

Orthoptera collected by M. Sureya Bey in Turkey

BY

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My colleague M. Sureya Bey, of Angora, was very kind to collect at my request some Orthoptera in various provinces of Turkey, and the collection proved to be of great interest owing to an unexpectedly high percentage of species new to science. Since the distribution of Orthoptera in Asia Minor is still imperfectly known, I thought it useful to publish not merely descriptions of new species, but a full list of the collection.

It is to be hoped that the pioneer work, which Sureya Bey is doing in the study of the insect fauna of his country, will continue and develop; there is no doubt that the fauna contains many species and genera still unknown to science.

Most of the insects enumerated in the list were collected in 1930.

The types of new species and all other material, apart from a duplicate series sent to the collector, are preserved in the British Museum.

Species new to the Anatolian fauna are marked with an asterisk.

Mantidae.

1. *Bolivaria brachyptera* (Pallas).

Angora; Kavakli-Dere and Beypazari, Angora prov.

2. *Empusa fasciata* (Brullé).

Kavakli-Dere and Beypazari, Angora prov.

Tettigoniidae.

3. *Isophya pavelii* Brunner-Wattenwyl.

Elma-Dagh, Angora prov., 30.VII.

4. **Isophya amplipennis** Brunner-Wattenwyl.

Ismid, 1928.

5. **Poecilimon smyrnensis** Brunner-Wattenwyl?

Karachabey, Smyrna prov.

6. **Poecilimon sancti-pauli** Brunner-Wattenwyl.

Mughla, Smyrna prov.

The collection includes two, or possibly three, other species of the genus *Poecilimon*, which I am unable to identify at present.

7. **Poecilimon sureyanus** sp. n. (fig. 1).

A strikingly coloured insect belonging to the group of species with the male cerci apically black and bearing numerous teeth.

♂ (*type*). General colouration reddish-buff, with heavy black markings.

Face ivory-white, with some pinkish shadows on cheeks; frontal fastigium pinkish, rounded. Fastigium of vertex narrow, obtusely conical, not sulcate. Antennae with alternating broad black and narrow ivory-white rings; first joint with four black dots. Occiput with large black spots, and a pale median line.

Pronotum with the anterior portion distinctly saddle-shaped, brownish-yellow, with heavy black markings and dots forming a pair of spots on the sides of a paler median spot; the two black spots are connected by a black transverse sulcus; posterior portion of the pronotum is well raised, reddish-brown, with the hind margin narrowly black; lateral lobes pale-yellowish, with a few dark dots.

Elytra yellow, with the disc black.

Legs yellowish, with heavy black dots and streaks; hind femora black on the inner side and along the lower carinae.

Abdomen above black, with two interrupted lateral lines and the hind margins of segments dirty-yellowish. Last tergite reddish-brown.

Supra-anal plate broadly rounded, transverse. Cerci thick, incurved in the apical third; apex black, with 8-9 teeth along the outer margin,

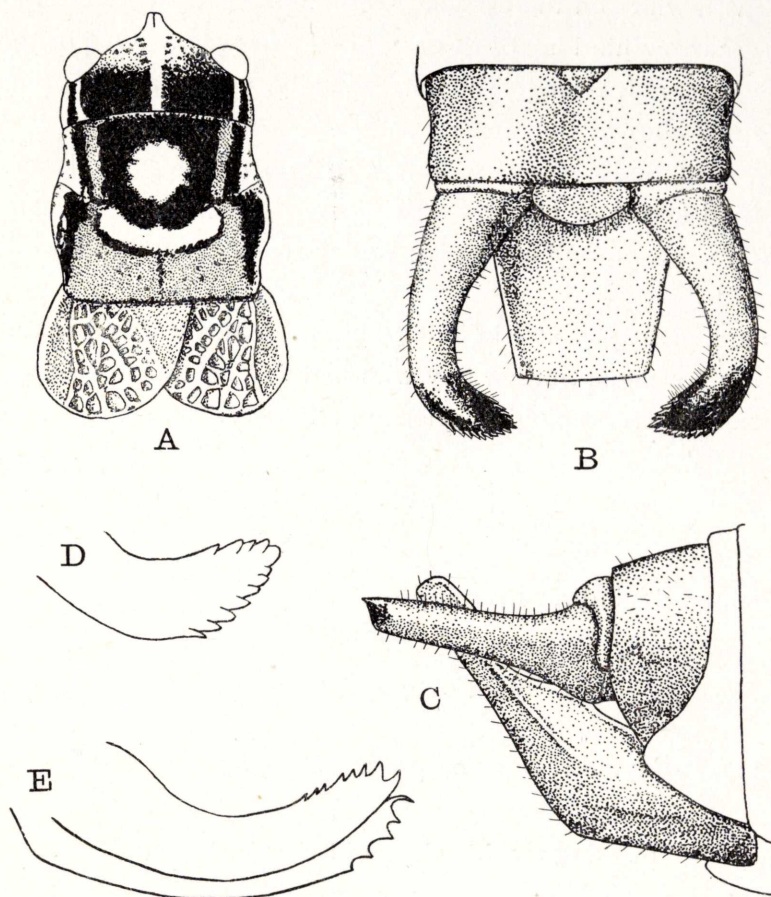


Fig. 1.—*Poecilimon sureyanus* sp. n. *A*, head, thorax and elytra, ♀; *B*, end of the abdomen from above, ♂; *C*, *do.*, side view; *D*, apex of a cercus, ♂; *E*, ovipositor, ♀.

4-5 larger teeth on the inner margin and a double apical tooth. Subgenital plate large, strongly ascendent, truncate apically.

♀ (*paratype*). General type of the colouration as in the male. The pattern of the pronotum is very striking and consists of a large round ivory-yellow spot in the middle of the prozona, followed by a transverse semilunar spot of the same colour; these spots are separated from each other and surrounded by heavy black colour; metazona is shiny reddish-brown, and this colour extends forward in the shape of two lateral fasciae separating the disc from the lateral lobes which

are black above and whitish below. Elytra rather large, with strongly prominent veins, reddish in colour, becoming paler behind and margined with white on the costa. Abdomen black; two lateral fasciae and very narrow hind margins of tergites yellowish. Ovipositor moderately recurved, strongly dentate apically, yellow at the base, with brown spots above.

Length of body ♂ 19, ♀ 18; pronotum ♂ 5, ♀ 4; elytra ♂ 3, ♀ 2,5; hind femur ♂ 17, ♀ 16; ovipositor ♀ 8 mm.

Described from one male type and six female paratypes collected near Ismid.

I have a great pleasure in being able to dedicate this beautiful insect to my colleague Sureya Bey who is doing so much for the development of the entomological science in Turkey.

