

Taxonomy of Podoscirtinae (Orthoptera: Gryllidae). Part 4: African Podoscirtini and geography of the tribe

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Gorochov, A.V. 2005. Taxonomy of Podoscirtinae (Orthoptera: Gryllidae). Part 4: African Podoscirtini and geography of the tribe. *Zoosystematica Rossica*, **13**(2), 2004: 181-208.

Eight genera belonging to a generic group with the modified male genitalia (similar to those of the Indo-Malayan genus *Truljalia*) are characterized. They are distributed only in Africa south of Sahara. Four new genera, 13 new species, and unknown male of one species are described; some other African genera and species are considered (i.e., type material is revised, a lectotype for *Dolichogryllus camerunensis* Bol. is designated, and information on the systematic position of some forms is given). The distribution of the Podoscirtini genera is considered; 7-8 regions with almost endemic generic composition are outlined. Preliminary hypotheses for the origin of the Podoscirtini faunas of these regions are proposed. New replacement names (*Valiatrella*, **nom. n.** and *Stenotrella*, **nom. n.**) are proposed for the genera *Valia* Gorochov, 1985 (non Alexeev, 1979) and *Stenogryllodes* Chopard, 1952 (non Chopard, 1936), respectively.

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The fourth part in the series of papers on taxonomy of the Podoscirtinae includes a partial revision of African Podoscirtini having the characteristically modified male genitalia, a brief review of African Podoscirtinae with unknown structure of the male genitalia, and a discussion about regularities of the generic distribution of Podoscirtini. The first, second, and third parts included a brief review of morphology and nomenclature of the male genitalia, a review of Indo-Malayan Podoscirtini, new data on taxonomy of Australo-Oceanian Podoscirtini, and a partial revision of Podoscirtini from Madagascar and the nearest regions including two genera known from Africa and belonging to a generic group characterized by the primitive male genitalia (Gorochov, 2002, 2003, 2004).

SYSTEMATIC PART

The material considered here is deposited at the following institutions: Zoological Institute, Russian Academy of Sciences, St.Petersburg (ZIAS); Natural History Museum, London (BMNH); Museum für Naturkunde der Humboldt-Universität, Berlin (MNHU); Museo Nacional de Ciencias Naturales, Madrid (MNCN); Museum and Institute of Zoology, Polish Academy of Sciences, Warszawa (MIZP).

“DOLICHOGRYLLUS” GENERIC GROUP

This group is characterized by a distinctly modified type of the male genitalia which is present in the Indo-Malayan genus *Truljalia* Gor. (for comparison see Figs I: 1-5): the epiphallus is divided into the upper lobe (provided with a pair of hooks or small hook-like projections) and a pair of lateral (lower) lobes forming the long and comparatively narrow distal processes (epiphallic ectoparameres) more or less separated from their bases; the guiding rod is very large (not smaller or hardly smaller than epiphallus); the rami are rather short (Figs I: 3-6; V; VI; XI: 1-6; XII). Some of these characters (division of the epiphallus into 3 lobes and large size of the guiding rod) are present also in the Indo-Malayan genus *Madasumma* Walk. (Figs I: 7-9). The hypothesis for the homology of the hooks of upper epiphallic lobe in *Truljalia* with lateral epiphallic lobes in *Madasumma* (Gorochov, 2002: Figs XIII: 1, 3, 5) is probably erroneous. However, the similarity of “*Dolichogryllus*” generic group and *Truljalia* in structure of the male genitalia is much greater, but there are some distinctions (see Figs I: 1-5): in “*Dolichogryllus*” generic group, upper epiphallic lobe bears a small apical notch or has no notch, the hooks of this lobe are not large and situated in its apical part,

lateral epiphallal lobes are fused or almost fused with their bases, and the guiding rod is more or less movable; in *Truljalia*, upper epiphallal lobe has a distinct apical notch, the hooks of this lobe are large and situated in more proximal parts, lateral epiphallal lobes are distinctly articulated with their bases, and the guiding rod is immovable. Probably, all above-considered taxa form a holophyletic group which first divided into the branch of *Madasumma* and the general stock of all other known genera; possibly, this stock had divided into *Truljalia* and “*Dolichogryllus*” generic group earlier than the differentiation occurred in the latter group.

Genus *Dolichogryllus* Bolí var, 1910

Type species: *Dolichogryllus camerunensis* Bolí var, 1910.

Note. The genus is characterized by the following characters: the body is weakly depressed dorsoventrally; the rostrum of head is not acute-angled in profile; the ocelli are developed but not large; the pronotum is rather short, without dorsal folds (Figs II: 2, 3); fore tibiae are inflated in the tympanal part; the tympana are well developed: outer one is open and oval, inner one is slit-like, but more or less widened (Fig. II: 4); the male metanotal gland is well developed, consists of a large cavity provided with a reversed V-shaped ridge (Fig. II: 6); the wings are long, with well-developed stridulatory apparatus in male (Fig. II: 5); the male anal and genital plates are simple, but the latter is rather long, supplied with bifurcated apex (Figs II: 7-9); the male genitalia are with moderately large hooks of upper epiphallal lobe, narrow bases of lateral epiphallal lobes (especially near the epiphallal ectoparameres), and paired sclerotized processes of guiding rod (second ectoparameres) (Figs I: 3-5).

Included species. Type species and, possibly, *Dolichogryllus infuscatus* Chopard, 1967 from Congo (Figs I: 6; II: 1). Females of both the species are unknown.

Dolichogryllus camerunensis Bolí var, 1910 (Figs I: 3-5; II: 2-9)

Lectotype (present designation). ♂, **Cameroon**, “Kamerun, L. Conradt, 1898-1899”, “*Dolichogryllus camerunensis* Bol.”, “Sintipo” (MNCN).

Paralectotype (present designation). ♂, with same data as for lectotype (MNCN).

Note. The coloration of lectotype is brown, more or less spotted (spots from light brown to dark brown): the head and pronotum are as in Fig. II: 2, 3; legs are darker at apices (middle and hind femora), as well as near bases (hind tibiae); the tegmina are with dorsal part as in Fig. II: 5, lateral parts more uniformly light brown, and

tegmina bend marked by a dark brown interrupted stripe; other parts of body is more or less unicolourous, rather light. Other characters of the lectotype are given in Figs I: 3-5 and II: 4-9. The paralectotype is slightly lighter, with less distinct darkish spots on the rostrum and vertex. *D. camerunensis* is easily distinguished from *D. infuscatus* by the coloration of vertex and the size of tegmina mirror (for comparison, see Figs II: 1, 2, 5).

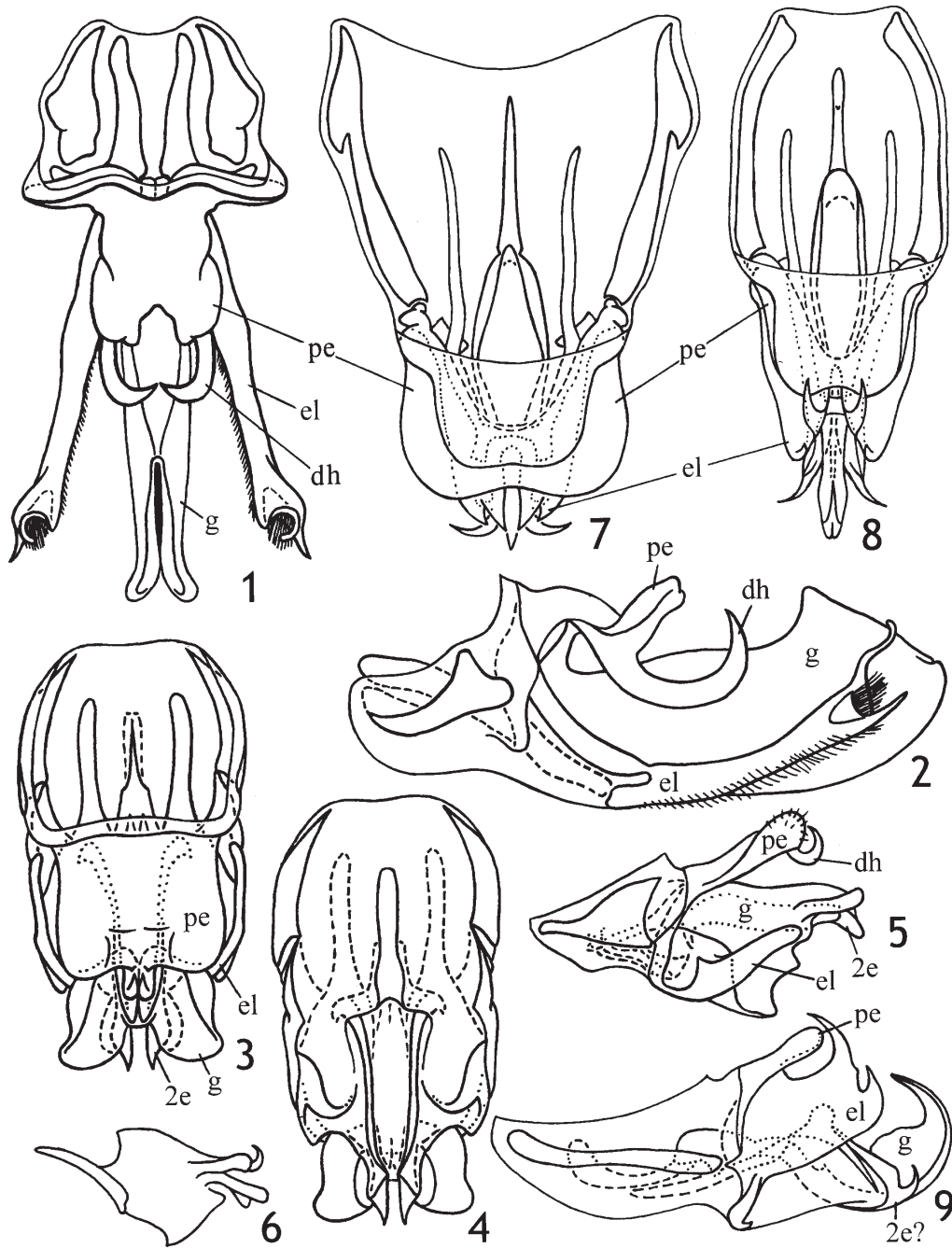
Length (mm). Body 16-17; body with wings 21-23; pronotum 2.5-2.7; tegmina 14.5-16; hind femora 8.5-9.5.

