

VIII. A preliminary revision of the genus *Aeropus* Gistl.*(Gomphocerus auct. partim)*

(Acrid.)

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The type of the genus *Gomphocerus* Thnbg. has been fixed by Samouelle in 1819 (*Entom. Useful Compendium*, p. 219) as *rufus* Thnbg., and the fixation was formally confirmed by Kirby in 1910 (*Syn. Cat. Orth.*, III, p. 154).

Kirby included in the genus as many as 20 species, but a number of them were removed since then to other genera viz. to *Myrmeleo-tettix* I. Bol. (type *maculatus* Thnbg.), *Gomphoceridius* I. Bol. (type *brevipennis* Bris.) and *Dasyhippus* Uv. (*Eos*, VI, 1930, p. 357; type *escalerai* I. Bol.) While a certain number of definitely not congeneric species were removed in this way, the remaining ones still represent a very heterogeneous assemblage of species having very little in common, apart from the clavate antennae, a character which is certainly not of generic value. A general revision of the group is very necessary, but the present paper is not intended to be such a revision. I wanted only to define one more generic group which is clearly separable from the rest. This is the group of *G. sibiricus* Thnbg., in which so far only one species has been recognised, while actually at least three species should be separated, one of them represented by a number of distinct geographical races. The name *Aeropus* has been proposed for *sibiricus* by Gistl (*Naturgesch. Tierreichs für höhere Schulen*, 1848, p. 137) and this generic name must stand, although the author himself thought it was invalidated by *Aerope* Curtis, 1847 (*Crustacea*), which view cannot be accepted.

The lack of material compels me to present only a preliminary and admittedly incomplete survey of this genus, in the hope of attracting attention of other workers to studying it.

Gen. **Aeropus** Gistl.

Antennae slender, filiform, the last 6-7 joints forming a flattened clavus in the male, slightly expanded in the female.

Face moderately oblique; frontal ridge shallowly sulcate near the ocellus in the male, flat in the female. Fastigium of vertex obtusely triangular, transverse; surface not concave; margins raised; foveolae distinct, elongate, slightly curved.

Pronotum with the prozona inflated, in the male strongly, in the female less so. Typical transverse sulcus well behind the middle. Median carina well developed, linear, more or less convex in profile in the prozona. Lateral keels weak, particularly in the median portion, where they are strongly rounded-inflexed; they are better developed and strongly divergent in the metazona. Prosternum slightly convex.

Venation of elytra as in other members of the group *Chorthippi*. Ulnar veins fused, or practically so.

Front tibiae in the male with pear-shaped inflations.

Genotype: *Gryllus Locusta sibiricus* Linné.

The genus *Aeropus* differs from *Gomphocerus* Thnbg. (with the type *rufus* Thnbg.) by the specialised pronotum and front tibiae of the male and by the fused ulnar veins of elytra.

## Key to species and subspecies (♂♂ only).

- 1 (6). Elytron 3,8-4 times as long as its greatest width (fig. 2, *S, a-b*). Antennae twice the length of pronotum.
- 2 (5). Apical portion of elytron (from the end of the first radial to the apex; fig. 2, *S, m-f*) distinctly longer than the greatest width of the elytron.
- 3 (4). Large. Pronotum in profile feebly convex; lateral keels almost obliterated. Elytra extending beyond the hind knees by more than the length of the pronotum.—E. Siberia..... 1. **kudia** (Caudell).
- 4 (3). Smaller. Pronotum strongly convex in profile; lateral keels distinct. Elytra extending scarcely beyond the hind knees.—Siberia..... 2a. **sibiricus sibiricus** (L.)
- 5 (2). Apical portion of elytron not longer, or distinctly shorter, than the greatest width of the elytron. Pronotum strongly inflated.—Greece (Olympus)..... 2b. **sibiricus graecus** sbsp. n.
- 6 (1). Elytron 3,3-3,5 times as long as its greatest width.

