

Notes on the Siberian representatives of the genus *Acrydium* Geoffr.

(Orthopt.)

BY

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During the last five years I have accumulated a small but interesting collection of the Siberian forms of the genus *Acrydium* Geoffr. (= *Tettix* Charp.) The collection contains some interesting species and subspecies of this difficult genus; two species and one subspecies are new for science, while some forms are new for Siberia.

I am greatly obliged to Mr. B. P. Uvarov for his kind assistance in preparing this paper.

1. *Acrydium longulum* (Shiraki)?

Sretensk, district Sretensk, Transbaicalia, 21.VII.1927, 2 ♀♀; Svobodny, district Amursky, VII-VIII.1928, 1 ♀ (B. Kravtzev); Kartun, district Chabarovsk, 31.VII.1927, 1 ♀.

This interesting and enigmatic species was first recorded under that name by me from Manchuria (Bey-Bienko, 1929, p. 108), but has been not recorded previously from Siberia. It is very probable that this species belongs to the genus *Paratettix* Bol. and related to *P. indicus* Bol., described from India and China (Bolivar, 1887, p. 281) as it is characterised by the narrow fastigium of the vertex which is scarcely broader than the eye. On the other hand Shiraki fully realised the differences between *Acrydium* and *Paratettix* and as he included his species in the former genus (1906, pp. 2 and 5-6) I am inclined to think that my specimens from Manchuria and Siberia do not belong to Shiraki's species. Unfortunately I have no typical specimens of *A. longulum* or *P. indicus* and therefore I prefer to retain temporarily, until the exact determination will be possible, the name, *A. lon-*

gulum (Shiraki) ?, under which I have recorded this species from Manchuria.

It is quite evident that this species is widely distributed in E. Siberia from Transbaikalia to the Russian Far East.

2. *A. subulatum* (L.)

Vagai, district Ishim, I.V. 1918, 1 ♀ (Dr. S. Tshugunov); Tobolsk, district Tobolsk, VII-VIII. 1926, 1 ♂, 2 ♀ ♀ (P. Sanko); Borovoye, district Petropavlovsk, I.VIII. 1926, 1 ♂ (G. Bey-Bienko); Omsk, district Omsk, V-VIII. 1926-1929, large series of specimens (Bey-Bienko); Ekaterininskoye near Tara, district Omsk (former by district Tara), II.VI. 1927, 1 ♂, 2 ♀ ♀; Kolpashevo, northern part of the district Tomsk (58° 18' N), VI-VII. 1924, 6 ♂ ♂, 7 ♀ ♀ (G. Bey-Bienko); Kargasok, northern part of the district Tomsk, 12.VIII. 1924, 2 ♀ ♀ (G. Bey-Bienko); Carasa, district Biysk Altai Mountains), 31.VII. 1925, 1 ♀ (G. Bey-Bienko); Tsherga, Oirod Country (Altai Mountains), 4.VII. 1925, 1 ♂, 1 ♀ (G. Bey-Bienko); Kosh-Agatsh, Tshuyskaya step, Oirod Country (Altai Mountains near Mongolian boundary), 14.VII. 1925, 1 ♀ (G. Bey-Bienko).

Very common and widely distributed species in Siberia, specially in its western part ¹.

3. *A. bipunctatum* (L.) (Fig. 2).

Omsk, V-VIII. 1926-1929, many specimens (G. Bey-Bienko); Ekaterininskoye near Tara, district Omsk, II.VI. 1927, 1 ♀; Borovoye, district Petropavlovsk, 28.VII-21.VIII. 1926, many specimens (G. Bey-Bienko); Kolpashevo, district Tomsk, VI-VII. 1924, many specimens (G. Bey-Bienko); Ulala, Oirod Country (Altai Mountains), 30.VI. 1924, 1 ♂ (B. Kravtzev); Onguday, Oirod Country (Altai Mountains), 6.VII. 1925, 1 ♀ (G. Bey-Bienko).

Very common and widely distributed species in W. Siberia and

¹ Prof. S. Lavrov recently recorded from Omsk *A. fuliginosum* Zett. (*Trans. Siber. Acad. Agricult. Forestry*, III, 1924, p. 83) but this record is based on wrong determination and belongs to *A. subulatum*.

in the Altai Mountains; records of this species from E. Siberia, including the Russian Far East, probably partly or completely belong to another species (see below).

4. **A. bipunctatum** L. f. **macroptera**.