Genus *Afrotruljalia* gen. n.

Type species: *Dolichogryllus tshetyrkiniae* Gorochov, 1988.

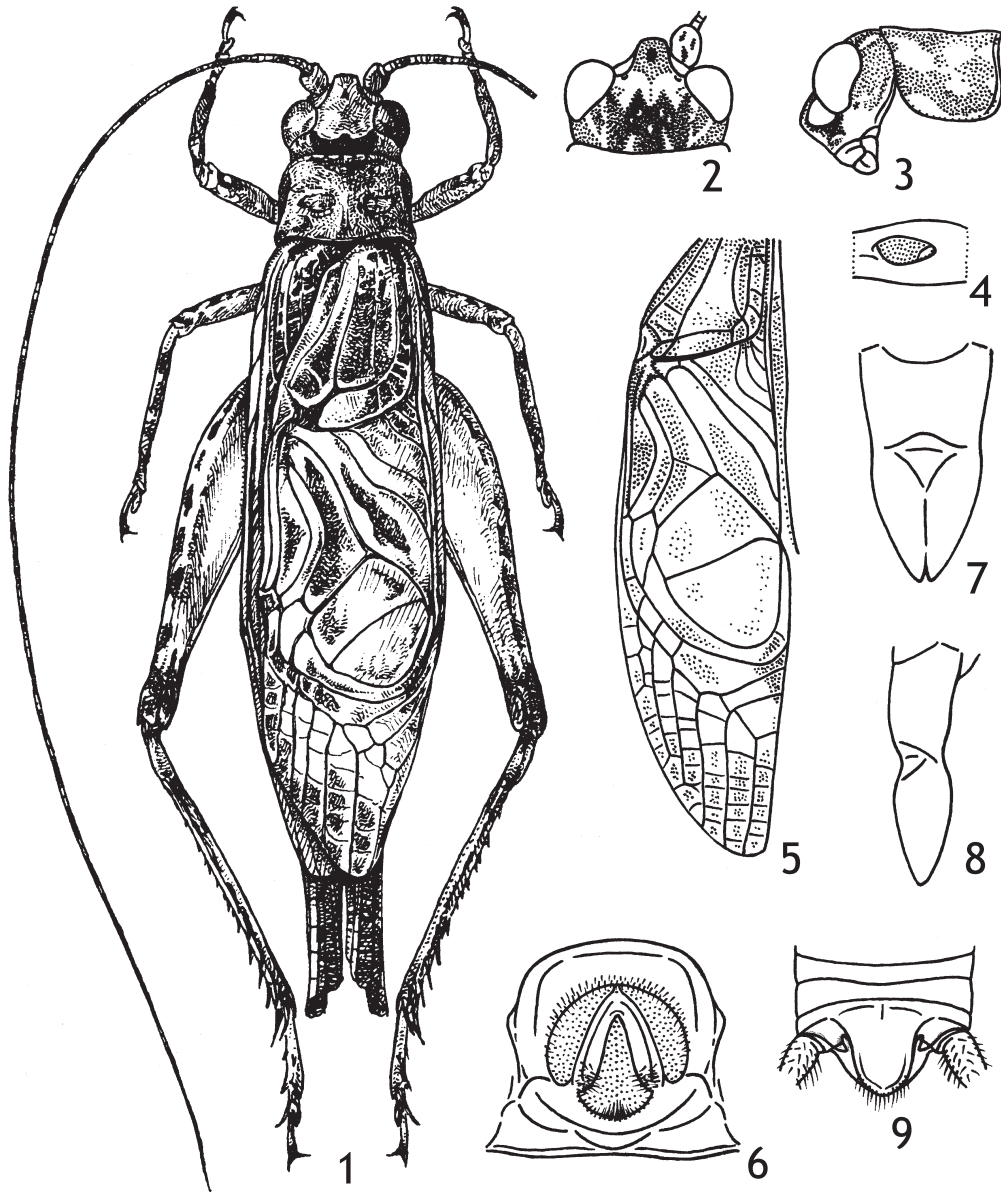
Diagnosis. Similar to *Dolichogryllus*, but distinguished by following characters: head rostrum more or less acute-angled in profile; ocelli developed, not large, sometimes median ocellus absent; pronotum slightly or distinctly more elongate, with characteristic dorsal fold (Figs III; VIII: 11, 12); fore tibiae slightly inflated in tympanal part; inner tympanum widened or narrow (Figs IV: 2, 5, 7, 9, 16, 17); male metanotal gland strongly reduced (Fig. IV: 13) or absent; male genitalia (Figs V; VI: 1-3) with small hook-like projections of upper epiphallal lobe, bases of lateral epiphallal lobes widened near epiphallal ectoparameres (these bases almost triangular), and a pair of longitudinal sclerotized stripes on ventral surface of guiding rod (but this rod without sclerotized processes and sometimes with a pair of inner sclerotized plates; these plates may be bent laterally during erection) (Figs V: 2, 10, 18; VI: 2). Ovipositor long, with drilling apex (Fig. IV: 20).

Composition. This genus is divided into 3 groups. The first group includes 5 species: type species; *Dolichogryllus griseus* Chopard, 1932; *D. ethiopicus* Gorochov, 1990; *Afrotruljalia pulla* sp. n.; *A. kevani* sp. n. They are characterized by the male genitalia with finger-like epiphallal ectoparameres and rather short guiding rod, which is narrow in rest position and provided with the sclerotized plates (Figs V: 1-16). The second group includes 3 species: *D. corticeus* Chopard, 1934; *A. sordidula* sp. n.; *A. uvarovi* sp. n. This group is distinguished from the first one by the thin and hooked apices of epiphallal ectoparameres and the longer guiding rod widened in rest position and bearing no sclerotized plates (Figs V: 17-19). The third group includes only *A. magnifica* sp. n., which differs from all the other species of this genus in the bifurcated epiphallal ectoparameres and the guiding rod more similar to that of the first group (Figs VI: 1-3).



Figs 1 (1-9). *Truljalia*, *Dolichogryllus* and *Madasumma*, male. **1, 2.** *T. citri* (B.-Bien.); **3-5.** *D. camerunensis* Bol. (lectotype); **6.** *D. infuscatus* Chop. (from Chopard, 1967); **7.** *M. plana* Walk.; **8, 9.** *M. ventralis* Walk. Genitalia from above (1, 3, 7, 8), from side (2, 5, 6, 9), and from below (4).

Abbreviations: **pe**, proximal or upper epiphallic lobe; **dh**, distal or lower hooks of this lobe; **el**, lateral epiphallic lobes (those forming epiphallic ectoparameres in "*Dolichogryllus*" generic group and *Truljalia*); **g**, guiding rod; **2e**, second ectoparameres (guiding rod processes which probably not homologous in *Dolichogryllus* and *Madasumma*).



