

Grylloidea (Orthoptera) of Saudi Arabia and Adjacent Countries

A. V. Gorochov

Abstract: Material of the superfamily Grylloidea studied from Saudi Arabia and adjacent countries contains 44 species. Twelve species and two genera in the families Gryllidae (Gryllomorphinae, Gryllinae, Oecanthinae), Mogoplistidae and Myrmecophilidae (Myrmecophilinae) are described here as new to science.

فوق العائلة Grylloidea (رتبة مستقيمة الأجنحة)
في المملكة العربية السعودية والدول المجاورة
أ. جوروشوف

خلاصة: تم دراسة عينات تضم 44 نوعا تتبع فوق العائلة Grylloidea من المملكة العربية السعودية والدول المجاورة. وقد تم وصف 14 نوعا وجنسان لأول مرة تابعة الى العوائل Gryllidae (Gryllomorphinae, Gryllinae, Oecanthinae) و Mogoplistidae و Myrmecophilidae.

INTRODUCTION

The present paper is based upon material from the following institutions, referred to in the text by following abbreviations:

BMNH: The Natural History Museum, London, England

NHMB: Naturhistorisches Museum, Basle, Switzerland

MNHU: Museum für Naturkunde der Humboldt-Universität, Berlin, Germany

ZIAS: Zoological Institute, Russian Academy of Science, St. Petersburg, Russia

Family Gryllidae
Subfamily Nemobiinae
Tribe Pteronemobiini

Pteronemobius (Pteronemobius) heydeni tartarus (Saussure, 1874)

Nemobius tartarus Saussure, 1874. - Fedschenko Voy. Turkestan 2 (5): 36.

Pteronemobius tartarus. - Jacobson 1905; Prjam. i Lozhn. Ross. Imp.: 450.

Pteronemobius heydeni tartarus. - Gorochov 1985; Rev. Ent. URSS 64 (1): 96.

Material: Saudi Arabia: 2 ♂♂, 6 ♀♀, Wadi Maraum, 22°16'N 39°44'E, 280 m, 3-4.V.1984, W. Büttiker, NHMB; 1 ♂, Hofuf, 28.V.1978, W. Büttiker, NHMB; 1 ♀, Wadi Kidiut, 26.III.1947, W. Thesiger, BMNH.

***Stenonemobius (Stenonemobius) gracilis* (Jakovlev, 1871)**

Nemobius gracilis Jakovlev, 1871. – Proc. Russian ent. Soc. 6: 20.

Stenonemobius gracilis. – Gorochov 1981; Vestnik zool. 2: 21.

Material: Saudi Arabia: 1 ♀, Al Qatif, 15.VI.1981, A.S. Talhouk, NHMB; 1 ♀, Wadi Raydan, 22.VIII.1979, W. Büttiker, NHMB; 1 ♀, Hofuf, 13.VI.1978, W. Büttiker, NHMB.

Subfamily **Trigonidiinae*****Trigonidium (Trigonidium) cicindeloides* Rambur, 1839**

Trigonidium cicindeloides Rambur, 1839. – Faune Andalous. 2: 39.

Material: Saudi Arabia: 1 ♀, Riyadh, 27.V.1980, without collector, NHMB. – Palestine: 1 ♂, 2 ♀♀, no locality given, 25.VII.–12.VIII.1930, F. Bodenheimer, BMNH.

Subfamily **Gryllomorphinae**Tribe **Gryllomorphini*****Gryllomorpha (Gryllomorphella) mira* n. sp. (figs 68–73)**

Holotype: ♂, Palestine, Wadi Ghuwev, 30.XII.1911, S.G. Brühl, MNHU 407/1912 (141). – Paratypes: Palestine: 1 ♂, 1 ♀, Wadi Ghuwev, 30.XII.1911, S.G. Brühl, ZIAS and MNHU 407/1912 (142).

Description: ♂ (holotype): Size rather large for the subgenus. Colour uniformly light brownish. Head with rostrum narrow (distance between antennal cavities = width of scape), small darkening under eyes, and very pale unicolourous palpi and antennae. Pronotum very slightly narrowed in front (width of pronotum = width of head), with faint transverse darkening on the disc and the lower edge of the lateral lobes slightly oblique. Legs also uniformly pale, but posterior femora with very weakly darkened spots. Mesonotum, metanotum and abdominal tergites with traces of transverse bands; anal plate with a pair of small lateral lobes behind; cerci very pale; genital plate typical for the subgenus. Genitalia with the epiphallus and ectoparameres of characteristic form; spermatophore sac convoluted as in certain Gryllinae [genera *Grylloderes* Bolivar (= *Platygyryllus* Chopard) and *Damaracheta* Otte].

♀: General appearance and colour as in male. Anal plate simple; genital plate with a truncated apex. Ovipositor typical for the subgenus, yellowish with brownish apex.

Measurements: Body: ♂ 9–11 mm, ♀ 11 mm; pronotum: ♂ 1.6–1.9 mm, ♀ 2.1 mm; posterior femora: ♂ 6.8–7 mm, ♀ 7.2 mm; ovipositor 7.8 mm.

Distinguished from the other species of the genus by the convoluted spermatophore sac of the male genitalia.

***Gryllomorpha* (subgenus ?) *bruehli* n. sp. (figs 74, 75)**

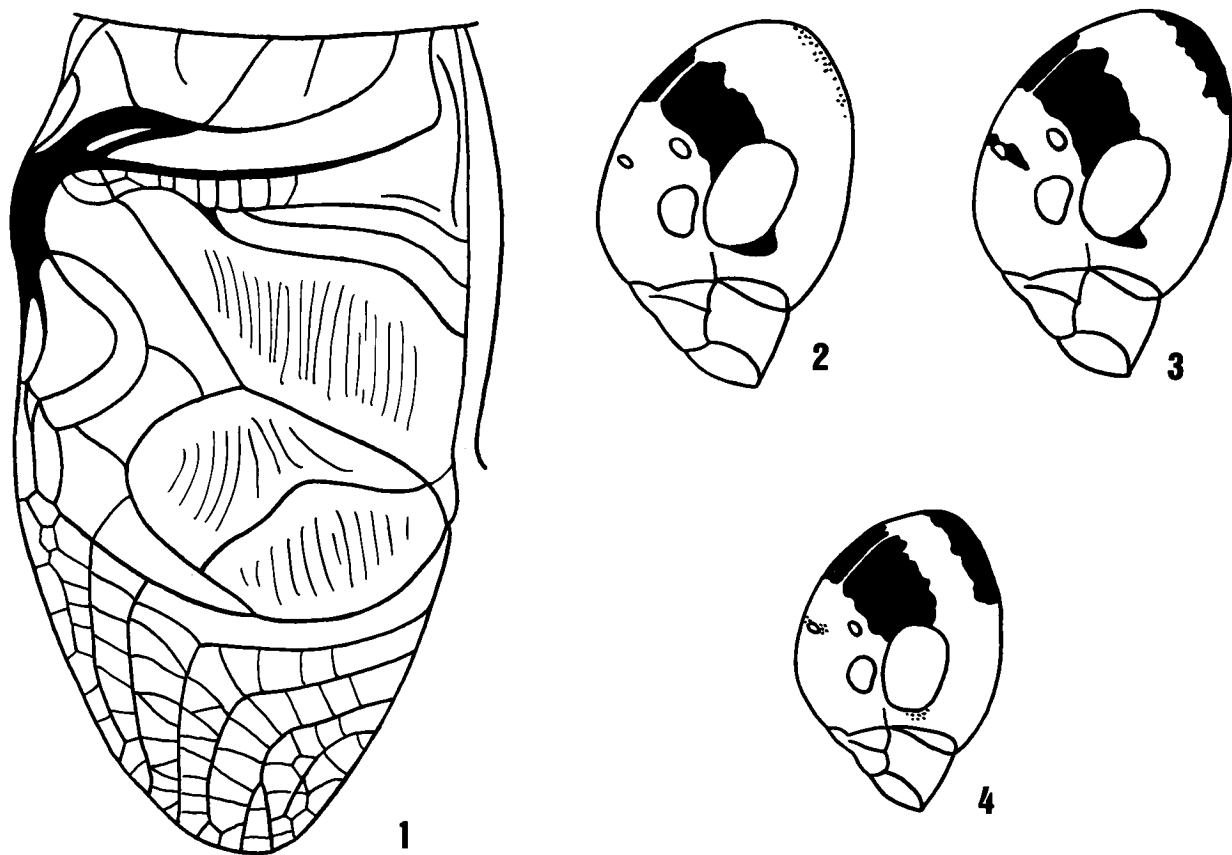
Holotype: ♀, Palestine, Wadi Ghuwev, 30.XII.1911, S.G. Brühl, MNHU 407/1912 (140).

Description: ♀ (holotype): General appearance and colour as in the previous species. Distinguished from it by having the rostrum of head slightly narrower than scape, head slightly wider than pronotum, pronotum with almost parallel sides, posterior femora without spots, ovipositor long (ratio of ovipositor length and length of posterior femur = 1.4).

♂: Unknown.

Measurements: Body 11 mm; pronotum 2.1 mm; posterior femora 8.2 mm; ovipositor 11.5 mm.

This differs from the other species of the genus by the uniform colour and the length of the ovipositor.



Figs 1-4: *Afrogyllopsis popovi* n. sp. (1-3) and *A. buettikeri* n. sp. (4): 1, dorsal part of male elytron; 2-4, head from the side (viewed slightly from above and slightly in front).

Subfamily Gryllinae
Tribe Gryllini

***Brachytrupes chopardi chopardi* Uvarov, 1922**

Brachytrupes chopardi Uvarov, 1922. - J. Bombay nat. Hist. Soc. 28: 368.

Material: Saudi Arabia: 1 ♂, nr Khamis Mushayt, 2-3.VII.1962, G.B. Popov, ZIAS; 1 ♀, Asir, Wadi Harjab, 12.VI.1948, G.B. Popov, ZIAS.

These specimens have been mentioned in another publication (GOROCHOV 1988).

