *Sph. coerulans*. On examining Nedelkov's types and the above-mentioned material, I have decided to regard it as a race of *Sph. coerulans*.

Some of the specimens from the Kuyalnitsky liman (Odessa

district) are intermediate between *Sph. coeruleans coeruleans* and *Sph. coeruleans exornatus*; they are labelled, 16.IX.3.X.1926, 7 ♀ ♀, 5 ♂ ♂ (Znoiko).

52b. ***Sphingonotus coeruleans corsicus*** Chopard.

1838. *Gryllus coeruleans* Rambur, Fauna Ent. de l'And., vol. II, p. 83, n.° 8 [Spain] (not Linné).  
 1876. *Sph[inctonotus] coeruleans* Bolivar, Bol. Soc. Esp. Hist. Nat., vol. V, p. 157 n.° 1 [Portugal] (not Linné).  
 1923. *Sphingonotus coeruleans coerulcipes* Chopard, Ann. Soc. Ent. Fr., vol. XCII, pp. 273, 284 [types ♀, ♂; Island Corsica].  
 1923 (1924). *Sph[inctonotus] coeruleans corsicus* Chopard, Ann. Soc. Ent. Fr., p. 310.  
 1931. *Sphingonotus azurescens* Ramb. subsp. Ebner, Bol. Soc. Esp. Hist. Nat., vol. XXXI, p. 502 [Island Mallorca].

Very similar to the typical race *Sph. coeruleans coeruleans*, but differs from it in the following characters:

♀. Head slightly projecting above the pronotum, punctured. Eyes more strongly projecting; their vertical diameter equal to the subocular distance. Maximum width of vertex only slightly greater than the width of frontal ridge between the antennae. Basal parts of lower valvae of ovipositor slightly rough.

Elytra longer than the posterior tibiae; their length almost 6 times their maximum width; intercalary vein slightly curved, very near to discoidal vein at the apex. Wings wider; their length almost 1.75 times the maximum width.

Coloration as in the typical race. Ventral side of abdomen greenish-blue. Wings brighter blue. Inner sides of posterior femora for the greater part blackish-blue with 2 light fasciae, one of which is incomplete; apex black. Posterior tibiae bright blue with a light fascia near the base; inner side of base black.

♂. As the female but smaller. Similar to the male of the typical race.

	♀ ♀	♂ ♂
	mm.	mm.
Length of body.....	23.5-26.5	17.5-18.5
— pronotum.....	4.5- 5.0	3.2- 3.5
— elytra.....	24.5-26.0	20.0-21.0
— posterior femora.....	10.0-11.5	9.0- 9.5
— — tibiae.....	8.5-10.0	7.5- 8.0

GEOGRAPHICAL DISTRIBUTION.—Portugal, Spain, Balearic Islands, Corsica, Sardinia.

SPECIMENS EXAMINED.—34 ♀ ♀, 19 ♂ ♂.

Portugal: Koviljan, 1896, 2 ♀ ♀, 1 ♂ (Ivanova).

Spain: Prov. Segovia, St. Rafael, VIII.1926, 1 ♀ (Uvarov); Vaciamadrid, Madrid, 15.VII, 3 ♀ ♀, 1 ♂; Castilia, Cercedilla, 16.VII, 1 ♀; Castilia, Aranjuez, 24.VII, 1 ♀; Granada, Gabia la Grande, 4.VIII, 1 ♂; Sierra Nevada, Velet, 8.VIII, 3 ♀ ♀, 2 ♂ ♂; Orjiva, 5-9.VIII. 1924; 1 ♀, 1 ♂ (Ebner); Lanjaron, 1 ♀, 1 ♂ (Brunner von Wattenwyl); Malaga, 2 ♀ ♀, 1 ♂ (Staudinger and Brunner von Wattenwyl).

Island Ivisa: 4 ♀ ♀, 3 ♂ ♂ (Eidmann).

Island Mallorca: Porrassa, VIII, 1 ♀, 2 ♂ ♂; Palma, VIII.1928, 2 ♀ ♀, 1 ♂ (Jordans).

Island Corsica: La Foce de Vizzavona, elevation ca. 1,200 met., 1922, 1 ♀, 1 ♂; Evisa, elevation ca. 800 met., 1922, 2 ♀ ♀; Calacuccia, 1922, 1 ♂ (Chopard) (paratypes).

Island Sardinia: Gennargenta, Aritzo, I.VIII, 2 ♀ ♀, 1 ♂ (Krüger); Oristano, 7 ♀ ♀, 2 ♂ ♂ (Krause).

52c: **Sphingonotus coeruleans cyanopterus** (Charpentier).

1821. *G[ryllus] coerulescens* Zetterstedt, Orth. Svec., p. 78, n.° 3 [Sweden] (not Linné).
1825. *Gryllus cyanopterus* Charpentier, Hor. Ent., p. 143, Pl. II, fig. 3 [types ♀, ♂; Sweden, Germania].
1883. *Sphingonotus cyanopterus* Finot, Faune Fr., p. 70 [France].
1884. *Sph[ingonotus] cyanopterus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 202, n.° 8.

- 1902-1905. *S[phingonotus] cyanopterus* Jacobson and Bianchi, Priam. lozh. Ros. Imp., pp. 192, 274.  
 1910. *S[phingonotus] cyanopterus* Kirby, Synon. Cat. Orth., vol. III, p. 276, n.º 31.  
 (1911) 1912. [*Sphingonotus*] *coerulans* subsp. *cyanopterus* Ramme, Berl. Ent. Zeits., vol. 56, p. 9, Pl. I, figs. 8a, 8b.  
 (1911) 1912. [*Sphingonotus*] *coerulans intermedia* Ramme, Berl. Ent. Zeits., vol. 56, p. 9, Pl. I, figs. 7 a-d (partim).

Very near to the typical race *Sph. coerulans coerulans*, differing from it by the following characters:

♀. Frontal ridge with a longitudinal furrow at the vertex. Lower posterior angle of lateral lobes usually rounded.

General coloration darker than in the typical race, sometimes almost black. Elytra more spotted. Bases of wings bluish with a blackish diffuse fascia, which does not reach the posterior margin by a long distance; veins all blackish. Posterior tibiae dirty bluish, with a light band at the blackish base, with two brown fasciae on the inner side.

♂. As the female, but smaller. Very like the male of the typical race.

	♀ ♀ — mm.	♂ ♂ — mm.
Length of body.....	20.0-24.5	15.0-18.0
— pronotum.....	3.5- 4.5	2.5- 3.0
— elytra.....	20.0-25.5	15.0-19.0
— posterior femora.....	9.0-10.0	7.0- 9.0
— — tibiae.....	8.0- 9.0	6.0- 8.0

GEOGRAPHICAL DISTRIBUTION.—France, Germany, N. Austria, Denmark, S. Scandinavia, Poland, Latvia, Esthonia, Lithuania, N. W. part of European U. R. S. S. (Leningrad and Moscow regions).

SPECIMENS EXAMINED.—64 ♀ ♀ and 62 ♂ ♂.

Esthonia.—Schmezk, near Narva, 29.VII.1890, 1 ♂ (Gerzenstein).

U. R. S. S. Leningrad region: village Kaskolovo, Yamburg district, 27.VIII-I.IX.1927, 10 ♀ ♀, 6 ♂ ♂ (Cheburova); Travianaya hill, between villages Leskovo and Oleshno, Lujsk. district, 9 10.VIII.1930, 48 ♀ ♀, 47 ♂ ♂; Lipovaya hill, Lujsk. district, 11.VIII.1930, 1 ♀, 1 ♂;

village Kornevo, Lujsk. district, 12.VIII.1930, 1 ♀, 1 ♂; village Krivshitzi, Lujsk. district, 13.VIII.1930, 1 ♀ (Olsufiev). Moscow region: village Trikvaty near Ivanovo-Vosnesensk, 30-31.VIII.1923, 1 ♀, 2 ♂♂; 4.X.1927, 2 ♀♀, 4 ♂♂ (Znoiko).

This northern subspecies of *Sph. coerulans* is found only on stony shores or on bare sandy hills with numerous pebbles, amongst almost pure heather association.

Ramme, on the basis of chiefly variations in wing fascia has described [(1911) 1912, Berl. Ent. Zeits., vol. 56, p. 9, pl. I, figs. 7a-d] an intermediate form between *S. coerulans coerulans* and *S. coerulans cyanopterus*, giving it the name *intermedia* Ramme.

52d. *Sphingonotus coerulans caspicus* subsp. n.

(Figs. 81, 82.)

1921. *Sph[ingonotus] coerulans* Uvarov, J. Bomb. Nat. Hist. Soc., vol. xxvii, pp. 62, 69 [N. W. Persia: Enzeli] (partim).

As the typical *Sph. coerulans coerulans* differing from it by the following characters:

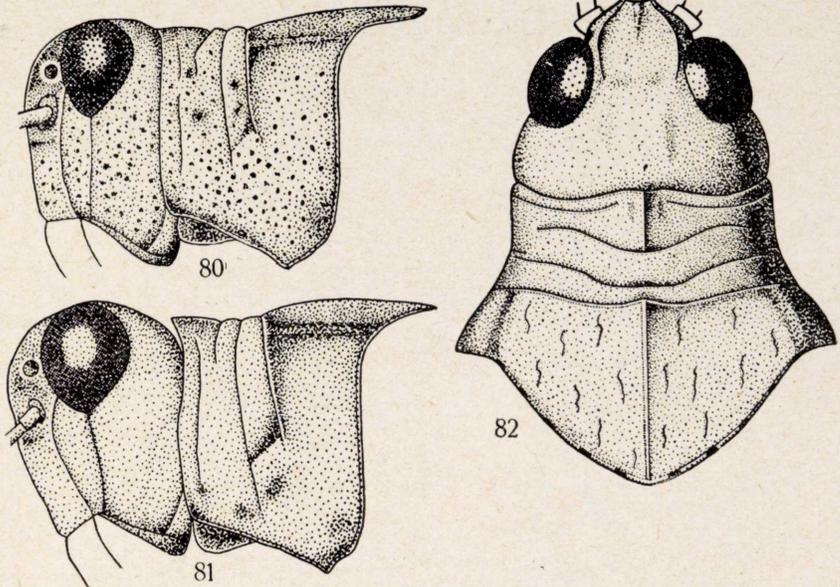
♀. Vertical diameter of the eye almost equal to the subocular distance. Frontal ridge almost parallel-sided, reaching the clypeus. Vertex weakly concave. Antennae slightly longer than head and pronotum together. Sternum densely and finely punctured. Basal parts of lower valvae of ovipositor slightly rough, not smooth. Length of wings 1.68 times their maximum width. Posterior tibiae with 7-9 spines on the outer side.

Coloration as in the typical race.

♂ (allotype). As ♀, considerably smaller. Similar to male of the typical race.

	Type ♀ — mm.	Allotype ♂ — mm.	Paratypes ♀♀ — mm.	Paratypes ♂♂ — mm.
Length of body.....	27.5	18.0	22.0-26.5	14.5-19.0
— pronotum.....	5.0	3.0	4.2- 5.0	2.5- 3.0
— elytra.....	26.5	19.0	23.0-26.5	15.5-19.5
— posterior femora	13.0	9.0	11.5-13.0	8.0- 9.5
— — tibiae.	11.5	7.5	10.0-11.5	6.5- 8.0

PATRIA. — Transcaucasus: Lenkoran, Talysh, 25.VI.1909, 6 ♀♀, 4 ♂♂ (Kirichenko); Lenkoran, shores of river Lenkoran-Chai, 22.VII.1932, 3 ♀♀, 3 ♂♂; Lenkoran district, 24.VI.1932, 3 ♀♀ (including



Figs. 80-82.—80, *S. coeruleans coeruleans*, ♀; 81-82, *S. coeruleans caspicus*, type ♀.

type) 2 ♂♂; N. Talysh, valley of river-Viliash-Chai, 21.VIII.1932, 1 ♀, 1 ♂ (Znoiko).

N. W. Persia: Pekhlevi, 25-26.VI.1919, 3 ♀♀, 6 ♂♂ (Buxton) (Brit. Museum).

Type and allotype in the Zoological Institute of the Academy of Sciences, Leningrad.

7 paratypes (2 ♀♀, 5 ♂♂) in the British Museum (Nat. Hist.), London.

### 53. *Sphingonotus kashmirensis* Uvarov.

1925. *Sphingonotus kashmirensis* Uvarov, Mission G. Babault dans les provinces de l'Inde et dans la région occidentale de l'Himalaya, Ins. Orth. Acr., pp. 18-22, Pl. figs. 2, 3, 4 [type ♀; Kashmir: Baltal].

1927. *S[phingonotus] kashmirensis* Uvarov, Saran. Sred. Az., pp. 129, 133, n.° 1, figs. 140, 149.

♀. Body medium, sturdy with sparse hairs. Head compressed laterally, with scattered punctures, does not project above the pro-

notum at all. Eyes irregularly oval, weakly projecting sideways, their vertical diameter almost 1.5 times the horizontal one and equal to the subocular distance. Frons vertical. Frontal ridge weakly concave, much wider between the antennae, constricted bellow the ocellus, absent between the ocellus and clypeus; flat in profile; margins thick; surface sparsely punctured. Fastigium of vertex strongly sloping. Vertex concave, margins raised; median keel scarcely marked; maximum width of vertex almost equal to the width of frontal ridge between the antennae. Foveolae of vertex distinct, punctured. Antennae fairly thick, just longer than head and pronotum together.

Pronotum without a constriction in prozona; transverse furrows distinct, not very deep; the first furrow behind the middle of prozona; metazona flat with coarse punctures and fine wrinkles; posterior angle obtuse, rounded; median keel weakly raised in front of the first furrow, absent between the furrows, weak and linear in metazona. Lateral lobes of pronotum vertical; anterior margin weakly undulating, anterior lower angle straight, rounded; posterior margin straight, posterior lower angle widely rounded; lower margin obliquely-ascendant, with a slight excision.

Sternum with fine scattered punctures; its width very slightly greater than its length; width of interspaces between meso and metasternal lobes 1.75 times their length. Lower parts of meso-episternum with sparse shallow punctures. Valvae of ovipositor with long pointed apices; basal parts of lower valvae smooth, punctured.

Elytra narrowed towards the apex, not reaching the apices of posterior tibiae; their length almost 5 times their maximum width; venation sparse; the apical part of the second branch of medial vein gives off three branches; intercalary vein straight, parallel to the discoidal vein, finely granular. Wings elongated triangular with sparse venation; their length almost 1.85 times their maximum width.

Posterior femora fairly thick, their length almost 3.5 times their maximum width. Posterior tibiae only slightly shorter than the femora with 8 spines on the outer and 10 on the inner sides.

General coloration reddish-brown. Head whitish. Ocelli yellow-brown. Antennae brownish with light rings; bases light. Elytra transparent; the basal third, the median fascia interrupted in the middle, and some spots in the basal and apical parts—brownish, veins

light. Bases of wings blue with a short diffuse fascia, interrupted in the middle; apical part colourless with black veins. Inner sides of posterior femora blackish-blue or blackish-brown with a complete light fascia before the dark apex. Posterior tibiae dirty light-blue with a light fascia at base, the inner surface with two blue fasciae, inner base blackish-blue.

♂. As the female, but smaller. Maximum width of vertex greater than that of frontal ridge between the antennae. Apical part of second branch of medial vein of elytra with 2 branches.

	♀ ♀ — mm.	♂ (after Uvarov) — mm.
Length of body.....	26.5-28.0	18.5
— pronotum.....	4.7- 5.0	3.5
— elytra.....	22.5-27.0	20.0
— posterior femora....	11.5-13.5	10.0
— — tibiae.....	10.0-12.0	

GEOGRAPHICAL DISTRIBUTION.—Kashmir, S. Himalayas.

SPECIMENS EXAMINED.—2 ♀ ♀.

Kashmir: Baltal, VIII.1914, 1 ♀ (J. Babault) (paratype); S. Himalayas, Kardong pass, 3,500 met., 3.VII.1912, 1 ♀ (Avinov).

54. *Sphingonotus uvarovites* sp. n.<sup>1</sup>

(Figs. 83, 84, 85).