- 7 (8). Antennae slender, twice the length of pronotum; clavus narrow; middle joints three times as long as broad.—Central Spain (Sierra de Guadarrama)..... 2c. **sibiricus hispanicus** sbsp. n.
- 8 (7). Antennae less slender, less than twice the length of pronotum; clavus distinctly expanded.
- 9 (12). Middle joints of antennae more than twice as long as broad. Apical portion of elytron distinctly attenuated, longer than the width of the pre-anal portion (from the costa to the anal vein).
- 10 (11). Elytron narrower. Pronotum longer, less inflated on the sides. Antennae relatively shorter.—Pyrenees..... 2d. **sibiricus pyrenaicus** sbsp. n.
- 11 (10). Elytron broader. Pronotum short, very strongly inflated in all directions. Antennae relatively longer.—Switzerland..... 2e. **sibiricus helveticus** sbsp. n.
- 12 (9). Antennae short, about half again as long as the pronotum; their middle joints half again as long as broad. Apical portion of elytron scarcely attenuated; its length is less than pre-anal width.
- 13 (14). Prozona distinctly inflated. Hind tibiae sometimes reddish.—The main chain of the Caucasus... 2f. **sibiricus caucasicus** (Motsch.)
- 14 (13). Prozona scarcely inflated. Size small. Antennae very short and stout. Elytra short and broad. Front tibiae less inflated than in others.—Mountains of Russian Armenia..... 3. **armeniacus** sp. n.

### 1. **Aeropus kudia** (Caudell) (fig. 1).

1927. *Gomphocerus sibiricus* (sic!) var. *kudia* Caudell, *Proc. U. S. Nat. Museum*, vol. LXXI, art. 7, p. 2.

Larger than other representatives of the genus; rather slender.

♂. Face more strongly oblique, than in *A. sibiricus*; frontal ridge distinctly sulcate. Fastigium of vertex rectangular. Pronotum long, compressed and almost flat laterally, feebly convex above; lateral keels obliterated except in the metazona. Elytra very long and broad, with long, attenuate apical portion. Pear-shaped swelling of front tibiae relatively small. Coloration rather uniform blackish-brown; hind wings slightly smoky apically.

♀. Differs from *A. sibiricus* by larger size; by the elytra extending somewhat beyond hind knees; and by the prozona of pronotum straight, not convex, in profile.

Length of body ♂ 24, ♀ 27; antennae ♂ 11, ♀ (broken); pron-

tum ♂ 5.5, ♀ 6; length of elytron ♂ 20, ♀ 19; maximum width of elytron ♂ 5; hind femur ♂ 12, ♀ 14 mm.

DISTRIBUTION.—Described originally from Amagu, Kudia river, Ussuri province, and recorded from Khabarovsk (Bey-Bienko, *Zool.*

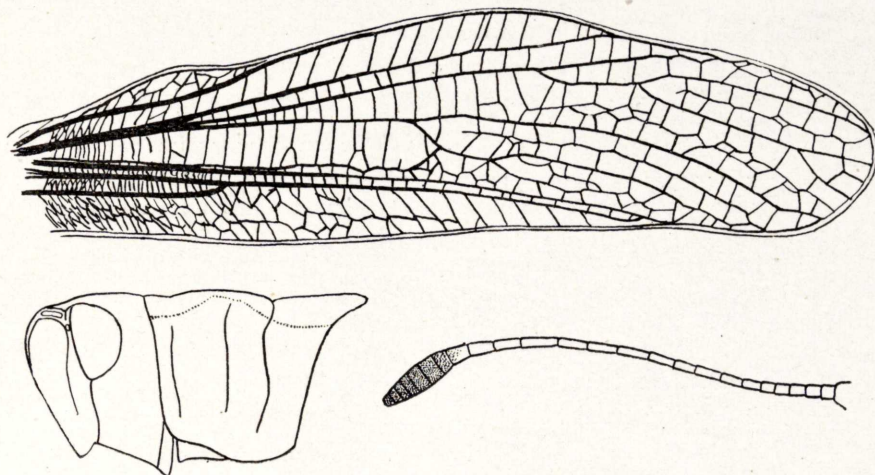


Fig. 1.—*Aeropus kudia* (Caudell), ♂.