***Afrogyllopsis popovi* n. sp. (figs 1-3, 6, 8, 10, 12, 14)**

Holotype: ♂, Saudi Arabia, SW of Taif, Jabal Dakka, 22.VI.1962, G.B. Popov, BMNH. - Paratypes: Saudi Arabia: 2 ♀♀, Taif, X.1975, W. Büttiker, NHMB and ZIAS; 1 ♀, Harithi, 21° 18'N 40° 18'E, 1910 m, 20-21. IX.1985, W. Büttiker, NHMB; 2 ♀♀, Al Foqah (Baha), 19° 50'N 41° 51'E, 1630 m, 20.X.1984, W. Büttiker, NHMB; 2 ♀♀, Abha, 15.VII.1981, without collector, NHMB and ZIAS.

Description: ♂ (holotype): Medium-sized for the genus. Colour rather pale. Head yellowish with one dark brown transverse band. Pronotum narrowed in front; lateral lobes of pronotum yellowish; disc of pronotum pale in anterior half and light brown in posterior half. Legs pale with posterior femora dark brown at apex; anterior tibiae with large external tympanum and very small internal one. Elytra extending to the apex of 8th abdominal tergite, yellowish (without any pattern);

three oblique veins; chords short; mirror large, transverse; apical field of elytra large. Abdomen brownish, darker brown above and paler beneath. Genitalia with ectoparameres of peculiar form.

♀: General appearance and colour as in male, but pronotum with parallel sides and posterior part of vertex sometimes with a brownish transverse band which is separated from the dark band between eyes by a wide pale band (this pale band not narrower than the dark band between the eyes). Elytra very small, almost concealed by pronotum, yellowish. Tergites of pterothorax and abdomen pale or light brownish with small brown spots.

Measurements: Body: ♂ 21.5 mm, ♀ 19–22 mm; pronotum: ♂ 4.8 mm, ♀ 4.5–5.2 mm; elytra: ♂ 13 mm, ♀ 2.6–2.8 mm; posterior femora: ♂ 14 mm, ♀ 14–16 mm; ovipositor 13–15 mm.

Similar to *A. chyulu* Otte, *A. unicolor* (Chopard) and *A. zambezicus* Otte, but distinguished by the colour of the head (without a dark spot above median ocellus), venation of male elytra (transverse mirror, short chords) and peculiarities in the male genitalia (the shape and denticulation of ectoparameres).

Afrogyllopsis buettikeri n. sp. (figs 4, 5, 7, 9, 11, 13)

Holotype: ♂, Saudi Arabia, 15 km W of Khamis Mushayt, 18.II.1977, W. Büttiker, NHMB. – Paratype: Saudi Arabia: 1 ♀, Al Foqah (Baha), 19°50'N 41°51'E, 20.X.1984, W. Büttiker, NHMB.

Description: ♂ (holotype): Size small for the genus. Colour pale but head yellowish with two almost black transverse bands (one between eyes and one on posterior part of vertex) which are separated from each other by a rather narrow pale band (this pale band narrower than the dark band between eyes). Pronotum narrowed in front, yellowish. Legs and elytra as in *A. popovi* n. sp., but diagonal vein weakly curved. Abdomen pale brown. Genitalia with the ectoparameres and virga different in shape from those of *A. popovi* n. sp. (see figs).

♀: General appearance and colour as in male, but pronotum with parallel sides. Elytra as in *A. popovi* n. sp. Tergites of pterothorax and abdomen greyish, almost unicolourous.

Measurements: Body: ♂ 16.5 mm, ♀ (apex of abdomen missing); pronotum: ♂ 3.5 mm, ♀ 3.5 mm; elytra: ♂ 9.8 mm, ♀ 1.9 mm; posterior femora: ♂ 11.2 mm, ♀ 11.6 mm, ovipositor missing.

Similar to *A. popovi* n. sp., but distinguished from this and other species of the genus by its small size, peculiarities in the head pattern, and the form of ectoparameres and virga in the male genitalia. It can also be distinguished from other species of the genus by venation of the male elytra.

Grylloides supplicans (Walker, 1859)

Acheta supplicans Walker, 1859. – Ann. Mag. nat. Hist. (3) 4: 221.

Grylloides supplicans. – Chopard 1925; Ann. Mag. nat. Hist. (9) 15: 510.

Material: Saudi Arabia: 1 ♂, Damman, 6.V.1978, W. Büttiker, NHMB; 1 ♂, Riyadh district, VII.1975, W. Büttiker, NHMB. – Yemen: 1 ♂, Socotra, Hadibo plain, 29.III.1967, K. M. Guichard, BMNH.

Acheta domestica Linnaeus, 1758

Gryllus/Acheta domesticus Linnaeus, 1758. – Syst. Nat. 1: 428.

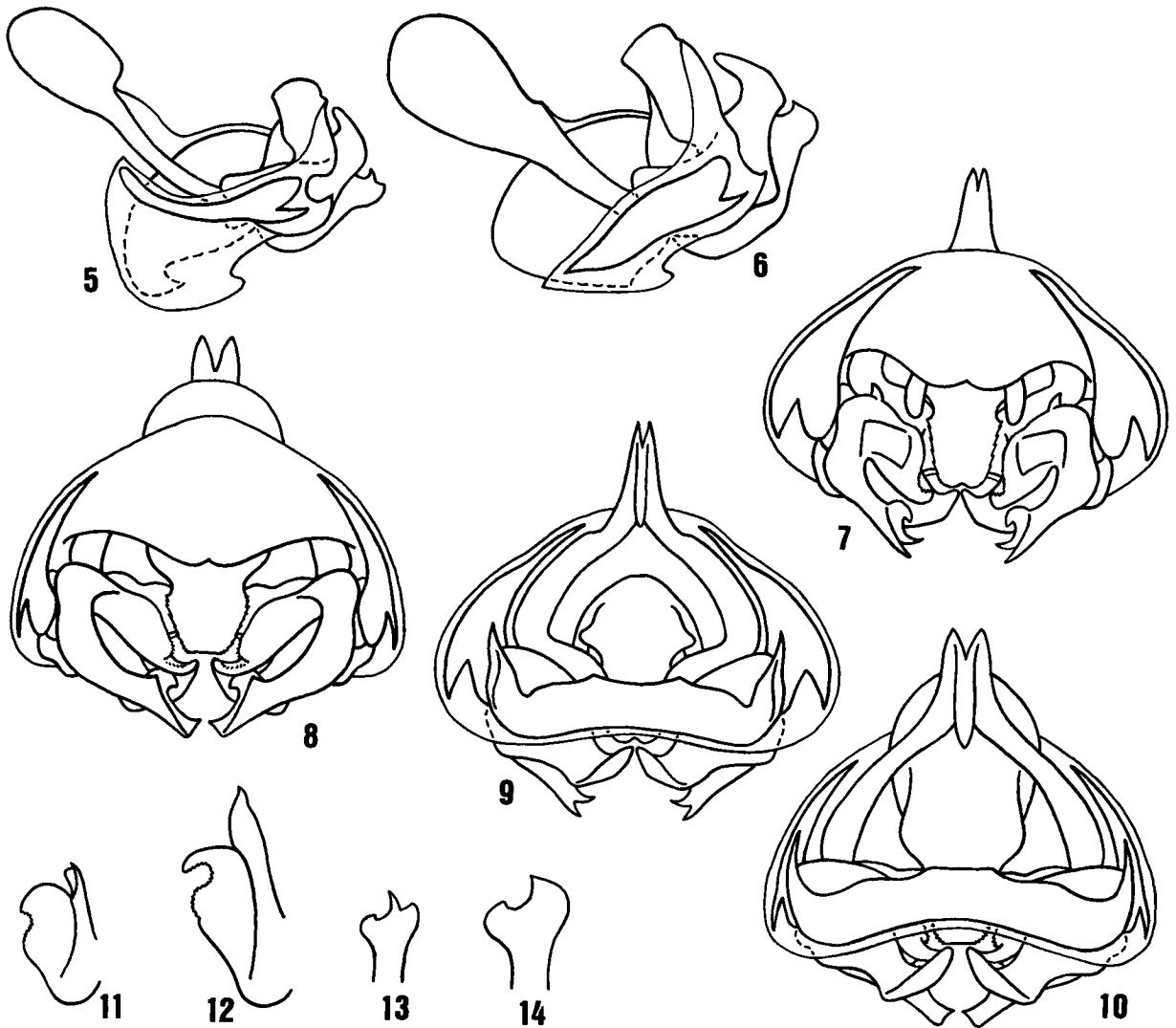
Acheta domestica. – Fabricius 1775; Syst. Ent.: 280.

Material: Many specimens from numerous localities in Saudi Arabia, Palestine, Oman and Yemen (BMNH, NHMB, ZIAS).

Acheta hispanica Rambur, 1839

Acheta hispanica Rambur, 1839. – Faune Andalous. 2: 33.

Material: Oman: 1 ♀, Muscat, XI.1902, Tshernysh, ZIAS.