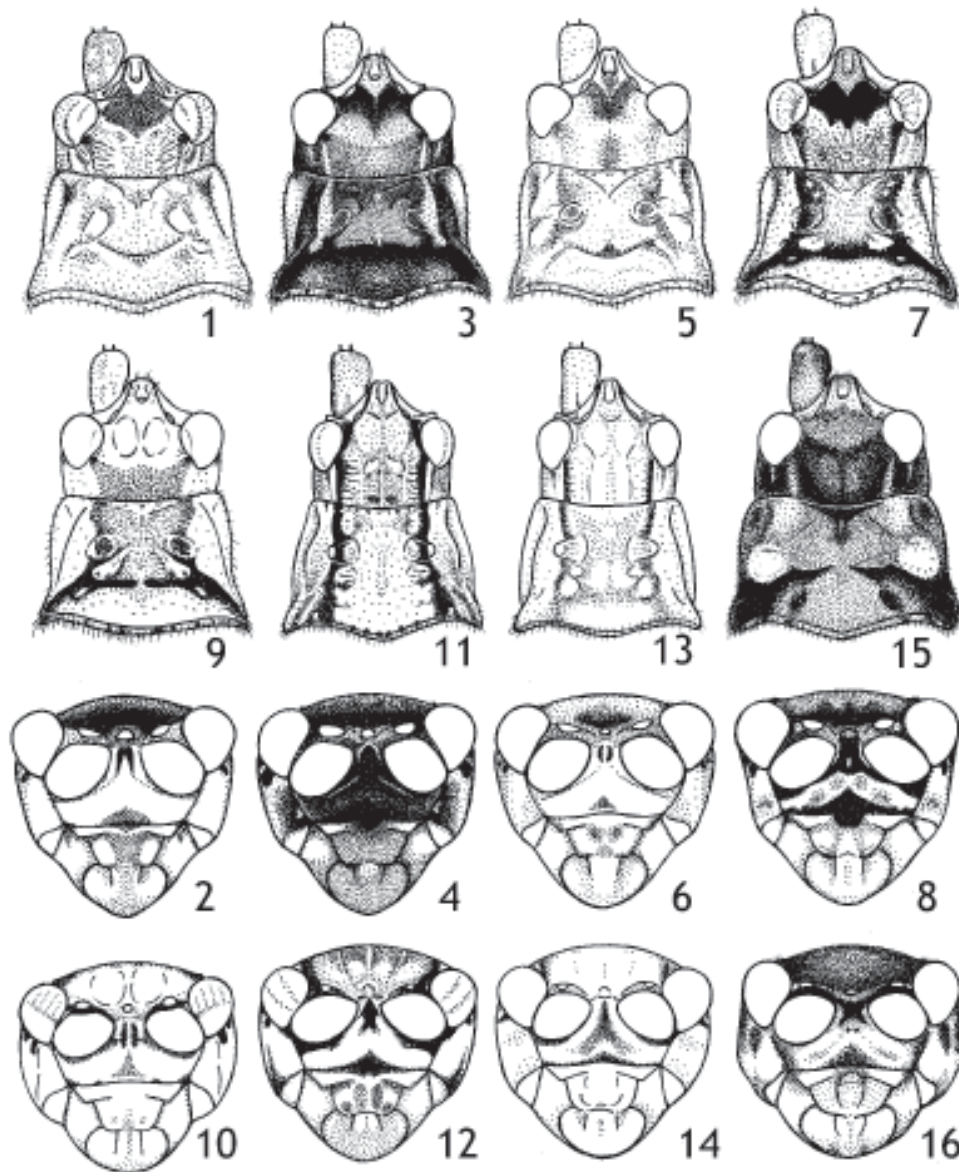
Figs II (1-9). *Dolichogryllus*, male. **1.** *D. infuscatus* Chop. (from Chopard, 1967); **2-9.** *D. camerunensis* Bol. (lectotype). General view (1) and head (2) from above; head and pronotum from side (3); inner tympanum (4); dorsal part of tegmen (5); metanotal gland (6); genital (7, 8) and anal (9) plates from below (7), from side (8), and from above (9).

Afrotruljalia tshetyrkiniae (Gorochov, 1988),
comb. n.
(Figs III: 1, 2; IV: 1-3; V: 1-6)

Holotype. ♂. **Kenya** [other data unknown] (ZIAS).

Note. The holotype is sufficiently described (Gorochov, 1988). In addition, it is necessary to indicate the following features: the size is not

large for this genus; general coloration is not dark (from light brown to greyish brown), weakly spotted; the head and pronotum are not very long; all ocelli are developed and not very small (Figs III: 1, 2); inner tympanum is rather long and very narrow (Figs IV: 2); metanotal gland absent; the tegmina with 3 longest oblique veins not arched and almost parallel (Fig. IV: 1); the apex of geni-



Figs III (1-16). *Afrotruljalia*, male. 1, 2, *A. tshetyrkiniae* (Gor.) (holotype); 3, 4, *A. pulla* sp. n.; 5, 6, *A. kevani* sp. n.; 7, 8, *A. ethiopica* (Gor.) (holotype); 9, 10, *A. grisea* (Chop.); 11, 12, *A. corticea* (Chop.); 13, 14, *A. uvarovi* sp. n.; 15, 16, *A. magnifica* sp. n. Head and pronotum from above (1, 3, 5, 7, 9, 11, 13, 15); head, anterior view (2, 4, 6, 8, 10, 12, 14, 16).

tal plate is supplied with a moderately deep notch (intermediate between those in Figs IV: 11 and 18); the genitalia (Figs V: 1-6) are with a bifurcated proximal sclerite of the mold of spermatophore attachment plate (Figs V: 2, 5).

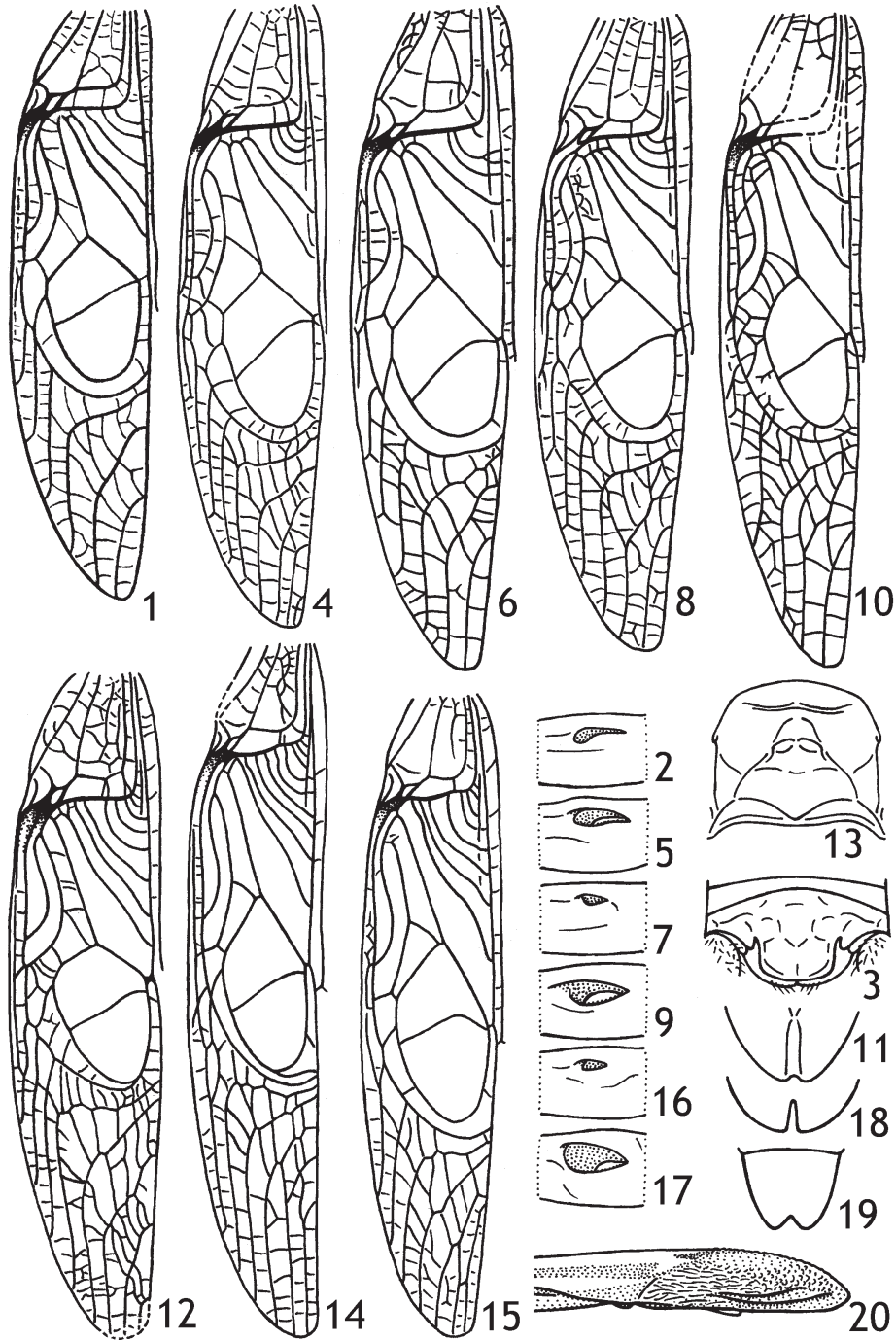
Female of this species is unknown.

Length (mm). Body 17; body with wings 24; pronotum 2.6; tegmina 16.5; hind femora 11.