*Anz.*, 81, 1929, p. 70) and two other localities in the same region (Dirsch, *Mem. Acad. Sci. Ukraine*, XIII, 1929, p. 228).

NOTES.—Caudell regarded this insect as only a variety of *sibirica*, while Bey-Bienko and Dirsch recognised it as a subspecies of the latter. The differences, however, are very striking and no intermediate forms are known, so that I am inclined to treat *kudia* as a good species.

2a. ***Aeropus sibiricus sibiricus*** (Linné).

(Figs. 2, *S*; 4, *S*; 5, *S*.)

1767. *Gryllus Locusta sibiricus* Linné, *Syst. Nat.*, ed. XII, 1 (2), p. 701.

I take for typical the specimens from W. Siberian plains, where this species is a well known pest, but the exact limits of distribution of this subspecies remain to be determined later on the basis of more extensive material than I have at my disposal at present.

Mr. Bey-Bienko has very kindly sent me an aberrant male of *Aeropus sibiricus* taken by Mr. A. I. Rubtsov at Tcheremkhovo, Irkutsk pro-

vince. According to the collector males of this kind can be found from time to time in the habitats where the typical form does not occur. Typical habitat for *A. sibiricus sibiricus* in W. Siberia is in the dry pasture land, whit sparse vegetation of *Agropyrum cristatum*, *Artemisia frigida*, *Carex stenophylla*, etc., but the aberrant form does not

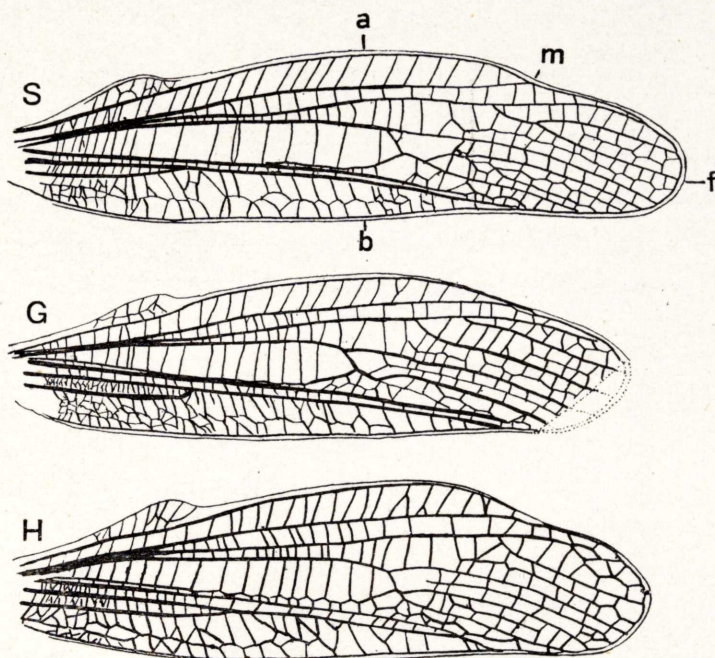


Fig. 2.—*Aeropus sibiricus*; S, sbsp. *sibiricus* (L.); G, sbsp. *graecus* n.; H, sbsp. *hispanicus* n.

occur there. It has been found only in the birch copses with tall and dense undergrowth of *Carex pediformis*, *Iris ruthenica*, *Fragaria colina*, *Poa pratensis*, etc. Here the typical form occurs singly and amongst them the aberrant forms have been met with. They differ, in the male sex, by the considerably less inflated pronotum, smaller pear-shaped inflation of the front tibiae and relatively shorter antennae. It is difficult to decide what status this form has and merely as a suggestion I would say that it may represent either the solitary phase of *A. sibiricus*, or a special ecological form. The problem can be decided only after extensive investigations on the spot.

2b. ***Aeropus sibiricus graecus*** sbsp. n. (figs. 2, G; 4, G).

Specimens of *A. sibiricus* from the Olympus differ from the typical ones by slightly smaller size, more robust habitus, shorter antennae and, particularly, by the shorter and broader elytra.