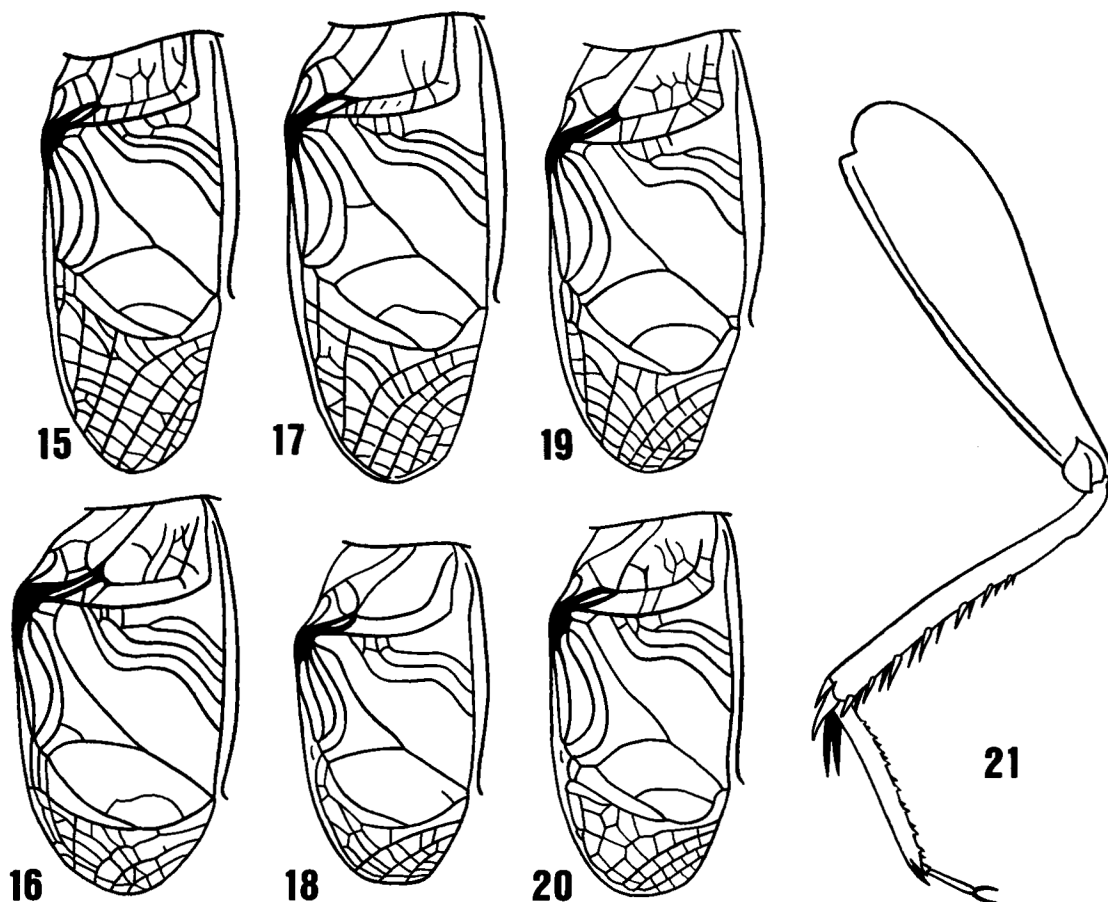


Figs 5-14: Male genitalia of *Afrogyllopsis buettikeri* n. sp. (5, 7, 9, 11, 13) and *A. popovi* n. sp. (6, 8, 10, 12, 14): 5, 6, from the side; 7, 8, from below; 9, 10, from above; 11, 12, lobes of ectoparamere from behind; 13, 14, apex of lateral lobe of ectoparamere from the side.

Acheta turcomanoides n. sp. (figs 15, 22-24)

Holotype: ♂, Saudi Arabia, Mecca, without date and collector, ZIAS.

Description: ♂ (holotype): Medium-sized for the genus. Colour brownish. Head round, brown, with a dark brown face, an indistinct rufous transverse band between upper parts of eyes, light brown spots behind and above eyes and around lateral ocelli; width of antennal cavity about 2/3 the distance between these cavities; palpi and antennae brownish. Pronotum narrowed in front; lateral lobes of pronotum brown in upper half and light brown with a dark line along lower edge in lower half; disc of pronotum uniformly brown. Elytra almost extending to apex of abdomen, rather narrow, light brown with a dark longitudinal band along upper edge of lateral field; stridulatory vein rather short; four oblique veins; mirror transverse, medium-sized; apical field of elytra rather long. Posterior wings long (f. macroptera). Legs uniformly brownish; anterior tibiae with a large external tympanum and a small internal one. Abdomen brown; cerci brownish.



Figs 15–21: 15–20, dorsal part of male elytron (15, 17, 19, f. macroptera, 16, 18, 20, f. brachyptera): *Acheta turcomanoides* n. sp. (15); *A. latiuscula* n. sp. (16); *A. arabica* n. sp. (17); *A. angustiuscula* n. sp. (18); *A. confalonierii* (Capra) (19, 20). 21, posterior leg of *A. arabica* n. sp.

Genitalia similar to those of *A. turcomana* Gorochov: epiphallus with three posterior lobes, median posterior lobe wide; ectoparameres differently shaped.

♀: Unknown.

Measurements: Body 21 mm; pronotum 3.7 mm; elytra 12 mm; posterior femora 12.5 mm.

Similar to *A. turcomana* (figs 25–27). The new species differs by its different colour, round head, longer epiphallus, and peculiar form of the ectoparameres in male genitalia.

Acheta meridionalis (Uvarov, 1921)

Gryllus domesticus var. *meridionalis* Uvarov, 1921. – Ent. monthly Mag. 7: 143.

Acheta meridionalis. – Ebner 1941; Denkschr. Akad. Wiss. Wien 104: 6.

Material: Saudi Arabia: 1 ♂, SW of Mahayl, 28.IX.1982, A.R. Pittaway, BMNH.

Acheta confalonierii (Capra, 1929) (figs 19, 20, 28–30)

Gryllus confalonierii Capra, 1929. – Ann. Mus. civ. Stor. nat. Giacomo Doria 53: 134.

Acheta confalonierii. – Chopard 1961; Eos 37: 271.

Material: Saudi Arabia: 1 ♂, W of Baljurshi, *Dodonaea/Juniperus* zone, 26.IX.1982, A.R. Pittaway, BMNH; 1 ♂, W of Taif, Taif Escarpment, 20.VIII.–19.XI.1982, A.R. Pittaway, ZIAS; 1 ♀, Abha-Jizan, 53 km Wadi Ad Dilla, 300 m, 21.IV.1976, W. Wittmer and W. Büttiker, NHMB; 1 ♂, Karfa, 31.XII.1936, H.St.J.B. Philby, BMNH; 1 ♀, Jizan, Wadi Juwa, 17°00'N 42°59'E, 160 m, 25.X.–2.XI.1988, W. Büttiker, NHMB.

***Acheta arabica* n. sp.** (figs 17, 21, 31–33)

Holotype: ♂, Saudi Arabia, Medina, 21.IV.1979, Exp. N. Hijaz, NHMB. – Paratypes: Saudi Arabia: 1 ♂, 111 km before Al Ula, 860 m, 21.IV.1979, Exp. N. Hijaz, ZIAS; 1 ♀, 16 km W of Badr Hunayn, 18.IV.1979, Exp. N. Hijaz, NHMB.

Description: ♂ (holotype): Medium-sized for the genus. Colour brownish. Head round, uniformly brown; width of antennal cavity about 2/3 the distance between these cavities; palpi pale brown; antennae brownish. Pronotum weakly narrowed in front, brown with a pale band along lower edge of lateral lobes. Elytra extending to the apex of 7th abdominal tergite, rather narrow, pale brown with a dark spot at base of dorsal part and a band along upper edge of lateral field; stridulatory vein rather short; four oblique veins; mirror transverse, medium-sized; apical field of elytra rather long. Posterior wings long (f. macroptera). Legs uniformly pale brown; anterior tibiae with a large external tympanum and a small internal one; posterior legs very slender (which differentiates this new species from all the other species of the genus). Abdomen brown above and pale brown beneath; cerci pale brown. Genitalia similar to *A. confalonierii*, but distinguished by the form of the posterior edge of epiphallus and ectoparameres.

Variation: Head with an indistinct pattern: brown with pale brown spots behind and above eyes, around lateral ocelli and on lower part of head. Elytra extending to the apex of abdomen.

♀: Similar to male. Elytra extending almost to the apex of abdomen; dorsal part of elytra pale brown with small yellowish spot at base. Cerci rufous.

Measurements: Body: ♂ 18–22 mm, ♀ 20 mm; pronotum: ♂ 3–3.2 mm, ♀ 3.4 mm; elytra: ♂ 12.5–13 mm, ♀ 13.5 mm; posterior femora: ♂ 11–12 mm, ♀ 12.5 mm; ovipositor 16 mm.

Very similar to *A. confalonierii*, from which the new species differs by the paler colour of the head, slender posterior legs, and peculiarities in the male genitalia.

***Acheta latiuscula* n. sp.** (figs 16, 34–36)

Holotype: ♂, Saudi Arabia, Asir, Wadi Harjab, 12.VI.1948, G.B. Popov, BMNH.

Description: ♂ (holotype): Size small for the genus. Colour brownish. Head round, brownish, with an indistinct narrow yellowish transverse band between lateral ocelli and with spots behind, above and under the eyes; width of antennal cavity about half the distance between these cavities; palpi pale yellow; antennae pale. Pronotum narrowed in front; lateral lobes of pronotum yellowish; disc of pronotum brownish with yellowish transverse bands along anterior and posterior edges. Elytra extending to the apex of abdomen, broad, pale brownish with a brown longitudinal band along upper edge of lateral field; stridulatory vein long; five oblique veins; mirror transverse, rather narrow; apical field of elytra short. Posterior wings short (f. brachyptera). Legs and cerci uniformly pale; anterior tibiae with a large external tympanum and a small internal one. Abdomen brownish. Genitalia with a spermatophore sac that is rather small for the genus, an epiphallus that is typical for most species of the genus and ectoparameres that are peculiar in shape.

♀: Unknown.