8. **Saga puella** Werner.

Menemen-Bayindir, Smyrna prov.

9. **Saga brunneri** Saussure.

Menemen-Bayindir, Smyrna prov.

10. **Saga ephippigera** Fischer-Waldheim.

Marash.

11. **Bradyporus (Callimenus) dilatatus** (Stål).

Elma-Dagh, Angora prov.

12. **Tettigonia viridissima** (Linnaeus).

Menemen-Bayindir and Chebin-Karahissar, Smyrna prov.

13. **Tettigonia caudata** (Charpentier).

Menemen-Bayindir, Smyrna prov.

14. **Decticus albifrons** (Serville).

Menemen-Bayindir, Smyrna prov.; Marash.

15. **Metrioptera affinis** (Fieber).

Menemen-Bayindir, Smyrna prov.

16. **Pholidoptera signata** (Brunner-Wattenwyl).

Syn. *Ph. indistincta* (Bolivar).

Mersina; Chebin-Karahissar, Smyrna, prov.

A comparison of paratypes of *Ph. indistincta* Bol. with the description and figures of *Ph. signata* Br. W. permits me to confirm the synonymy of the two species, already suggested by Ebner (*Arch. Naturgesch.*, 1919, A, 8, p. 157).

17. **Pholidoptera chabrieri** (Charpentier).

Angora.

Recorded from the Bithynian Olympus, but new for the highlands.

18. **Drymadusa angorensis** sp. n. (fig. 2).

Closely related to *D. grisea* Br. W., but differing from it in larger size and the structure of the male cerci.

♂. Size under medium for the genus. General colour pale brown. Frons with a black fascia narrowed at the fastigium. Pronotum rounded, not sellate; metazona short, feebly convex, with the shoulder angles rounded; a black line along the middle not extending on to the metazona, and indistinct blackish X-shaped design on the disc. Elytra reaching the apex of the second tergite, variegated with buff and brownish; veins brown. Front femur with 4-5, middle with three spinules below.

Last tergite with a pair of long pointed, divergent appendages. Cercus conical, rectangularly recurved on to the last tergite, the apical recurved part being as long as the basal part and ending with an acute spinule. Subgenital plate obtusely excised behind.

Length of body, 31; pronotum, 10; elytra, 10 mm. (hind legs missing).

Beypazari, Angora prov., I ♂.

This new species is closely allied to *D. affinis* described by I. Bo-

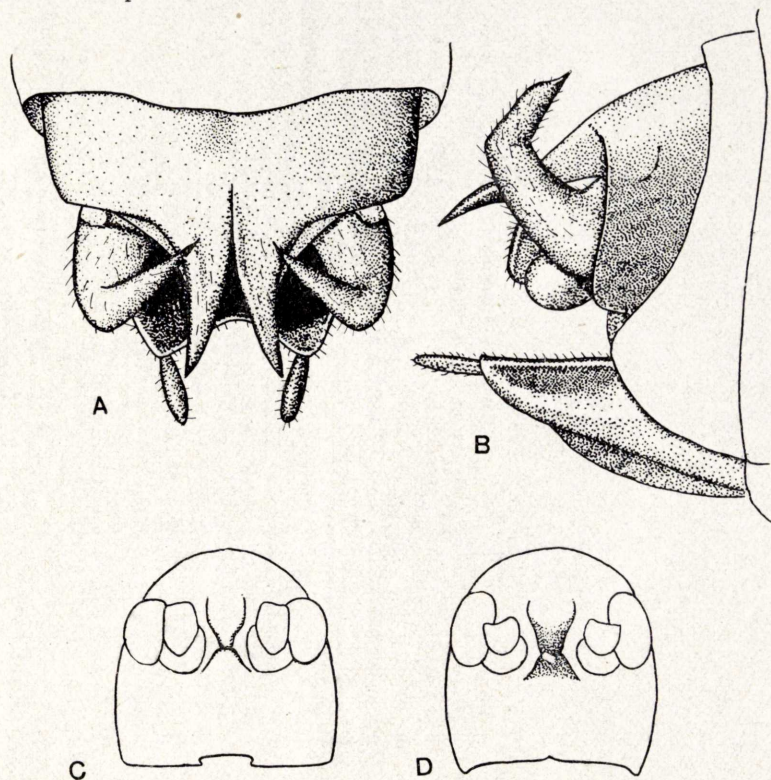


Fig. 2.—*Drymadusa angorensis* sp. n. *A*, end of the abdomen, from above, ♂; *B*, *do.*, side view; *C*, anterior view of the head, ♂; *D*, *D. affinis* Bol., anterior view of the head, ♀, type.

livar after a female from Bimbogha-Dagh, but differs from it in the shape and the colouration of the fastigium (see figs. 2, *C*, and 2, *D*).

19. **Gampsocleis recticauda** Werner.

Menemen-Bayindir, Smyrna prov.

20. **Scirtobaenus turcicus** sp. n. (figs. 3, 4).

Very similar to *S. grallatus* Pantel, known only from Spain, but somewhat larger in size and differing in shorter hind femora and in the details of genitalia.

♂. Face more oblique than in *S. grallatus*. Fastigium of vertex elongate pear-shaped, narrowly truncate below. Pronotum as in *S. grallatus*, but the elytra slightly longer relatively. Front and middle femora unarmed below; hind femur with a small spinule about the middle of the lower inner carina. Prosternal spines short, but less so than in *S. grallatus*.

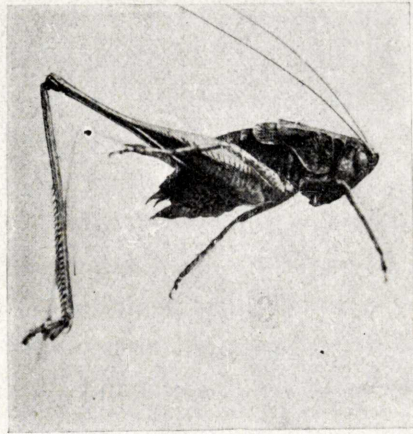


Fig. 3.—*Scirtobaenus turcicus* sp. n., ♂; $\times 2$.

Last abdominal segment with two short divergent rounded-triangular lobes, separated by an incision. Cercus conical, incurved and slightly decurved, pointed, with a small appendage at the base. Subgenital plate rounded-excised; styli shorter than the distance between them.