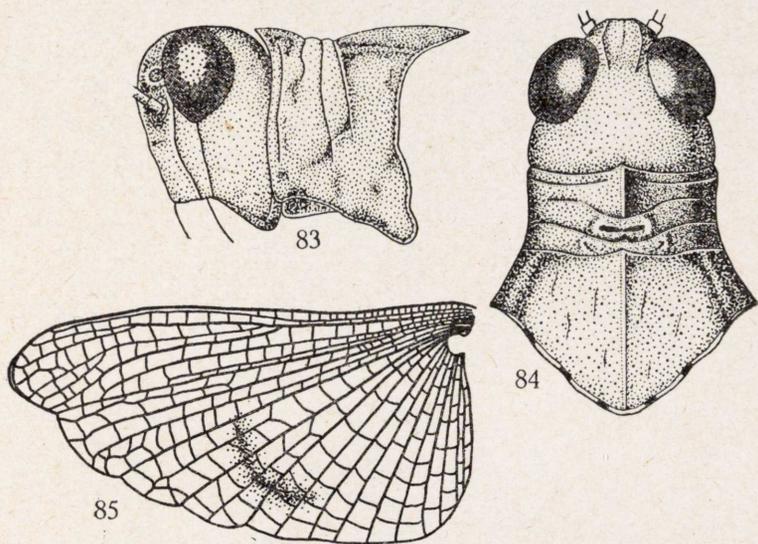
♀ (type). Body small, fairly sturdy with short hairs.

Head small, with sparse, large shallow punctures, not projecting above the pronotum. Eyes oval weakly projecting sideways; their vertical diameter 1.5 times the horizontal one and equal to the subocular distance. Frons slightly sloping. Frontal ridge flat, slightly wider between the antennae, constricted and slightly concave below the ocellus, absent between the ocellus and clypeus; margins thick; absolutely flat in profile; its surface with large shallow punctures (es-

<sup>1</sup> I dedicate this peculiar species to Mr. B. P. Uvarov, the author of numerous extremely valuable works on Orthoptera.

pecially near the vertex). Fastigium of vertex strongly sloping. Vertex narrow, slightly concave; margins obliterated; median keel scarcely marked at the fastigium; maximum width of vertex slightly greater than width of frontal ridge between the antennae. Foveolae of vertex indistinct, punctured. Antennae thin, equal in length to head and pronotum together.

No constriction in prozona of pronotum; transverse furrows distinct; the first furrow just behind the middle of prozona; metazona



Figs. 83-85 —83-84, *S. uvarovites*, type ♀; 85, the same, paratype ♂.

flat, with coarse punctures and fine wrinkles, raised slightly above the prozona; its length 1.5 times that of the prozona; posterior angle obtuse, weakly rounded; shoulders rounded; median keel very weakly raised in front of the first furrow, absent between the furrows, thin and linear in metazona. Lateral lobes of the pronotum vertical; anterior margin undulating, anterior lower angle  $90^\circ$ , rounded; posterior margin undulating, with an excision in front of the rounded posterior lower angle; lower margin obliquely-ascendant with a deep excision in front of the anterior angle; their surface in metazona with large punctures and fine wrinkles.

Sternum sparsely and finely punctured; its width equal to its length; width of interspace between mesosternal lobes 1.5 times its length, width of interspace between metasternal lobes twice its length.

Lower parts of meso-episternum coarsely punctured. Valvae of ovipositor slender with pointed apices; basal parts of lower valvae smooth with sparse punctures.

Elytra parallel sided, slightly narrowed towards the apices, reaching just beyond the middle of posterior tibiae; their length 6 times their maximum width; venation sparse, irregular; the apical part of the second branch of medial vein gives off two branches, intercalary vein bisects the discoidal area into two equal parts, straight, parallel to the discoidal vein, very finely granular; cubital area without a false vein. Wings elongated, triangular, with sparse venation; their length almost twice their maximum width.

Posterior femora slender; their length 4 times their maximum width. Posterior tibiae only slightly shorter than the femora, with 8 spines on the outer, 10 on the inner sides.

General coloration gray with brownish spots and punctures. Ocelli yellowish-brown. Antennae brownish with light rings. Elytra slightly transparent; basal third, the weak transverse median band, and several spots in the apical part—brownish; veins light. Wings bluish at base, with a short, diffuse, median, black fascia which does not reach the anterior and posterior margins; apex colourless with black veins. Inner surfaces of posterior femora for the greater part blackish-blue, with a light fascia at apex. Posterior tibiae dirty-blue, inner sides of bases black; tarsi grayish-green.

♂. As ♀ but smaller. Eyes more strongly projecting sideways; their vertical diameter greater than the subocular distance. Antennae just longer than the head and pronotum taken together.

	Type ♀ — mm.	Allotype ♂ — mm.	Paratype ♀ — mm.	Paratype ♂ — mm.
Length of body.....	21.5	13.0	21.0	12.5
— pronotum.....	3.7	2.5	3.5	2.5
— elytra.....	18.0	13.0	17.0	13.5
— posterior femora	9.5	7.0	9.0	7.0
— — tibiae.	8.5	6.0	8.0	6.0

PATRIA.—Asia Minor: Between Ankara and Tuz-Goel, 14.VIII.1931,  
 ♂ ♀ ♀ (including the type) and 7 ♂ ♂ (B. P. Uvarov).

This new species is near to *Sph. kashmirensis* differing from the latter by smaller size and peculiar structure of lateral lobes.

Type and allotype in the British Museum (Nat. Hist.), London. Two paratypes (♂ and ♀) in the Zoological Institute of the Academy of Sciences, Leningrad.

#### 55. *Sphingonotus mongolicus* Saussure.

1888. *Sph[ingonotus] mongolicus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 77, 82, n.º 13 [types ♀, ♂; Mongolia].  
 1902-1905. *S[phingonotus] mongolicus* Jacobson and Bianchi, Priam. Iozh, Ross. Imp., pp. 192, 274.  
 1910. *S[phingonotus] mongolicus* Kirby, A Synon. Cat. Orth., vol. III. p. 276, n.º 30.

♀. Body medium, sturdy with very sparse hairs.

Head with sparse and fine punctures, weakly projecting above the pronotum. Eyes small, oval, weakly projecting sideways; their vertical diameter slightly greater than the horizontal one and almost equal to the subocular distance. Frons vertical. Frontal ridge slightly concave, almost parallel-sided, obsolete between the median ocellus and clypeus; projecting at the bases of antennae in profile; margins thick; surface very weakly punctured. Fastigium of vertex sloping. Vertex narrow, strongly concave, margins distinctly raised; median keel scarcely marked, almost absent; maximum width of vertex slightly greater than width of frontal ridge between the antennae. Foveolae of vertex very indistinct. Antennae fairly thick, slightly longer than head and pronotum taken together.

Pronotum constricted in prozona; transverse furrows shallow, the first furrow passing just behind the middle of prozona; metazona slightly convex, coarsely punctured, its length 1.5 times that of prozona; posterior angle obtuse, rounded; shoulders rounded; median keel weakly raised in front of the first furrow, absent between the furrows, thin and linear in metazona. Lateral lobes vertical, anterior margin undulating, anterior lower angle obtuse, posterior margin straight, posterior lower angle rounded, somewhat dentate, sometimes very slightly attenuated, lower margin obliquely-ascendant, wavy.

Sternum punctured, its width slightly greater than its length; width of interspace between mesosternal lobes 1.5 times its length, width of interspace between metasternal lobes twice its length. Lower parts of meso-episternum sparsely and finely punctured. Valvae of ovipositor with pointed apices; basal parts of lower valvae of ovipositor weakly punctured, smooth.

Elytra narrowed towards the apex, not reaching the apices of posterior tibiae; their length 5.2 times their maximum width; venation sparse, irregular; the apical part of the second branch of the medial vein gives off 2-3 branches; intercalary vein slightly curved, close to the discoidal vein in the apical part, finely granular. Wings elongated, triangular, with sparse venation; their length almost 1.8 times their maximum width.

Posterior femora slender; their length almost 4 times their maximum width. Posterior tibiae slightly shorter than the femora, with 8 spines on the outer, 10 on the inner sides.

General coloration brownish. Head whitish. Ocelli yellow-brown. Antennae uniform brown, bases light. Elytra transparent in the apical part; basal third, diffuse median fascia and several indistinct spots in the apical part—brownish; veins light. Wings transparent, blue at base with a black, curved fairly wide fascia, which reaches the anterior margin and does not reach the posterior and inner margins, sometimes interrupted in the anterior part; apical part colourless with black veins. Inner sides of posterior femora for the greater part black with a complete light fascia at the apex. Posterior tibiae dirty-whitish, with a blue fascia near the base; inner side of base black.

♂. As the ♀, but smaller. Antennae 1.5 times as long as head and pronotum together.

	♀♀ mm.	♂♂ mm.
Length of body.....	22.0-27.0	13.0-21.5
— pronotum.....	4.5- 6.0	4.0- 4.5
— elytra.....	22.0-30.0	22.0-26.0
— posterior femora.....	10.5-14.5	10.0-11.0
— — tibiae.....	9.0-13.0	8.5- 9.5

GEOGRAPHICAL DISTRIBUTION. — Transbaikalia; Russian Far East; Mongolia; Manchuria; N. and N. W. China; Corea.

SPECIMENS EXAMINED.—8 ♀♀ and 5 ♂♂.

Transbaikalia: Village Berezovaya, Troizkosavsk district, 30.VIII. 1928, 1 ♂ (Lukianovich).

Russian Far East: Blagoveschensk, 3.VIII.1928, 1 ♂ (Vereschagin); Suchan, Vladivostok district, 20.VIII.1927, 1 ♀ (Maslovsky).

N. Mongolia: 40 Km. East of Urga, VIII.1928, 2 ♀♀ (Ivanov). Central Mongolia, lower course of river Baida-rik, Khalkha, 30.VIII. 1925, 1 ♀; river Tugen-Gol Khalkha, 28.VIII.1926, 1 ♀ (Kirichenko).

Manchuria: Chjalantun, 8.VIII.1925, 2 ♀♀ (Pavlov), Lamatzena, near, Fyn-Khna; 1 ♂ (Martynov).

N. China: Valley Li-li-kho, 65 versts S. W. of Peking, 14.VIII.1913, 1 ♀ (Vassiliev).

N. W. China: Khoisian, Gansu, 3,000 ft., 1-15.VIII.1892, 2 ♂♂ (Berezovsky).

F. Lukianovich, to whom I offer my sincere thanks, has told me that the species lives on the stony shores of rivers in Transbaikalia.

#### XIV. Group COERULIPES

##### 56. *Sphingonotus turcicus* Uvarov.

1901. *Sphingonotus azurescens* Werner, Sitzungsber. k. Ak. Wiss. Math.-Nat. Cl., Abt. I, vol. 110, p. 277 [Asia Minor] (not Rambur).  
1930. *Sphingonotus turcicus* Uvarov, Eos, vol. VI, p. 367, figs. 10-11 [type ♀; Asia Minor: Angora].

♀. Body medium, fairly stout with short hairs. Eyes oval, large; their vertical diameter 1.5 times the horizontal one and equal to the subocular distance. Frons vertical. Frontal ridge weakly concave, narrowed at the vertex, widened between the antennae, slightly constricted below the ocellus, obliterated at the clypeus; flat in profile, with a slight excision at the ocellus; margins thick; surface sparsely punctured. Fastigium of vertex sloping gradually, slightly concave, margins slightly raised, median keel weak but distinctly raised; maximum width of vertex 1.5 that of frontal ridge between the antennae.

Foveolae of vertex weakly concave, coarsely punctured. Occiput strongly sloping. Antennae slender, considerably longer than head and pronotum taken together.

Pronotum slightly constricted in prozona, somewhat saddle-shaped; transverse furrows deep, except the second one, which is weak; the first furrow just behind the middle of prozona; metazona slightly convex with coarse punctures and very fine wrinkles; its length almost twice that of prozona; posterior angle obtuse, widely rounded; shoulders projecting, rounded; median keel weakly raised in front of the first furrow, absent between the furrows, very low and linear in metazona. Lateral lobes vertical; anterior margin slightly wavy, anterior lower angle obtuse, rounded; posterior margin straight, posterior lower angle widely rounded; lower margin undulating, obliquely-ascendant.

Sternum with scattered fine punctures, its width only slightly greater than its length; width of interspaces between meso and metasternal lobes 2.25 times greater than their length. Lower parts of mesoepisternum densely punctured. Valvae of ovipositor with elongated, pointed apices; basal parts of lower valvae with distinct callous tubercles.

Elytra slightly narrowed towards the apices, not reaching the apices of posterior tibiae; their length almost 5 times their maximum width; venation dense, the apical part of the second branch of medial vein gives off 3 branches; intercalary vein somewhat irregular, slightly curved, lying in the first third of the discoidal area, finely granular. Wings elongated, triangular, with sparse venation; their length 1.71 times their maximum width.

Posterior femora fairly thick; their length 3.5 times their maximum width. Posterior tibiae slightly shorter than the femora, with 8 spines on the outer, 8-10 spines on the inner sides.

General coloration light chocolate-brown. Head whitish. Ocelli yellowish-brown. Antennae brownish with light bases and rings. Elytra opaque; basal quarter, weak median fascia and several weak spots in the apical half—brownish. Bases of wings bluish; fascia black, fairly wide, bent almost at a right angle, not reaching the inner and posterior margin; apical part colourless with black veins. Inner surfaces of posterior femora blackish-blue with a complete light fascia.

below the black apex, sometimes with two light fasciae. Posterior tibiae dirty-blue with a light fascia near the base; inner surface of base black.

♂. As the ♀, but smaller. Apical part of the second branch of the median vein gives off 2 branches.

	♀♀ mm.	♂♂ mm.
Length of body.....	23.0-26.5	15.5-17.0
— pronotum.....	4.2- 5.0	2.8- 3.0
— elytra.....	22.0-25.0	16.5-17.5
— posterior femora.....	11.0-12.5	8.5- 9.0
— — tibiae.....	9.5-11.0	7.0- 7.5

GEOGRAPHICAL DISTRIBUTION.—Asia Minor.

SPECIMENS EXAMINED.—5 ♀♀ and 3 ♂♂.

Central part of Asia Minor: Mt. Kai-Dagh, N. of Ankara, about 4,000 ft., 10-13.VIII.1931, 1 ♀, 1 ♂; between Ankara and Tuz-Goel, 14.VIII.1931, 1 ♂; Ankara, 10.VIII.1931, 1 ♂ (Uvarov).

Eastern part of Asia Minor: Tausker near Olty, 8.VII.1910, 1 ♀; Olty, 19.VIII.1910, 1 ♀; Tortum lake near Erzerum, 16.VIII.1910, 2 ♀♀ (Nesterov).

57. *Sphingonotus coerulipes coerulipes* Uvarov.

(Fig. 9.)

1922. *Sphingonotus coerulans coerulipes* Uvarov, Ent. Mont. Mag., Ser. 3, vol. III, p. 83 [type ♀; Persia: Kazwin].

1931. *Sphingonotus coerulans coerulipes* Bey-Bienko, Bol. Soc. Esp. Hist. Nat., vol. xxxi, p. 225 [Transcaucasus: Ordubad].

♀. Body medium, fairly sturdy, almost naked, covered with sparse short hairs.

Head compressed laterally, slightly projecting above the pronotum, finely, sparsely punctured. Eyes oval, weakly projecting sideways; their vertical diameter 1.5 times the horizontal one and almost equal to the subocular distance. Frons vertical. Frontal ridge flat,

slightly concave, wider between the antennae, constricted under the ocellus, widening further down and completely obliterated; flat in profile; margins thick; surface sparsely punctured. Fastigium of vertex sloping. Vertex weakly concave, margins obliterated; median keel scarcely marked. Maximum width of vertex 1.5 times greater than width of frontal ridge between the antennae. Foveolae of vertex indistinct, finely punctured. Antennae slender, slightly longer than head and pronotum together.

Pronotum constricted in prozona, transverse furrows not very deep; the first furrow behind the middle of prozona; first and second furrows deep in the centre; metazona convex with coarse punctures and very weak wrinkles; its length almost twice that of prozona; posterior angle obtuse, rounded; shoulders rounded; median keel weakly raised in front of the first furrow, absent between the furrows, thin and linear in metazona. Lateral lobes vertical; anterior margin bisinuate, anterior lower angle obtuse; posterior margin straight, posterior lower angle weakly attenuated (sometimes rounded); lower margin undulating, obliquely-ascendant.

Sternum with fine scattered punctures; its width almost equal to its length; width of interspaces between meso and metasternal lobes twice their length. Valvae of ovipositor with pointed apices; basal parts of lower valvae with distinct callous tubercles.