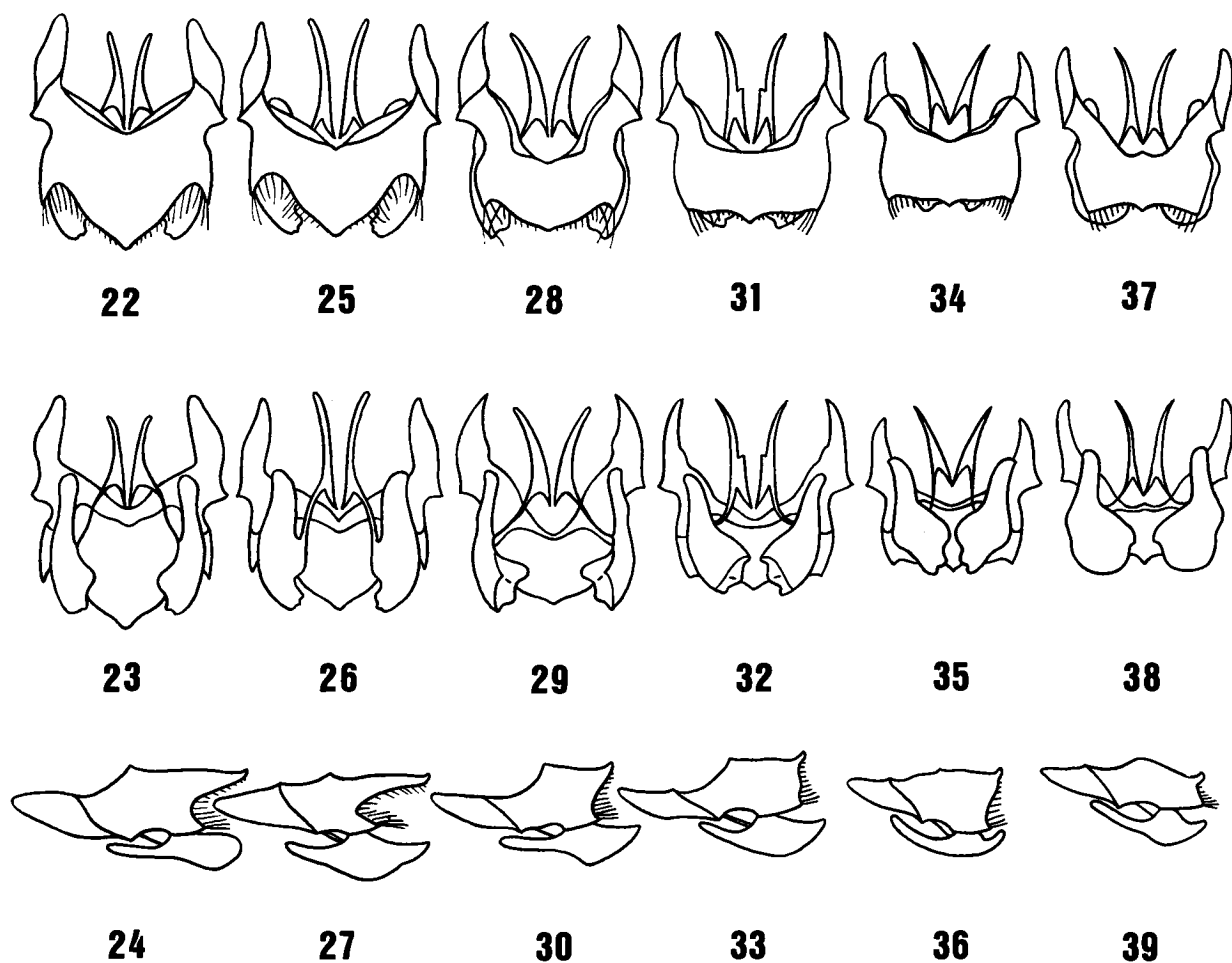
Measurements: Body 14.5 mm; pronotum 2.9 mm; elytra 10.5 mm; posterior femora 8.6 mm.

Similar to *A. confalonierii* and *A. arabica* n. sp., but distinguished by the broad male elytra and the different shape of the ectoparameres in male genitalia.

***Acheta angustiuscula* n. sp.** (figs 18, 37–39)

Holotype: ♂, Arabia, Wadi Kidiut, 26.III.1947, W. Thesiger, BMNH.

Description: ♂ (holotype): Size small for the genus. Colour pale yellowish. Head weakly flattened, yellowish with a dark, very small spot above median ocellus; width of antennal cavity about 2/3 the distance between these cavities; palpi and antennae pale yellowish. Pronotum weakly



Figs 22–39: Epiphallus and ectoparameres: 22–24, *Acheta turcomanoides* n. sp.; 25–27, *A. turcomana* Gorochov; 28–30, *A. confalonierii* (Capra); 31–33, *A. arabica* n. sp.; 34–36, *A. latiuscula* n. sp.; 37–39, *A. angustiuscula* n. sp.: top row: from above; middle row: from below; bottom row: from the side.

narrowed in front, uniformly yellowish. Elytra extending to the apex of 9th abdominal tergite, rather narrow, uniformly pale yellowish; stridulatory vein rather short; three oblique veins; mirror undivided, large and transverse; apical field of elytra rather short. Posterior wings short (f. brachyptera). Legs uniformly pale yellowish; anterior tibiae with a large external tympanum and a very small indistinct internal one. Abdomen and cerci pale. Genitalia similar to *A. latiuscula* n. sp., but distinguished by the different shape of the ectoparameres.

♀: Unknown.

Measurements: Body 17.5 mm; pronotum 2.9 mm; elytra 9 mm; posterior femora 10.3 mm.

Very similar to *A. confalonierii* and *A. arabica* n. sp., but distinguished by the pale colour, large mirror in the male elytra, and the shape of the epiphallus and ectoparameres in the male genitalia.

Acheta rufopicta Uvarov, 1957

Acheta rufopicta Uvarov, 1957. – J. Linn. Soc. Lond. Zool. 43: 365.

Material: Yemen: 1 ♂, Socotra, Hadibo plain, 30 m, 19.III.1967, K. M. Guichard, BMNH.

***Teleogryllus (Teleogryllus) posticus* (Walker, 1869)**

Gryllus posticus Walker, 1869. – Cat. Dermapt. Saltat. Brit. Mus. 1: 30.

Teleogryllus posticus. – Chopard 1961; Eos 37: 277.

Material: Oman: 1 ♂, 2 ♀♀, Dhofar, Khadrafi, 24.IX.1983, Darlington, BMNH.

***Tartarogryllus tartarus* (Saussure, 1874)**

Gryllus tartarus Saussure, 1874. – Fedschenko Voy. Turkestan 2 (5): 34.

Tartarogryllus tartarus. – Tarbinsky 1940; Saltat. Orthopt. Azerbaidzhan: 114.

Material: Saudi Arabia: 1 ♀, nr Hail, 20.III.1962, G.B. Popov, BMNH. – Jordan: 1 ♀, Jordan Valley Deir Alla, at light, 225 m below sea level, 17.VI.1953, T. Trought, BMNH.

Genus *Svercacheta* n. gen.

Type species: *Modicogryllus nigrivertex* Kaltenbach, 1979.

Description: Size small or medium for the tribe. General appearance as in the genera *Modicogryllus* Chopard, *Svercus* Gorochov, *Promodicogryllus* Gorochov and *Acheta* Linnaeus. Head round; frons between antennal cavities slightly wider than an antennal cavity; clypeofrontal suture very weakly curved; ocelli arranged in the form of a triangle; colour of head dark with a pale transverse striped pattern. Pronotum transverse, dark (usually without any pattern). Elytra and posterior wings typical for the tribe; male elytra with two oblique veins, elongated mirror and apical field, rather short stridulatory vein, long chords and diagonal vein. Anterior tibiae with a large external tympanum and a rather small internal one. Male genitalia very peculiar: spermatophore sac very large, epiphallus transverse, with two hooked posterior lobes, ectoparameres stout, with a hooked apex and wide mesal lobe, without a sclerotized rod between apex of mesal lobe and body of ectoparamere.

Included species: Only the type species.

Distinguished from the other genera of the tribe by the peculiar male genitalia with their very large spermatophore sac.

***Svercacheta nigrivertex* (Kaltenbach, 1979)**

Modicogryllus nigrivertex Kaltenbach, 1979. – Ann. Naturhist. Mus. Wien 82: 606.

Material: Oman: 1 ♂, Khasab, 4–7.IV.1976, K.M. Guichard, BMNH.

***Modicogryllus perplexus* Otte et Cade, 1984**

Modicogryllus perplexus Otte et Cade, 1984. – Proc. Acad. nat. Sci. Phil. 136: 88.

Material: Saudi Arabia: 1 ♂, Wadi Qanuna, nr Qunfida, 31.III.1948, B.P. Uvarov, ZIAS; 1 ♂, 1 ♀, SW of Mahayl, 8.I.1983, A.R. Pittaway, BMNH; 1 ♀, SW, 35 km N of Mahayl, 7.XI.1982, A.R. Pittaway, ZIAS; 1 ♀, Sabya, II.1937, H.St.J.B. Philby, BMNH. – Yemen: 1 ♂, 1 ♀, Socotra, Adho Demalu, 1000 m, 20.IV.1967, K.M. Guichard, BMNH; 1 ♀, Socotra, Shehaly Mt., 1500 m, 20.IV.1967, K.M. Guichard, BMNH.

***Modicogryllus ullus* Gorochov, 1988**

Modicogryllus ullus Gorochov, 1988. – Rev. Ent. URSS 67 (1): 91.

Material: Palestine: 2 ♀♀, Nahr es Zerka, coastal zone, 31.V.1923, P.A. Buxton, BMNH.

***Svercus palmetorum* (Krauss, 1902)**

Gryllus palmetorum Krauss, 1902. – Verh. zool. bot. Ges. Wien 52: 251.

Svercus palmetorum. – Gorochov 1988; Rev. Ent. URSS 67 (1): 95.

Material: Saudi Arabia: 2 ♂♂, 2 ♀♀, Baha, An Naamah, 20°14'N 41°13'E, 2070 m, 31.VIII.1984, W. Büttiker, NHMB and ZIAS; 1 ♀, Hijaz, Mecca, 18.IV.1932, H.St.J.B. Philby, ZIAS. – Jordan: 1 ♀, Balga, Wad al-Mugib, Kings Highway, 16.III.1977, R. Kinzelbach, BMNH.

***Eumodicogryllus bordigalensis* (Latreille, 1802)**

Gryllus bordigalensis Latreille, 1802. – Hist. Nat. Crust. Ins. 3: 122.

Eumodicogryllus bordigalensis. – Gorochov 1986; Proc. Zool. Inst. USSR 140: 6.

Material: Saudi Arabia: 1 ♂, Araida, Selouly's Farm, 26. VI. 1975, W. Büttiker, NHMB.

***Eumodicogryllus chivensis* (Tarbinsky, 1930)**

Gryllus chivensis Tarbinsky, 1930. – Konowia 9: 180.

Eumodicogryllus chivensis. – Gorochov 1986; Proc. Zool. Inst. USSR 140: 6.

Material: Saudi Arabia: 1 ♀, Huweris, 19°00'N 41°20'E, III–IV. 1945, A. R. Waterston, BMNH. – Oman: 1 ♂, Dhofar, Salalah, Jebel Qara, hillside with grasses, shrubs and trees, 23. X. 1983, S. D. Gillett, BMNH.

***Promodicogryllus bucharicus bucharicus* (Bey-Bienko, 1933)**

Gryllus bucharicus Bey-Bienko, 1933. – Bol. R. Soc. espan. Hist. nat. 33: 323.