Mezheninovka near Tomsk, district Tomsk, 13.VII.1928, 1 ♀ (V. Ermolaev); Kolpashevo, district Tomsk, 19.VII.1924, 2 ♀♀ (G. Bey-Bienko); Omsk, district Omsk, 16.VI.1929, 1 ♀ (G. Bey-Bienko).

This form was first recorded from Siberia by P. P. Berezkhov for the Tomsk district (1925, pp. 212-213).

5. **A. simulans** sp. n. (Fig. 1).

Sretensk, district Sretensk, Transbaicalia, 21.VII.1927, 2 ♀♀ (type and paratype).

Very like to *A. bipunctatum* but strongly differs from it in some features, as follows: Frontal ridge seen in profile very feebly prominent, almost straight; longitudinal sulcus of the ridge, when the body is in a horizontal position, practically not visible from the above. Pronotum with strongly prominent anterior angle, with an acute, thin and high median carina; seen in profile median carina rises above the shoulders as high as, or a little higher than, the depth of the lateral lobes; upper margin of the median carina bow-shaped incurved in its whole length; viewed in profile the anterior margin of the pronotum and lateral lobes, from median carina to the hind lower angle of the lobes s-shaped incurved; hind part of the posterior processus of the pronotum not inflated, strongly tectiform. All other morphological features as in *A. bipunctatum*.

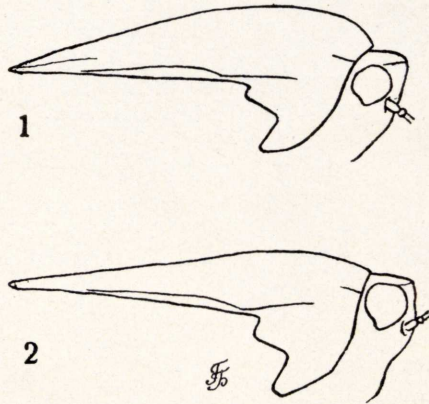


Fig. 1. Lateral view of the head and pronotum of *Acrydium simulans* sp. n. (type).—Fig. 2. Same of *A. bipunctatum* (♀).

Coloration probably variable as in *A. bipunctatum*; the type is uniformly dirty brownish-grey, with two very feeble and small dark spots in the middle of the pronotum; the paratype is brownish-dark, with two large velvety-black spots on the pronotum.

Length of body 10, of pronotum 8.8-9, of hind femora 5.7-5.9 mm.

This species is very probably widely distributed in E. Siberia and unquestionably some or all records of *A. bipunctatum* from that part of Siberia should refer to *A. simulans* m. or to the following new species.

6. ***A. amurense*** sp. n. (Figs. 3 and 4).

Svobodnyi, district Amursky, E. Siberia, VII-VIII.1928, 1 ♀ (B. Kravtzev).

Superficially very like to *A. bipunctatum* and *A. simulans*, but strongly differs from both of them in many features. Structure and

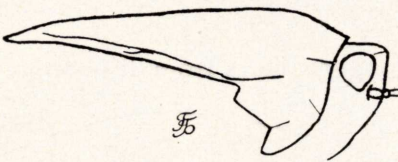


Fig. 3.—Lateral view of the head and pronotum of *Acrydium amurense* sp. n.

length of the antennae as in these two species; frontal ridge, seen in profile, feebly prominent, practically straight; longitudinal sulcus of the ridge, when the body is in horizontal position, visible and viewed from above for a considerable distance.

Pronotum with strongly prominent anterior angle, like in *A. simulans*, with an acute, thin and high median carina, which in profile is as high above the shoulders as the depth of the lateral lobes; upper margin of the median carina straight on its largest portion; lower emargination of the lateral lobes (inferior sinus of Hancock) distinctly more than 90°, with the upper side somewhat longer than the lower; apical processus of the pronotum practically reaching the apex of hind femora, distinctly inflated near its apex and feebly tectiform there. Lower margin of middle femora, feebly but distinctly undulate; hind femora very thick and broad, a little more than two times as long as broad, with a straight lower keel; hind tibiae a little shorter than in *A. bipunctatum* and somewhat thicker; hind tharsus thick, practically half as long as the hind tibiae; all three pulvilli of hind tarsus subequal in length.

Coloration dark-brownish, with dark spots. Pronotum with two

not strong spots on its middle and with two small rounded pale spots deposited a little before the dark ones, near lateral keels. Hind femora with indistinct dark fasciae and with a pale median spot on the outside.

Length of body 10.1, of pronotum 8, of hind femora 5.7 mm.