Elytra parallel-sided, very weakly narrowed towards the apices, just not reaching the apices of posterior tibiae; their length 6 times their maximum width; venation irregular, dense; apical part of the second branch of the medial vein gives off 3-4 branches; intercalary vein straight, parallel to discoidal vein, finely granular. Wings elongated, triangular with sparse venation; their length almost 1.75 times their maximum width.

Posterior femora slender; their length almost 4 times their maximum width. Posterior tibiae only slightly shorter than the femora with 8 spines on the outer, 10 on the inner sides.

General coloration ochraceous-yellow, or gray-ochraceous. Ocelli yellowish-brown. Antennae brownish with light rings. Elytra coriaceous, opaque; basal third, transverse median band and some scattered spots in the apical half—light-brown; veins light. Bases of wings blue; veins in the apical part black. Inner sides of posterior femora

for the greater part blue-black with a light fascia near the blue-black apex. Posterior tibiae bright blue, inner sides of bases black with a light band; tarsi yellowish.

♂. As the ♀, but smaller. Vertical diameter of the eye greater than the subocular distance. Frontal ridge obliterated at the clypeus. The apical part of the second branch of medial vein of the elytra gives off 2-3 branches.

	♀ ♀ — mm.	♂ ♂ — mm.
Length of body.....	25.5-26.5	16.0-16.5
— pronotum.....	4.0- 5.0	2.7- 3.0
— elytra.....	24.5-27.5	17.5-18.0
— posterior femora.....	10.5-12.5	8.0- 8.5
— — tibiae.....	9.5-11.5	7.0- 7.5

GEOGRAPHICAL DISTRIBUTION.—Transcaucasia, N. E. part of Asia Minor, N. W. Persia.

SPECIMENS EXAMINED.—18 ♀ ♀, 17 ♂ ♂.

Transcaucasia: River Arpatchai, IX.1928, 4 ♀ ♀ (Weber); valley of Arax, IX.1893, 1 ♀, 1 ♂ (Satunin); Ordubad, 7-10.VIII.1930, 7 ♀ ♀, 12 ♂ ♂ (Bey-Bienko); Araxes, 3 ♀ ♀, 2 ♂ ♂ (Leder and Reitter).

N. E. Asia Minor: Olty, Abusar-Dagh, VIII.1905, 1 ♀, 1 ♂ (Koenig).

N. W. Persia: Shabhrud, 14.V.1914, 2 ♀ ♀, 1 ♂ (Kirichenko).

Lives on stony screes in the mountains. This species has been described by Uvarov (1922) as a subspecies of *Sph. coerulans*, but the presence of a whole series of morphological characters distinguishing this form from *Sph. coerulans*, and the absence of intermediate forms point to the fact that this is an independent species.

57a. *Sphingonotus coerulipes djakonovi* subsp. n.

As the typical *Sph. coerulipes coerulipes*, but differing from it by the following characters:

♀ (type). Body with denser hairs.

Head fairly strongly projecting above the pronotum. Length of elytra 5.5 times their maximum width.

Coloration grayish-brown. Wings with a short dark diffuse band in the middle (in some paratypes this band is absent). Posterior tibiae light dirty-blue.

♂ (allotype). As ♀. Similar to ♂ of the typical race.

	Type ♀	Allotype ♂	Paratypes ♀♀	Paratypes ♂♂
	mm.	mm.	mm.	mm.
Length of body .....	26.5	15.5	19.5-26.5	14.5-19.5
— pronotum .....	4.8	3.0	3.5-5.0	2.2-3.2
— elytra .....	24.0	17.0	20.0-28.0	14.5-19.5
— posterior femora	12.0	8.0	9.5-12.5	7.5-10.0
— — tibiae.	10.5	6.5	8.0-11.0	6.0-10.0

PATRIA.—Crimea: Teodosia, 16.IX.1922, 1 ♀ (Redikortzev); Karadag Mt. Zub, 22.VIII.1924, 1 ♀, 3 ♂♂; Karadag Legener, 25.VII.1925, 1 ♀; Karadag, nr. village Kozy, 12.VIII.1925, 1 ♀, 2 ♂♂; between villages Otuzy and Kozy, Echki-Dag, 2.VIII.1925, 2 ♀♀ (including type), 1 ♂; valley of river Cholki, near Karadag, 27.VIII.1930, 1 ♂; Enyshary, Koktebel district, 25.VII.1924, 2 ♂♂; 17-26.VIII.1925, 2 ♂♂; Bukhta Provata, Koktebel district, 12.IX.1930, 1 ♀ (Diakonov); Semidvory, near Yalta, 9.IX.1920, 2 ♀♀ (Bianki); Novyi Svet, nr. Sudak, 24.VIII.1925, 1 ♀, 1 ♂ (Diakonov).

N. Caucasus: Sochi, 15.VIII.1931, 3 ♀♀, 4 ♂♂ (Luchnik); Beshpashr, 7.VIII.1932, 2 ♀♀, 3 ♂♂; Divnoe, 21.VII.1931, 4 ♀♀, 1 ♂; 6.VIII.1932, 1 ♂; Petrovskoe, 22.VII.1931, 2 ♂♂; Blagodarnoe, near Stavropol, 23.VII.1931, 1 ♂; Moskovskoe, near Stavropol, VII.1931, 1 ♂ (Zhdanov); Navachinka, 26.VII.1927, 5 ♀♀, 8 ♂♂ (Vanyaev); Velichaevka, 6.VIII.1926, 2 ♀♀, 1 ♂ (Vilkov).

Kalmyk region: 23.VIII.1927, 3 ♀♀, 1 ♂ (Kirt); Mal. Derbetovskiy Ulus, 25.VII.1927, 6 ♀♀, 2 ♂♂ (Titov).

Lower Volga: Kamennyi Yar, near Stalingrad, 28-31.VII.1927, 4 ♀♀, 3 ♂♂; Sarepta, 5.VIII.1927, 1 ♀, 2 ♂♂; Akhtubinskoe, near Stalingrad, 12.VIII.1927, 1 ♀ (Predtetschensky); Leninsk, 1932, 1 ♀, 1 ♂ (Yaroslavtzev); Teplinka, near Astrakhan, 3-13.VIII.1926, 1 ♀, 2 ♂♂; Vorovskiy Bugry, near Astrakhan, 13.VII.1926, 1 ♂

(Motyleva); Pshnaki, near Astrakhan, 11.VIII.1926, 1 ♀; Kharabai, near Astrakhan, 4-14.VIII.1926, 2 ♀♀; Petropalovka near Astrakhan, 13.VII.1927, 1 ♀ (Predtetschensky).

Tchetchen region: Beslan, 30.VII.1932, 1 ♂ (Zhdanov).

Dagestan: Tushilovsky Khutor, Kizlyar distr., 23.VII.1931, 2 ♀♀ (Dunaeva); Kumtor-Kale, 14.VII.1926, 2 ♀♀, 3 ♂♂; Nizhn. Maka village, 17.VIII.1926, 1 ♀; Akhty, 27.VIII.1924, 1 ♀, 1 ♂; 11.IX.1926, 2 ♀♀, 3 ♂♂; Petrovsk-Port, 3.X.1925, 2 ♀♀, 1 ♂ (Kiabov); Makhach-Kala, 7.VIII.1901, 1 ♀ (Bekman).

Georgia: Tiflis district, Cherepashie lake, 7.IX.1903, 1 ♀; Tiflis, 12.IX-7.XI.1910, 5 ♀♀, 1 ♂ (Satunin); Mzkhet, 1.IX.1899, 1 ♀, 1 ♂ (Birula).

Azerbaijan: Geok-Tapa, 6.VIII.1904, 3 ♀♀, 3 ♂♂ (Burr); Bibi-Eibat, Baku, 1.VII-15.X.1900, 6 ♀♀, 1 ♂ (Blaker); Bailov Mys, Baku, 20.VI-19.VII.1906, 6 ♂♂ (Bianki); Lenkoran, 12.VI.1932, 5 ♀♀, 2 ♂♂ (Znoiko).

Lives on stony soils and is met with in the mountains. In N. Caucasus lives on bare limestones, practically without any vegetation.

Type and allotype in Zoological Institute of the Academy of Science, Leningrad. 4 paratypes (2 ♀♀ and 2 ♂♂) in the British Museum (Nat. Hist.), London.

#### 57b. *Sphingonotus coerulipes zaisanicus* sp. n.

(Figs. 86, 87.)

1884. *Sph[ingonotus] coerulans* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, p. 200, n.° 3 [Siberia] (partim).

1902-1905. *S[phingonotus] coerulans* Jacobson and Bianchi, Priam. lozh. Ross. Imp., pp. 192, 273 (partim).

As the typical race *Sph. coerulipes coerulipes*, but differing from it by the following characters:

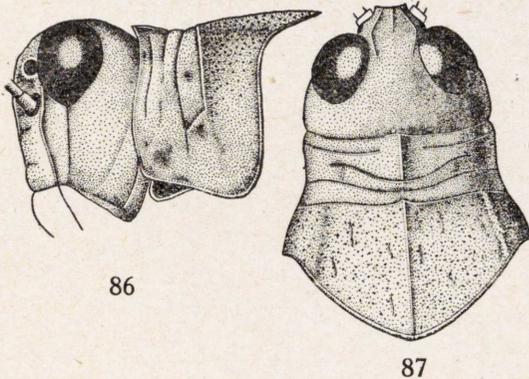
♀. Body sturdy, almost naked. Head very slightly projecting above the pronotum. Posterior lower angle of lateral lobes of the pronotum widely rounded. Length of elytra 5.5 times their maximum width; the apical part of the 2<sup>nd</sup> branch of the medial vein gives off 2-3 branches. Wings densely veined.

General coloration grayish-brown. Bases of wings dirty blue with a greenish shade; almost all the veins dark. Posterior tibiae dirty blue.

♂. As ♀ but smaller. Very similar to the typical *Sph. coerulipes coerulipes*. The apical part of the second branch of the median vein of elytra gives off 2 branches.

	Type ♀ mm.	Allotype ♂ mm.	Paratypes ♀♀ mm.	Paratypes ♂♂ mm.
Length of body.....	21.5	16.5	22.5-26.5	15.0-16.5
— pronotum.....	3.8	2.8	3.5- 4.2	2.3- 3.0
— elytra.....	21.5	17.5	20.5-23.5	15.0-17.5
— posterior femora	10.0	8.0	10.0-12.0	7.0- 8.0
— — tibiae.	8.5	6.8	8.5-10.5	5.8- 6.8

PATRIA.—Central Volga region: Donguz, 30 km., S. of Orenburg, 2-25.VIII.1933, 5 ♀♀, 5 ♂♂; Mayachnaya, 60 km. S. of Orenburg, 25.VII-6.VIII.1933, 1 ♀, 1 ♂ (Zimin).



Figs. 86-87.—*S. coerulipes zaisanicus*, type ♀.

Kazakstan: Ber-Chogur, Mugodjary mts., 1.VIII.1925, 6 ♀♀, 5 ♂♂ (Moritz); Baty, Kurchum distr., 16.VII.1932, 2 ♀♀ (Chetyrkina); Ters-Airyk near Semipalatinsk, 29.IX.1910, 1 ♀, 1 ♂ (Karavaev); Piket-Karakolsky between Urdjar and Sergiopol, 17.VII.1930, 1 ♀ (Lukianovich); Sergiopol, 31.VII.1895, 1 ♀; Arkaz, 31.VII.1895, 3 ♀♀, 1 ♂ (Zubovsky); Lake Zaisan Topolev Mys, 25-26.VII.1928, 13 ♀♀ (including type), 17 ♂♂ (Bey-Bienko); Zaisan, 9.VIII.1910, 1 ♀, 1 ♂ (Karavaev); Djarkent, 1 ♀, 1 ♂ (Zubovsky).

Western Mongolia: river Dzurkhi, summit of Tzelan-Gol, 28.VII.1898, 1 ♀ (Clements).

Lives in dry stony deserts with somewhat salty soil, covered with sparse vegetation which consists of tufts of *Festuca sulcata*, *Artemisia maritima*, *Camphorosma monspeliacum*, etc.

Type and allotype in the Zoological Institute of the Academy of Sciences, Leningrad.

57c. *Sphingonotus coerulipes kermanicus* Predtetschensky subsp. n.

Similar to typical *Sph. coerulipes coerulipes*, but differs from it by the following characters:

♀. Width of interspace between mesosternal lobes 1.5 times its length. Valvae of ovipositor with short blunt apices.

General coloration, as in the typical race. Inner sides of posterior femora for the greater part black with 2 light bands, one of them incomplete (fig. 12). Posterior tibiae pale bluish white.

♂. As ♀. Very like the ♂ of the typical race.

	Type ♀ — mm.	Allotype ♂ — mm.	Paratypes ♀♀ — mm.	Paratypes ♂♂ — mm.
Length of body.....	24.5	15.5	22.0-25.5	15.5-16.5
— pronotum.....	4.2	2.7	3.8- 4.5	2.8- 3.0
— elytra.....	25.0	16.5	21.5-26.0	16.0-17.5
— posterior femora	11.8	8.2	10.5-12.0	7.5- 8.5
— — tibiae.	9.8	7.2	8.5-10.0	6.5- 7.5

PATRIA.—Persia: Fars, 24-27.VIII.1931, 4 ♀♀, 6 ♂♂; N. Kerman, 17.VIII-IX.1930, 3 ♀♀, 2 ♂♂ (including type); S. Kerman, IX.1930, 1 ♀ (Predtetschensky).

Type and allotype in the Zoological Institute of the Academy of Sciences, Leningrad.

58. *Sphingonotus pilosus* Saussure.

1884. *S[phingonotus] pilosus* Saussure, Mem. [Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, p. 201, n.° 3c [type ♀; N. Persia: Shakhrud].
- 1902-1905. [*Sphingonotus coerulans* L.] var. *pilosus* Jacobson and Bianchi, Priam. Lozh. Ross. Imp., p. 273.
1910. *S[phingonotus] pilosus* Kirby, A Synon. Cat. Orth., vol. iii, p. 274, n.° 15.

1925. *Thalpomena pilosa* Uvarov, J. Bomb. Nat. Hist. Soc., vol. xxx, Nr. 2, p. 261.
1931. *Thalpomena* sp. Bey-Bienko, Bol. Soc. Esp. Hist. Nat., vol. xxxi, p. 225 [Transcaucasus: Ordubad].

♀. Body medium, fairly slender with dense long hairs.

Head with scattered, shallow punctures slightly projecting above the pronotum. Eyes large, weakly projecting sideways, regularly oval; their vertical diameter 1.5 times the horizontal one and slightly greater than subocular distance. Frons weakly sloping. Frontal ridge flat, slightly concave at the ocellus, slightly widening between the antennae, compressed below the ocellus, absent between the ocellus and clypeus; margins scarcely marked; surface with dense punctures; slightly projecting at base of antennae in profile. Fastigium of vertex sloping. Vertex narrow, elongated, weakly concave; margins weakly raised; median keel absent; maximum width of vertex equal to that of frontal ridge between the antennae. Foveolae of vertex indistinct, punctured. Antennae slender, longer than head and pronotum together.

Pronotum very much narrowed in prozona, compressed; transverse furrows distinct; the first furrow just behind the middle of prozona; the second furrow with a deep concavity in the middle; interspaces between furrows somewhat rough; metazona convex, densely and finely punctured, and very finely wrinkled, twice as long as prozona; posterior angle almost 90°, rounded; shoulders projecting; median keel weakly raised in front of the first furrow, absent between the furrows, low and linear in metazona. Lateral lobes vertical, finely and densely punctured in metazona; anterior margin weakly bisinuate, anterior lower angle obtuse, rounded; posterior margin straight, posterior lower angle widely rounded; lower margin obliquely ascending, undulating.

Sternum with fine scattered punctures, its width equal to its length; width off interspaces between meso and metasternal lobes 1.5 times their length. Lower parts of meso-episternum densely and finely punctured. Valvae of ovipositor with pointed apices; basal parts of lower valvae smooth, without distinct callous tubercles.

Elytra parallel-sided, reaching up to or just beyond the apices of posterior tibiae; their length 5.8 times their maximum width; venation

fairly dense; the apical part of the second branch of the medial vein gives off 3-4 branches; intercalary vein distinctly S-shaped, very near to discoidal vein at the apex, finely granular. Wings narrow, triangular; their length 1.78 times their maximum width; venation sparse.

Posterior femora thick, their length 3.5 times their maximum width. Posterior tibiae considerably shorter than the femora, with 9-11 spines on the outer, 10 on the inner sides.