Promodicogryllus bucharicus. – Gorochov 1986; Proc. Zool. Inst. USSR 140: 4.

Material: Saudi Arabia: 1 ♂, 1 ♀, Hofuf, 21. V. 1978, W. Büttiker, NHMB.

***Gryllopsis deminuta* Chopard, 1963**

Gryllopsis deminuta Chopard, 1963. – Bull. Res. Counc. Isr. 11 (B): 168.

Material: Jordan: 1 ♂, Ma'an, Petra, 17. I. 1977, R. Kinzelbach, ZIAS; 1 ♀, desert territory Al-Azraq, mineral spring, 24. III. 1977, R. Kinzelbach, ZIAS.

***Gryllopsis hebraea* (Saussure, 1877)**

Grylloides hebraeus Saussure, 1877. – 25: 206.

Gryllopsis hebraea. – Chopard 1928; Rec. Ind. Mus. 30: 13.

Material: Palestine: 2 ♂♂, 9 ♀♀, Jerusalem, 1896, Romanov, ZIAS. – Lebanon: 1 ♂, Ablah, 762 m, 28. IV. 1945, R. S. Brown, BMNH.

***Gryllus bimaculatus* De Geer, 1773**

Gryllus bimaculatus De Geer, 1773. – Mem. Ins. 3: 521.

Material: Many specimens from numerous localities in Saudi Arabia, Yemen, Palestine, Jordan, Lebanon, Syria, Kuwait (NHMB, BMNH, ZIAS, MNHU).

***Gryllus maximus* (Uvarov, 1952)**

Scapsipedus maximus Uvarov, 1952. – J. Linn. Soc. Lond. Zool. 42: 176.

Gryllus maximus. – Gorochov 1988; Rev. Ent. URSS 67 (1): 88.

Material: Saudi Arabia: 1 ♂, Namas, 2380 m, VI. 1980, W. Büttiker, NHMB; 2 ♂♂, Harithi, 21°18'N 40°18'E, 1910 m, 6. X. 1984 and 20–21. IX. 1985, W. Büttiker, NHMB and ZIAS; 1 ♂, W of Baljurshi, *Dodonaea/Jumiperus* zone, 26. IX. 1982, A. R. Pittaway, BMNH; 1 ♂, W of Al Foqah, *Olea/Dodonaea* zone, 17. IX. 1983, A. R. Pittaway, BMNH; 1 ♀, Taif, X. 1975, W. Büttiker, NHMB. – Yemen: 1 ♂, 4 ♀♀, Sana'a, 10. VIII.–25. IX. 1930, N. Filippov, ZIAS.

***Gryllus ater* Walker, 1869**

Gryllus ater Walker, 1869. – Cat. Dermapt. Saltat. Brit. Mus. 1: 33.

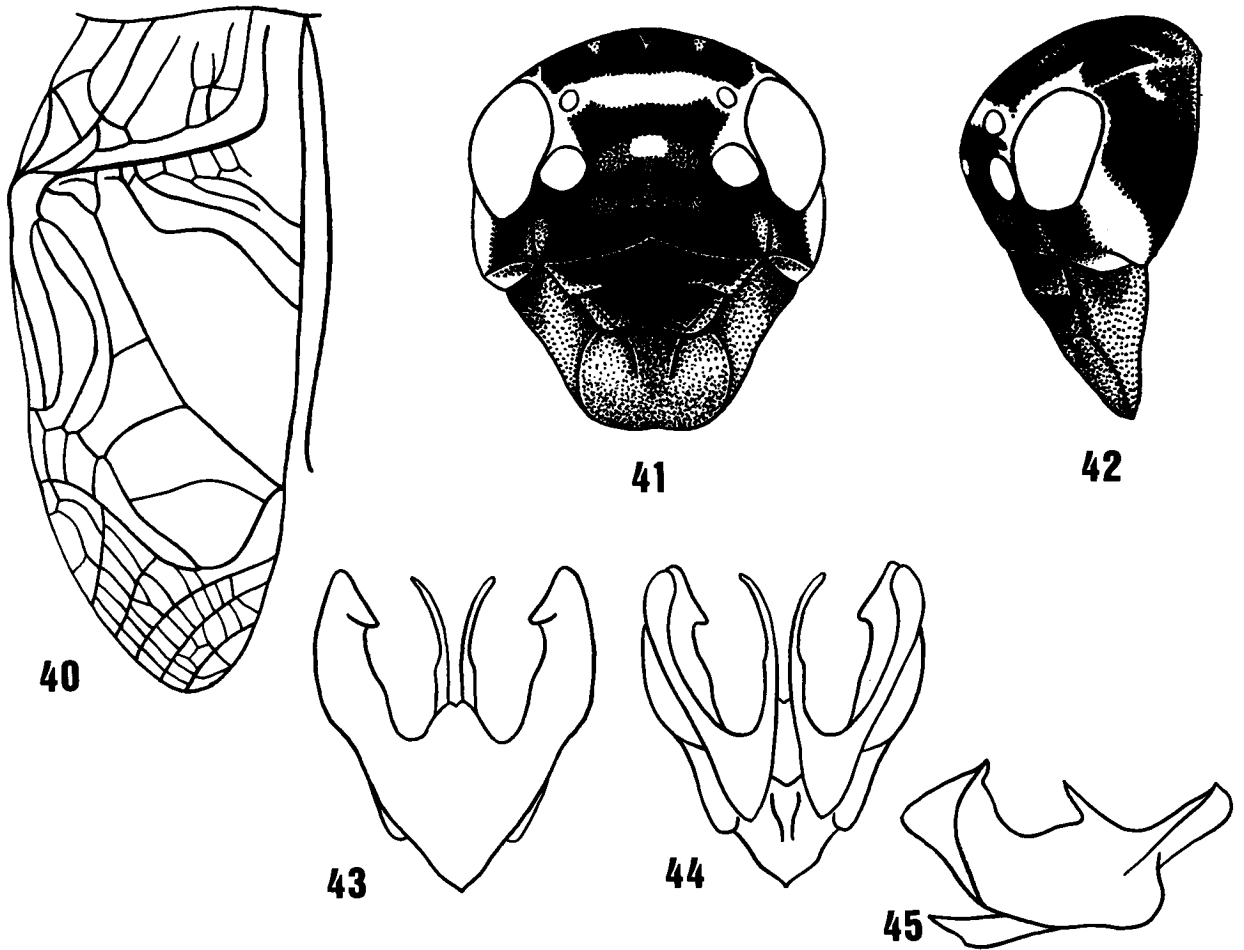
Material: Lebanon: 1 ♂, 5 ♀♀, 1915, S. N. von Wick, ZIAS.

***Gryllus chaldeus* (Uvarov, 1922)**

Acheta chaldeia Uvarov, 1922. – J. Bombay nat. Hist. Soc. 28: 369.

Gryllus chaldeus. – Chopard 1961; Eos 37: 269.

Material: Iraq: 1 ♂, 1 ♀, Gangir, 13. IV. 1914, Nesterov, ZIAS; 1 ♀, Shaikh Abd al Hasan, 18. III. 1914, Minorskaja, ZIAS; 2 ♂♂, Tell Halaf steppe, 6–7. VI. 1913, Exp. M. v. Oppenheim, J. Kohl, MNHU 1155/1913.



Figs 40–45: *Scapsipedus thesigeri* n. sp., ♂: 40, dorsal part of elytron; 41, 42, head (41, in front; 42, from the side); 43–45, epiphallus and ectoparameres (43, from above; 44, from below; 45, from the side).

Scapsipedus thesigeri n. sp. (figs 40–45)

Holotype: ♂, Arabia, Wadi Kidiut, 26.III.1947, W. Thesiger, BMNH.

Description: ♂ (holotype): Medium-sized for the genus. Colour brownish. Head weakly widened below eyes, dark brown with a pale transverse band between eyes, lines around upper and posterior parts of eyes, some short lines on posterior part of vertex, spots on genae, and brown mouth-parts; antennae brown; palpi pale. Pronotum with parallel sides; disc of pronotum brown; lateral lobes of pronotum dark brown with pale elongated spots along lower edge. Legs pale brown with dark spots near the apex of posterior femora; anterior tibiae with a large external tympanum and a very small internal one. Elytra extending to the middle of 6th abdominal tergite, pale brownish with the basal part of dorsal field and lateral field brown. Abdomen brown; darker above and paler beneath. Genitalia rather short; epiphallus with a short central posterior lobe and rather high lateral posterior lobes.

♀: Unknown.

Measurements: Body 19.5 mm; pronotum 4 mm; elytra 9.5 mm; posterior femora 12 mm.

The male genitalia of the new species are similar to *S. marginatus* (Afz. et Brann.), *S. meridianus* Otte et Cade and *S. steinbergi* Gorochov, but are distinguished by the form of the epiphallus (the size of its posterior lobes).

***Gryllodinus kerkennensis* (Finot, 1893)**

Grylloides kerkennensis Finot, 1893. – Ann. Soc. ent. Fr. 62: 252.

Gryllodinus kerkennensis. – Bolivar 1927; Bol. R. Soc. espan. Hist. nat. 27: 102.

Material: Kuwait: 1 ♀, Al-Rileg Al-Shamali, 30°05'N 47°28'E, 78 m, 26. III. 1988, W. Büttiker, NHMB.

Subfamily **Oecanthinae**

Tribe **Oecanthini**

***Oecanthus pellucens* (Scopoli, 1763)**

Gryllus pellucens Scopoli, 1763. – Ent. Carn.: 32.

Oecanthus pellucens. – Brulle 1835; Hist. Nat. Ins. 4: 174.