***Afrotruljalia pulla* sp. n.**
(Figs III: 3, 4; IV: 4, 5; V: 7, 8; VIII: 12)

Holotype. ♂, Tanzania, "D. O. Afrika, Brandes" (MNHU).

Description. *Male* (holotype). Very similar to *A. tshetyrkiniae*, but different in following characters: coloration much darker (frons un-



Figs IV (1-20). *Afrotruljalia*. 1-3, *A. tshetyrkinae* (Gor.) (holotype); 4, 5, *A. pulla* sp. n.; 6, 7, *A. kevani* sp. n.; 8, 9, *A. ethiopica* (Gor.) (holotype); 10, 11, *A. grisea* (Chop.); 12, 13, *A. magnifica* sp. n.; 14, *A. uvarovi* sp. n.; 15, 16, *A. corticea* (Chop.); 17-20, *A. sordidula* sp. n. (17, 18, holotype). Dorsal part of male tegmen (1, 4, 6, 8, 10, 12, 14, 15); inner tympanum (2, 5, 7, 9, 16, 17); male anal plate from above (3); apex of male genital plate from below (11, 18); rudiment of metanotal gland (13); female genital plate from below (19); apical part of ovipositor from side (20).

der antennal cavities almost black; see Figs III: 3, 4), inner tympanum distinctly widened (Fig. IV: 5), tegmina with slightly longer mirror and more or less parallel (Fig. IV: 4), and genitalia with stripe-like proximal sclerite of mold of spermatophore attachment plate (Fig. V: 7). Distinctions between holotypes of both species in shape of guiding rod plates (Figs V: 6 and 8) are within infraspecific variability of *A. ethiopica* (Figs V: 13-15).

Female unknown.

Length (mm). Body 16.5; body with wings 23; pronotum 2.5; tegmina 16; hind femora 10.5.

Comparison. The distinctions from *A. tshetyrkiniae* are listed above. From *A. grisea*, this species differs in the darker coloration, distinctly wider tegminal mirror, two longest oblique veins more or less parallel, and less hooked dark sclerite at the base of guiding rod (for comparison, see Figs V: 3 and 16; in *A. pulla*, the genitalia are almost identical to those of *A. tshetyrkiniae* pictured in the former figure). From *A. ethiopica*, *A. pulla* is distinguished by the different coloration and well-developed median ocellus.

***Afrotruljalia kevani* sp. n.**

(Figs III: 5, 6; IV: 6, 7; V: 9-11)

Holotype. ♂, **Kenya**, "Finno, Mandora Dist., Kenya, 17.VI.1944, D.K. Kevan Coll.", "Desert Grass & Thorn-Bush, Lat. 03°28'N, Long. 41°28'E" (BMNH) [identified by Kevan as *Dolichogryllus griseus*].

Description. Male (holotype). Similar to *A. tshetyrkiniae* in coloration, but slightly lighter (Figs III: 5, 6). Structure of head and pronotum as in *A. tshetyrkiniae* and *A. pulla*, but median ocellus very small. Inner tympanum distinctly narrower than in *A. pulla* and much shorter than in both above-mentioned species (Fig. IV: 7). Tegmina with oblique veins almost as in *A. pulla*, but their mirror slightly wider than in both these species and with dividing vein situated mostly in its distal half (Fig. IV: 6). Other structures of body as in these species, but genitalia (Figs V: 9-11) with less distinct hooks at apex of upper epiphallal lobe and with proximal sclerite of mold of spermatophore attachment plate similar to that of *A. pulla*.

Female unknown.

Length (mm). Body 16; body with wings 23; pronotum 2.3; tegmina 15.5; hind femora 10.5.

Comparison. The distinctions from *A. tshetyrkiniae* and *A. pulla* are mentioned above. From *A. grisea* and *A. ethiopica*, the new species differs in the same characters as *A. pulla*.

Etymology. This species is named in memory of the collector, Canadian orthopterist Prof. D.K. McE. Kevan.

***Afrotruljalia ethiopica* (Gorochov, 1990), comb. n.** (Figs III: 7, 8; IV: 8, 9; V: 12-15)

Holotype. ♂, **Ethiopia**, *Gambela (Illubabor) Prov.*, 25 km W of Abobo, Alwero River, at light, 10.XII.1986, L.B. Rybalov (ZIAS).

Other material examined. Somalia: 1 ♂, "B. Somaliland, Aware Haud, 8.V.1953", "E. J. Van Ingen" (BMNH). **Kenya: 1 ♂, "Birchika, Mandora Dist., Kenya, 1.XII.1944, D.K. Kevan Coll.", "Desert Grass & Thorn-Bush, Lat. 03°57'N, Long. 41°38'E" (BMNH) [identified by Kevan as *Dolichogryllus griseus*].**

Note. The holotype of this species is sufficiently described (Gorochov, 1990). *A. ethiopica* is similar to three above-considered species, but it is distinguished from these by the more contrasting coloration with almost black spots between eyes and on pronotal disc (Fig. III: 7; some variability is present in the coloration of frons: it looks as in Fig. III: 8 or almost as in Figs III: 2, 6), the absence of median ocellus, somewhat more pubescent legs, long and distinctly widened inner tympanum (wider than in *A. pulla*) (Fig. IV: 9), tegminal venation almost as in *A. tshetyrkiniae* (Fig. IV: 8), and the male genitalia (Figs V: 12-15) with proximal sclerite of the mold of spermatophore attachment plate as in *A. pulla* and *A. kevani*. This species has a certain variability in the structure of the apex of upper epiphallal lobe (as in Fig. V: 12, almost as in Fig. V: 4, or approximately as in Fig. V: 9) as well as in the shape of epiphallal ectoparameres (as in Fig. V: 12 or almost as in Figs V: 4, 9) and guiding rod plates (Figs V: 13-15).

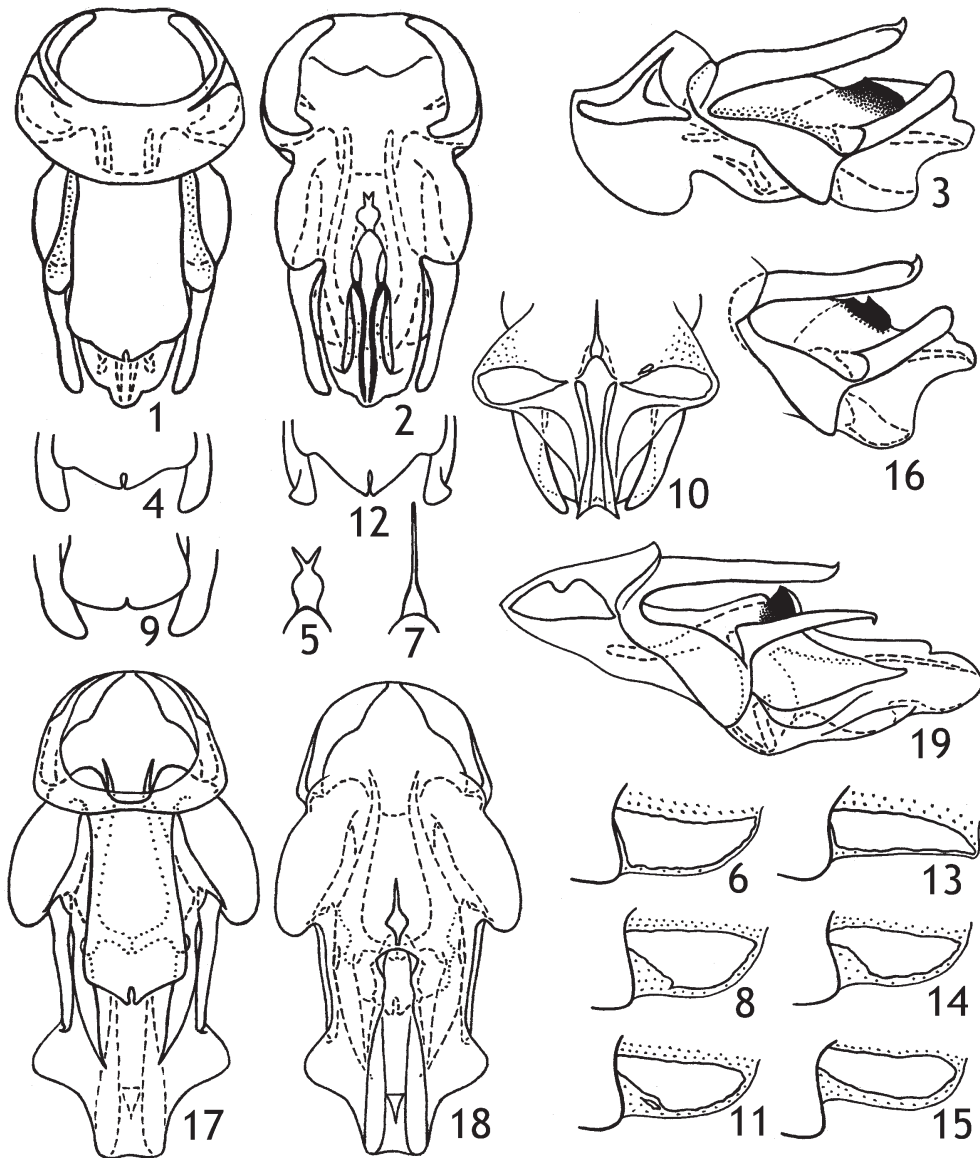
Female of this species is unknown.