General coloration rusty-ochraceous. Ocelli light yellow. Antennae brown with light bases and rings. Elytra transparent in the apical part, with faint rusty brown spots and dots which do not form bands; veins brownish. Wings transparent, bluish at bases; apical part colourless with black veins. Inner sides of posterior femora for the greater part shiny black, with a complete light fascia below the apex. Inner sides of posterior tibiae brown with a light ring at the base and light apex; inner side of base black.

♂. As the ♀, but smaller. Maximum width of vertex slightly less than the width of frontal ridge between the antennae. Apical part of the second branch of the median vein of elytra gives off 3 branches. Posterior tibiae with 8 spines on the outer side.

	♀ ♀ — mm.	♂ ♂ — mm.
Length of body.....	25.5-27.5	17.0-17.5
— pronotum.....	4.5- 5.0	3.0- 3.2
— elytra.....	23.5-26.5	17.5-18.0
— posterior femora.....	11.0-13.0	8.0- 9.0
— — tibiae.....	9.0-11.0	6.0- 7.0

GEOGRAPHICAL DISTRIBUTION.—Turkey in Asia, S. Transcaucasia, Persia except the southern part; S. Turkmenistan.

SPECIMENS EXAMINED.—5 ♀ ♀ and 6 ♂ ♂.

Transcaucasia: River Arpatchai, 20-30.VIII.1928, 1 ♂ (Weber); Ordubad, 8-10.VIII.1930, 1 ♀ (Bey-Bienko).

N. Persia: Bit Sukhta, 18.VIII.1926, 1 ♀; River Atrek, 9.VIII.1928, 1 ♀ (Moritz); Damgan W. Khorasan, 17-22-X.1903, 2 ♂ ♂ (Zarudny).

Central Persia: Isfagan and Djulfa, Irak Adjemi, 1-4.XII.1903, 2 ♂ ♂ (Zarudny).

S. W. Persia: Villages Dekh and Diz, Arabistan, 23.XII.1903, 1 ♀ (Zarudny).

Eastern Persia: Basman-Tagab, Kirman, 10.VIII.1898, 1 ♂ (Zarudny).

S. Turkmenistan: Afghan frontier, 1895, 1 ♀ (Ahnger).

59. **Sphingonotus collenettei** (Uvarov).

1930. *Helioscirtus collenettei* Uvarov, Ann. Mag. Nat. Hist., Ser. 10, vol. vi, p. 181 [type ♀; British Somaliland: Buran].

♀. Body fairly large, densely covered with white hairs.

Head large, with fine scattered punctures, weakly projecting above the pronotum. Eyes regularly oval, weakly projecting sideways; their vertical diameter 1.5 times the horizontal one and equal to the subocular distance. Frons slightly oblique. Frontal ridge flat, almost parallel-sided, slightly wider between the antennae, obliterated at the clypeus; surface densely and finely punctured; flat in profile; margins thick. Fastigium of vertex strongly sloping almost vertical. Vertex wide, slightly concave, punctured in the anterior part; margins weakly raised; median keel absent; maximum width of vertex 1.5 the width of frontal ridge between the antennae. Foveolae of vertex trapezoidal, punctured, weakly concave. Antennae longer than head and pronotum together.

Pronotum strongly constricted in prozona; transverse furrows distinct, deep; first furrow in the middle of prozona; the second interrupted in the middle, interspaces between furrows rough; anterior margin with an excision in the middle; metazona slightly convex coarsely punctured, finely wrinkled, twice as long as prozona; posterior angle obtuse, rounded, its margins undulating; shoulders strongly projecting; median keel raised in front of the first furrow, absent between the furrows, low and linear in metazona. Lateral lobes vertical, densely punctured and finely wrinkled in metazona; anterior margin bisinuate, anterior lower angle obtuse, rounded; posterior margin weakly undulating, posterior lower angle widely rounded, somewhat dentate; lower margin weakly obliquely-ascendant, weakly undulating.

Sternum finely and sparsely punctured, its width equal to its length; width of interspaces between meso and metasternal lobes 2.25 times their length. Lower parts of meso-episternum densely and finely punctured. Valvae of ovipositor with somewhat blunt apices, basal parts of lower valvae rough.

Elytra narrowed towards the apices, reaching the apices of posterior tibiae; their length 5 times their maximum width; venation dense, the apical part of the second branch of the median vein gives off 3 branches; intercalary vein curved, very near to the discoidal vein at the apex, finely granular. Wings elongated, triangular; their length 1.5 times their maximum width; venation fairly sparse.

Posterior femora sturdy, their length almost 3.7 times their maximum width; upper margin undulating with an excision near the apex. Posterior tibiae slightly shorter than the femora, with 8 spines on the outer, 10 on the inner sides.

General coloration pinkish-yellow. Head whitish. Ocelli yellow. Antennae whitish-yellow with brown rings. Elytra coriaceous; basal third, faint median transverse band and several very indistinct spots in the apical part—yellow brown; veins light. Bases of wings bluish, anterior and apical parts colourless, black fascia narrow, slightly curved, diffuse in the posterior part, not reaching the posterior margin by a short distance, and not reaching the inner margin by a very long distance; veins in the apical part blackish. Inner surfaces of posterior femora blue-black, with one complete light fascia at the blue-black apex. Posterior tibiae blue-black; inner sides of bases blue-black.

	♀ — mm.
Length of body.....	26.5
— pronotum.....	4.8
— elytra.....	25.5
— posterior femora.....	12.0
— — tibiae.....	10.5

GEOGRAPHICAL DISTRIBUTION.—British Somaliland.

SPECIMENS EXAMINED.—I ♀ (paratype).

British Somaliland: Buran, 8.IX.1929, 1 ♀ (C. L. Collenette) (Coll. British Museum).

This species has been described by Uvarov (1930) as *Helioscirtus collenettei*, but my detailed study of the paratype shows that it belongs to the genus *Sphingonotus*.

## XV. Group NEBULOSUS

### 60. *Sphingonotus nebulosus nebulosus* (Fischer de Waldheim).

(Fig. 22.)

1846. *Oedipoda nebulosa* Fischer de Waldheim, Ent. Imp. Ross., vol. iv, p. 290, n.° 13, Pl. XXXII, fig. 1 [types ♀, ♂; Songaria].
1884. *Sph[ingonotus] nebulosus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 205, n.° 14 [Altai, Turkestan, Mongolia] (partim).
1898. *Sphingonotus nebulosus* Zubowsky, Ann. Mus. Zool. Ac. Imp. Sc., vol. iii, p. 96, n.° 46 [Semiretshye].
- 1902-1905. *S[phingonotus] nebulosus* Jacobson and Bianchi, Priam. Iozh. Ross. Imp., pp. 193, 276 (partim).
1926. *Sph[ingonotus] nebulosus nebulosus* Uvarov, Eos, vol. ii, p. 354, n.° 1 [Mt. Mugodzhary].

♀. Body fairly large, sturdy, with sparse hairs.

Head with small dense punctures, slightly projecting above the pronotum. Eyes oval, projecting sideways, their vertical diameter 1.5 times the horizontal one and equal to the subocular distance. Frons vertical. Frontal ridge almost parallel-sided concave, obliterated between the ocellus and clypeus; flat in profile, not projecting; margins distinct; surface densely and finely punctured, with a longitudinal furrow at the vertex. Fastigium of vertex strongly sloping, almost vertical. Vertex strongly concave, margins distinct; median keel distinct; maximum width of vertex almost 1.5 times the width of frontal ridge between antennae. Foveolae of vertex distinct, concave, sparsely punctured. Antennae slender, slightly longer than head and pronotum together.

Pronotum weakly constricted in prozona; transverse furrows distinct, the first furrow just behind the middle of prozona, the interspace

between 2<sup>nd</sup> and 3<sup>rd</sup> furrows with a callous concave area in the centre; metazona flat, densely and coarsely punctured and finely granular, twice as long as prozona; posterior angle slightly greater than 90°, rounded; shoulders rounded; median keel slightly raised in front of the first furrow, absent between the furrows, thin and linear in metazona. Lateral lobes vertical, densely and coarsely punctured in metazona; anterior margin wavy, anterior lower angle obtuse; posterior margin straight, posterior lower angle weakly attenuated, sometimes rounded; lower margin obliquely ascendant with a slight excision in the middle.

Sternum with scattered shallow punctures, its width almost equal to its length; width of interspace between mesosternal lobes 1.5 times its length, width of interspace between metasternal lobes twice its length. Lower parts of meso-episternum finely and densely punctured. Valvae of ovipositor with elongated pointed apices; basal parts of lower valvae very rough, with distinct callous tubercles.

Elytra wide, narrowed towards the apices, not reaching the apices of posterior tibiae; their length 5.5 times their maximum width; venation dense, irregular, the apical part of the second branch of medial vein gives off 3-4 branches; intercalary vein irregular, very near to discoidal vein at apex, finely granular. Wings elongated, triangular, with dense venation; their length almost 1.6 times their maximum width.

Posterior femora fairly thick; their length almost 3.6 times their maximum width. Posterior tibiae considerably shorter than the femora, with long hairs, and with 9 spines on the outer, 10 on the inner sides.

General coloration brownish-gray with brown spots. Head whitish. Ocelli yellow. Antennae brown with light rings and bases. Elytra coriaceous; the basal third, fascia in the middle and several spots in the apical part—brownish-gray (sometimes the fascia and spots are very faint, almost absent); veins light. Wings transparent, bases pale violet-blue with a wide, curved black fascia in the middle which reaches the anterior and posterior margins (sometimes not touching the posterior margin), somewhat narrowed towards the inner margin and not reaching it by a long distance; apex colourless with black veins. Inner sides of posterior femora for the greater part

blue-black with a light fascia near the black apex. Posterior tibiae greenish-blue, or blue; bright blue on the inner sides; inner sides of bases black.

♂. As the ♀, but smaller. Vertical diameter of the eye slightly greater than the subocular distance. Apical part of the second branch of the medial vein of elytra with 2-3 branches. Posterior tibiae with 8-9 spines on the outer side.

	♀ ♀ mm.	♂ ♂ mm.
Length of body.....	28.0-38.5	17.0-21.0
— pronotum.....	5.0- 6.5	3.5- 4.0
— elytra .....	27.5-35.0	19.0-23.0
— posterior femora.....	13.5-16.0	10.0-11.0
— — tibiae.....	11.5-14.0	8.5- 9.5

GEOGRAPHICAL DISTRIBUTION.—Eastern part of Mid-Volga region, Kazakstan, Western Mongolia, Kirghizia, N. E. Tadjikistan, Turkmenistan.

SPECIMENS EXAMINED.—33 ♀ ♀, 17 ♂ ♂.

Eastern part of Mid-Volga region: Donguz station, 30 km. South of Orenburg, 7.VIII.1933, 3 ♀ ♀, 2 ♂ ♂ (Zimin).

Kazakstan: Solo-Tube, Kizil-Orda district, 16.VIII.1928, 2 ♀ ♀, 1 ♂ (Mistshenko); Djulek, 11-12.VI.1911, 2 ♀ ♀ (Kojanchikov); River Talas, 22.VIII.1906, 1 ♀, 2 ♂ ♂ (Fisher); Sugatinsk Gorge Alma-Ata distr., 26-29.VI.1907, 3 ♀ ♀ (Nedzvetsky); valley of Djelanat, Alma-Ata distr., 14.VIII.1929, 1 ♀, 1 ♂ (Titov); Romanovka, 22.VII.1921, 1 ♀, 2 ♂ ♂; Podgorny, 1-4.VIII.1896, 3 ♀ ♀, 4 ♂ ♂; Djarkent, 10-12.VII.1896, 2 ♀ ♀, 1 ♂; Lepsinsk, 20-29.VII.1896, 1 ♀ (Zubovsky), river Tentek, 21.VII.1914, 2 ♀ ♀ (Shnitnikov).

Kirghizia: Lake Yssyk-Kul, Kutemaldy, 31.VII.1910, 1 ♀, 1 ♂ (Golbek).

N. E. Tadjikistan: Alai mont., VII, 1 ♀ (Staudinger).

Turkmenistan: Krasnovodsk, 30.V.1902, 1 ♀ (Sumakov); Askhabad, 30.VI-1.VII.1896, 4 ♀ ♀, 1 ♂ (Zubovsky and Varentzov); Tirusa, 1.VII.1928, 2 ♀ ♀ (Moritz); Tedjen, 14.VIII.1929, 1 ♂ (Mistshenko).

Western Mongolia: River Tsagan-Gol, 29-31.VII.1898, 3 ♀♀, 1 ♂ (Clements).

Lives chiefly on stony screes at the foot of mountains, and on mountain slopes, sometimes descending to loess deserts.

60a. *Sphingonotus nebulosus discolor* Uvarov.

1932-1933. *Sphingonotus nebulosus discolor* Uvarov, Trans. Inst. Zool. Ac. Sc. U. R. S. S., vol. 1, n.º 3-4, p. 199 [type ♂; Baluchistan].

As the typical race but differs from it by the following characters:

♀. Body densely hairy. Frontal ridge very wide at the ocellus, constricted below it. Metazona of pronotum coarsely punctured and finely wrinkled. Elytra reaching the apices of posterior tibiae.

Coloration as in the typical race. Wings colourless at base, anterior half milky with a very faint green shade, posterior part with a slightly bluish shade. Inner sides of posterior femora sometimes with 2 light fasciae, one of them incomplete.

♂. As the female, but smaller. Similar to the male of the typical race.

	♀♀ mm.	♂♂ mm.
Length of body .....	25.5-31.5	17.5-24.5
— pronotum .....	5.0- 6.5	3.5- 4.2
— elytra .....	27.0-32.0	18.5-23.5
— posterior femora .....	13.0-15.0	9.5-11.0
— — tibiae .....	11.2-13.2	8.0- 9.5

GEOGRAPHICAL DISTRIBUTION.—Eastern Persia, Beluchistan, S. and E. Tadjikistan.

SPECIMENS EXAMINED.—20 ♀♀ and 13 ♂♂ (among them 5 ♀♀ and 6 ♂♂ paratypes).

East Persia: Muzduran, 6.VII.1926, 1 ♀, 1 ♂; Birdzhand, 10.VI.1928, 1 ♀, 1 ♂; Turbet, 12.VII.1928, 1 ♀ (Moritz); Birdzhand-Kain, S. E. Khorasan, 21-25.VI.1896, 1 ♀, 1 ♂; Bukhsana near Rui,

Khorasan, 4.VII.1896, 1 ♀, 1 ♂, Khunik, Kaina, Nimbuluk, Khorasan, 27.VI.1896, 1 ♂; Ismailabad-Guljandar, Nehbendan, 12-15.VI.1896, 1 ♀ (Zarudny).

S. and E. Tadjikistan: Kabadian, 25.VI-14.VIII.1934, 1 ♀, 1 ♂ (Gussakovsky); Tash-Kurgan, Darvaz, 22.VIII.1897, 3 ♀♀, 1 ♂; Mardjanai, Roshan, 19.VIII.1897, 2 ♀♀, 1 ♂; Sech, r. Shah-Dara, Shugnan, 25.VII.1897, 5 ♀♀, 1 ♂; Maden-Shar, r. Shah-Dara, Shugnan, 27.VII.1897, 1 ♀ (Kaznakov); Khorog, Shugnan, 16.VII.1915, 2 ♀♀, 2 ♂♂ (Ladzin).

Baluchistan: Hanna valley, 6,000 ft., 28.VI.1930, 1 ♀, 1 ♂ (W. H. Evans).

60b. **Sphingonotus nebulosus violascens** Uvarov.

1926. *Sph[ingonotus] nebulosus violascens* Uvarov, Eos, vol. II, p. 354, n.° 2 [type ♂; Uzbekistan: Ferghana].

As the typical race *Sph. nebulosus nebulosus*, but differs from it in the following characters:

♀. Valvae of ovipositor with blunt apices. Elytra reaching the apices of posterior tibiae.

Coloration as in the typical race. Anterior part of wing pale blue, the rest dark, sometimes dirty, violaceous with a lilac shade.

♂. As the ♀, but smaller.

	♀♀ mm.	♂♂ mm.
Length of body .....	34.5-38.0	25.5-27.5
— pronotum .....	6.0-7.5	4.5-5.0
— elytra .....	31.5-40.0	24.0-28.5
— posterior femora .....	14.5-18.5	11.5-13.0
— — tibiae .....	12.0-16.0	9.5-11.0

GEOGRAPHICAL DISTRIBUTION.—Uzbekistan.