Material: Saudi Arabia: 1 ♂, Jizan, 1. II. 1980, A. S. Talhouk, NHMB; 1 ♂, Tabuk, Moseyl Homayed, 28°51'N 35°28'E, 1450 m, 10. XI. 1988, W. Büttiker, NHMB; 1 ♀, nr Buraiman, at light, 19. I. 1948, A. R. Waterston, BMNH. – Arabia: 1 ♀, Wadi 'Ama, II. 1937, H. St. J. B. Philby, BMNH. – Palestine: 1 ♂, Wadi Kelt, 16. V. 1923, P. A. Buxton, BMNH; 1 ♀, Akka, coastal zone, 10. VI. 1921, P. A. Buxton, BMNH. – Lebanon: 1 ♂, Wadi el Harir, 22. VII. 1945, Middle East Biological Studies Scheme ("G.H.Q.M.E.F."), BMNH; 1 ♀, Byblos, 17. VIII. 1958, E. S. Brown, BMNH. – Jordan: 2 ♂♂, 1 ♀, 23 km W of Amman, nr El Salt, 13. VI. 1951, A. R. Waterston, BMNH;

***Oecanthus turanicus* Uvarov, 1912**

Oecanthus pellucens turanicus Uvarov, 1912. – Hor. Soc. Ent. Ross. 40: 38.

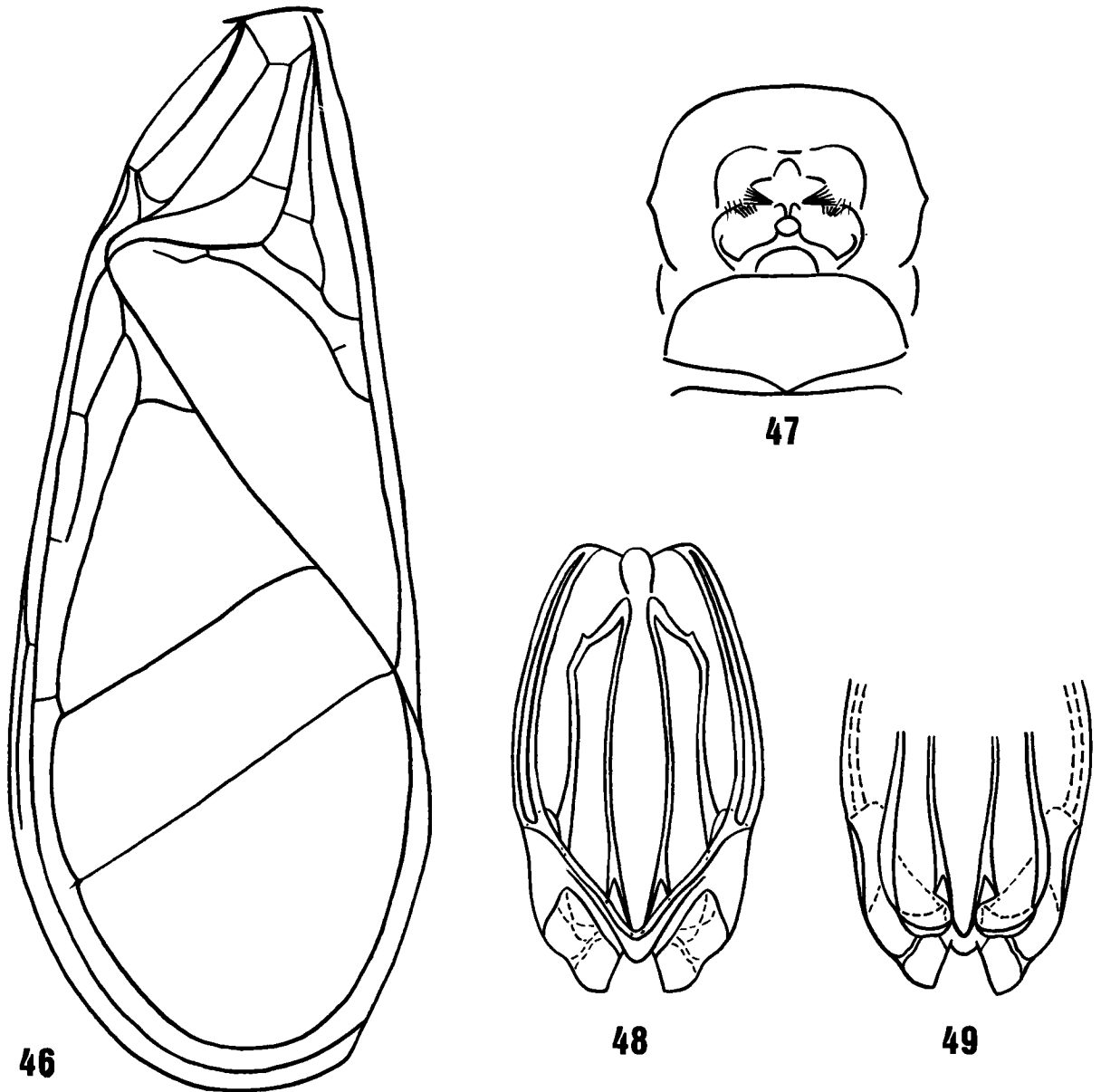
Oecanthus turanicus. – Semenov 1915; Rev. russe Ent. 15: 451.

Material: Arabia: 1 ♀, Ashaira, V. 1936, H. St. J. B. Philby, BMNH; 1 ♀, Musaina, 23. V. 1938, H. St. J. B. Philby, BMNH.

***Oecanthus dulcisonans* n. sp. (figs 46–49)**

Holotype: ♂, Spain, Canaries, Teneriffa, without date, P. Hinhs, ZIAS. – Paratypes: Saudi Arabia: 1 ♂, Fayfa, 13. XI. 1981, A. S. Talhouk, NHMB; 1 ♂, Fayfa, 1240 m, 23. IX. 1981, W. Büttiker, NHMB. – Oman: 1 ♂, 1 ♀, Dhofar, Wadi Sayq, s.l., 26. IX. 1977, K. M. Guichard, BMNH. – Palestine: 1 ♂, without locality or date, G. Krutov, ZIAS. – Cyprus: 1 ♂, without date or collector, ZIAS.

Description: ♂ (holotype): Size large for the genus. Colour pale unicolourous yellowish-brown. Head typical for the genus, strongly prognathous; dorsum of head with a dark longitudinal streak behind eye; antennae without dark markings; eyes brown (not dark brown). Pronotum strongly narrowed in front, long, concolourous, with very narrow lateral lobes. Legs concolourous, long and narrow; anterior tibiae rather strongly dilated, with large external and large internal tympana; posterior femora a little shorter than posterior tibiae (ratio of length and width of posterior femur = 7.8); posterior tibiae with six external and five internal large spines. Elytra large and rather broad, transparent, without spots or noticeable coloured areas, with 50 (right elytron) or 48 (left elytron) stridulatory teeth. Posterior wings long (ratio of length of posterior wing and elytron length = 1.1). Pterothorax pale, concolourous; metanotal gland large and rather long, with anterior side of apical part of medial process prominent. Abdomen pale brownish above and beneath, brown on both sides; abdominal dorsum with a narrow longitudinal medial dark stripe; cerci rather long (ratio of length of posterior femur and cercus length = 1.7), its basal part sinuous and S-shaped. Genitalia with a small medial lobe on the epiphallus between the approximated large hind lateral lobes of the epiphallus; this small lobe is the apex of a heavily sclerotized V-shaped structure of epiphallus.



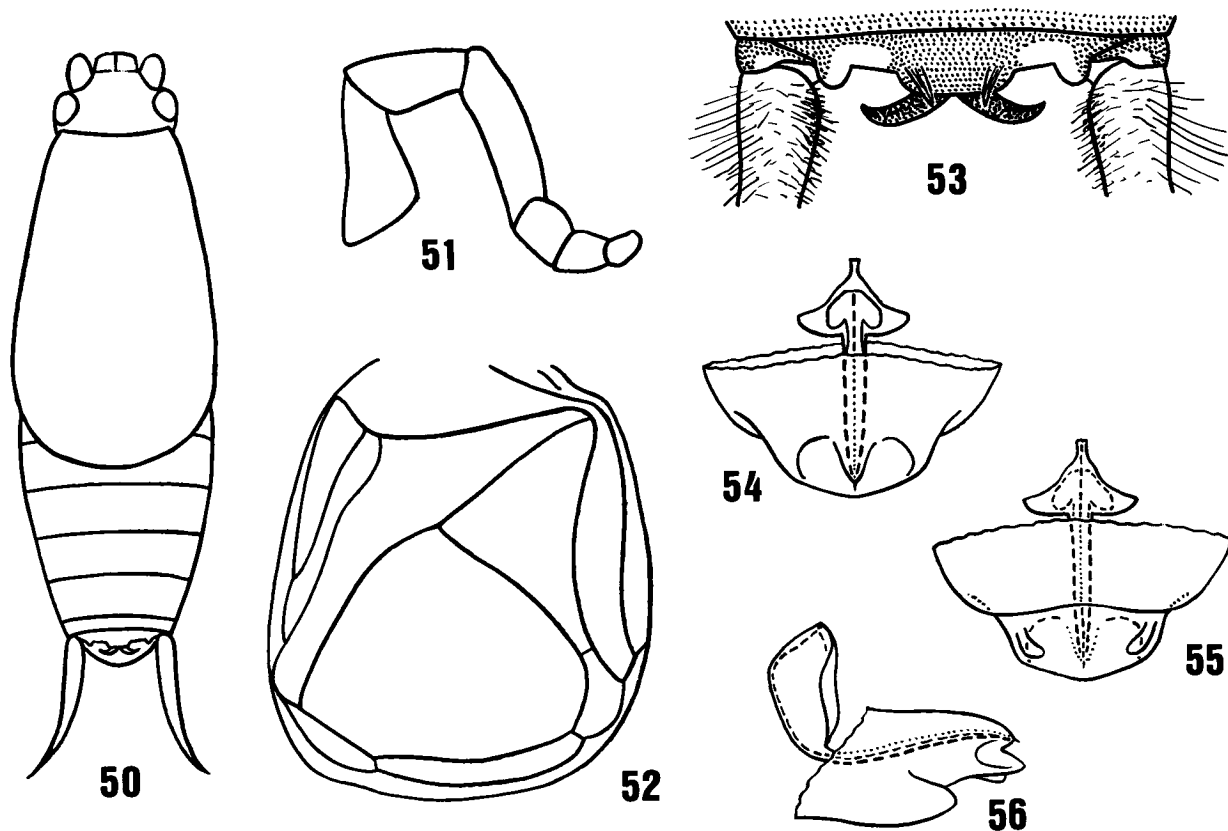
Figs 46-49: *Oecanthus dulcisonans* n. sp., ♂: 46, dorsal part of elytron; 47, metanotal gland from above; 48, 49, genitalia (48, from above; 49, from below).