Length (mm). Body 17-19; body with wings 25-27; pronotum 2.5-2.8; tegmina 17-19; hind femora 12 (hind legs of slightly smaller specimens from Somalia and Kenya missing).

***Afrotruljalia grisea* (Chopard, 1932), comb. n.** (Figs III: 9, 10; IV: 10, 11; V: 16)

Material. Kenya: 1 ♂, "Thurner – McArthur, Lower Tana – Sabaki, April-May 1932" (BMNH) [identified by Townsend as *Dolichogryllus griseus*].

Note. This specimen was collected in environs of the Tana River. The type locality of *A. grisea* is environs of Bura (Chopard, 1932), a town that is situated at the same river. This species is rather similar to all above-considered species of *Afrotruljalia*, but it differs in the following characters: the coloration is rather light and slightly spotted (from brownish grey to whitish), without large darkenings between eyes, but with dark ornament on the pronotum similar to that of *A. ethiopica* (Figs III: 9, 10); the ocelli are almost as in *A. kevani*; the legs are pubescent as in *A. ethiopica*; the tegmina are with distinctly narrower mirror, much wider cell near its medial edge, and two



Figs V (1-19). *Afrotruljalia*, male. **1-6**, *A. tshetyrkiniae* (Gor.) (holotype); **7, 8**, *A. pulla* sp. n.; **9-11**, *A. kevani* sp. n.; **12-15**, *A. ethiopica* (Gor.) (12, 13, holotype); **16**, *A. grisea* (Chop.); **17-19**, *A. sordidula* sp. n. (holotype). Genitalia in rest position from above (1, 17), from below (2, 18), and from side (3, 19); distal part of epiphallus and ectoparameres from above (4, 9, 12); proximal sclerotized area of mold of spermatophore attachment plate on ventral surface of genitalia (5, 7); sclerotized plate on inner surface of lateral membranous lobes of guiding rod in rest position from side (6, 8, 11, 13-15); distal half of genitalia with erected guiding rod (and with ventral position of its sclerotized plates) from below (10) and in rest position from side (16).

longest not arched oblique veins which are more distinctly divergent than in all above-considered species (Fig. IV: 10); the genital plate is supplied with a rather small apical notch (Fig. IV: 11); the

genitalia are with the apical parts of upper epiphallic lobe and epiphallic ectoparameres almost as in Fig. V: 4, proximal sclerite of the mold of spermatophore attachment plate similar to that

in Fig. V: 7, and sclerotized dark sclerite at the base of guiding rod smaller and distinctly more hooked (Fig. V: 16). The structure of inner tympanum of *A. grisea* is uncertain, as fore legs of the specimen examined are missing. From the first description it is possible to understand only that this tympanum is slit-like (Chopard, 1932).

Female of this species is unknown.

Length (mm). Body 18; body with wings 24.5; pronotum 2.5; tegmina 17; hind femora 11.5.

Afrotruljalia corticea (Chopard, 1934), comb. n. (Figs III: 11, 12; IV: 15, 16).

Material. **Uganda:** 1 ♂, “van Someren, Ewamba (H), Uganda, 3.48”, “V.G.L. van Someren Collection” (BMNH).

Description. *Male* (nov.). Body somewhat longer than in all above-considered species. Pubescence of body well developed. Coloration more or less similar to that of *A. grisea*, but slightly darker (from light brownish to brownish grey) and with pair of distinct dark longitudinal stripes from antennal cavities to hind edge of pronotum (Figs III: 11, 12). Head and pronotum distinctly longer than in all previous species (almost as in Fig. VIII: 11); rostrum between antennal cavities somewhat narrower; lateral ocelli smaller, median ocellus absent; pronotal lateral lobes slightly narrower than in all previous species. Inner tympanum slit-like and very small (Fig. IV: 16), almost as in *A. kevani*. Metanotal gland absent.

Apex of genital plate with rather deep notch, almost as in Fig. IV: 18. Genitalia distinguished from all species considered above by thin epiphallid ectoparameres provided with hooked apex, much longer guiding rod with lateral lobes directed laterally in rest position and without ventral sclerotized plates, characteristic shape of hook-like dark sclerite at base of guiding rod, presence of additional semimembranous plates on outer surface of this rod, and shorter rami (genitalia of this specimen almost identical to those in Figs V: 17-19).

Female (after Chopard, 1934: Fig. 32). Similar to male in coloration and shape of body, but distinctly larger. Very similar to female of *A. sordidula* sp. n. (see below) in general appearance, but distinguished from it by much smaller inner tympanum and slightly shorter ovipositor.

Length (mm). Body: ♂ 22, ♀ 21; body with wings: ♂ 28, ♀ 33; pronotum: ♂ 2.7, ♀ 3.8; tegmina: ♂ 19.5, ♀ 24.5; hind femora: ♂ 13, ♀ 17.5; ovipositor 26.

Note. The examined specimen was collected in Uganda. The type locality of *A. corticea* is environs of Mahagi (Zaire, Ituri), a town near the frontier between Zaire and Uganda.

Afrotruljalia sordidula sp. n. (Figs IV: 17-20; V: 17-19)

Holotype. ♂, **Tanzania**, “Lindi” (ZIAS).

Paratypes. **Tanzania:** 1 ♀, with same data as for holotype (ZIAS). **Mozambique:** 1 ♂, “Kionga, Reimer, III-VI.99” (MIZP).

Description. *Male* (holotype). Very similar to *A. corticea* in shape of body, pubescence, coloration, and structure of metanotum, wings, and abdominal apex (Figs IV: 18; V: 17-19), but clearly distinguished from it by shape of inner tympanum which large and strongly widened (almost not slit-like; for comparison, see Figs IV: 16 and 17).

Variation. Slight darkenings on cells of dorsal tegminal part distinct in holotype and rather indistinct in paratype.

Female. Similar to male in general appearance, but much larger. Tegmina with numerous and slightly irregular crossveins; coloration of lateral and dorsal tegminal parts grey, rather light, but with following elements: brown colour of all longitudinal veins, some of crossveins in dorsal part, and spots on cells of this part, whitish colour of all crossveins in lateral part and of numerous crossveins in dorsal part, dark brown band along upper edge of lateral part (interrupted by whitish crossveins), and transparent intercalary triangle. Genital plate as in Fig. IV: 19; ovipositor very long; its apex drilling and provided with numerous small denticles (Fig. IV: 20).

Length (mm). Body: ♂ 21-22, ♀ 28; body with wings: ♂ 28-30, ♀ 38; pronotum: ♂ 2.7-2.8, ♀ 3.8; tegmina: ♂ 20-21, ♀ 26; hind femora: ♂ 14, ♀ 17.5; ovipositor 28.

Comparison. *A. sordidula* differs from *A. corticea* in the much wider inner tympanum, and from all other known species of *Afrotruljalia*, in the characteristic general appearance and structure of the male genitalia.

Afrotruljalia uvarovi sp. n. (Figs III: 13, 14; IV: 14; VIII: 11)

Holotype. ♂, **Tanzania**, “Tanganyika T., Morogoro, 1931-2, J.A.J. Thompson” (BMNH) [identified as *Madasumma* sp. nov. by Uvarov and as *Dolichogryllus corticeus* by Townsend].

Description. *Male* (holotype). Very similar to *A. corticea* and *A. sordidula* in shape of body (Fig. VIII: 11), pubescence, structure of metanotum and abdominal apex (including genitalia), but distinguished by following characters: coloration lighter (from light brown to greyish), with narrower darkish stripes on head and pronotum (Figs III: 13, 14), and almost without distinct darkenings on tegmina and legs; inner tympanum almost as in *A. sordidula* (not as in *A. corticea*; see Figs IV: 16 and 17); legs distinctly longer, hind femora 5.7 times as long as pronotum (in

males of *A. corticea* and *A. sordidula*, this ratio 4.8-5.2); tegmina also longer (especially apical area), with slightly narrower dorsal part (for comparison see Figs IV: 14 and 15).

Female unknown.

Length (mm). Body 24; body with wings 32; pronotum 2.9; tegmina 23; hind femora 16.5.

Comparison. The distinctions of *A. uvarovi* from *A. corticea* and *A. sordidula* are listed above. From all previously-considered congeners, the new species differs in the more elongate shape of body and the distinctly different male genitalia (almost as in Figs V: 17-19).

Etymology. The species is named in memory of famous orthopterist Prof. B.P. Uvarov who first supposed that this specimen belongs to a new species.

***Afrotruljalia magnifica* sp. n.**
(Figs III: 15, 16; IV: 12, 13; VI: 1-3)

Holotype. ♂, **Tanzania**, "D.O.-Afrika, Tanga, A. Karasek S." (MNHU).