SPECIMENS EXAMINED.—21 ♀♀, 15 ♂♂.

Uzbekistan: Samarkand region, 13.VIII-24.IX.1897, 6 ♀♀, 4 ♂♂

(Zubovsky); Zaamin, 22.VII.1912, 1 ♀ (T. E. S.); Isfara, 5.VIII.1909 1 ♀ (Vasiliev); Shakhimardan, 28.VII.1913, 2 ♂♂; Ataba near Namangan, 7.VII.1913, 2 ♂♂ (1 ♂ type); Ashe-Su near Andijan, 2.VII.1913, 7 ♀♀, 5 ♂♂; Kokand, 1 ♀, 1 ♂ (Staudinger); Vorukh, 11.VII.1912, 3 ♀♀ 3 ♂♂ (Golbek).

60c. *Sphingonotus nebulosus persa* Saussure.

- 1884. *Sph[ingonotus] nebulosus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 205, n.° 14 [Persia: Shakhrud] (not Fischer de Waldheim).
- 1884. *Sph[ingonotus] persa* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxvii, Nr. 9, pp. 197, 205, n.° 14a [types ♀, ♂; Persia: Ordubad, Shakhrud].
- 1888. *Sph[ingonotus] balteatus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 78, 86, n.° 19 [Armenia] (not Serville).
- 1888. *Sph[ingonotus] intutus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 78, 87, n.° 19b.
- 1926. *Sph[ingonotus] nebulosus persa* Uvarov, Eos, vol. ii, p. 354, n.° 3.

As the typical race *Sph. nebulosus nebulosus*, but differs from it in the following characters:

♀. Metazona of pronotum with very coarse grains and wrinkles; posterior angle slightly greater than 90°, pointed; shoulders projecting.

Coloration as in the typical race. General coloration of the wing of 2 colours, anterior part blue, the rest bright violaceous.

♂. As the female, but smaller.

	♀♀ mm.	♂♂ mm.
Length of body.....	25.5-40.0	17.5-25.0
— pronotum.....	6.0- 8.0	3.5- 5.5
— elytra.....	28.0-37.0	19.0-28.0
— posterior femora.....	13.0-17.0	9.0-13.5
— — tibiae.....	11.0-15.0	7.0-11.5

GEOGRAPHICAL DISTRIBUTION.—Transcaucasia, N. W., S. W., and Central Persia.

SPECIMENS EXAMINED.—58 ♀♀, 40 ♂♂.

Transcaucasus. Armenia: Migry, IX.1893, 1 ♀; Valley of Araxes, IX.1893, 4 ♀♀, 4 ♂♂ (Satunin); Zangezur near Migry, 11.VI.1925, 1 ♂ (Riabov); Zeiva near Echmiadzin, 31.VII.1926, 2 ♀♀, 1 ♂; Erivan, 1 ♀ (Shelkovnikov).

Azerbaijan: Ordubad, 8-10.VIII.1930, 2 ♀♀, 1 ♂ (Bey-Bienko); Zuvand, Talysh, 1,900 met., 4-7.VIII.1932, 6 ♀♀ (Znoiko).

Iran: Shakhrud, 20.V-4.VI.1914, 34 ♀♀, 21 ♂♂; Shahku, Elburs mts., 25.VI.1914, 2 ♂♂, 9 ♀♀ (Kirichenko); Astrabad, 1916, 1 ♀ (Palyshko); Tadzharish near Teheran, 30.VI.1927, 1 ♀; Kiredzh, 40 km. W. of Teheran, 27.VI.1927, 1 ♀; Isfahan, 3-6.VI.1927, 2 ♀♀, 1 ♂; Nishovar, 15.VII.1927, 1 ♀, 1 ♂ (Siazov); Damgan, W. Korasan, 17-22.X.1903, 1 ♂ (Zarudny).

Lives on stony screes on foothills and mountains.

#### 60d. *Sphingonotus nebulosus anatolicus* Uvarov.

1884. *Sph[ingonotus] nebulosus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 205, n.° 14 [Amasia] (not Fischer de Waldheim).

1930. *Sphingonotus nebulosus anatolicus* Uvarov, Eos, vol. vi, p. 366, n.° 45, fig. 9 [type ♂; Asia Minor: Beypa-Zari, Angora prov.].

As the typical race *Sph. nebulosus nebulosus*, but differing from it by the following characters:

♀. Metazona of pronotum strongly wrinkled and tuberculate; posterior angle almost 90°, pointed. Elytra reaching the apices of posterior tibiae. Coloration as in the typical race. Bases of wings light greenish-blue.

♂. As the ♀, but smaller.

	♀♀ — mm.	♂♂ — mm.
Length of body.....	26.0-37.0	18.5-21.0
— pronotum.....	6.5- 7.0	3.5- 4.2
— elytra.....	30.0-32.5	19.5-22.0
— posterior femora.....	13.5-14.5	9.5-10.0
— — tibiae.....	11.5-12.5	8.0- 8.5

GEOGRAPHICAL DISTRIBUTION.—Asia Minor.

SPECIMENS EXAMINED.—6 ♀♀, 3 ♂♂.

Asia Minor: Ankara, 10.VIII.1931, 1 ♂; mt. Kai-Dagh, N. of Ankara, about 4,000 ft., 10-13.VIII.1931, 1 ♀ (Uvarov); Gyulek, 1897, 1 ♀ (Holtz); Olty near Kars, 12 17.VII.1910, 3 ♀♀, 2 ♂♂; Zanzak, Erder, 27.VII.1910, 1 ♀ (Nesterov).

## XVI. Group BALTEATUS

### 61. *Sphingonotus balteatus balteatus* Serville.

(Fig. 23.)

1839. *Oedipoda balteata* Serville, Hist. Nat. Insect. Orth., p. 734, n.° 19 [type ♀; India: Bombay].
1884. *Sph[ingonotus] balteatus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr.9, pp. 197, 203, n.° 10 (partim).
1884. *Sph[ingonotus] amaranthinus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 206, n.° 14b [Aden].
1888. *Sph[ingonotus] balteatus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen. vol. xxx, Nr. 1, pp. 78, 86, n.° 19 (partim).
- 1902-1905. *S[phingonotus] balteatus* Jacobson and Bianchi, Priam. lozh. Ross. Imp., pp. 193, 275 (partim).
1910. *S[phingonotus] balteatus* Kirby, A Synon. Cat. Orth., vol. iii, p. 277, n.° 42 (partim).
1910. *S[phingonotus] amaranthinus* Kirby, A Synon. Cat. Orth., vol. iii, p. 278, n.° 44 [Perim Island].
1923. *Sph[ingonotus] balteatus balteatus* Uvarov, J. Bomb. Nat. Hist. Soc. vol. xxix, Nr. 3, p. 646, n.° 1.
1933. *Sphingonotus balteatus fenestratus* Uvarov, Proc. Zool. Soc. London, p. 266, n.° 23 [S. Arabian desert] (Syn. nov.).

♀. Body large, fairly slender with sparse hairs.

Head with dense, fine punctures, slightly projecting above the pronotum. Eyes large, oval, moderately projecting sideways; their vertical diameter slightly greater than the horizontal one, and equal to the subocular distance. Frons vertical. Frontal ridge weakly concave, wider between the antennae, slightly constricted below the ocellus; margins thick, almost reaching clypeus; flat in profile; surface finely, fairly densely punctured. Fastigium of vertex strongly sloping.

Vertex wide, concave, almost square; its margins slightly raised; median keel weakly raised, but distinct; maximum width of vertex 1.75 times the width of frontal ridge between antennae. Foveolae of vertex distinct, coarsely punctured. Antennae slender, slightly longer than head and pronotum together.

Pronotum compressed in prozona, saddle shaped; anterior margin dentate; transverse furrows not deep, the first furrow just behind the middle of prozona, the second with a deep concavity in the middle; interspaces between the furrows slightly rough; metazona convex with very dense, coarse punctures and fine wrinkles; its length 1.5 times that of prozona; posterior angle obtuse, weakly rounded, its margins wavy; shoulders projecting, rounded; median keel scarcely marked in front of the first furrow, absent between the furrows, very weak and scarcely marked in metazona. Lateral lobes almost square, coarsely and densely punctured in metazona; anterior margin bisinuate, anterior lower angle obtuse, rounded; posterior margin straight, posterior lower angle widely rounded; lower margin obliquely-ascendant, undulating.

Sternum with fine dense punctures, its width equal to its length; width of interspaces between meso and metasternal lobes almost 1.5 times their length. Lower parts of meso-episternum densely and coarsely punctured. Valvae of ovipositor with short, somewhat blunt apices; basal parts of lower valvae punctured, smooth.

Elytra narrowed towards the apices, not reaching the apices of posterior tibiae by a short distance; their length 5.5 times their maximum width; venation dense; the apical part of the second branch of the medial vein gives off 3-4 branches; intercalary vein S-shaped, very near to discoidal vein at the apex, tuberculate. Wings narrowed towards the apices, elongated, triangular; their length almost 1.5 times their maximum width; venation sparse.

Posterior femora slender; their length 4 times their maximum width. Posterior tibiae considerably shorter than the femora, with 8 spines on the outer, 10 on the inner sides.

General coloration light ruddy-brown. Head whitish. Ocelli yellow-brown. Antennae almost uniformly brownish; bases light. Elytra transparent; basal third, weak median fascia and several very weak spots in the apical part—brownish; veins light brown. Bases

of wings violet with a distinct, complete very wide black fascia which does not quite reach the posterior and inner margins, sometimes the black band with transparent windows in the middle; apical third colourless with black veins. Inner sides of posterior femora blue-black with a light fascia near the apex; apex black; lower margin blue-black. Inner sides of posterior tibiae blue; bases black-inside.

♂. As ♀, but smaller. Frontal ridge obliterated at the clypeus. Eyes projecting more than in the ♀; their vertical diameter slightly greater than the subocular distance. The apical part of the 2<sup>nd</sup> branch of the medial vein of elytra gives off 3 branches.

	♀♀ — mm.	♂♂ — mm.
Length of body.....	32.0-39.0	27.0-29.0
— pronotum.....	6.0- 7.0	5.5- 6.2
— elytra.....	32.0-39.0	28.0-30.0
— posterior femora.....	14.0-16.0	12.5-13.5
— — tibiae.....	12.0-14.0	10.5 11.5

GEOGRAPHICAL DISTRIBUTION. — Perim Island, S. Arabia, India; Bombay.

SPECIMENS EXAMINED.—4 ♀♀ and 4 ♂♂.

Arabia: Aden, XII.1898, 1 ♀, 2 ♂♂ (Simony); Aden, 2 ♀♀, 1 ♂ (Leuther and Deyrolle); Keshin, 1902, 1 ♀, 1 ♂ (Hein) (Coll. Wien Museum).

In 1933 Uvarov separated a subspecies—*Sphingonotus balteatus fenestratus*, on the basis of a single specimen from the South Arabian desert, which differs from the typical race by the presence of transparent «windows» in the middle of black band of wings. On examining a large number of species of *Sphingonotus*, which have a black band on the wings, I have observed in all species without exceptions specimens from the same locality with a complete black band, and specimens with «windows» in the middle of the latter. This phenomenon is also observed in the small series of *Sph. balteatus balteatus* from Aden. Therefore, I conclude that subspecies *fenestratus* Uvarov is a synonym of the typical race.

61a. *Sphingonotus balteatus himalayanus* Uvarov.

1914. *Sphingonotus balteatus* Kirby, Fauna Brit. India, pp. 154, 157, n.° 184 [Baltistan] (not Serville).  
 1923. *Sph[ingonotus] balteatus himalayanus* Uvarov, J. Bomb. Nat. Hist. Soc., vol. xxix, Nr. 3, p. 646 [type ♀; Baltistan].

Very like the typical race *Sph. balteatus balteatus* differing from it only in coloration:

♀. Bases of wings blue, their fascia wide. Inner sides of posterior tibiae blue-grey.

♂ unknown.

	♀ (after Uvarov) — mm.
Length of body .....	36.0
— pronotum.....	7.5
— elytra.....	40.0
— posterior femora.....	17.0
— — tibiae.....	15.0

GEOGRAPHICAL DISTRIBUTION.—Baltistan.

61b. *Sphingonotus balteatus balucha* Uvarov.

- (1932) 1933. *Sphingonotus balteatus balucha* Uvarov, Trans. Inst. Zool. Ac. Sc. U. R. S. S., vol. 1, p. 200 [type ♂; Baluchistan: Hanna].

Similar to the typical race *Sph. balteatus balteatus*, but differs from it by the following characters:

♀. Head fairly strongly projecting above the pronotum. Frontal ridge parallel-sided; in profile weakly projecting at the bases of antennae. Vertex narrow slightly concave; margins weakly raised; median keel scarcely marked; maximum width of vertex 1.5 times the width of frontal ridge between the antennae.

Metazona of pronotum flat, twice longer than prozona. Posterior lower angle of lateral lobes of the pronotum widely rounded, dentate.

Lower parts of meso-episternum sparsely and weakly punctured. Valvae of ovipositor with elongated, pointed apices.

Elytra reaching the apices of posterior tibiae; their length 6 times their maximum width. Wings gradually narrowed towards the apices; their length 1.65 times their maximum width.

Posterior femora fairly thick.

General coloration grayish-brown. Dark spots in the apical part of elytra absent. Bases of wings blue; dark fascia leaves free one third of the wings and does not reach the inner margin by a long distance. Inner sides of posterior femora dirty-bluish with a light fascia below the dirty-bluish apex; lower sulcus blue. Inner sides of posterior tibiae dirty-bluish with two light rings; inner sides of bases dirty-blue.

♂. As the ♀ but smaller.

	♀ mm.	♂ mm.
Length of body.....	31.5	23.0
— pronotum.....	7.0	5.2
— elytra.....	35.5	30.0
— posterior femora.....	15.0	13.0
— — tibiae.....	13.0	11.5

GEOGRAPHICAL DISTRIBUTION.—Baluchistan.

SPECIMENS EXAMINED.—I ♀, I ♂ (paratypes).

Baluchistan: Hanna valley, 28.VI-24.IX.1930, 6,000 ft., I ♀, I ♂ (W. H. Evans).

61c. **Sphingonotus balteatus latifasciatus** (Walker).

1870. [*Oedipoda*] *latifasciata* Walker, Zoologist (2), vol. v, p. 2999, n.° 34 [type ♂; Egypt].

1870. [*Oedipoda*] *terminalis* Walker, Zoologist (2), vol. v, p. 2300, n.° 36 [Sinai].

1884. *Sph[ingonotus] balteatus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 203, n.° 10 (partim).

1888. *Sph[ingonotus] balteatus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 78, 86, n.° 19 (partim).  
 1902-1905. *S[phingonotus] balteatus* Jacobson and Bianchi, Priam. lozh. Ross. Imp., pp. 193, 275 (partim).  
 1918. *Sph[ingonotus] bifasciatus* Innes-Bey, Bull. Soc. Ent. Eg., vol. v, Nr. 3, pp. 44, 48.  
 1923. *Sph[ingonotus] balteatus latifasciatus* Uvarov, J. Bomb. Nat. Hist. Soc., vol. xxix, Nr. 3, p. 646, n.° 2.

Similar to the typical race *Sph. balteatus balteatus*, but differs from it by the following characters:

♀. Frontal ridge completely obliterated between the ocellus and clypeus.

Pronotum slightly saddle-shaped; metazona twice as long as prozona.

Posterior femora fairly thick. Posterior tibiae with 9 spines on the inner side.

Coloration as in the typical race. Bases of wings pinkish-violet. Inner sides of posterior femora blackish-pink with a light fascia below the black apex; lower sulcus pinkish-violet. Inner sides of posterior tibiae pinkish-violet with a light fascia at the base, inner sides of bases black.

♂. As the ♀, but smaller.

	♀♀ mm.	♂♂ mm.
Length of body.....	37.0-38.0	30.5-31.0
— pronotum.....	7.5- 7.8	5.5- 6.2
— elytra.....	35.0-38.5	30.5-31.5
— posterior femora.....	15.0-17.0	14.0-14.2
— — tibiae.....	12.8-14.8	11.8-12.0

GEOGRAPHICAL DISTRIBUTION.—Egypt, Sinai peninsula.

SPECIMENS EXAMINED.—2 ♀♀, 2 ♂♂.