General colouration pale greyish-buff, with grey and brown mar-

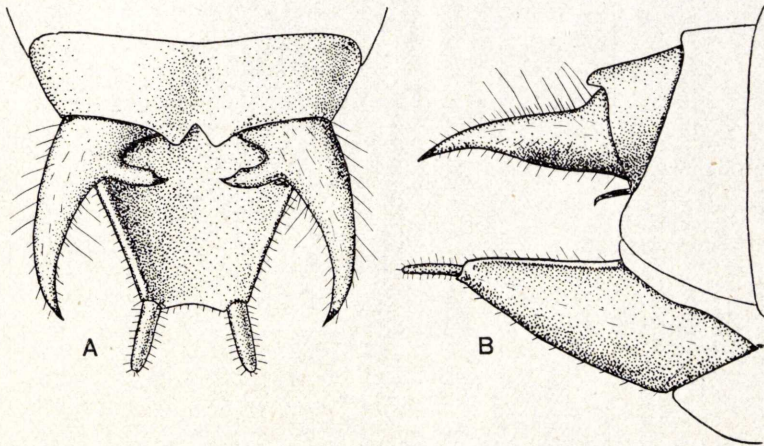


Fig. 4.—*Scirtobaenus turcicus* sp. n. End of the abdomen, ♂. A, from above; B, side view.

kings forming the same pattern as in *S. grallatus*. Second antennal joint with a chocolate-brown streak. Radial veins of elytra ivory-white.

♀. Female is slightly larger than the male and of uniform pale-buff colour. Subgenital plate with a fairly deep triangular excision;

the lobes triangular, but distinctly rounded apically. Ovipositor practically straight, thick in the basal part, somewhat shorter than the hind femur.

Length of body ♂ (type), 14,5, ♀, 16,5; pronotum ♂ ♀, 5; elytron ♂ ♀, 2; hind femur ♂, 14, ♀, 16,5; ovipositor ♀, 12 mm.

One male and one female of this graceful Decticid were taken by Sureya Bey in his garden near Angora, and the discovery of a member of the genus *Scirtobaenus* Pantel in Anatolia is of a great interest. This genus has been known so far to include only two species, both from the Iberian peninsula. This is, then, a case of a genus with a widely interrupted area of distribution, suggesting a closer affinity between the Eastern and Western Mediterranean faunas than is the case at present.

Gryllidae.

21. *Oecanthus pellucens* (Scopoli)?

Angora.

Represented in the collection by a single female, of unusually small size and I cannot be certain in my determination of the species until the male is examined.

22. *Liogryllus campestris* (Linnaeus).

Bey pazari, Angora prov.

Acrididae.

23. *Acrida turrita* Linnaeus.

Angora.

24. *Acridella robusta* Uvarov.

Adalia, 18.VI.1927; Marash, 9.VII.1930.

New for Anatolia; previously known from Transcaucasia, Mesopotamia and Persia.

25. *Duroniella fracta* (Fieber).

Boldan and Alachehir, Smyrna prov.

26. *Stenobothrus fischeri* (Eversmann).

Kavakli-Dere, Angora prov.

27. *Stenobothrus zubowskyi* I. Bolivar.

Kavakli-Dere, Angora prov.

Gen. *Dasyhippus* nov. (fig. 5).

Antennae distinctly flattened in both sexes, in the male with a flat apical expansion. Face strongly oblique; frontal ridge shallowly sulcate. Fastigium of vertex strongly projecting forward, in the male

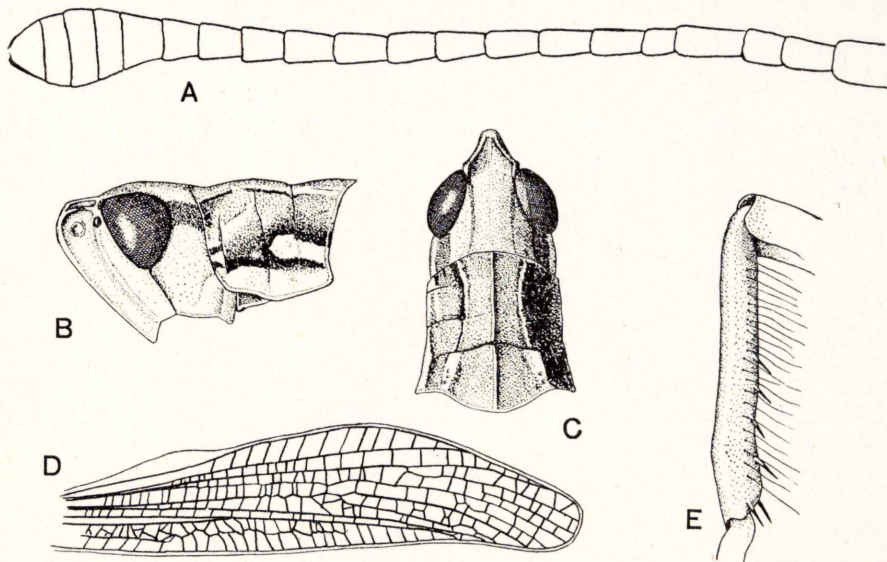


Fig. 5.—*Dasyhippus escalerai* (Bol.). Male. *A*, antennae; *B*, head and pronotum, side view; *C*, do., from above; *D*, elytron; *E*, left front tibia.

acute, in the female rectangular. Foveolae long, narrow, well defined, visible from above. Pronotum moderately constricted in the middle; lateral keels very distinct, callous, feebly incurved in the prozona, somewhat displaced outwards and divergent in the metazona; typical sulcus very distinct, placed well behind the middle of the disc; hind margin rounded. Elytra as in the genus *Gomphocerus*. Anterior tibiae

in the male slightly incrassate, with long dense hairs on the underside. Prosternum with a distinct conical tubercle. Male anal plate margined with black. Lower valvae of the female ovipositor with strong obtuse teeth.

Genotype: *Gomphocerus escalerae* I. Bolívar.

Gomphocerus escalerae cannot be included in the same genus with *G. rufus* L., which is the type of *Gomphocerus* Thnbg., as it differs from the latter species in the structure of antennae (not flattened in *G. rufus*), strongly oblique face, much more acute fastigium of vertex, the position of the typical pronotal sulcus, the hairy front legs, the presence of the prosternal tubercle, the male anal plate margined with black and the armed lower ovipositor valvae.

To the new genus must be referred also *G. przewalskii* Zubovsky, which possesses all the characters enumerated above, while differing specifically from *D. escalerae*. Two other species referable to *Dasyhippus* are *Chorthippus kozhevnikovi* Tarbinsky, and *Ch. volgensis* Predt. The distribution of species of *Dasyhippus* is most interesting, since *D. escalerae* is known only from Anatolia; *D. volgensis*, from the region of the lower Volga; *D. kozhevnikovi*, from Northern Turkestan; and *D. przewalskii*, from Mongolia. This suggests that the genus is a member of a very ancient xerophilous fauna of Mediterranean type.