Length of body ♂ (type) 18, ♀ 22; antennae ♂ 8,5, ♀ (broken off); pronotum ♂ 5, ♀ 4,8; length of elytron ♂ 13, ♀ 13,5; maximum width of elytron ♂ 4,5; hind femur ♂ 10,5 mm.

Described from one male (*type*) and one female (paratype) taken at Stalamata valley, Olympus, Greece, by C. Bolivar, who kindly communicated them to me. The types are in the Madrid Museum.

2c. ***Aeropus sibiricus hispanicus*** sbsp. n. (figs. 2, H; 4, H; 5, H).

Short and broad elytron of the male is very distinct from that of the typical form; in the relative length of the antennae they are rather similar, but the clavus in the Spanish subspecies is very narrow. Front tibiae are similar in both subspecies, but pronotum is distinctly more inflated in *hispanicus*.

Total length ♂ 19, ♀ 19; antennae ♂ 9,5, ♀ 7; pronotum ♂ 5, ♀ 5; length of elytron ♂ 13, ♀ 12,5; maximum width of elytron ♂ 4; hind femur ♂ 10,5, ♀ 12 mm.

Central Spain, Sierra de Guadarrama: Peñalara, 5 ♂♂ (including the type), 4 ♀♀ (C. Bolivar; Madrid Museum); La Granja, VII.1907, 1 ♂, 2 ♀♀ (Escribano; British Museum); Sierra de Guadarrama, August 1926, 3 ♀♀ (B. P. Uvarov; British Museum).

*Aeropus sibiricus* occurs in the Central Spain only in a single locality, at the summit of Peñalara, the highest point (7.900 ft.) of the Sierra de Guadarrama.

2d. ***Aeropus sibiricus pyrenaicus*** sbsp. n. (figs. 3, P; 4, P).

Similar to *hispanicus*, but the antennae distinctly shorter, with shorter and broader joints and more expanded clavus. Male elytron narrower, with the apical portion more attenuated. Pronotum very similar to that in *sibiricus*, but slightly longer and more compressed laterally. Elytra in the female not reaching the apex of hind femur.

Total length ♂ 20, ♀ 22; antennae ♂ 8, ♀ ?; pronotum ♂ 5, ♀ 6; length of elytron ♂ 13, ♀ 12.5; maximum width of elytron ♂ 4; hind femur ♂ 11, ♀ 12 mm.

Spain, prov. Huesca, La Renclusa, 2.000-2.500 m., 6-7.VIII.1918, 1 ♂ (type), 1 ♀ (C. Bolivar; Madrid Museum); prov. Huesca, Hospital

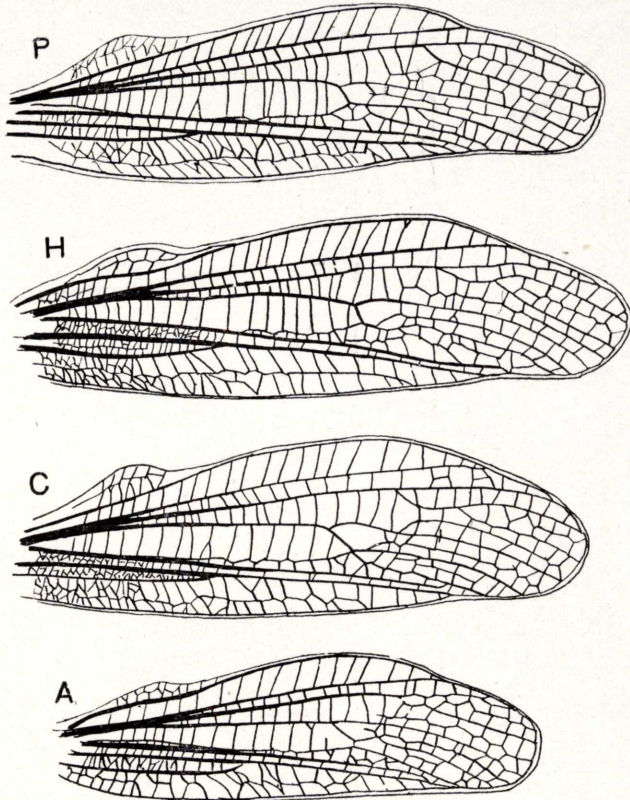


Fig. 3.—P, *Aeropus sibiricus pyrenaicus* sbsp. n.; H, sbsp. *helveticus* n.; C, sbsp. *caucasicus* (Motsch.); A, *Aeropus armeniacus* sp. n.