Egypt: Mokattam Hills, 7.IX.1917, 1 ♀ (Raouf); Cairo, 1 ♀ (Staudinger).

Sinai: 2 ♂♂ (Lederer and Staudinger).

61d. *Sphingonotus balteatus roseus* Uvarov.

1923. *Sph[ingonotus] balteatus roseus* Uvarov, J. Bomb. Nat. Hist. Soc., vol. xxix, p. 646, n.° 3 [type ♂; Eritraea: Massowah].

Very similar to the typical race *Sph. balteatus balteatus* differing from it chiefly by coloration.

♂. Bases of wings faintly pink. Inner sides of posterior tibiae pink.

Unfortunately the only known ♀ of this race is in such bad condition that it was impossible to describe it or to take its measurements.

	♂ (after Uvarov)
	mm.
Length of body.....	32.0
— pronotum.....	7.0
— elytra.....	34.0
— posterior femora.....	15.0
— — tibiae.....	12.5

GEOGRAPHICAL DISTRIBUTION.—Eritraea.

 62. *Sphingonotus longipennis* Saussure.

(Fig. 24.)

1884. *Sph[ingonotus] longipennis* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 203, n.° 11 [type ♀; India].
1884. *Sph[ingonotus] indus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 204, n.° 13 [India: Himalaya].
1888. [*Sphingonotus*] *indus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, p. 78, n.° 17.
1888. *Sph[ingonotus] longipennis* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 78, 85, n.° 18a [India: Silhet].
1914. *Sphingonotus indus* Kirby, Faun. Brit. Ind., pp. 154, 156, n.° 181.
1914. *Sphingonotus longipennis* Kirby, Faun. Brit. Ind., pp. 154, 156, n.° 183, fig. 109 [India: Punjab, Assam].

1925. *Sphingonotus longipennis* Uvarov, Mission G. Babault dans les provinces centrales de l'Inde et dans la région occidentale de l'Himalaya, Ins Orth. Acr., p. 17, Pl. fig. 1 [Frontier Afghanistan; India: United Provinces].

♀. Body large, slender with sparse hairs.

Head with dense, not very deep punctures, weakly projecting above the pronotum. Eyes large, oval, not strongly projecting sideways; their vertical diameter 1.5 times the horizontal one and equal to the subocular distance. Frons almost vertical. Frontal ridge weakly concave, almost parallel-sided, completely obliterated between the ocellus and clypeus; weakly projecting at the bases of antennae; margins smooth, fairly thick; surface sparsely and coarsely punctured. Fastigium of vertex sloping. Vertex fairly narrow, gradually narrowing towards the apex, weakly concave; margins slightly but distinctly raised; median keel scarcely marked in the anterior part, absent in the posterior one; maximum width of vertex 1.5 times the width of frontal ridge between the antennae. Foveolae of vertex indistinct, punctured. Antennae slender, slightly longer than head and pronotum together.

Pronotum weakly saddle-shaped, slightly compressed in prozona; transverse furrows shallow, the first furrow just behind the middle of prozona; metazona slightly convex, finely and densely punctured and very finely wrinkled, its length almost twice that of prozona; posterior angle slightly greater than  $90^\circ$ , weakly rounded; shoulders projecting, rounded; median keel scarcely marked in front of the first furrow, absent between the furrows, scarcely marked and very low in metazona. Lateral lobes vertical, finely and densely punctured in metazona; anterior margin bisinuate, anterior lower angle obtuse, rounded; posterior margin straight; posterior lower angle rounded, dentate; lower margin curved, obliquely-ascendant.

Sternum finely punctured, its length equal to its width; width of interspaces between meso and metasternal lobes 1.5 times their length. Lower parts of meso-episternum densely and finely punctured. Valvae of ovipositor with weakly elongated pointed apices; basal parts of lower valvae punctured, smooth.

Elytra weakly narrowed towards the apices, reaching, or extending just beyond the apices of posterior tibiae; their length 5.5 times

their maximum width; venation in the apical third sparse, the apical part of the second branch of the medial vein gives off 3-4 branches; intercalary vein curved, very near to discoidal vein at apex. Wings narrow, elongated, triangular, with sparse, fairly regular venation; their length 1.75 times their maximum width.

Posterior femora fairly thick; their length almost 4 times their maximum width. Posterior tibiae much shorter than the femora with 8-9 spines on the outer, 10 on the inner sides.

General coloration reddish-brown. Head whitish. Ocelli yellowish-brown. Antennae light with several darkish rings. Apical parts of elytra transparent; basal third, and complete median fascia brownish; veins light. Bases of wings bluish-green; sometimes almost colourless, with a distinct narrow, strongly curved band, which does not reach the posterior margin by a long distance, does not reach the inner margin, and is narrowed posteriorly; apical part colourless with darkish veins. Inner sides of posterior femora bluish-black with a complete light fascia below the dark apex; lower sulcus blue. Posterior tibiae dirty bluish with two white bands; inner sides of bases bluish; apices yellowish.

♂. As the ♀, but smaller. Eyes more strongly projecting sideways. The apical part of the second branch of the medial vein of elytra gives off 3 branches.

	♀ ♀ mm.	♂ ♂ mm.
Length of body.....	32.0-34.0	26.0-27.0
— pronotum.....	5.5- 6.2	5.0- 5.2
— elytra.....	34.0-38.5	29.5-30.5
— posterior femora.....	15.0-16.5	12.5-13.0
— — tibiae.....	12.5-14.8	10.5-11.0

GEOGRAPHICAL DISTRIBUTION. — Central Afghanistan, N. W. and Southern India.

SPECIMENS EXAMINED. — 2 ♀ ♀, 2 ♂ ♂.

India: 1 ♂ (Coll. Brunner von Wattenwyl); Silhet, 1 ♂ (Deyrolle); Dehra Dun, U. P.; Chatterjee, 31.IV.1912, 1 ♀; Doiphang valley, Assam Bhutan Frontier, Darrang dist., 21.X.1912, 1 ♂ (Kemp).

63. *Sphingonotus japonicus* Saussure

(Fig. 10.)

1888. *Sph[ingonotus] japonicus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 78, 84, n.° 18 [types ♀ and ♂; Japan].
- 1902-1905. *S[phingonotus] japonicus* Jacobson and Bianchi, Priam. lozh. Ross. Imp., pp. 193, 275.
1910. *S[phingonotus] japonicus* Kirby, A Synon. Cat. Orth., vol. III, p. 277, n.° 39.

♀. Body large, with sparse hairs.

Head with shallow, fairly dense punctures, weakly projecting above the pronotum. Eyes short oval, projecting; their vertical diameter slightly greater than the horizontal one and equal to the subocular distance. Frons weakly oblique. Frontal ridge almost parallel-sided, slightly widened at the ocellus, concave, obliterated near the clypeus; margins thin, distinctly raised; surface with sparse, shallow punctures. Fastigium of vertex sloping. Vertex concave, its margins distinctly raised, median keel very weak, sometimes absent; maximum width of vertex almost twice the width of frontal ridge between the antennae. Foveolae of vertex very indistinct, with scarcely marked punctures. Antennae fairly thick, slightly longer than head and pronotum together.

Pronotum constricted in prozona, weakly saddle-shaped; transverse furrows deep; the first furrow just behind the middle of prozona; metazona convex with coarse and shallow punctures and very fine wrinkles, it is 1.5 times as long as prozona; posterior angle obtuse, rounded; shoulders weakly projecting rounded; median keel weakly raised in front of the first furrow, absent between the furrows, low and linear in metazona. Lateral lobes almost square, gradually narrowing towards the lower margin; anterior margin bi-sinuate, anterior lower angle obtuse; posterior margin almost straight, posterior lower angle rounded, dentate; lower margin straight.

Sternum sparsely and finely punctured, its width equal to its length; width of interspaces between meso and metasternal lobes 1.5 times their length. Lower parts of meso-episternum with dense

shallow punctures. Valvae of ovipositor with short slightly pointed apices; basal parts of lower valvae smooth.

Elytra parallel sided, reaching the apices of posterior tibiae; their length almost 6 times their maximum width; venation fairly dense in the basal half, sparse in the apical; the apical part of the second branch of the medial vein gives off 4 branches; intercalary vein curved, very near to the discoidal vein at apex. Wings elongated triangular, venation sparse; their length almost 1.75 times their maximum width.

Posterior femora slender, their length almost 4 times their maximum width. Posterior tibiae slightly shorter than the femora, with 8 spines on the outer, 10 on the inner sides.

General coloration of various shades of brown. Head grayish-white with dark spots. Ocelli yellowish-brown. Antennae uniform brown. Basal halves of elytra coriaceous; basal third, wead median fascia and several weak spots in the apical half—brownish; veins light. Bases of wings blue with a fairly wide, distinct, dark fascia, bent almost at right angle, reaching the anterior and inner margins, and not reaching the posterior margin by a long distance; apical half colourless with darkish veins. Inner sides of posterior femora bluish-black, with a complete light fascia below the dark apex. Posterior tibiae pale blue, the lower sulcus with two bluish fasciae, inner side of base-bluish.

♂. As the ♀, but smaller. The apical part of the 2<sup>nd</sup> branch of the medial vein of the elytra gives off 3 branches.

	♀♀ mm.	♂♂ mm.
Length of body . . . . .	32.0-37.0	26.0-29.5
— pronotum . . . . .	6.6- 7.7	5.2- 6.0
— elytra . . . . .	34.5-38.0	28.5-31.0
— posterior femora . . . . .	15.5-16.5	12.0-13.5
— — tibiae . . . . .	13.5-15.0	10 5-12.0

GEOGRAPHICAL DISTRIBUTION.—Japan.

SPECIMENS EXAMINED.—4 ♀♀ and 3 ♂♂.

Japan: 2 ♀♀, 1 ♂ (Staudinger); Kioto, 1 ♀, 1 ♂ (Hirase); Jokohama, 1 ♀, 1 ♂ (Coll. Brunner von Wattenwyl).

64. *Sphingonotus humeralis* Kuthy.

1907. *Sphingonotus humeralis* Kuthy, Ann. Nat. Mus. Hist. Nat. Hung. vol. v, p. 431, n.º 22 [types ♀ and ♂; Asia Minor: Bozanti, Bulgar-Maden].
1914. *Heliopteryx satunini* Uvarov, Mitteil. Kauk. Mus., VIII, p. 140, n.º 14 [Transcaucasus: Karjagin distr., W. Persia].
1919. *Heliopteryx humeralis* Uvarov, Bull. Mus. Cauc., vol. XII, p. 157, n.º 5.
1934. *Heliopteryx humeralis* Uvarov, Eos, vol. X, p. 99, n.º 102, fig. 28 [Southern Turkey].

♀. Body large, fairly slender with sparse hairs.

Head with fine, fairly dense punctures, strongly projecting above the pronotum. Eyes oval, projecting sideways; their vertical diameter 1.5 times the horizontal one and equal to the subocular distance. Frons weakly sloping. Frontal ridge flat, slightly concave at the ocellus, obliterated below it and not reaching the clypeus; flat and not projecting in profile; margins thick, obsolete; surface coarsely punctured. Fastigium of vertex strongly sloping, almost vertical. Vertex weakly concave; margins obliterated; median keel distinct; maximum width of vertex 1.5 times the width of frontal ridge between the antennae. Foveolae of vertex indistinct, punctured. Antennae fairly thick, 1.5 times as long as head and pronotum together.

Pronotum strongly constricted in prozona, distinctly saddle shaped; transverse furrows distinct; first furrow almost in the middle of prozona; metazona convex, coarsely punctured and finely wrinkled, twice as long as prozona; posterior angle slightly greater than 90°, rounded; shoulders rounded; median keel very weakly raised in front of the first furrow, absent between the furrows, very weak and narrow in metazona. Lateral lobes almost square; coarsely punctured in metazona; anterior margin undulating, anterior lower angle obtuse, rounded; posterior margin straight; posterior lower angle weakly attenuated; lower margin obliquely ascendant, with a slight excision.

Sternum with fine sparse punctures; its width almost equal to its length; width of interspaces between meso- and metasternal lobes 1.5 times their length. Lower parts of meso-episternum sparsely and

coarsely punctured. Valvae of ovipositor with long pointed apices; basal parts of lower valvae smooth with fine punctures.

Elytra narrowed towards the apices, reaching the apices of posterior tibiae; their length almost 5.2 times their maximum width; venation fairly dense, irregular; the apical part of the second branch of medial vein gives off 3-5 branches; intercalary vein irregular, slightly curved, very near to discoidal vein at apex, finely tuberculate. Wings elongated, triangular, with fairly dense venation, their length almost 1.65 times their maximum width.

Posterior femora thick; their length 3.5 times their maximum width. Posterior tibiae slightly shorter than the femora, with 5-8 spines on the outer 9-11 on the inner sides.

General coloration gray, yellowish-gray or reddish-brown. Head whitish. Ocelli yellow. Antennae brown with light rings. Elytra transparent in the apical part, coriaceous in the rest; basal third, weak median fascia and several spots in the apical part brownish-gray; veins darkish. Bases of wings crimson-red, with a narrow curved dark band which does not reach the posterior margin and which sends a short dark branch along the anterior margin towards the base; apical part colourless with dark veins. Inner sides of posterior femora blue-black with two light bands, one of them incomplete, sometimes wholly black (Uvarov, 1914); inner side of apex black. Posterior tibiae dirty-whitish with a blue apical band, inner sides dirty blue with two light bands.

♂. As the ♀, but smaller. Vertical diameter of the eye slightly greater than the subocular distance. Antennae almost twice as long as head and pronotum together. Apical part of the second branch of the medial vein gives off 3 branches.

	♀ ♀ — mm.	♂ ♂ (authors Kuthy and Uvarov) — mm.
Length of body .....	28.0-37.5	20.0-25.0
— pronotum .....	6.5- 7.5	4.0- 5.0
— elytra .....	28.0-35.0	20.0-25.0
— posterior femora ...	12.5-15.5	10.5
— — tibiae.....	10.5-13.5	

GEOGRAPHICAL DISTRIBUTION.—Azerbaijan; Asia Minor; N. W. and West Persia.

SPECIMENS EXAMINED.—6 ♀♀, 1 ♂.

Azerbaijan: Shah-Chinar, near Kariagin, 3-10.VII.1912, 1 ♀ (Satunin).

Asia Minor: Olty, near Kars, 17.VII.1910, 1 ♀ (Nesterov).

N. W. Persia: Lake Urmia, 1904, 2 ♀♀; Khoi, 1904, 1 ♀, 1 ♂ (Zugmayer).

W. Persia: Village Gilly near Gulpechan, 19-20.VIII.1899, 1 ♀ (Semeka).

## XVII. Group OCTOFASCIATUS

### 65. *Sphingonotus octofasciatus* (Serville).

1839. *Oedipoda octofasciata* Serville, Hist. Nat. Ins. Orth., p. 728, n.° 10. [types ♀, ♂; Egypt.]
1884. *Sph[ingonotus] kittaryi* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 208 [Kazakstan].
1895. *Sphingonotus octofasciatus* Finot, Ann. Soc. Ent. Fr., vol. lxiv, pp. 468, 477 [Algiers].
- 1902-1905. *S[phingonotus] kittaryi* Jacobson and Bianchi, Priam. lozh. Ross. Imp., pp. 193, 276 (partim).
1910. *S[phingonotus] octofasciatus* Kirby, A Synon. Cat. Orth., vol. iii, p. 272, n.° 3 (partim).
1910. *S[phingonotus] kittaryi* Kirby, A Synon. Cat. Orth., vol. iii, p. 278, n.° 50.

♀. Body fairly large, sturdy with sparse hairs.

Head small, compressed laterally, scarcely projecting above the pronotum, with very fine sparse punctures. Eyes irregularly oval, weakly projecting sideways; their vertical diameter 1.5 times the horizontal one and equal to the subocular distance. Frons vertical. Frontal ridge flat, weakly concave at the ocellus, parallel sided, obliterated between the ocellus and clypeus, not reaching the clypeus by a long distance; scarcely projecting at bases of antennae in profile; margins thin, smooth; surface sparsely and finely punctured. Fastigium of vertex sloping. Vertex strongly concave, smooth; margins

distinctly raised; median keel distinct; maximum width of vertex 1.5 times the width of frontal ridge between the antennae. Foveolae of vertex indistinct, punctured. Antennae slender, considerably longer than head and pronotum together.