28. ***Dasyhippus escalerae*** (I. Bolívar) (fig. 5).

Kavakli-Dere, Angora prov.

29. ***Chorthippus (Stauroderus) biguttulus*** (Linnaeus).

Angora.

30. ***Chorthippus (Stauroderus) parallelus*** (Zetterstedt).

Angora, Kutahya, Istambul (Constantinople), Karachabey.

Some of the specimens are very large, while others are not much larger than European ones. More material should be studied before deciding whether the variation is geographical.

31. **Chorthippus (Chorthippus) dorsatus loratus** (Eversmann).

Angora.

The specimens belong not to the typical, N. European, subspecies, but to the large race occurring also in S. Russia (see Znoiko, *Revue Russe d'Entom.*, xxii, 1928, p. 188).

32. **Omocestus ventralis** (Zetterstedt).

Ismid, 1928.

33. **Dociostaurus brevicollis** (Eversmann).

Angora; Elma-Dagh, Angora prov.

34. **Dociostaurus anatolicus** (Krauss).

Angora.

35. **Dociostaurus hauensteini** (I. Bolívar).

Kavakli-Dere and Elma-Dagh, Angora prov.

In spring of 1930 Sureya Bey sent me a large number of egg-pods of a grasshopper collected near Denizli, SE. of Smyrna. In spite of a great mortality amongst the hoppers, which hatched out of the egg-pods, I succeeded in breeding one female up to the 5th stage, and a male to the adult, and this enabled me to identify the species as *D. hauensteini*. It appears that there was at Denizli a mixed infestation by this species and by *Arcyptera labiata* Brullé, since some hoppers collected there by Sureya Bey later in the spring proved to belong to the latter species.

D. hauensteini has not yet been recorded as a pest, but it appears to be sufficiently numerous in some parts of Turkey to be considered potentially injurious. Since, moreover, egg-pods and hoppers of this species are very similar to those of *D. maroccanus*, I think it useful to publish a description of all stages, which would enable to distinguish the two species in the field.

EGG-POD (fig. 6).—Variable in shape, elongate-cylindrical, usually



Fig. 6. — Egg-pods of *Dociostaurus hauensteini* Bol., slightly enlarged.

more or less curved and slightly thicker at the lower end which is rounded. Walls thin, leathery, completely covered by particles of soil adhering to the outer side. Eggs about 12-15 in number. The cavity of the egg-pod above the eggs is divided by 3-5 transverse thin septae into a series of irregular cells; the part above the upper septa is filled by a spongy mass and the egg-pod is covered on the top by a thin concave lid of soil.

Length of the pod, 18-23; diameter, 3-4 mm.

HOPPER OF THE 1ST STAGE (fig. 7, *A, a*).—Antennae distinctly incrassate and flattened in the apical third, consisting of about 10-11 joints, the terminal joints being incompletely separated.

Face strongly oblique. Frontal ridge shallowly sulcate throughout, constricted at the ocellum. Fastigium of vertex a little broader than long; margins slightly concave; apex truncate. Foveolae of vertex distinct, but shallow, imperfectly margined below. Vertex and occiput without a carina.

Pronotum short. Hind margin obtusely excised in the middle. Lateral lobes considerably higher than long.

Hind lower angles of mesonotum and metanotum slightly expanded and rounded (rudiments of elytra and wings).

Hind tibiae with 12 spines on each margin.

General colour dirty-buff, with the following parts black: antennae, except the first two joints; the middle portion of the face, of the clypeus and of the labrum; a broad subocular stripe continued downwards on to the base of mandibles; a not sharply defined postocular stripe; two oblique spots on the sides of the pronotum and some spots and short streaks at its margins; lower portion of the externomedian area

of the hind femur, as well as two incomplete transverse fasciae above and on the inside; hind tibia except a whitish postbasal ring. Head, pronotum and abdomen above with a pale median line, sometimes

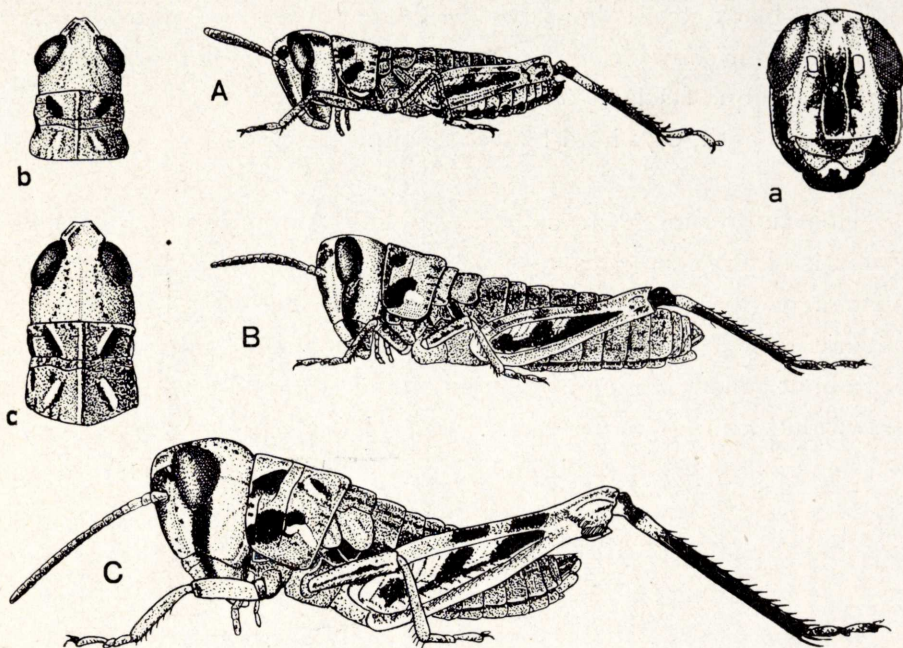


Fig. 7.—*Dociostaurus hauensteini* (Bol.). *A*, hopper of the I stage; *a*, its face; *B*, hopper of the II stage; *b*, its head and thorax; *C*, hopper of the III stage; *c*, its head and thorax. All $\times 6,5$, except fig. *a*.

with a broader pale stripe; pronotum above with a faint suggestion of the pale X-shaped design; sides of the abdomen dark brown.

Total length, 4.5; hind femur, 3 mm.

HOPPER OF THE 2ND STAGE (fig. 7, *B*, *b*).—Antennae incrassate, consisting of about 13-14 joints. Frontal ridge sulcate throughout, feebly constricted at the ocellum. Foveolae of vertex better defined than in the first stage, but the lower margin still imperfectly formed. No carina on the vertex and the occiput. Pronotum truncate behind; lateral lobes longer and less high than in the first stage. Hind lower angle of mesonotum more rounded, than in the first stage; that of the metanotum slightly drawn out behind.