Description. Male (holotype). Size rather large for this genus. Shape of body (including head and pronotum) more similar to that of *A. tshe-tyrkiniae*, *A. pulla*, *A. kevani* and *A. ethiopica* than to that of *A. corticea*, *A. sordidula* and *A. uvarovi*. Coloration rather dark: body and legs dark brown with more or less light brown ornament and whitish large paired spots on pronotum (Figs III: 15, 16); tegmina light greyish brown with wide brown band along tegminal bend, dark spots between proximal parts of *Sc* branches and along middle part of anal tegminal edge, and smaller darkish spots on dorsal tegminal part (numerous spots on basal area and mirror, sparse ones on other parts of stridulatory areas and on apical area); hind wings brownish grey. Legs with moderate pubescence; hind femora clearly thicker than in all previous congeners (structure of tympana unknown as fore legs missing). Tegminal dorsal part as in Fig. IV: 12. Metanotal gland rudimentary (Figs IV: 13).

Structure of abdominal apex similar to that of all other congeners, but genital plate with apical part intermediate between those in Figs IV: 11 and 18; genitalia (Figs VI: 1-3) with epiphallic ectoparameres of characteristic shape and guiding rod more similar to that in first species group (*A. tshe-tyrkiniae* and others) than to that in second one (*A. corticea* and others).

Female unknown.

Length (mm). Body 24; body with wings 31; pronotum 3.7; tegmina 21.5; hind femora 14.7.

Comparison. This species is clearly distinguished from all other congeners by the characteristic structure of the male genitalia (see the paragraph about composition of the genus *Afrotruljalia*).

Genus ***Hemitruljalia*** gen. n.

Type species: *Hemitruljalia rufula* sp. n.

Diagnosis. Body not depressed dorsoventrally. Head rostrum not acute-angled in profile (Fig. VIII: 13); ocelli well developed, but comparatively small (Figs VII: 1, 5). Pronotum rather short, without dorsal folds (Figs VII: 1, 5; VIII: 13). Fore tibiae not inflated; outer tympanum absent; inner tympanum slit-like, but more or less short and widened (Figs VII: 3, 6); hind femora distinctly thickened. Male metanotal gland well developed, consisting of large cavity provided with small median transverse fold (Fig. VII: 2). Wings long, with partly reduced stridulatory apparatus in male (Fig. VII: 4).

Male anal plate simple, similar to that of both previous genera; genital plate also as in these genera (see Figs IV: 19; VII: 8), in male with deep apical notch (almost as in Fig. IV: 18). Male genitalia similar to those of *Afrotruljalia*, but bases of lateral epiphallic lobes near epiphallic ectoparameres not triangular, and paired sclerotized stripes on ventral surface of guiding rod much shorter (Figs VI: 4-6). Ovipositor well developed, long, with drilling apex.

Included species. Type species and *H. viridula* sp. n.

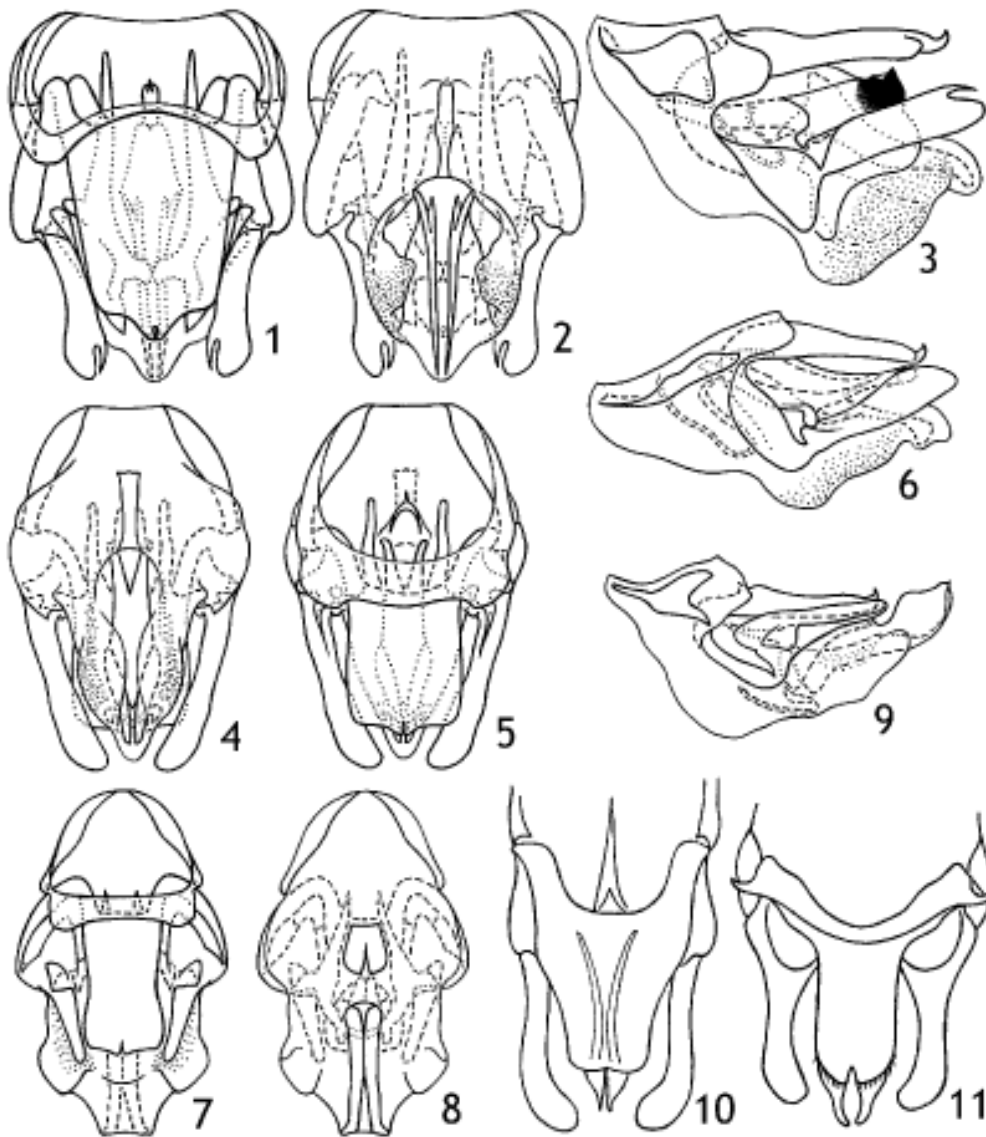
Comparison. This genus is distinguished from all known genera of "*Dolichogryllus*" generic group by the structure of ocelli, tympana, male metanotum, hind femora, male tegmina, and the male genitalia (the male genitalia of *Hemitruljalia* differ from those of *Afrotruljalia* in the characters listed above and from those of *Dolichogryllus*, in the much smaller hooks of upper epiphallic lobe and somewhat widened bases of lateral epiphallic lobes near epiphallic ectoparameres).

***Hemitruljalia rufula* sp. n.**
(Figs VI: 4-6; VII: 1-4)

Holotype. ♂, **Kenya**, Kilifi near Mombasa, IX.1967, D. Klements (ZIAS).

Description. Male (holotype). Coloration reddish yellow with lighter (yellowish) antennal flagellum and dorsal part of tegmina, brownish upper part of head (with slightly darker longitudinal lines) and ornament on pronotal disc (Fig. VII: 1), and brownish red (somewhat darkened) band on lateral tegminal part along its upper edge. Metanotal gland as in Fig. VII: 2. Inner tympanum small; its shape as in Fig. VII: 3. Dorsal part of tegmina with developed chords and partly reduced mirror (Fig. VII: 4); hind wings much longer than tegmina.

Genital plate with deep apical notch, almost as in Fig. IV: 18; genitalia as in Figs VI: 4-6.



Figs VI (1-11). Male. 1-3, *Afrotruljalia magnifica* sp. n.; 4-6, *Hemitruljalia rufula* sp. n.; 7-9, *Acrophonus stenus* sp. n.; 10, *A.? bicolor* (Chop.) (from Chopard & Baccetti, 1968); 11, *Pachyaphonus bicolor* Chop. (from Chopard, 1954). Genitalia in rest position (1-6) and with guiding rod possibly erected (7-9): from above (1, 5, 7), from below (2, 4, 8), and from side (3, 6, 9); distal half of genitalia from above (10, 11).