Variation: There is some variation in the structures of the posterior legs (ratio of length and width of femur = 7.4-8.5; tibiae with 4-6 external and 5-8 internal large spines).

♀: Similar to male. Elytral venation typical for the genus. Basal part of cercus very slightly sinuous. Ovipositor short (ratio of length of posterior femur and ovipositor length = 1.7; ratio of cercus length and ovipositor length = 1.1).

Measurements: Body: ♂ 15-17 mm, ♀ 14 mm; pronotum: ♂ 2.6-2.9 mm, ♀ 2.5 mm; elytra: ♂ 14-16 mm, ♀ 14 mm; posterior femora: ♂ 8.7-10 mm, ♀ 9 mm; ovipositor 5.2 mm.

Very similar to *O. rufopictus* Chopard, *O. similis* Chopard, *O. neosimilis* Toms et Otte, *O. dissimilis* Toms et Otte, *O. pseudosimilis* Otte. Distinguished from the first-named by the different shape of the mirror in the male elytra and the absence of reddish markings on the elytra, from



Figs 50-56: *Ectatoderus guichardi* n. sp., ♂: 50, body from above (without antennae and legs); 51, maxillary palp from the side; 52, dorsal part of elytron; 53, apex of abdomen from above (without genital plate); 54-56, genitalia (54, from above; 55, from below; 56, from the side).

the second by the length of the ovipositor, from the third, fourth and fifth by the greater number of stridulatory teeth, and from the other species of the genus by the male genitalia and other characters.

Oecanthus chopardi Uvarov, 1957

Oecanthus chopardi Uvarov, 1957. - J. Linn. Soc. Lond. Zool. 43: 364.

Material: Yemen: 2 ♂♂, 1 ♀, Socotra, Bubbej-Kalansiya, 19.II.1984, N.V. Kurzenko, ZIAS; 1 ♂, 1 ♀, Socotra, Kalansiya, 25.III.1967, K.M. Guichard, BMNH; 2 ♂♂, 3 ♀♀, Socotra, Hadibo plain, 30-50 m, 12.IV.-2.V.1967, K.M. Guichard, BMNH.

Family Mogoplistidae Tribe Arachnocephalini

Ectatoderus guichardi n. sp. (figs 50-56)

Holotype: ♂, Yemen, Socotra, Hamadara, 400 m, 4.IV.1967, K.M. Guichard, BMNH. - Paratypes: Yemen: 1 ♂, Socotra, Hamadara, 400 m, 4.IV.1967, K.M. Guichard, BMNH; 2 ♂♂, 3 ♀♀, Socotra, Adho Demalu (Adho Dimellus), 1000 m, 24.IV.1967, K.M. Guichard, BMNH and ZIAS; 1 ♂, Socotra, Shehaly Mt., 1500 m, 20.IV.1967, K.M. Guichard, BMNH.

Description: ♂ (holotype): Medium-sized for the genus. Head and pronotum reddish-brown, rather pale, unicolourous. Head typical for the genus (ratio of clypeus width and scapus

width = 1.5), with slightly darkened spots behind eyes; palpi very short, pale; antennae pale with a few widely-separated, small, slightly darkened rings. Pronotum extending to the middle of 5th abdominal tergite, completely covering elytra; its lateral lobes very narrow. Legs pale; posterior legs with apical part of femur brownish; other legs concolourous; anterior tibiae with a small round internal tympanum only; posterior metatarsi long (ratio of length of posterior tibiae and length of posterior metatarsus = 2.8). Elytra transparent with a brownish lateral field and field behind mirror in dorsal part; mirror very large. Abdomen dark brown above (with pale scales along hind edge of tergites) and also dark beneath (but almost completely hidden by numerous pale scales); anal plate with a pair of small whitish spots near pale cerci; paraproct with a hooked black process; genital plate with a round hind margin, small, black. Genitalia weakly sclerotized, typical for the genus.

Variation: Colour of head and pronotum may be yellowish-brown, without darkened spots behind eyes. Sometimes abdominal tergites blackish.

♀: Colour of head and pronotum light reddish-brown to dark reddish-brown. Sometimes legs with brownish tibiae. Anal plate almost without whitish spots; paraproct simple; genital plate typical for the genus. Ovipositor long, brown.

Measurements: Body: ♂ 8–9.5 mm, ♀ 8.5–11 mm; pronotum: ♂ 4.5–5 mm, ♀ 2.2–2.4 mm; elytra: ♂ 3–3.3 mm; posterior femora: ♂ 4.4–4.8 mm, ♀ 5.5–5.8 mm; ovipositor 5.4–5.7 mm.

This species differs from the other species of the genus by the colour, size, form of the pronotum, length of posterior femora and ovipositor, and peculiarities of the elytra, abdominal apex and genitalia in the male.

Family Myrmecophilidae
Subfamily Myrmecophilinae
Tribe Bothriophylacini

Genus *Microbothriophylax* n. gen.

Type species: *Microbothriophylax mica* n. sp.

Description: Size very small. Head, thorax, legs and colour as in the genera (or subgenera) *Eremogrylodes* Chopard and *Bothriophylax* Miram. Tenth abdominal tergite of male with a pair of triangular processes behind and a membranous area between them; male epiproct membranous (figs 58, 59). Genitalia of male of extraordinary structure (figs 64–67): epiphallus with a narrow undivided apex, endoparameral apodeme very small and thin, simple guiding rod and membranous ectoparameres small, bases of guiding rod and endoparameral apodeme fused, ectoparameral apodemes long and fused at base, membranous valves large (for the nomenclature of genital parts, see GOROCHOV 1980).

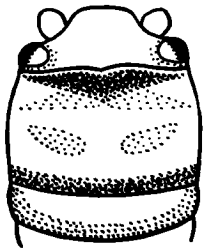
Included species: Type species and probably *Eremogrylodes fitzgeraldi* Chopard, 1948.

The new genus differs from other Bothriophylacini by the characteristic structure of the abdominal apex in the male and the very peculiar male genitalia.

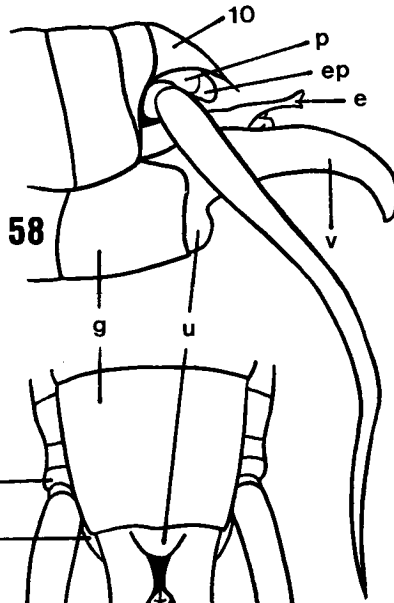
Microbothriophylax mica n. sp. (figs 57–67)

Holotype: ♂, Saudi Arabia, Jabal al Farrash, 14.IX.1981, W. Büttiker, NHMB. - Paratype: Saudi Arabia: 1 ♂, Al Dalhan, nr Ash Sharayi, 2180 m, 19–20.IX.1980, W. Büttiker, NHMB.

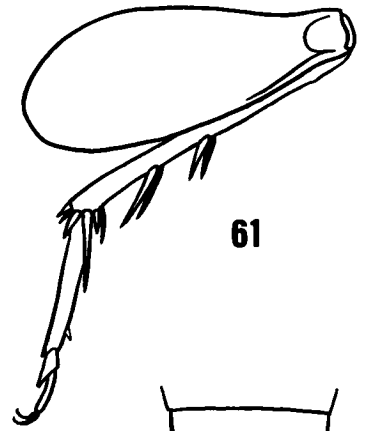
Description: ♂ (holotype): Size, general appearance and colour as in *M. fitzgeraldi*. Distinguished by the median tibiae having only two inferior spurs, posterior tibiae without very



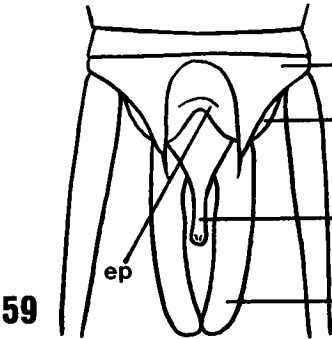
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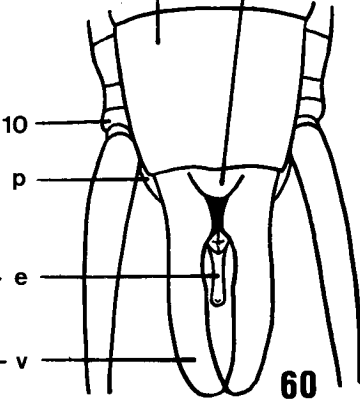
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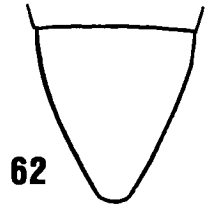
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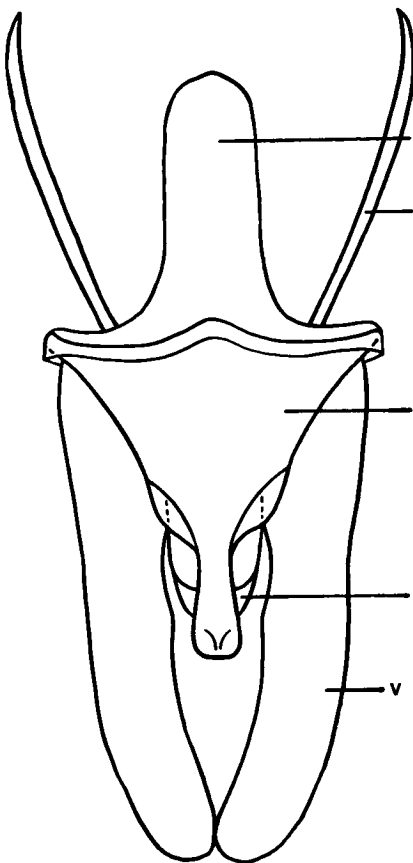
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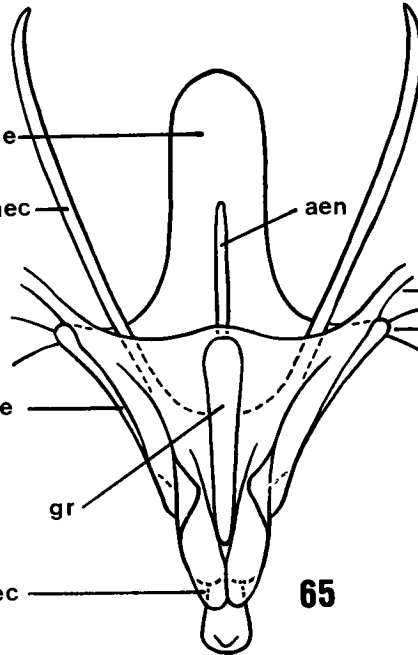
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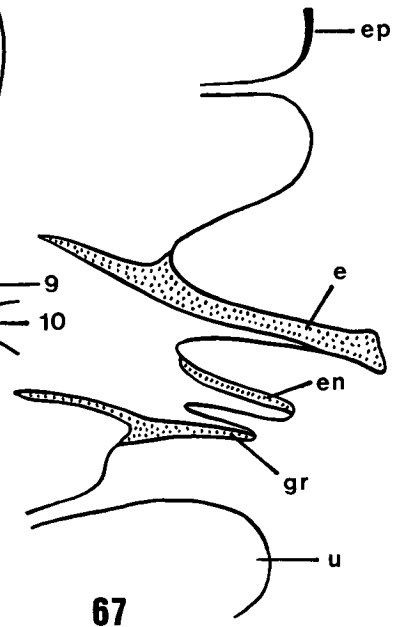
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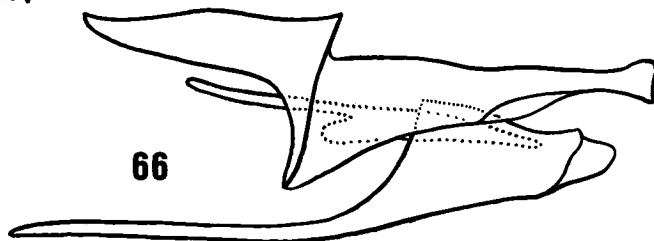
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66