General colouration becomes paler, with the black markings occupying lesser areas, but more sharply defined. On the face the black colour is almost entirely confined to the frontal ridge. Postocular

black stripe dissolved into small dots, or disappears altogether. Pale X-shaped design on the pronotal disc becomes distinct and in the prozona it is made to stand out by a heavy oblong black spot. Longitudinal black stripe along the lower edge of the externomedian area of hind femur shows a tendency to split up, while the basal and the median oblique fasciae extend upwards.

Total length, 6-7; hind femur, 3,5 mm.

HOPPER OF THE 3RD STAGE (fig. 7, C, c).—Antennae of 15-17 joints. Frontal ridge sulcate throughout. Foveolae of vertex become better defined on the lower margin, as well. Occiput with a fine smooth, but not raised, line. Pronotum obtusely angulate behind; lateral lobes about as long as high. Rudiments of elytra and wings distinctly drawn out, with traces of veins.

General colouration still paler; black markings reduced further and more sharp. Basal third of antennae pale. Frontal ridge becomes paler in its upper portion. Pale X-shaped pattern on the pronotal disc perfectly defined; the black oblique spot on prozona of the lateral lobe and a pale callous stripe on its metazona well distinct. Longitudinal black stripe of the hind femur almost interrupted between the oblique fasciae which extend almost to the upper margin.

Total length, 8-10; hind femur, 5 mm.

HOPPER OF THE 4TH STAGE (fig. 8, A).—Antennae of 20-21 joints. Frontal ridge shallowly sulcate throughout. Foveolae of vertex well defined, elliptical in shape. Rudiments of elytra and wings turned upwards, distinctly veined.

Black markings still more reduced. Frontal ridge darkened only, without the black markings. Pattern of the hind femur resolved itself into two interrupted oblique fasciae.

Total length, 11-13; hind femur, 6,5 mm.

HOPPER OF THE 5TH STAGE (fig. 8, B, C).—Antennae of 21-22 joints. Frontal ridge flat. Foveolae of vertex distinct, elongate. Fastigium of vertex with the margins obtuse, not sharply defined.

Colouration and pattern practically as in the 4th stage. The X-shaped pattern of the pronotum very distinct; its metazonal stripes wider

anteriorly. Wing pads black, with a callous whitish spot near the base.

Total length, 14-16; hind femur, 8,5 mm.

COMPARISON WITH THE ALLIED SPECIES.—Detailed descriptions of hoppers of all stages exist only for two species of the genus *Dociostaurus*, viz. *D. maroccanus* Thunbg. (La Baume, 1918; Sviridenko, 1924), and *D. brevicollis* Ev. (Bei-Bienko, 1928); certain characters of hoppers of *D. albicornis* Ev. and *D. kraussi* Ingen. have been mentioned by Bei-Bienko (*l. c.*) and Dovnar-Zapolskiĭ (1924).

The hoppers of *D. albicornis* differ from those of other species by the presence of a distinct median carinula on the vertex; the same character may be expected in the hoppers of *D. anatolicus* Kr., since it is common to the adults of both species.

Of particular interest are the characters by which the hoppers of *D. hauensteini* can be separated from those of *D. maroccanus*, since

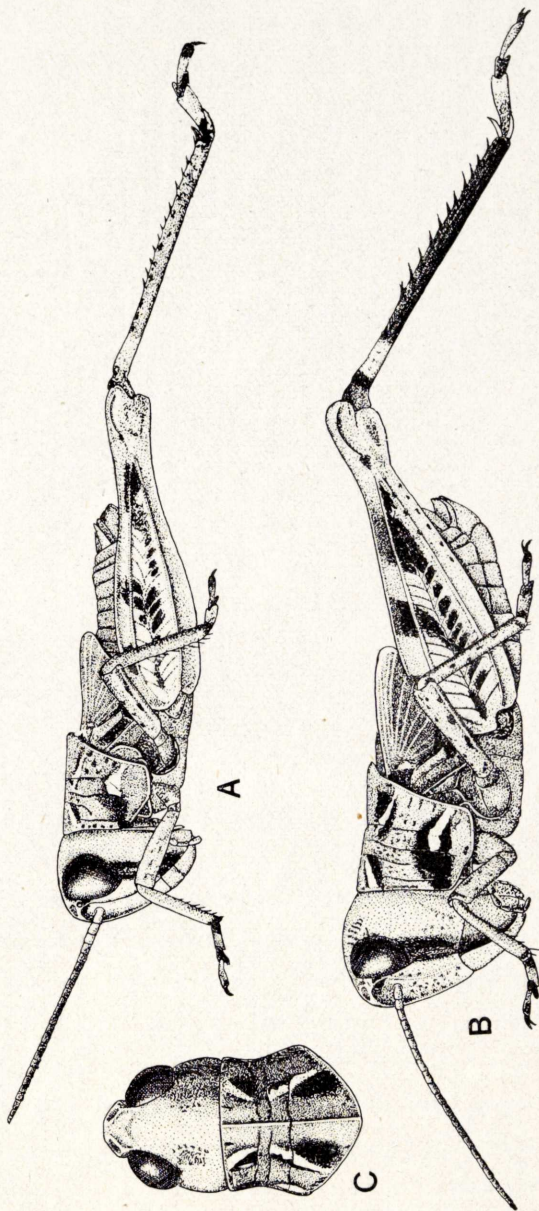


Fig. 8.—*Dociostaurus hauensteini* (Bol.). A, hopper of the IV stage; B, hopper of the V stage; C, do., head and thorax. All $\times 5$.

these two species occur together and both are of economic importance. It is unfortunate that the existing descriptions of hoppers of *D. maroccanus*, while fairly detailed, do not contain sufficient data on the morphology of the head, although Dovnar-Zapolskii (1926) mentions briefly the structure of the foveolae of vertex. According to that author, the foveolae are perfectly lateral and invisible from above in the hoppers of the three first stages of *D. maroccanus*, becoming visible only in the 4th and the 5th stages. In *hauensteini*, the foveolae are visible from above already in the first stage. This character, however, is not easily observed except by an experienced systematist. More obvious are the differences in the antennae, measurements and the coloration. The number of antennal joints in all stages of *D. maroccanus* is by 2-3 more than in the respective stages of *D. hauensteini*. The total length of body of hoppers is also smaller in *D. hauensteini*, but this is not a very reliable character owing to the sexual and individual variation in both species. More important are the differences between the length of the hind femur in the later stages. In the first stage this length is about 3 mm. in both species, but beginning with the second stage, the femur is distinctly shorter in *D. hauensteini*, than in *D. maroccanus*, as follows:

	I	II	III	IV	V
<i>D. hauensteini</i>	3	3,5	5	6,5	8,5-9
<i>D. maroccanus</i>	3	4	6-7	8,5-9,2	11-13

The best character for separating hoppers of *D. hauensteini* and *D. maroccanus* already in the first stage is in the pattern of the head. The face and cheeks of *D. maroccanus* in the first stage are pale, with small brown dots, while in *D. hauensteini* there is as large and heavy black spot on the frontal ridge and a black subocular stripe; these markings persist in the later stages, although they become gradually reduced in their extent. The pale X-shaped pattern of the pronotum in *D. hauensteini* becomes in the later stages somewhat expanded in the metazona, while it is more narrow in *D. maroccanus*. Again, hoppers of the later stages of *D. maroccanus* have some parts reddish-brown, while in *D. hauensteini* there is no suggestion of a reddish tone in any stage.

The characters separating hoppers of *D. hauensteini* from those of

D. brevicollis are not clear, since the description of the former (Bei-Bienko, 1928) is not sufficiently complete. According to Dovnar-Zapolskiĭ (1924) the black subocular stripe is present in *D. brevicollis* just as it is in *D. hauensteini*. The white pronotal pattern in *D. brevicollis* is similar to that in *D. maroccanus*, *i. e.* not expanded in the metazona, and this may serve to separate *D. brevicollis* from *D. hauensteini* until a careful comparative study reveals better distinguishing characters.

There is, apparently, a great similarity between the hoppers of *D. hauensteini* and those of *D. kraussi* very briefly described by Bei-Bienko (1928), but the two species are separated geographically.

36. **Doclostaurus maroccanus** (Thunberg).

A large series of specimens from various localities.

37. **Ramburiella turcomana** (Fischer-Waldheim).

Marash.

38. **Arcyptera labiata** (Brullé).

Smyrna, 20.V.1930; Menemen-Bayindir, Smyrna prov.; Chebin-Karahissar, Smyrna prov., 9.VII.1930.

39. **Aiolopus thalassinus** (Fabricius).

Boldan, Alachehir and Menemen-Bayindir, Smyrna prov.

40. **Aiolopus strepens** (Latreille).

Alachehir, Smyrna prov.

41. **Celes variabilis carbonaria** Uvarov.

Elma-Dagh, Angora prov., 30.VII; Orhameli.

The five female specimens before me agree in all respects with those from Transcaucasia which I have separated from the typical W. Siberian and European form as a subspecies *carbonaria* (*Bull. Mus. Caucase*, XI, 1917, p. 282). Specimens from Gallipoli and Macedonia in the British Museum also belong to this robust and more

richly pigmented southern race, in which the hind wings are never blue, but red and considerably darker in shade than the delicate rose colour of the wings in the f. *rhodoptila* of the typical race.

42. **Oedaleus decorus** (Germar).

Angora; Kutahya.

43. **Locusta migratoria** (Linnaeus) ph. **solitaria**.

Menemen-Bayindir, Smyrna prov.

According to the communication of Sureya Bey, this insect is widely distributed in the country and has been reported damaging rice in Diarbekir.

44. **Pyrgodera armata** (Fischer-Waldheim).

Elma-Dagh and Kavakli-Dere, Angora prov.; Orhameli, 15.VII.

45. **Sphingonotus nebulosus anatolicus** sbsp. n. (fig. 9).

Pronotum strongly rugulose and tuberculate, with the hind angle acute. Hind wings pale greenish-blue, with the fascia moderately broad, not reaching the inner margin and sometimes not quite touching the hind margin.

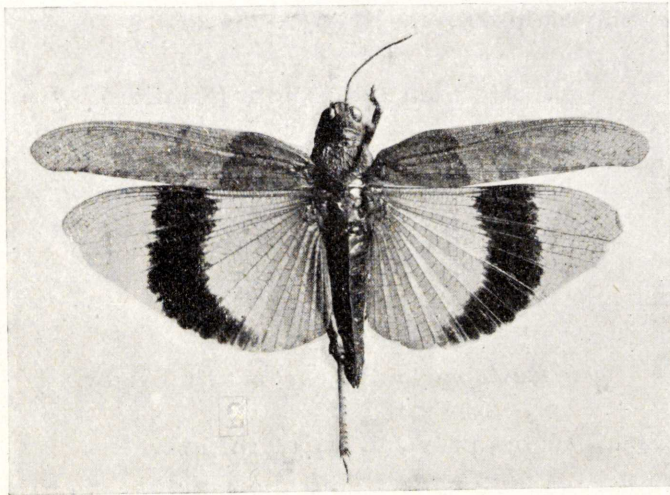


Fig. 9.—*Sphingonotus nebulosus anatolicus* sp. n., ♀.

tely broad, not reaching the inner margin and sometimes not quite touching the hind margin.

Total length, ♂, 21; ♀, 30; pronotum, ♂, 4.5; ♀, 6; elytron, ♂, 21; ♀, 30; hind femur, ♂, 10; ♀, 13 mm.

Described from 5 ♂♂ (including the type) and 3 ♀♀ from Angora; 4 ♂♂, 7 ♀♀ from Beypazari, Angora prov. (Sureya Bey); 1 ♀, Elma-Dagh, 23.VIII.1909 (R. C. Thompson, British Museum).

This new subspecies is very similar in its size and the sculpture of the pronotum to the *S. nebulosus persa* Saussure, but has the colour of hind wings as in the Daurian *S. nebulosus nebulosus* (Fischer-Waldheim).

46. ***Sphingonotus turcicus*** sp. n. (fig. 10-11).

A moderately sized, but rather robustly built species, with the pronotal metazona short and rounded, and an angular black fascia of the bluish hind wings widely separated from the hind margin.

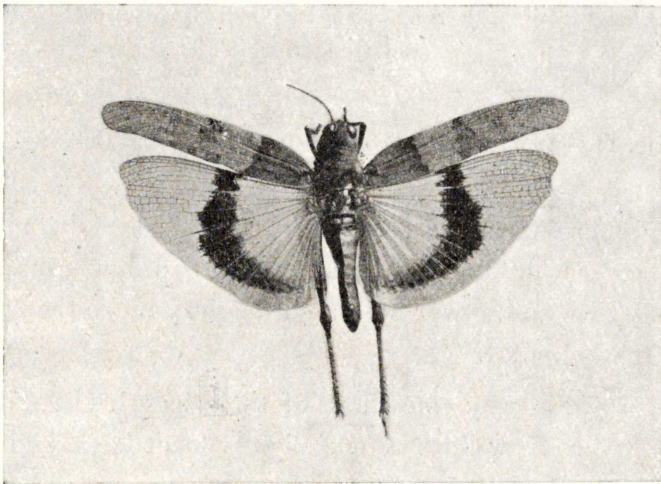


Fig. 10.—*Sphingonotus turcicus* sp. n., ♀.