de Benasque, 1.800 m., 6.VIII.1918, 1 ♂, 1 ♀ (C. Bolivar; British Museum); prov. Huesca, pto. Castanesa, 2.000-2.200 m., 10.VIII.1918, 1 ♂ (C. Bolivar; Madrid Museum).

2 e. ***Aeropus sibiricus helveticus*** sbsp. n. (figs. 3, H; 4, E).

This subspecies resembles very much the sbsp. *hispanicus* in the general habitus, particularly in the strongly swollen pronotum, but the antennae are distinctly shorter, with an expanded clavus. From the

sbsp. *pyrenaicus* it differs by broader elytra and the pronotum swollen on the sides as well as above. Female has relatively very short elytra, not reaching the base of hind knees.

Total length ♂ (type) 19, ♀ 20; antennae ♂ 8,5, ♀ 6; pronotum ♂ 5, ♀ 5; length of elytron ♂ 14, ♀ 12; maximum width of elytron ♂ 4; hind femur ♂ 11, ♀ 11 mm.

Switzerland: Suse, 2.200 m., IX. 1876, 5 ♂♂ (including the type), 3 ♀♀ (Oxford Museum); Baltmeralp, Gregniols, 6.500 ft., 25.VII.1925,

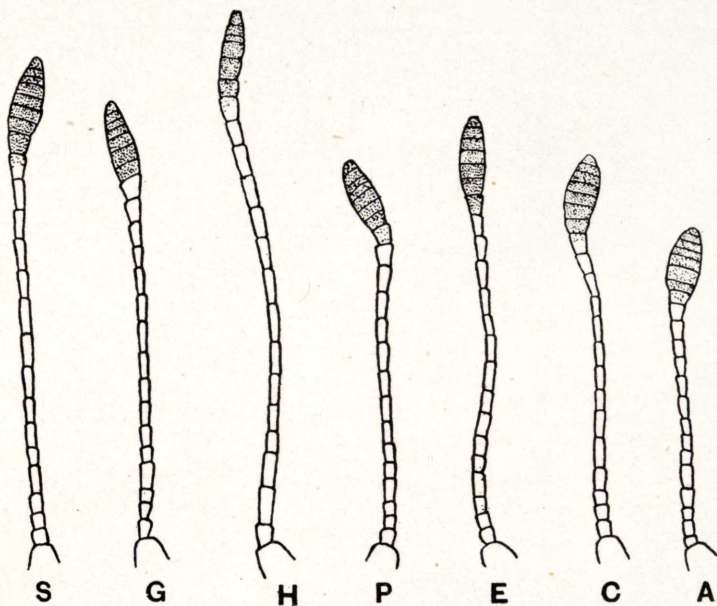


Fig 4.—*S*, *Aeropus sibiricus sibiricus* (L.); *G*, sbsp. *graecus* n.; *H*, sbsp. *hispanicus* n.; *P*, sbsp. *pyrenaicus* n.; *E*, sbsp. *helveticus* n.; *C*, sbsp. *caucasicus* (Motsch.); *A*, *Aeropus armeniacus* sp. n.

1 ♂, 1 ♀ (E. B. Worthington; British Museum); Valais, Arolla, 6.500 ft., 13.VIII.1925, 2 ♀♀ (Fletcher; British Museum); Vaud, Rochers de Nage, 6.500 ft., 7.X.1925, 1 ♂ (Fletcher; British Museum); Switzerland, 1 ♂ (Weston coll.; British Museum).