Pronotum strongly constricted in prozona; transverse furrows distinct, fairly deep; the first furrow behind the middle of prozona; metazona flat, coarsely punctured, finely wrinkled, its length almost twice that of prozona; posterior angle obtuse, rounded; shoulders projecting, rounded; median keel very weakly raised in front of the first furrow, sometimes scarcely marked, absent between the furrows, low and linear in metazona. Lateral lobes vertical, coarsely punctured in metazona; anterior margin weakly undulating; anterior lower angle obtuse, rounded; posterior margin straight; posterior lower angle widely rounded; lower margin strongly curved.

Sternum finely and sparsely punctured; its width almost equal to its length; width of interspace between mesosternal lobes 1.5 times its length; width of interspace between metasternal lobes twice its length. Lower parts of mesoepisternum densely and coarsely punctured. Valvae of ovipositor with elongated, pointed apices; basal parts of lower valvae smooth.

Elytra narrowing towards the apices, not quite reaching the apices of posterior tibiae; their length almost 5 times their maximum width; venation fairly sparse, irregular; apical part of the 2<sup>nd</sup> branch of the medial vein gives off 2-3 branches; intercalary vein curved, nearer to discoidal vein at apex, finely granular. Wings elongated triangular, with dense venation; their length 1.75 times their maximum width.

Posterior femora slender; their length 4 times their maximum width. Posterior tibiae slightly shorter than the femora, with 9-10 spines on the outer, 10 on the inner sides.

General coloration grayish-yellow or pinkish-yellow. Head grayish-white. Ocelli yellow-brown. Antennae brownish with light bases and light rings. Elytra transparent in the apical half; the basal third darkish, band at the apex of the basal third, and the median band very distinct almost black; interspace between the bands without dark spots; the apex fairly dark; veins light. Bases of wings red with a fairly wide band in the middle, which just does not reach the posterior margin, the second dark band passes near the apex; the apex

itself is transparent; veins at apex dark. Inner sides of posterior femora for the greater part grayish blue with two light bands, one of which is sometimes incomplete; space between the bands blue-black; apex dark. Posterior tibiae light bluish with a light fascia below the base; inner side of base dark.

♂. As the ♀, but smaller. The apical part of the 2<sup>nd</sup> branch of the medial vein of elytra gives off 2 branches.

	♀ — mm.	♂ — mm.
Length of body.....	25.0-34.5	16.5-24.5
— pronotum.....	5.0- 7.5	3.5- 5.5
— elytra.....	25.0-37.0	19.0-27.5
— posterior femora.....	11.5-16.5	9.5-13.0
— — tibiae.....	10.0-14.5	8.0-11.5

GEOGRAPHICAL DISTRIBUTION. — Algeria, Algerian Sahara, Tunis, Tripoli, Lybia, Egypt, Palestine, Iran, Transcaucasia, Eastern and S. W. Kazakstan, Turkmenistan and Uzbekistan.

SPECIMENS EXAMINED.—34 ♀♀, 23 ♂♂.

66. *Sphingonotus obscuratus obscuratus* (Walker).

1870. *Oed[ipoda] obscurata* Walker, Zoolog. (2), v, p. 2300, n.° 37 [type ♂; Egypt].
1910. *S[phingonotus] obscuratus* Kirby, A Synon. Cat. Orth., vol. III, p. 272, n.° 7.
1913. *Sphingonotus lameerei* Rehn, Bull. Soc. Ent. Egypte, vol. III, p. 46 (not Finot).
1918. *Sph[ingonotus] quadrifasciatus* Innes-Bey, Bull. Soc. Ent. Egypte, vol. v, pp. 45, 47.

♀. Body large, fairly slender, with sparse hairs.

Head very finely and sparsely punctured, almost smooth, weakly projecting above the pronotum. Eyes large, oval, not strongly projecting sideways; their vertical diameter almost 1.5 times the horizontal one and almost equal to the subocular distance. Frons vertical. Frontal ridge weakly concave, almost flat, widened between the antennae, constricted below the ocellus, completely obliterated.

between the ocellus and clypeus; flat in profile, not projecting at the bases of antennae; margins thick, obsolete; surface finely and sparsely punctured. Fastigium of vertex strongly sloping. Vertex weakly concave, square; margins weakly raised; median keel weakly raised, distinct; maximum width of vertex almost twice the width of frontal ridge between the antennae. Foveolae of vertex indistinct, weakly punctured. Antennae slender, slightly longer than head and pronotum together.

Pronotum weakly compressed in prozona; transverse furrows distinct; the first furrow in the middle of prozona; 2<sup>nd</sup> furrow with a deep concavity in the middle, interrupted at the concavity; interspaces between furrows rough; metazona slightly convex, densely and coarsely punctured, delicately wrinkled, its length 1.75 times that of prozona; posterior angle obtuse, weakly rounded; shoulders weakly projecting, rounded; median keel scarcely marked almost absent in front of the first furrow, absent between the furrows, very low and scarcely marked in metazona. Lateral lobes square, sparsely and coarsely punctured in metazona; anterior margin bisinuate, anterior lower angle obtuse, rounded; posterior margin straight, posterior lower angle widely rounded; lower margin weakly obliquely-ascendant, wavy.

Sternum sparsely and finely punctured; its width almost equal to its length. Width of interspace between mesosternal lobes 1.5 times its length; width of interspace between metasternal lobes twice its length. Lower parts of meso-episternum sparsely and finely punctured. Valvae of ovipositor with short, fairly blunt apices; basal parts of lower valvae weakly punctured, smooth.

Elytra narrowed towards the apices, reaching beyond the apices of posterior tibiae; their length almost 5 times their maximum width; venation dense; apical part of the 2<sup>nd</sup> branch of the median vein gives off 3-4 branches; intercalary vein slightly curved, near to discoidal vein at apex, finely tuberculate. Wings elongated, triangular, with fairly dense venation; their length almost 1.5 times their maximum width.

Posterior femora slender; their length 4 times their maximum width. Posterior tibiae slightly shorter than the femora, with 8-9 spines on the outer, 10 on the inner sides.

General coloration light yellowish-brown. Head whitish. Ocelli yellow. Antennae brownish, with weak light rings and bases. Elytra weakly coriaceous; basal third, weak median fascia and several weak spots in the apical part brownish; veins light. Bases of wings blue, greenish at the anterior margin, with a distinct black band in the middle, which reaches the posterior margin and almost reaches the inner margin, narrowed at the anterior margin, and somewhat diffuse at the inner edge; apical part colourless with a narrow somewhat diffuse black band; the apical lobe colourless; almost all veins light. Inner sides of posterior femora blue black with a light band at the apex; apex darker; lower sulcus dark blue. Inner sides of posterior tibiae somewhat violet with a light band at base, inner side of base bluish.

♂. As the ♀, but much smaller.

	♀ ♀ mm.	♂ mm.
Length of body . . . . .	35.0-41.5	37.0
— pronotum . . . . .	7.2- 8.0	7.3
— elytra . . . . .	38.5-42.0	40.0
— posterior femora . . . . .	15.5-17.2	15.8
— — tibiae . . . . .	14.0-15.2	

GEOGRAPHICAL DISTRIBUTION.—Barka, Lybia, Egypt, Sinai.

SPECIMENS EXAMINED.—4 ♀ ♀.

Egypt: Cairo, 3 ♀ ♀ (Staudinger); Gemaiza, 10.VII.1918, 1 ♀ (Adair).

66 a. *Sphingonotus obscuratus lameerei* Finot.

1902. *Sphingonotus lameerei* Finot, Ann. Soc. Ent. Belg., vol. XLVI, p. 434  
[type ♀; Alg. Sahara].
1910. *S[phingonotus] lameerei* Kirby, A Synon. Cat. Orth., vol. III, p. 272,  
n.° 2.
1913. *S[phingonotus] brunneri* Bolivar, Novit. Zool., vol. XX, p. 612, n.° 16  
(not Saussure).

1914. *S[phingonotus] brunneri* Werner, Sitz. Ak. Wiss. Math.-Nat. Kl. vol. CXXIV, p. 394, n.° 45 (not Saussure).  
 1925. [*Sphingonotus obscuratus*] *lameerei* Uvarov, J. Bomb. Nat. Hist. Soc., vol. xxx, Nr. 2, p. 269.

Very similar to the typical race *Sph. obscuratus obscuratus* differing from it by the following characters:

♀. Foveolae of vertex very distinct, concave.

Black band of wings very narrow anteriorly; apex with small diffuse spots. Posterior tibiae bluish.

Male unknown.

	♀ ♀ (after Finot) — mm.
Length of body.....	37.0-41.0
— elytra.....	38.0-41.0

GEOGRAPHICAL DISTRIBUTION.—Algeria.

66b. ***Sphingonotus obscuratus brunneri*** Saussure.

1884. *Sph[ingonotus] brunneri* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 206, n.° 15 [Asia Minor ?].  
 1884. *Sph[ingonotus] apicalis* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 197, 206, n.° 16 [Persia: Shahrud] (Syn. nov.).  
 1888. *Sph[ingonotus] brunneri* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 78, 87, n.° 20.  
 1888. *Sph[ingonotus] apicalis* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, pp. 79, 87, n.° 20a.  
 1902-1905. *S[phingonotus] brunneri* Jacobson and Bianchi, Priam. lozh. Ross. Imp., pp. 193, 276 (partim).  
 1902-1905. *S[phingonotus] apicalis* Jacobson and Bianchi, Priam. lozh. Ross. Imp., pp. 193, 276.  
 1910. *S[phingonotus] balteatus* Kirby, A Synon. Cat. Orth., vol. iii, p. 277, n.° 42 (partim).  
 1925. *Sph[ingonotus] obscuratus apicalis* Uvarov, J. Bomb. Nat. Hist. Soc., vol. xxx, Nr. 2, pp. 267, 269.  
 1928. *S[phingonotus] obscuratus transcaspicus* Moritz, Mat. Obsl. Saran, Nas. Sew. Pers., p. 42, n.° 49 [N. E. Persia] (not Uvarov).

Very near to *Sph. obscuratus latissimus* differing from it only by the violet colour of posterior tibiae and narrow band of wings.

It differs from the typical race *Sph. obscuratus obscuratus* by the following characters:

♀. Length of metazona of pronotum 1.5 times that of prozona; metazona not wrinkled. Length of wings almost 1.76 times their maximum width. Dark band of wings much wider at the anterior margin; the apex itself dark.

♂. As the ♀, but smaller.

	♀ ♀ mm.	♂ ♂ mm.
Length of body.....	28.0-44.0	29.5-42.0
— pronotum.....	6.2- 7.2	5.8- 6.8
— elytra.....	33.0-40.5	33.5-40.5
— posterior femora.....	13.5-16.5	13.0-15.5
— — tibiae.....	11.5-14.5	11.0-13.5

GEOGRAPHICAL DISTRIBUTION.—Persia, W. Afghanistan, S. Tadji-kistan.

SPECIMENS EXAMINED.—2 ♀ ♀, 4 ♂ ♂.

Asia Minor?: 1 ♀ (Coll. Brunner von Wattenwyl, Nr. 8273) (type of Saussure).

Persia: 1 ♀, 2 ♂ ♂.

S. Tadjikistan: Kabadian, 25.VI.1934, 1 ♂; Aivadj, month of river Kafirnigan, 29.VII.1934, 1 ♂ (Gussakovsky).

This subspecies has been incorrectly considered by Uvarov (1923) as a synonym of *Sph. obscuratus obscuratus*. With the help of Saussure's type it was possible to correct this mistake.

66c. *Sphingonotus obscuratus latissimus* Uvarov.

(Fig. 25.)

1898. *Sphingonotus brunneri* Zubowsky, Ann. Mus. Zool. Ac. Imp. Sc., vol. III, p. 97, n.º 49 [Semiretchye, E. Turkestan] (not Saussure).

1902-1905. *S[phingonotus] brunneri* Jacobson and Bianchi, Priam. lozh. Ross. Imp., pp. 193, 276 (partim).

1911. *Sph[ingonotus] brunneri* Ikonnikov, Rev. Rus. d'Entom., vol. XI, p. 358, n.° 62 (not Saussure).  
 1914. *Sph[ingonotus] brunneri* Uvarov, Rev. Rus. d'Entom., vol. XIV, p. 221 [Khiva: Sultan-Uiz-Dag] (not Saussure).  
 1925. *Sphing[onotus] obscuratus latissimus* Uvarov, J. Bomb. Nat. Hist. Soc., vol. XXX, Nr. 2, pp. 268, 269 [types ♀, ♂; Semiretchye, E. Turkestan].  
 1927. *S[phingonotus] obscuratus latissimus* Uvarov, Saran. Sred. Az., pp. 131, 136, n.° 8, fig. 150.

Similar to the typical race *Sph. obscuratus obscuratus* differing from it by the following characters:

♀. Head punctured. Frontal ridge densely punctured at vertex. Fastigium of vertex coarsely punctured. Antennae as long as head and pronotum together. Posterior tibiae considerably shorter than the femora, with 8-9 spines on the outer side.

General coloration grayish-brown. Apices of elytra dark. Fascia of wings very wide, very much extending inwards, leaving free only a narrow strip at the anterior end; apices of wings black. Inner sides of apices of femora blue-black. Posterior tibiae bluish.

♂. As the ♀, slightly smaller.

	♀ ♀ mm.	♂ ♂ mm.
Length of body.....	35.0-41.0	34.0-38.0
— pronotum.....	7.2- 8.5	6.2- 7.0
— elytra.....	39.0-43.0	34.5-39.0
— posterior femora.....	15.5-18.5	15.0-15.5
— — tibiae.....	13.0-15.5	13.0-13.5

GEOGRAPHICAL DISTRIBUTION.—Eastern Kazakstan; Western Mongolia, Uzbekistan.

SPECIMENS EXAMINED.—7 ♀ ♀, 6 ♂ ♂.

Eastern Kazakstan: Chapsim, Djarkent, neighbourhood of Alma-Ata, 3.VI.1930, 1 ♀, 1 ♂ (Nenacheva); valley of river Charyn, 8.VII.1907, 2 ♀ ♀, 1 ♂ (Nedzvetsky); Chundjinsk settlement, 1896, 1 ♀, 2 ♂ ♂ (Zubovsky).

Western Mongolia: Niursu, Gobi, 10.VIII.1898, 1 ♀ (Clements).

Uzbekistan: Kanibadam, near Ferghana, 3-4.IX.1914, 2 ♀ ♀

(Tagantsev); Andijan, 1914, 1 ♂ (Brunner); Isfara, 7.VII.1920, 1 ♂ (Turk. Ent. Stat.)

66d. **Sphingonotus obscuratus transcaspicus** Uvarov.

1914. *Sph[ingonotus] apicalis* Uvarov, Rev. Rus. d'Entom., vol. xiv, p. 221 [Turkmenistan: Nukhur] (not Saussure).  
 1925. *Sphing[onotus] obscuratus transcaspicus* Uvarov, J. Bomb. Nat. Hist. Soc., vol. xxx, Nr. 2, p. 268 [type ♂; Kopet-Dagh: Ivanovka].  
 1927. *S[phingonotus] obscuratus transcaspicus* Uvarov, Saran. Sred. Az., pp. 131, 136, n.º 86, fig. 151.

Similar to the typical race *Sph. obscuratus obscuratus* differing from it by the following characters:

♀. Smaller. Head small. Vertical diameter of the eye equal to the subocular distance. Frontal ridge obliterated at the clypeus, projecting at the bases of antennae in profile. Vertex narrow, weakly concave, margins weakly raised; maximum width of vertex 1.5 times the width of frontal ridge between the antennae.

Metazona of pronotum almost flat; twice as long as prozona.

Elytra weakly narrowed towards the apices; intercalary vein distinctly S-shaped, slightly nearer to discoidal vein at apex, coarsely tuberculate. Length of elytra almost 1.17 times their maximum width. Posterior tibiae with 9 spines on the outer side.

General coloration light-yellowish-ochraceous. Apices of wings with faint, indistinct spots. Fascia of wings narrow, not quite reaching posterior and inner margins; apices of wings dark. Inner sides of apices of posterior femora blackish. Posterior tibiae bluish; inner sides of bases black.

♂. As ♀, but smaller.

	♀ ♀ mm.	♂ ♂ mm.
Length of body.....	31.0-34.5	27.5-29.5
— pronotum.....	6.0- 7.0	5.0- 6.0
— elytra.....	31.0-37.0	27.5-32.5
— posterior femora.....	13.0-15.5	11.5-13.5
— — tibiae.....	11.5-14.0	10.5-12.5

GEOGRAPHICAL DISTRIBUTION—Southern Turkmenistan.