♀. Antennae slender, extending beyond the hind pronotal margin.

Face vertical. Frontal ridge low, constricted under the ocellum, feebly expanded towards the clypeus, but disappears before reaching the latter; the surface convex above the antennae, feebly concave just below the ocellum; margins low; seen in profile the ridge is depressed under the ocellum. Lateral facial keels very low, practically obsolete.

Fastigium very little projecting forwards, gradually sloping, not separated from the frontal ridge; its surface flat; margins scarcely raised. Fastigial foveolae irregularly triangular, not sharply margined.

Pronotum short and broad, decidedly saddle-shaped. Anterior margin in the middle obtusely prominent and slightly notched. Median keel obtusely tectiform in front of the first sulcus, obsolete between the sulci, linear in the metazona. Submarginal sulcus very distinct on the sides, obsolescent at the keel; first and third sulci deep, second feeble. Metazona raised above the adjoining portion of the prozona, distinctly gibbose both in the transverse and the longitudinal direction; shoulders prominent, rounded; disc broader than long, finely ru-

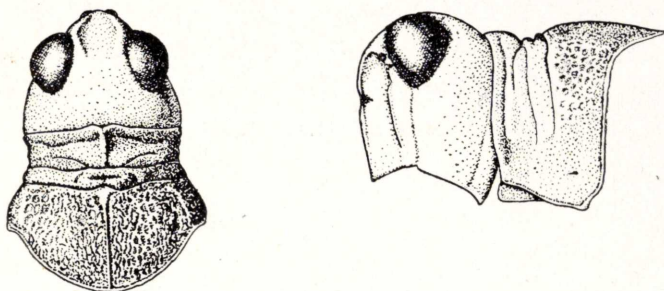


Fig. 11.—*Sphingonotus turcicus* sp. n. Head and thorax, ♀.

gulate; hind margin broadly rounded. Lateral lobes distinctly higher than long, lower front angle obtuse, not rounded; lower margin ascendent, weakly sinuated; lower hind angle slightly more than 90° , with a shallow notch behind it.

Elytra projecting by one third of their length beyond the hind knees, rather broad, with the apex slightly bent back and obliquely rounded. Venation rather loose and irregular. Externomedian and scapular fields broad, each with an irregular false vein. Discoidal field with the false vein much nearer the radial vein, than the ulnar; the area behind the false vein with two very irregular rows of rather large and unequal cells. Interulnar area as broad as the discoidal, loosely reticulated, with an irregular false vein.

General colouration rather light chocolate-brown. Basal fourth of the elytron darker, terminating in a blackish fascia of dentate outline; a less definite fascia just beyond the middle, its colour being darkest in front of the radials; a few faint greyish spots in the apical part.

Wings very faintly bluish basally; fascia black, moderately broad, almost rectangularly bent, not reaching the inner margin and broadly separated from the hind margin. Hind femur on the inside bluish-black, with a pale preapical ring; outer face very indistinctly fasciated, with some black dots on the carinae; knee of slightly darker shade, but not black. Hind tibia dirty-bluish; the base black on the inside.

Length of body, 23; pronotum, 5; elytron, 22; hind femur, 12 mm.

Angora, 4 ♀ ♀, including the type (Sureya Bey); camp above Tekye Koi, 6-7 hours E. of Angora, 23.VIII.1909, 1 ♀ (R. C. Thompson; British Museum).

By the wing fascia well removed from the hind margin this species resembles *S. canariensis* Saussure, *S. lucasi* Saussure, *S. tricinctus angulatus* Uvarov, *S. azurescens* Rambur and *S. callosus* Fieber. The last named species has a very different sculpture of the pronotum and cannot be confused with any of the others. *S. azurescens*, *S. lucasi* and *S. tricinctus angulatus*, which are very close to each other, differ from the new species in the pronotum being less saddle-shaped, with the median keel not raised in the prozona and with the metazona neither distinctly convex, nor broad and short; in the more densely reticulated elytra; and in the pale inner face of the hind femur. The only species which must be actually very closely related to *S. turcicus* is *S. canariensis* described from the Cape Verde islands, but occurring also in the Sudan and Somaliland (see my paper in *Ann. Mag. Nat. Hist.*, vi, 1930, p. 179). In the new species, however, the median keel of the prozona is more raised, and the metazona is more convex, with more prominent shoulders; the inside of the hind femur in *S. canariensis* is not wholly black as it is in *S. turcicus*.

It may be possible to regard *S. turcicus* as only a subspecies of *S. canariensis*, but the question cannot be decided without a revision of the whole group.

47. *Sphingonotus theodori* Uvarov.

Angora; Beypazari, Angora prov.

This species has been described by me, as a subspecies of *S. coeruleans* L. (*Bull. Soc. R. Ent. Egypte*, 1923, p. 195), from Palestine, but it appears to be fairly widely spread in the S. W. Asia, as, apart from Anatolia, it occurs practically throughout Persia, whence I have

seen a number of specimens (these will be recorded elsewhere). The species is very similar to *S. coerulans*, but is easily recognised amongst other Palaearctic species by its bright sulphur-yellow hind tibiae.

***Thalpomena ledereri* Saussure, 1884.**

1899. *Pseudocoles oedipodioides* I. Bolivar, *Ann. Soc. Ent. Belg.*, XLIII, p. 593, (syn. nov.).

Although this species is not represented in the collection, I thought it opportune to record the above synonymy, established after an examination of the type of Bolivar's species and its comparison with other Asiatic species of *Thalpomena*. It is true that they all differ considerably from the genotype, *Th. algeriana* Lucas, mainly in the structure of the pronotum and in the less dense venation of elytra, but these characters are stable only in the typical form of *Th. algeriana*, while a considerable variation is observed in its Moroccan forms, ab. *azureipennis* Uv. and *viridipennis* Uv. (*Bull. Soc. Sci. Nat. Maroc*, VII, 1927, p. 207). As regards the Persian *Th. persa* it differs from *Th. ledereri* very little, and mainly in the colour of the hind wings, not in the structure, nor in the venation. It might be possible, therefore, to restrict the genus *Thalpomena* to its genotype only, in which case the genus *Pseudocoles* would stand for *ledereri*, *persa* and allied species, but the characters separating them are exceedingly vague and unreliable. Indeed, while admitting that the genus *Thalpomena* represents now an obviously heterogeneous assemblage of species, I think it useless to attempt splitting it up into several poorly defined genera. I regard, therefore, *Pseudocoles* as a synonym of *Thalpomena*.