short spines (all spines rather long: 2nd external longest, 2nd internal slightly shorter, 1st external, 1st internal and 3rd internal slightly shorter than 2nd internal, subequal in length, 3rd external slightly shorter still and the shortest), and genital plate truncated. Processes of 10th abdominal tergite with a small apical spine. Epiphallus and valves long, greatly exceeding the genital plate; apex of epiphallus with a small thickening behind narrow part; valves curved, with an unpaired round prominence under their base.

♀: Similar to male. Head with weakly darkened spots behind eyes. Pronotum only darkened along anterior edge of disc. Anal plate and epiproct simple; genital plate triangular. Ovipositor rather long, with an acute denticulated apex.

Measurements: Body: ♂ 3.9 mm, ♀ 4.4 mm; pronotum: ♂ 0.9 mm, ♀ 1.1 mm; posterior femora: ♂ 2.5 mm, ♀ 2.5 mm; ovipositor 2.7 mm.

Family Gryllotalpidae Tribe Gryllotalpini

Gryllotalpa unispina Saussure, 1874 (figs 76, 77)

Gryllotalpa unispina Saussure, 1874. – Fedschenko Voy. Turkestan 2 (5): 24.

Material: Saudi Arabia: 1 ♀, Hofuf, 23.V.1977, W. Büttiker, NHMB; 1 ♀, Syria, Euphrates, 25 km N of Der-es-Ser, 7.X.1916, P.G. Wefelscheid, MNHU 558/17.

Gryllotalpa stepposa Zhantiev, 1991 (fig.78)

Gryllotalpa stepposa Zhantiev, 1991. – Zool. J. (Moscow) 70 (6): 72.

Material: Saudi Arabia: 2 ♀♀, Hofuf, 9.III.1977 and 7.V.1978, W. Büttiker, NHMB. – Oman: 1 ♂, Mintirib, oasis, 22°25'N 58°48'E, 269 m, 13–20.I.1986, M. Gallagher, NHMB. – Iraq: 1 ♂, 1 ♀, Central Mesopotamia, Tell Halaf steppe, 2–14.VI.1913, Exp. M. v. Oppenheim, J. Kohl, MNHU 1155/1913.

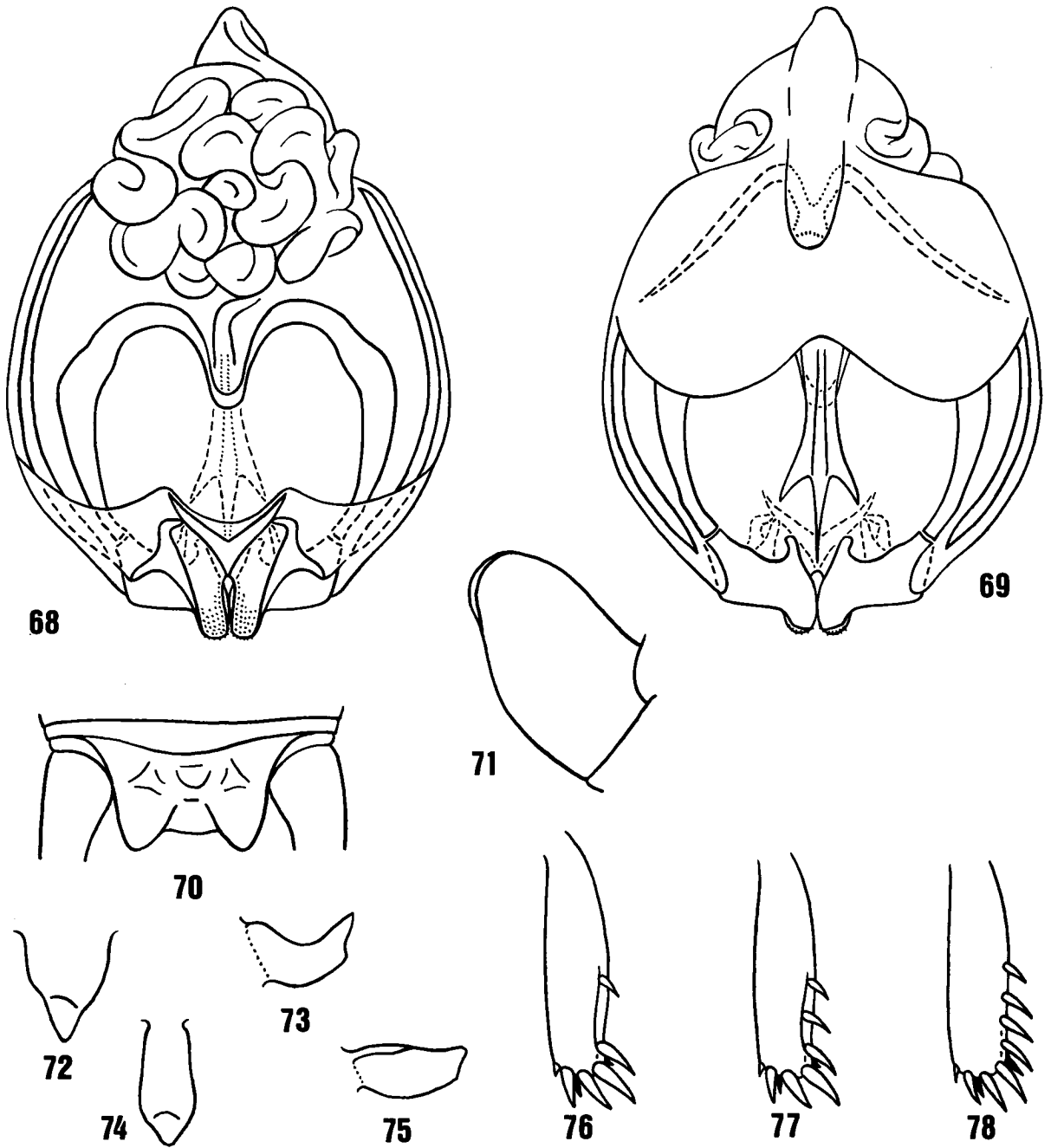
I am using this name conditionally for a possible complex of similar species which differ from each other by their karyotypes.

Gryllotalpa debilis Gerstaecker, 1869

Gryllotalpa debilis Gerstaecker, 1869. – Arch. Naturgesch. 35: 211.

Material: Saudi Arabia: 1 ♀, Mirtad, 30.VIII.1984, W. Büttiker, NHMB. – United Arab Emirates: 2 ♂♂, Al Mudam, 24°54'N 55°44'E, 29.III.1991, C. Gross, NHMB and ZIAS. – Oman: 1 ♂, 1 ♀, Dhofar, Salalah, 21.II.1989, W. Wittmer, NHMB.

Figs 57–67: *Microbothriophylax mica* n. sp.: 57–61, ♂ and 62–63, ♀: 57, anterior part of body from above; 58–60, posterior part of abdomen (58, from the side; 59, from above; 60, from below); 61, posterior leg; 62, genital plate from below; 63, apex of ovipositor from the side. 64–67: Male genitalia of *M. mica* n. sp.: 64, from above; 65, from below (with articulation of epiphallus and abdominal tergites but without valves); 66, from the side (without valves); 67, scheme of sagittal section. 9, 10 = 9th and 10th tergites of abdomen, ae = apodeme of epiphallus, aec = apodeme of ectoparamere, aen = apodeme of endoparamere, e = epiphallus, ec = ectoparamere, en = endoparamere, ep = epiproct, g = genital plate, gr = guiding rod, p = paraproct, u = unpaired round prominence under base of valves, v = valve.



Figs 68–78: *Gryllomorpha mira* n. sp. (68–73); *G. bruehli* n. sp. (74, 75); *Gryllotalpa unispina* Saussure (76, 77) and *G. stepposa* Zhantiev (78): 68, 69, male genitalia (68, from above; 69, from below); 70, male anal plate from above; 71, male genital plate from the side; 72–75, female copulatory papilla (72, 74, from above; 73, 75, from the side); 76–78, inner side of posterior tibia.

ACKNOWLEDGEMENTS

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