SPECIMENS EXAMINED.—18 ♀♀, 9 ♂♂.

Turkmenistan: Ivanovka, Kopet-Dagh, 18.VI.1919, 1 ♂ (T. E. S.)  
 (type); Chuli, Kopet-Dagh, 21.VI.1914, 18 ♀♀, 8 ♂♂ (Golbek).

### XVIII. Group **SALINUS**

#### 67. **Sphingonotus salinus** (Pallas).

(Fig. 26.)

1773. *Gryllus Loc[usta] salinus* Pallas, Reise durch Ver. Prov. Russ. Reichs, vol. II, book II, p. 727, n.° 78 [types ♀, ♂; Irtysh].  
 1820-1822. *Acrydium salinum* Fischer, Ent. Imp. Russ., p. 39, n.° 3, Pl. I, fig. 3 [Volga].  
 1837. [*Gryllus*] *salinus* Eversmann, Bull. Soc. Imp. Nat. Mos., vol. x, p. 39 [Ural] (partim).  
 1849. *Oedipoda zinnini* Kittary, Bull. Soc. Nat. Mos., vol. xxii, Nr. 4, p. 470, n.° 53, Pl. VIII, fig. 6 [lake Inder].  
 1884. *Sph[ingonotus] zinnini* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 196, 197, 207, n.° 18 [Kirghiz steppes].  
 1888. *Sph[ingonotus] octofasciatus* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxx, Nr. 1, p. 79, n.° 2 (partim).  
 1898. *Sphingonotus octofasciatus* Zubowskyi, Ann. Mus. Zool. Ac. Imp. Sc., vol. III, p. 97, n.° 50 [East Kazakstan].  
 1902-1905. *S[phingonotus] octofasciatus* Jacobson and Bianchi, Priam. lozh. Ross. Imp., pp. 192, 273 (partim).  
 1906. *Sphingonotus suschkini* Adelung, Mat. pozn. faun. flor. Ross. Imp., Nr. 7, p. 86 [Turgai].  
 1911. *Sph[ingonotus] suschkini* Ikonnikov, Rev. Rus. Ent., vol. xi, p. 108, n.° 3 [Lower Volga: Khanskaja Stavka].  
 1923. *Sph[ingonotus] salinus* Uvarov, Nov. Zool., vol. xxx, p. 69.

♀. Body medium, fairly sturdy, almost hairless.

Head laterally compressed, strongly projecting above the pronotum, with dense, shallow punctures. Eyes oval, projecting sideways; their vertical diameter 1.5 times the horizontal one and equal to the subocular distance. Frons vertical. Frontal ridge concave, constricted below the ocellus, obliterated below it, and not reaching the clypeus; convex in profile; margins distinct; surface sparsely punctured, sometimes there is a convex ridge at vertex. Fastigium of vertex

strongly sloping. Vertex wide, very concave, margins distinct; median keel distinct; maximum width of vertex almost twice the width of frontal ridge between the antennae. Foveolae of vertex distinct, triangular. Antennae thick, equal to head and pronotum together.

Pronotum constricted in prozona; transverse furrows distinct; the first furrow just behind the middle of prozona; interspace between the second and third furrows with a callous area in the middle; metazona coarsely punctured and wrinkled, weakly convex, 1.5 times as long as prozona; posterior angle obtuse, rounded; shoulders weakly projecting, rounded; median keel crest-like and distinct in front of the first furrow, absent between the furrows, thin and linear in metazona. Lateral lobes vertical, finely and densely punctured; anterior margin undulating, anterior lower angle obtuse; posterior margin straight; posterior lower angle attenuated; lower margin straight, obliquely ascendant.

Sternum finely sparsely punctured; its width equal to its length; width of interspace between mesosternal lobes 1.5 times its length, width of interspace between metasternal lobes twice its length. Valvae of ovipositor with short pointed apices; basal parts of lower valvae with distinct callous tubercles.

Elytra narrowing towards the apices, almost reaching the apices of posterior tibiae, sometimes shorter; their length 5-5.5 times their maximum width; venation dense; intercalary vein almost straight, nearer to discoidal vein at apex. Wings elongated, triangular, with fairly dense venation; their length 1.7 times their maximum width.

Posterior femora fairly thick; their length 3.6 times their maximum width. Posterior tibiae considerably shorter than the femora, with 9-10 spines on the outer, 10 on the inner sides.

General coloration brown-gray, or grayish-ochraceous. Head whitish. Ocelli yellow. Antennae brownish with light rings. Elytra opaque; the basal third, median fascia and several spots in the apical half—brown; veins light. Bases of wings pink with a black fascia curved in the middle, not reaching the posterior margin and with a black spot at the colourless apex; apical half and anterior margin colourless, transparent; veins in the apical part black. Inner sides of posterior femora for the greater part black, with a light fascia at the black apex, sometimes the black colour has a blue tint. Posterior

tibiae yellowish-white, sometimes faintly bluish, with a darkish fascia on the inner sides; bases black.

♂. As the ♀, but smaller. Vertical diameter of the eye slightly shorter than the subocular distance. Frontal ridge more concave than in the ♀, obliterated at the clypeus. Antennae slightly longer than head and pronotum together.

	♀♀ mm.	♂♂ mm.
Length of body.....	28.0-34.5	20.5-24.0
— pronotum.....	5.0- 6.5	3.2- 4.5
— elytra.....	26.0-34.0	20.5-24.5
— posterior femora.....	13.0-15.5	10.0-12.5
— — tibiae.....	10.5-13.0	8.0-10.5

GEOGRAPHICAL DISTRIBUTION.—Lower course of Volga, Kazakstan, Daghestan, Azerbaidjan, Turkmenistan, Tadjikistan.

SPECIMENS EXAMINED.—69 ♀♀, 44 ♂♂.

Lower Volga: Kanskaya Stavka, 26.VI.1909, 1 ♂ (Ikonnikov).

Kazakstan: Kalmykov, Uralsk province, 19.VI.1909, 1 ♀; Kok-Djida, Uralsk province, 17.VI.1908, 1 ♂; lake Turgunlink-Sor, Uralsk province, 21.VI.1909, 1 ♂; neighbourhood of Inder, 7.VIII.1909, 1 ♀, 1 ♂ (Uvarov); Turgai, 1 ♂ (Sushkin); Koilibai, Mal. Barsuki, 22.VI.1931, 3 ♀♀ (Lupova); Kara-Ketken, Kzyl-Orda, 17.VII-23.VII.1928, 3 ♀♀ (Olsufiev); Solo-Tuba, Kzyl-Orda, 23.VI-1.VIII.1928, 21 ♀♀, 15 ♂♂ (Mistshenko and Olsufiev); Bala-Murun, Kara Tau, 12.VII.1911, 1 ♀ (Nikolsky); valley of river Chilik, 28.VI.1907, 1 ♂ (Nedzvetsky); Podgorny, 1-4.VII.1896, 1 ♀, 1 ♂ (Zubovsky); Takyrko, Zaisan, 29.VI.1930, 1 ♂; lake Taranchi-Kul, 1.VII.1930, 2 ♀♀, 7 ♂♂ (Lukianovich); lake Zaisan, Topolev-Mys, 25.VII.1928, 1 ♂ (Bey-Bienko); Baty, upper Intysh, 4.IX.1931, 1 ♀ (Chetyrkina); Semitan, 30.VII.1895, 1 ♀ (Zubovsky).

Daghestan: Aleksandro-Nevskaya, Kizliar district, 5-29 VIII.1927, 28 ♀♀, 6 ♂♂ (Olsufiev and Popova); 13.VIII-24.IX.1928, 1 ♀, 4 ♂♂ (Polsman).

Azerbaidjan: Aliaty, shore of Caspian sea, 22.VI.1931, 1 ♀, 2 ♂♂ (Mistshenko).

Turkmenistan: Kaakhka, 9-10.VII.1932, 1 ♀ (Egorev); Kerki, 18-19.VII.1932, 1 ♀ (Egorev).

Lives on dry saltings, sparsely covered by shrubs of *Artemisia maritima*, *Ar. salina*, *Anabasis salsa*, *Atriplex canum*, etc.

## XIX. Group SATRAPES

### 68. *Sphingonotus satrapes satrapes* Saussure.

(Fig. 27.)

1884. *Sphingonotus satrapes* Saussure, Mem. Soc. Phys. Hist. Nat. Gen., vol. xxviii, Nr. 9, pp. 196, 199, n.º 1 [types ♀, ♂; Turkestan, Persia].
- 1902-1905. *S[phingonotus] satrapes* Jacobson and Bianchi, Priam. Iozh. Ross. Imp., pp. 192, 273 [Caucasus: Borzhom].
1910. *S[phingonotus] satrapes* Kirby, A Synon. Cat. Orth., vol. iii, p. 272, n.º 1.

♀. Body large, almost naked; cheeks with sparse short hairs.

Head laterally compressed, projecting above the pronotum, sparsely punctured. Eyes regularly oval, projecting sideways, their vertical diameter 1.5 times the horizontal one, and almost equal to the subocular distance. Frons almost vertical. Frontal ridge concave, weakly constricted below the ocellus, widening half way between the ocellus and clypeus, almost but not wholly obliterated, reaching the clypeus; straight, not projecting in profile, margins thick. Fastigium of vertex weakly sloping. Vertex strongly concave; margins strongly raised; maximum width twice the width of frontal ridge between the antennae; median keel distinct in the anterior part, scarcely marked in the posterior one. Foveolae of vertex triangular, flat, wide; their surfaces densely and coarsely punctured. Antennae thick, slightly narrowed towards the apices, considerably longer than head and pronotum together.

Pronotum constricted in prozona; transverse furrows distinct; the first furrow just behind the middle of prozona; interspaces between furrows with distinct callous tubercles; metazona flat with distinct wrinkles and coarse punctures, 1.8 times the length of prozona; posterior angle slightly greater than 90°, rounded; shoulders projecting; median keel raised as a high crest in front of the first furrow, indistinct

between the furrows, thin and linear in metazona. Lateral lobes vertical; anterior margin wavy, anterior lower angle obtuse, weakly rounded; posterior margin straight; posterior lower angle slightly attenuated; lower margin obliquely-ascendant, with an excision.

Sternum finely punctured; its width equal to its length; width of interspaces between meso and metasternal lobes 1.5 times their length. Valvae of ovipositor with pointed, short apices; upper margin of upper valvae with a large tooth-like projection; basal parts of lower valvae with distinct callous tubercles.

Elytra wide, somewhat narrowing towards the apices, not reaching the apices of posterior tibiae; their length almost 5.3 times their maximum width; basal half of elytra with dense, irregular venation, apical half with more sparse and more regular venation; apical part of the 2<sup>nd</sup> branch of medial vein gives off 3 branches; intercalary vein slightly curved. Wings elongated, triangular, with distinct apical lobes; their length 1.5 times their maximum width; venation dense and regular.

Posterior femora slender, their length 4 times their maximum width. Posterior tibiae considerably shorter than the femora, with 9-10 spines on the outer, 10 on the inner sides.

General coloration yellowish-ochraceous. Head whitish. Ocelli yellow. Antennae whitish. Elytra coriaceous, opaque; basal third, weak incomplete median fascia and several large spots in the apical half—brownish-black; veins light. Wings transparent, milky-white, sometimes with a greenish shade, with a wide curved fascia, which reaches the anterior and posterior margins, and with a black apical spot; veins light. Inner sides of posterior femora, for the greater part, bluish-green with two complete light fasciae. Posterior tibiae whitish-yellow, inner sides-yellow, bases darker.

♂. As the ♀, but smaller.

	♀♀	♂♂
	mm	mm.
Length of body.....	37.5-44.5	27.5-34.5
— pronotum.....	5.5- 8.0	5.0 6.5
— elytra.....	33.0-42.0	31.0 37.5
— posterior femora.....	15.0-20.0	14.0 18.0
— — tibiae.....	13.0-18.0	12.0-16.0

GEOGRAPHICAL DISTRIBUTION.—Palestine, Irak, Iran, Transcaucasia, Turkmenistan, Uzbekistan, Tadjikistan, S. E. Kazakstan.

SPECIMENS EXAMINED.—759 ♀♀, 980 ♂♂.

Persia: Bushir, 7-18.V.1927, 1 ♀, 1 ♂; Dasht i-Kzhan, N<sup>th</sup> Bushir, 22.V.1927, 1 ♂ (Siazov).

Transcaucasia: Ordubad, 8-10.VIII.1930, 1 ♀, 2 ♂♂ (Bey-Bienko).

Turkmenistan: Kara-Kala, 25.VI-31.VII.1932, 3 ♀♀, 2 ♂♂ (Baliasnikov); Bakharden, 14.V.-8.VI.1902, 2 ♀♀ (Sumakov); Chuli, Kopet-Dagh, 30.V.1914, 1 ♀, 2 ♂♂ (Golbek); Ashkhabad, 14-20.VII.1896, 2 ♀♀, 6 ♂♂; Annau, 29.V-23.VII.1896, 2 ♀♀, 2 ♂♂ (Zubovsky and Varentzov); Kaakhka, 13.VI-31.VII.1932, 58 ♀♀, 98 ♂♂ (Egorev); Dushakh, 22.VII.1896, 2 ♀♀, 3 ♂♂ (Angr); Tedjen, 30.VI-17.VIII.1929, 32 ♀♀, 34 ♂♂ (Mistshenko and Predtetshensky); Serakhs, 31.VIII.1929, 3 ♀♀, 2 ♂♂ (Predtetshensky); Merv, 21.VI.1929, 13 ♀♀, 18 ♂♂ (Mistshenko); Sary Yazy, 24.VIII.1929, 2 ♀♀, 1 ♂ (Predtetshensky); Takhta-Bazar, 27.V-27.VII.1932, 10 ♀♀, 11 ♂♂ (Bezpoyasko); Kushka, 18.VIII.1929, 2 ♂♂ (Predtetshensky); Bairam-Ali, 7.VI-5.VII.1930-31, 565 ♀♀, 722 ♂♂ (Bogush); Farab, 2 ♀♀, 2 ♂♂ (Andrusov); Kerki, 20.VI-13.VIII.1932, 44 ♀♀, 39 ♂♂ (Kornev).

Uzbekistan: Katta-Kurgan, 16.VI.1929, 5 ♀♀, 7 ♂♂ (Mistshenko); Obruchevo, 13.VIII.1908, 2 ♂♂ (Fedotov); Andijan, 1914, 1 ♀ (Brunner).

Tadjikistan: Termez, 9-25.VI.1932, 6 ♀♀, 23 ♂♂ (Baliasnikov); Djety-Sai, Khodjent, 25.VI.1912, 1 ♀ (Troitsky); Khodjent, 20.VIII.1914, 2 ♀♀ (Arkhangelsky).

South-Eastern Kazakstan: Murke, 24.VII.1932, 1 ♀ (Chetyrkina).

Lives in loess semi-deserts and deserts.

68a. *Sphingonotus satrapes decarinatus* Uvarov.

1932 (1933). *Sphingonotus satrapes decarinatus* Uvarov, Tr. Inst. Zool. Ac. Sc. U. R. S. S., vol. 1, n.º 3-4, p. 200 [type ♂; S. W. Persia: Masjid-i-Sulaiman].

Similar to the typical race *Sph. satrapes satrapes*, but differs from it by the following characters:

♀. Metazona of pronotum weakly wrinkled, convex. Shoulders weakly projecting. Median keel weakly raised scarcely marked in front of the first furrow, weakly marked between the furrows. Lateral lobes square. Intercalary vein curved and very near to discoidal vein at apex. Length of wings 1.7 times their maximum width.

General coloration, as in the typical race. Bases of wings light blue apices of wings with small diffuse spots, which leave the very apex free. Inner sides of posterior femora, for the greater part bluish, this colour becomes more intense, becoming almost black below the subapical light fascia; apex darker.

♂. As the female, but smaller.

	♀ ♀ — mm.	♂ (author Uvarov) — mm.
Length of body.....	35.0-36.5	29.0
— pronotum.....	7.0- 7.2	5.0
— elytra.....	35.0-39.0	31.0
— posterior femora....	16.0-17.5	14.0

GEOGRAPHICAL DISTRIBUTION.—S. W. Persia.

SPECIMENS EXAMINED.—1 ♀ (paratype).

S. W. Persia: Masjid-i-Sulaiman, North of Ahwaz, 16.II.1932 1 ♀ (Marsh).

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(synonyms in italics).

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