This interesting species differs from *A. bipunctatum* in not strongly prominent frontal ridge, strongly angulate anterior margin of the pronotum, strongly elevated median carina of the same, in the structure of lateral lobes, undulate keel of lower margin of the middle femora, in thicker and broader hind femora and in the structure of hind tarsus. From *A. simulans* it differs in the same features, except the median carina of pronotum which is similar to that in *A. simulans* but not bow-shaped incurved, as well as in the visible from above median sulcus of frontal ridge and in the feebly tectiform hind portion of the apical processus of the pronotum.

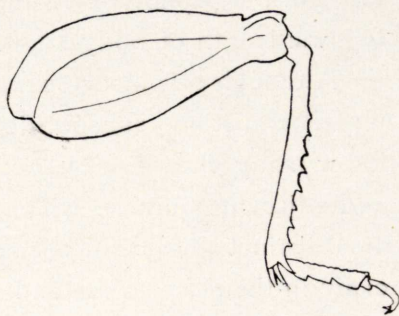


Fig. 4.—Lateral view of the hind leg of *Acrydium amurense* sp. n.

7. *A. sibiricum sibiricum* (Bol.)

Svobodny, district Amursky, E. Siberia, VII-VIII. 1928, 1 ♂, 1 ♀, 1 larva (B. Kravtzev); Kartun, district Chabarovsk, VII-VIII. 1927, 4 ♂♂, 5 ♀♀, 2 larvae.

Bolivar (loc. cit., p. 265) described this species on the female sex only from «E. Siberia» without indicating the exact locality, but dimensions given by this author show that his specimen had its origin not from South-Ussury Country, because *A. sibiricum* occurring in that country belongs to a distinct subspecies, characterised by its larger dimensions (see below). The color in this species is not as variable than in *A. bipunctatum*, usually uniformly dirty dark-brownish or brownish grey, without dark spots or, rarely, with not very distinct dark spots on the middle of pronotum. Dimensions of this subspecies are as follows: length of body ♂ 7.8-10, ♀ 9-11.2, of pronotum ♂ 7.3-8, ♀ 8-10, of hind femora ♂ 5.8-6, ♀ 5.5-7 mm.

8. **A. sibiricum ussurianum** subsp. n.

Krivoy Klutsh, district Vladivostok, VIII.1927, 1 ♀.

As the typical form but strongly differs from it in larger size and very thick body; median carina of the pronotum feebly but markedly more elevated than in subsp. *sibiricum*; lower emargination of the lateral lobes of the pronotum distinctly more than 90°. Dimensions are as follows: length of body 13, of pronotum 11, of hind femora 7.7 mm.

Although this insect is represented by a single female I describe it under a distinct subspecific name without any doubt because we know many examples of species of Orthoptera distributed in Siberia and adjacent countries which give in their most eastern portion of the area distinct geographical races, differing from the typical forms specially in their larger size and more robust habitus (for instance *Arcyptera microptera* F.-W. and subsp. *sibirica* Uv., *Gomphocerus sibiricus* L. and subsp. *kudia* Caud., *Celes skalozubovi* Adel. and subsp. *orientalis* Ikonn., *Gampsocleis sedakowi* F.-W. and subsp. *obscura* Walk., and many others). We know even that this regularity appears common in other orders of insects, as well as in vertebrate animals (for example *Lymantria dispar* L. and subsp. *sibirica* Vnuk., *Apodemus agrarius* L. and subsp. *mantchuricus* Thom., *Mus sylvaticus* L. and subsp. *major* Radde, etc.)

It would be very interesting to study the causes of this remarkable regularity; I am inclined to think that one of these causes are more favourable ecological conditions.

9. **A. kraussi** (Saulcy).

Vagai, district Ishim, I.V.1918, 1 ♀ (Dr. S. Tshugunov). Bar-mashnoye near Borovoye, district Petropavlosk, 18.VIII.1926, 3 ♂♂, 5 ♀♀ (G. Bey-Bienko); Omsk, 18.VI.1926, 2 ♀♀ and 13.VI.1929, 1 ♀ (G. Bey-Bienko); Ekaterininskoye near Tara, district Omsk, 11.VI.1927, 1 ♂, 1 ♀; Kolpashevo, district Tomsk, VI-VII.1924, many specimens (G. Bey-Bienko); Baragash, district Biysk (Altai Mountains), 29.VII.1925, 1 ♀ (G. Bey-Bienko); Shebalino, Oirod Country (Altai Mountains), 5.VII.1925, 1 ♂, 2 ♀♀ (G. Bey-Bienko).

Widely distributed in W. Siberia and Altai Mountains but not so common as *A. bipunctatum* L.