It is possible that not the same subspecies populates the whole of the Alps system. Fruhstorfer (*Arch. Naturgesch.*, LXXXVIII, Abt. A, 5 Heft, 1921, p. 103) described a form which he called *deminutus*, from Lenzerheide, and which may be a good subspecies differing in the small size (♂ 16 mm., ♀ 18 mm.) Another form which he called *viridopicta* is merely a colour aberration.



2f. **Aeropus sibiricus caucasicus** (Motsch.) (figs. 3, C; 4, C).

1840. *Gomphocerus caucasicus* Motschoulsky, *Bull. Soc. Nat. Moscou*, p. 171, pl. 4, figs. 6, 6'.

1907. *Gomphocerus sibiricus* var. *caucasicus* Adelung, *Ann. Mus. Zool. St. Petersb.*, XII, p. 129.

Adelung (*l. c.*) has given a well documented account of this subspecies. By the short antennae and short and broad elytra, this subspecies approaches the next species, but it cannot be separated specifically from *A. sibiricus*, since the structure of the pronotum is more like that in *A. sibiricus*, than in *A. armeniacus*.

The typical locality for this subspecies is Western Caucasus (main chain), but specimens from the Central Caucasus (Kazbeck) and from Daghestan do not differ substantially from the Western ones, except that their hind tibiae are not reddish.

3. **Aeropus armeniacus** sp. n. (figs. 3, A; 4, A; 5, A).

Smaller than *A. sibiricus*.

♂. Antennae scarcely longer than head and pronotum together, with broad clavus; their middle joints half again as long as broad.

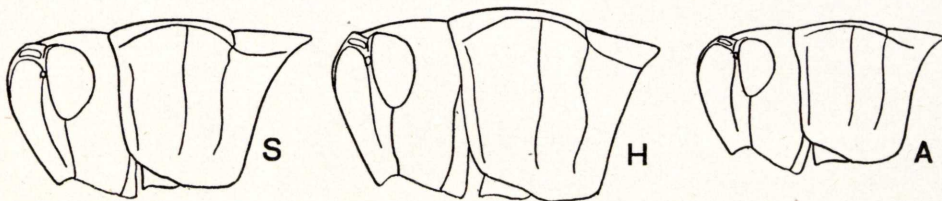


Fig. 5.—S, *Aeropus sibiricus sibiricus* (L.); H, sbsp. *hispanicus* n.; A, *Aeropus armeniacus* sp. n., ♂♂.

Frontal ridge broad and flat, with only a feeble depression at the ocellum. Fastigium of vertex less projecting forward than in *A. sibiricus*.

Pronotum very feebly inflated; scarcely gibbose in profile.

Elytron extending a little beyond the hind knee, 3,3 times as long as broad, with the apical portion very short and not attenuated.

Pear-shaped inflation of the front tibiae distinctly smaller and narrower than in *A. sibiricus*.

♀. Antennae shorter than head and pronotum together, flattened and expanded in the apical third. Frontal ridge convex in profile. Pronotum with the prozona straight in profile. Elytron reaching the narrow portion of the femur.

Total length ♂ 17, ♀ 18; antennae ♂ 6, ♀ 4,8; pronotum ♂ 4, ♀ 4,5; length of elytron ♂ 11, ♀ 10,5; maximum width of elytron ♂ 3,5; hind femur ♂ 8, ♀ 10 mm.

Russian Armenia: mt. Agmagan, nr. Archashin, 9.200 ft.; Shishkara, 10.000 ft.; Chichagin, 9.000 ft., VIII.1926, numerous specimens of both sexes, including the type (A. B. Shelkovnikov; type in the Zoological Museum of the Russian Academy of Sciences, Leningrad; paratypes in the British Museum, Madrid Museum, Armenian Museum in Erivan); Armenia: Alagös, 2.000-2.800 m., 26 27.VIII.1927, numerous specimens (Ramme; Berlin Museum); Armenia: Shich-Yurdy, 1.200 ft., 24.VII.1930, 1 ♂ (A. Kurentzov; G. Bey-Bienko coll.)