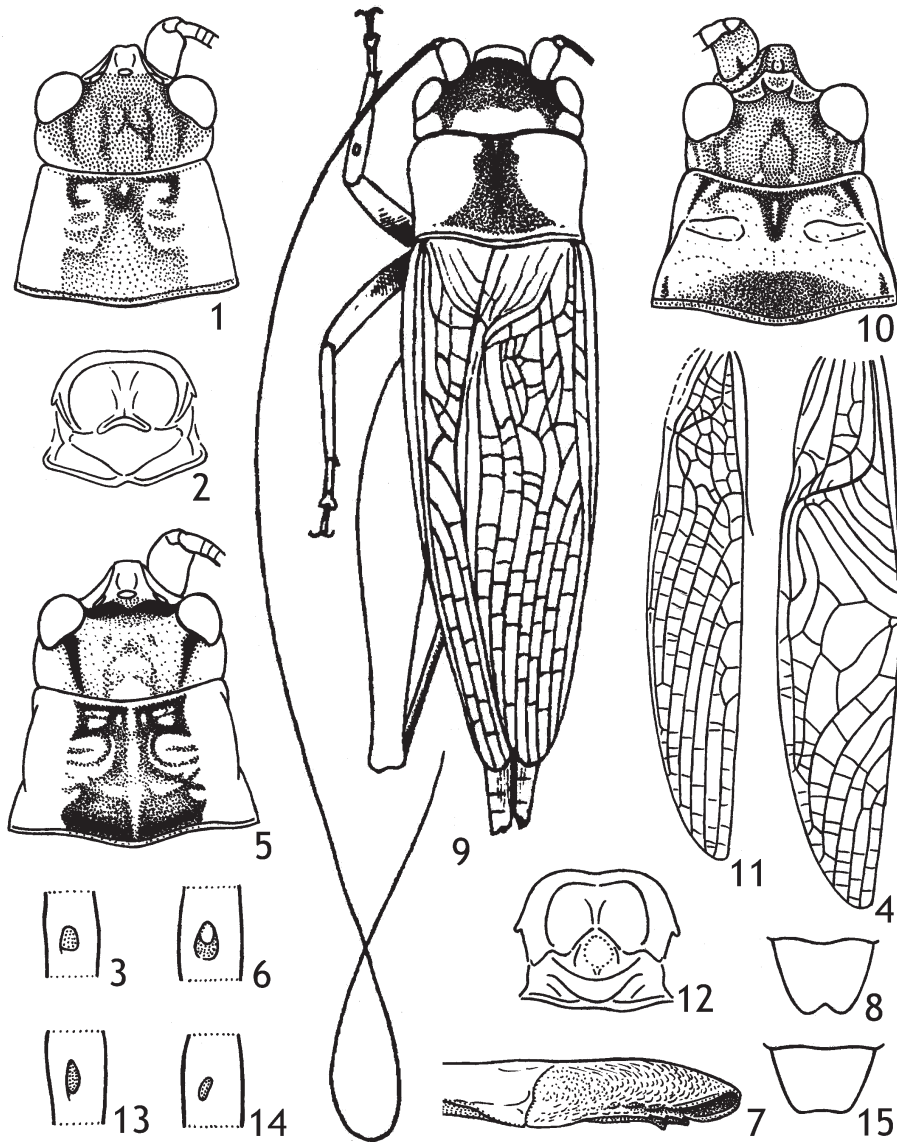
Female unknown.

Length (mm). Body 16.3; body with wings 20; pronotum 2.7; tegmina 14; hind femora 10.5.

***Hemitruljalia viridula* sp. n.**
(Figs VII: 5-8; VIII: 13)

Holotype. ♀, Kenya, "Diani Beach, 22.IV.1941, W.J. Bailey" (BMNH).

Description. Female (holotype). Coloration yellowish green with brownish grey upper part of head, almost dark brown stripes on vertex and ornament on pronotal disc (Fig. VII: 5), and light brownish (almost yellowish) dorsal tegminal part provided with slightly darkened stripe along lateral edge of dorsal tegminal part and small sparse whitish spots on hind part of this stripe. Inner tympanum somewhat larger than in *H. rufula* (for



Figs VII (1-15). *Hemitrljalia*, *Acrophonus* and *Pachyaphonus*. 1-4, *H. rufula* sp. n.; 5-8, *H. viridula* sp. n.; 9, *A. jeanneli* (Chop.) (from Chopard, 1932); 10-13, *A. stenus* sp. n.; 14, 15, *P. murzini* sp. n. Head and pronotum from above (1, 5, 10); male metanotal gland (2, 12); inner tympanum (3, 6, 13, 14); dorsal part of male tegmen (4, 11); apex of ovipositor from side (7); female genital plate from below (8, 15); general view from above (9).

comparison, see Figs VII: 3 and 6). Dorsal part of tegmina with 11 almost parallel and slightly oblique longitudinal veins; crossveins of this part not sparse and rather regularly arranged.

Genital plate and apex of ovipositor as in Figs VII: 7, 8.

Male unknown.

Length (mm). Body 16; body with wings 26.5; pronotum 3.5; tegmina 18.5; hind femora 13; ovipositor 14.

Comparison. The new species differs from *H. rufula* in the following characters: greenish (not reddish) general coloration, more contrasting dark ornament on the head and pronotum, ab-

sence of darkened band on lateral tegminal part along its upper edge, and the larger inner tympanum of fore tibiae.

Genus *Acrophonus* Bolí var, 1910

Type species: *Acrophonus humeralis* Bolí var, 1910.

Notes. Bolí var (1910) probably considered that the most remarkable character of *Acrophonus* is partly reduced male stridulatory apparatus (without mirror, but with distinct stridulatory vein). Chopard (1934) included in this genus three species [type species (Equatorial Guinea: Cabo San Juan); *Aphonus ocellaris* Saussure, 1878 (Tanzania: Zanzibar; possibly, Zaire: Kalemi = Albertville); *Acrophonus validus* Chopard, 1934 known only from female (Zaire: Katanga)] taking as a basis the above-mentioned character and the presence of only inner tympanum. Later, he included in *Acrophonus* an additional species [*Podoscirtus jeanneli* Chopard, 1932, Tanzania (Tanga)], characterized by the same characters (Fig. VII: 9), and transferred *A. ocellaris* to the genus *Aphonoides* Chop. (Chopard, 1968). However, *Aphonoides* belongs to another tribe of Podoscirtinae, Aphonoidini, which is not registered from Africa and adjacent islands with confidence, and some important characters of *A. ocellaris* (very large ocelli and presence of any stridulatory apparatus) are unknown in this tribe. Moreover, these two characters are present in a new species with the male genitalia typical of “*Dolichogryllus*” generic group (Figs VI: 7-9).

Structure of ocelli in *A. humeralis* and *A. validus* is unstudied, and it is quite possible that these species are not related to *A. ocellaris*, *A. jeanneli* and *A. stenus* sp. n., as structure of tympanal organs and male tegmina may be similar because of convergence. Nevertheless, these five species are formally included here in the same genus. The sixth species that is possibly related to above-considered ones or to some of these is *Madasumma bicolor* Chopard & Baccetti, 1968 (Somalia: Ola Uager), as it has large ocelli, slightly reduced male stridulatory apparatus, only inner tympanum on each fore tibia, and the male genitalia similar to those of “*Dolichogryllus*” generic group (Fig. VI: 10).

Acrophonus stenus sp. n. (Figs VI: 7-9; VII: 10-13; VIII: 14)

Holotype. ♂, Tanzania, “Daressalam, Brzozowski” (MNHU).

Description. Male (holotype). Body almost not depressed dorsoventrally (Fig. VIII: 14). Coloration (Fig. VII: 10) comparatively light, almost uniformly brownish grey, but with several distinctly lighter (yellowish) elements [lower part

of head, edges of ocelli, two longitudinal stripes behind each eye, lateral lobes of pronotum, proximal part of legs, stripe along tegminal bend (between *R* and *M*), and lower part of thorax and abdomen], and darker (brown) pattern [short stripe along anterior part of upper edge of each pronotal lobe, veins of proximal half of tegminal dorsal part (including *R* and *M*), small and very sparse spots on dorsal part of tegmina, small spot on upper surface of each hind tibia not far from its base, and middle parts of hind tibiae excepting their spines]. Head rostrum narrow (Fig. VII: 10), not acute-angled in profile, with slightly concave upper surface (Fig. VIII: 14); ocelli very large, weakly convex, partly fused with each other (Fig. VII: 10). Pronotum rather short, narrowed to head, without transverse folds, and with short and round median projection of hind edge of disc (Figs VII: 10; VIII: 14). Fore tibiae not inflated, with only inner tympana which small and slit-like (Fig. VII: 13); hind femora thickened, almost as in *Hemitruljalina*. Metanotal gland more or less similar to that of *Hemitruljalina*, but somewhat reduced (Fig. VII: 12). Wings long; tegminal dorsal part as in Fig. VII: 11; tegminal lateral part with 11-12 parallel, almost longitudinal, weakly curved branches of *Sc* and rather sparse, regular crossveins between them; hind wings much longer than tegmina.

Anal and genital plates similar to those of *H. rufula*, but apical notch of genital plate slightly shallower; genitalia as in Figs VI: 7-9.

Female unknown.

Length (mm). Body 16; body with wings 22; pronotum 2.4; tegmina 16; hind femora 9.2.