10. **A. kraussi** (Saulcy) f. **macroptera**.

Mezheninovka near Tomsk, district Tomsk, 10.VII.1928, 1 ♀ (V. Ermolaev).

This form was not previously recorded from Siberia. My specimen fully agrees with the description and figure given by Haij (1908, p. 165, fig. 2).

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For determination of these ten forms of Siberian representatives of the genus *Acrydium* the following key may be useful (unfortunately I have no specimens of *A. fuliginosum* Zett. recorded by some authors from Siberia and therefore I do not include this species in my key):

- 1 (8). Apical processus of pronotum strongly extending beyond the hind knees. Wings fully developed, not covered in the apical part by the pronotal processus.
- 2 (3). Vertex narrow, a little broader than eye, seen from above not prominent before anterior margins of eyes, seen in profile forming with the front an angle of 90°..... 1. **A. longulum** (Shiraki)?
- 3 (2). Vertex considerably broader than eye, distinctly prominent before anterior margins of eyes and seen in profile forming with front an angle of 90°, or less.
- 4 (5). Hind femora narrow, not less than three times as long as its maximal width; the latter equal to length of the elytra. Valvae of the ovipositor long, straight and thin. Middle joints of antennae practically three times as long as broad..... 2. **A. subulatum** (L.)
- 5 (4). Hind femora broad and thick, practically two and half times as long as broad; elytra somewhat shorter than maximum width of hind femora. Valvae of the ovipositor shorter and thicker; their dentate margins more incurved. Middle joints of antennae four, or only two, times as long as broad.
- 6 (7). Antennae longer and thinner; their median joints practically four times as long as broad. Inferior sinus of the lateral lobes of pronotum rectangular..... 3. **A. bipunctatum** (L.) f. **macroptera**.
- 7 (6). Antennae shorter and thicker; their median joints practically only two times as long as broad. Inferior sinus of the lateral lobes blunt.....
..... 4. **A. kraussi** (Saulcy) f. **macroptera**.
- 8 (1). Apical processus of the pronotum not extending beyond the apex of hind

- knees. Wings abbreviate, not reaching to the apex of pronotal processus.
- 9 (18). Antennae longer and thinner; their median joints practically four times as long as broad.
- 10 (13). Median carina of pronotum very sharp and high; seen in profile it is as high, or somewhat higher, as the depth of the lateral lobes; anterior margin of the pronotum strongly angulate. Frontal ridge above middle ocellus almost straight, feebly prominent forwards.
- 11 (12). Longitudinal sulcus of the frontal ridge (when the body is in horizontal position) quite visible from above, deep. Apical processus of the pronotum inflated near the end, feebly tectiform; inferior sinus of lateral lobes more than 90°. Lower margin of middle femora feebly but distinctly undulate; hind femora very thick and broad, a little more than two times as long as broad; all three pulvilli of the hind tarsus equal in length..... 5. **A. amurense** B.-Bienko.
- 12 (11). Longitudinal sulcus of the frontal ridge (when the body is in horizontal position) almost invisible from above. Apical processus of the pronotum strongly tectiform in its whole length; inferior sinus of the lateral lobes rectangular. Lower margin of middle femora straight; hind femora not so thick and broad, practically three times as long as broad; first pulvillus of the hind tarsus shorter than any other..... 6. **A. simulans** B.-Bienko.
- 13 (10). Median carina of the pronotum blunt or not very sharp, seen in profile distinctly lower than vertical depth of the lateral lobes; anterior pronotal margin truncate or very feebly angulate. Frontal ridge above the middle ocellus strongly incurved and prominent forwards.
- 14 (15). Lateral keels of the pronotum seen from above forming a square platform before the first transversal sulcus; median carina relatively high; anterior margin feebly angulate.. 7. **A. bipunctatum** (L.)
- 15 (14). Lateral lobes of the pronotum seen from above forming a transverse rectangular platform; median carina blunt and low; anterior margin truncate.
- 16 (17). Smaller (length of body ♂ ♀ 7.8-11.2 mm.) and less stout. Median carina of the pronotum very blunt and low; inferior sinus of lateral lobes rectangular..... 8. **A. sibiricum sibiricum** (Bol.)
- 17 (16). Larger (length of body ♀ 13 mm.) and very thick. Median carina of the pronotum slightly elevated; inferior sinus of lateral lobes distinctly more than 90°... 9. **A. sibiricum ussurianum** B.-Bienko.
- 18 (9). Antennae short and thick; their median joints practically two times as long as broad..... 10. **A. kraussi** (Saulcy).

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