Th. ledereri was stated by Saussure to possess ochreous wings, but Prof. R. Ebner has kindly examined the types for me and their wings are reddish-yellow; the specimens were preserved in alcohol and the original colour must have been red, as in Bolivar's species.

48. ***Charora pentagrammica* I. Bol. (fig. 12).**

Angora, 1 ♂.

I have now before me the types of this species and a series of toptypes of *Ch. crassivenosa* Sauss. The Anatolian species is a much

more slender insect differing from the Persian one in the structure of the head and pronotum, in the more narrow elytra extending distinctly

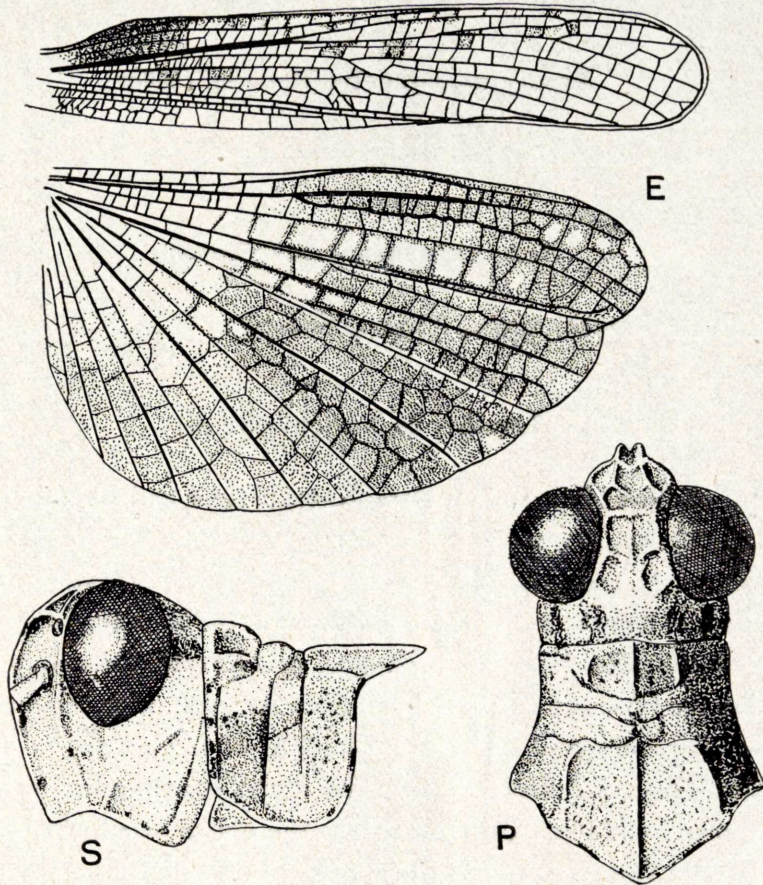


Fig. 12.—*Charora pentagrammica* Bol., ♂, type. *S*, head and thorax, side view; *P*, do., from above; *E*, elytron and wing.

beyond the hind knees and the wings elongated, with less strongly incassate veins.

I think it useful to present illustrations of *Ch. pentagrammica* made from the type.

49. **Oedipoda coerulescens** (Linnaeus).

Angora; Kutahya and Kavakli-Dere, Angora prov.

50. **Oedipoda miniata** (Pallas).

Beypazari, Kutahya and Elma-Dagh, Angora prov.

51. **Oedipoda schochi** Saussure.

Angora.

52. **Acrotylus patruelis** (Herrich-Schäffer)

Boldan and Alachehir, Smyrna prov.

53. **Acrotylus insubricus** (Scopoli).

Alachehir, Smyrna prov., Angora; Kutahya.

54. **Tmethis escherichi** (Krauss).

Afiun (British Museum); Angora; Kavakli-Dere and Beypazari; Kutahya; Ismid; Angora prov.

This species presents a remarkable geographical variation, mainly in the relative length of the male elytra and in the structure of the pronotum. Specimens from Ismid, Angora and Kavakli-Dere may be regarded as the typical form (described from Angora), with the male elytra extending somewhat beyond the middle of the abdomen. Males from Elma-Dagh and Kutahya have the elytra reaching the middle of the abdomen, while in those from Afiun the elytra extend beyond the hind knees. These characters are quite constant in the series of specimens from each locality, and may be correctly regarded as subspecific in value. I abstain, however, from describing all these subspecies until more material is available from intermediate localities in order to define the subspecies and their respective areas of distribution more clearly.

To the same group of subspecies (or species) belong *T. holtzi* Werner from the Cilician Taurus, and, extreme brachypterous forms, *T. heldreichi adaliae* Uvarov known from Adalia, *T. heldreichi* Brunner-Wattenwyl of Macedonia and *T. obtusus* Brunner-Wattenwyl from Greece.

55. **Tmethis gibber** (Stål).

Urfa, I.VII.1930.

56. **Pyrgomorpha conica** (Olivier).

Corum, 12.VII.

57. **Nocaracris** sp.

Corum, I ♀.

58. **Schistocerca gregaria** (Forsk.)

Data on this locust will be published elsewhere.

59. **Calliptamus italicus** (Linnaeus).

Angora.

60. **Calliptamus tenuicercus** Tarbinsky.

1930 (April). *Calliptamus tenuicercus* Tarbinsky, *Bull. Acad. Sci. Leningrad*, p. 180.

1930 (30th June). *Calliptamus iranicus* Ramme, *Mitt. Zool. Mus. Berlin*, 16, p. 395 (syn. nov.).

Angora.

Both Tarbinsky and Ramme described this species from Transcaucasia, and the synonymy is beyond any doubt.

61. **Calliptamus siculus** (Burmeister).

Angora.

Recent revisions of the genus *Calliptamus* by Tarbinsky and Ramme (*ll. cc.*) permitted me to recognise four distinct species amongst the material collected by Sureya Bey at Angora; there is no doubt that previous Anatolian records of *C. italicus* refer to that species only in part.

A pair of specimens from Alachehir, Smyrna province seem to represent still another species of *Calliptamus*; they will be submitted to Dr. Ramme for examination.

Further extensive collecting of members of this genus in Turkey may confidently be expected to bring additions to the fauna.

62. **Paracaloptenus caloptenoides** (Brunner-Wattenwyl).

Demirchi, Smyrna prov.