Comparison. *A. stenus* differs from *A. ocellaris* in the partly brownish ocelli (in *A. ocellaris*, they are entirely whitish), not angular hind edge of pronotal disc, and the longer hind femora (in *A. stenus*, hind femur is 3.8 times as long as the pronotum; in *A. ocellaris* this ratio is 3.5). From *A. jeanneli*, the new species differs in the narrower head rostrum and dorsal part of tegmina (for comparison, see Figs VII: 9-11). From *A. validus*, this species differs in the more uniform coloration, and from *A. humeralis*, it is distinguished by the shorter pronotum and hind femora as well as the longer tegmina.

Genus *Pachyaphonus* Chopard, 1954

Type species: *Pachyaphonus bicolor* Chopard, 1954.

Note. This genus is similar to *Acrophonus* in the very large ocelli (Figs VII: 10; VIII: 1). These genera differ from each other in the structure of male tegmina: in *Pachyaphonus*, tegmina are completely lacking the stridulatory apparatus (Fig. VIII: 3), whereas in *Acrophonus*, it is present in more or less reduced state. However, the above

differences are insufficient for separation of these genera from each other. Moreover, the male genitalia in *Pachyaphonus* and in some species of *Acrophonus* are similar to those of other representatives of “*Dolichogryllus*” generic group (Figs VI: 7-11). It is not improbable that *Pachyaphonus* and *Acrophonus* are synonyms or subgenera of the same genus. However, to solve this problem more definitely, it is necessary to examine their type species.

Included species. Type species (eastern part of Guinea) and *P. murzini* sp. n.

***Pachyaphonus murzini* sp. n.**
(Figs VII: 14, 15; VIII: 1, 2)

Holotype. ♀, **Guinea**, western part, environs of Kindia, forest near Tabuna River, 28.X-1.XI.1983, S. Murzin (ZIAS).

Description. Female (holotype). Body almost not depressed dorsoventrally (Fig. VIII: 2). Coloration brown with several dark brown elements [upper part of head, characteristic ornament on pronotal disc (Fig. VIII: 1), spots on the most basal part of tegmina, and small spots on upper surface of hind tibiae (not far from their bases and around bases of spines)], several light brown ones [lower part of head, antennal flagellum, lateral lobes of pronotum, legs, lateral part of tegmina, and lower part of thorax and abdomen], and yellowish (very light) ocelli and narrow stripe along tegminal bend (between *R* and *M*). Rostrum of head somewhat wider than in *A. stenus* (see Figs VII: 10; VIII: 1) and almost without concavity on its upper surface (Fig. VIII: 2); structure of ocelli almost as in *A. stenus* (Fig. VIII: 1). Pronotum moderately short, with almost parallel lateral sides, without transverse folds, and with hind projection of disc as in Fig. VIII: 1. Fore tibiae not inflated, with only inner tympana which short and narrow (distinctly slit-like) (Fig. VII: 14); hind femora almost as in *A. stenus*. Tegmina long, similar to those in male of *P. bicolor* (Fig. VIII: 3); hind wings damaged.

Genital plate as in Fig. VII: 15; ovipositor rather long, with drilling apex.

Male unknown.

Length (mm). Body 15; body with tegmina 19; pronotum 3; tegmina 13.5; hind femora 11; ovipositor 10.5.

Comparison. The new species differs from *P. bicolor* in the distinctly darker upper part of head and ornament on pronotal disc, narrow inner tympanum (in *A. bicolor*, it is round), and hind tibiae with middle inner spur clearly shorter than upper inner one.

Genus *Pseudotruljalia* gen. n.

Type species: *Pseudotruljalia speciosa* sp. n.

Diagnosis. Body weakly depressed dorsoventrally (Fig. VIII: 15). Head rostrum narrow, acute-angled in profile, strongly projected anteriorly (Fig. VIII: 15), with angular apex as seen from above (Fig. IX: 2); ocelli reduced: very small or absent. Tympanal part of fore tibiae strongly inflated; outer tympanum open and almost round; inner tympanum slit-like, rather long (Fig. IX: 4); hind femora fairly slender. Male metanotal gland well developed, with characteristic structure of hind part (Fig. IX: 5). Wings long; male tegmina with well-developed stridulatory apparatus and rather large mirror (Fig. IX: 3); hind wings much longer than tegmina.

Anal and genital plates in male similar to those in previous genera of “*Dolichogryllus*” generic group, but apex of genital plate with very small apical notch (slightly smaller than in Fig. IV: 11); male genitalia with long upper epiphallal lobe, very short apical hooks of this lobe, rather short epiphallal ectoparameres, narrow base of lateral epiphallal lobes, and large membranous windows between epiphallal lobes and their ectoparameres (Figs XI: 1-3).

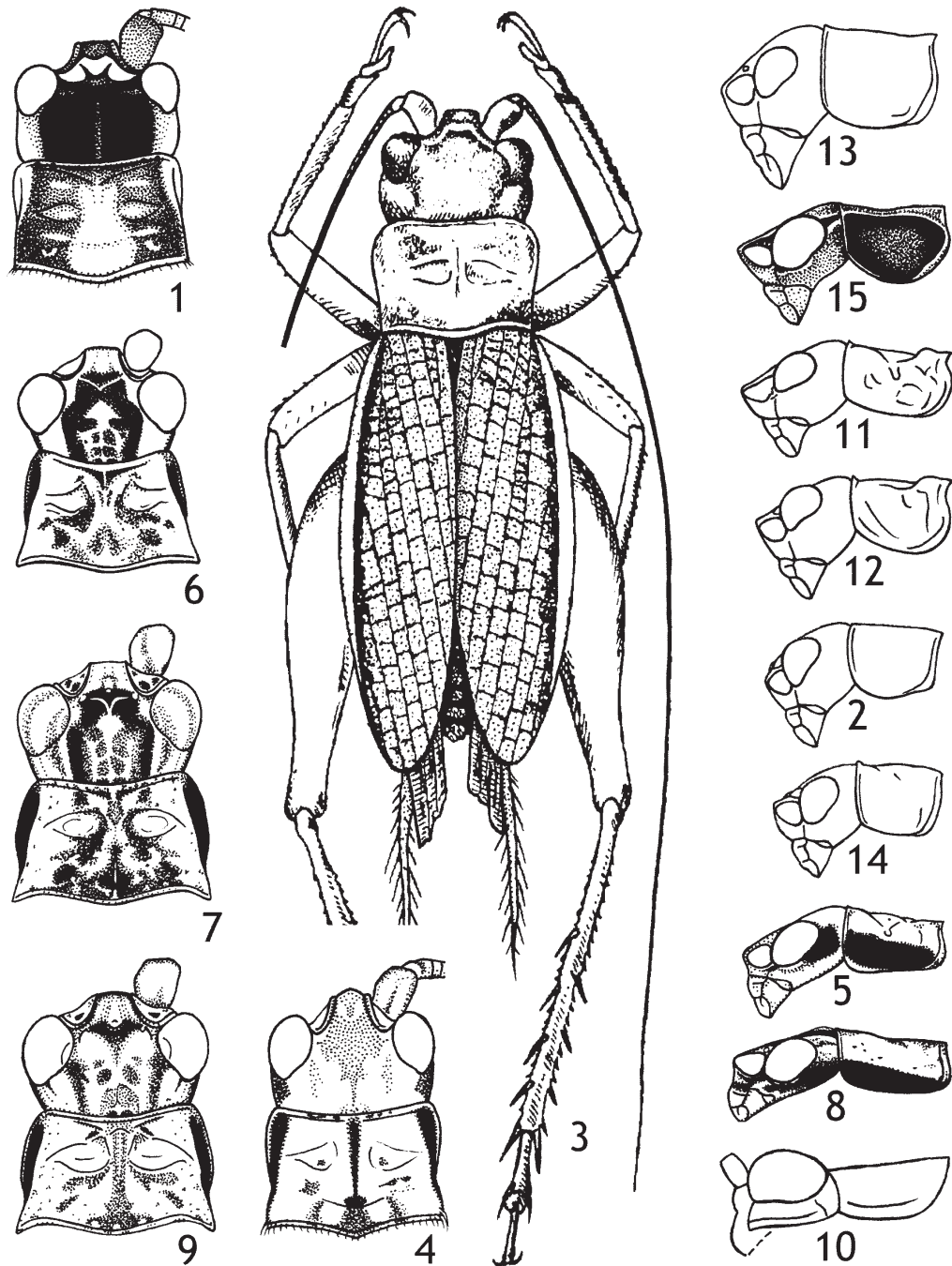
Included species. Type species and, possibly, *Dolichogryllus nigronotatus* Chopard, 1934 (Zaire: Lubumbashi = Elisabethville).

Comparison. This genus differs from all other genera of “*Dolichogryllus*” generic group in the characteristic structure of head rostrum, ocelli, fore tibiae, male metanotal gland, male tegmina, and the male genitalia (shorter epiphallal ectoparameres, narrow base of lateral epiphallal lobes, and larger windows between these ectoparameres and lobes).

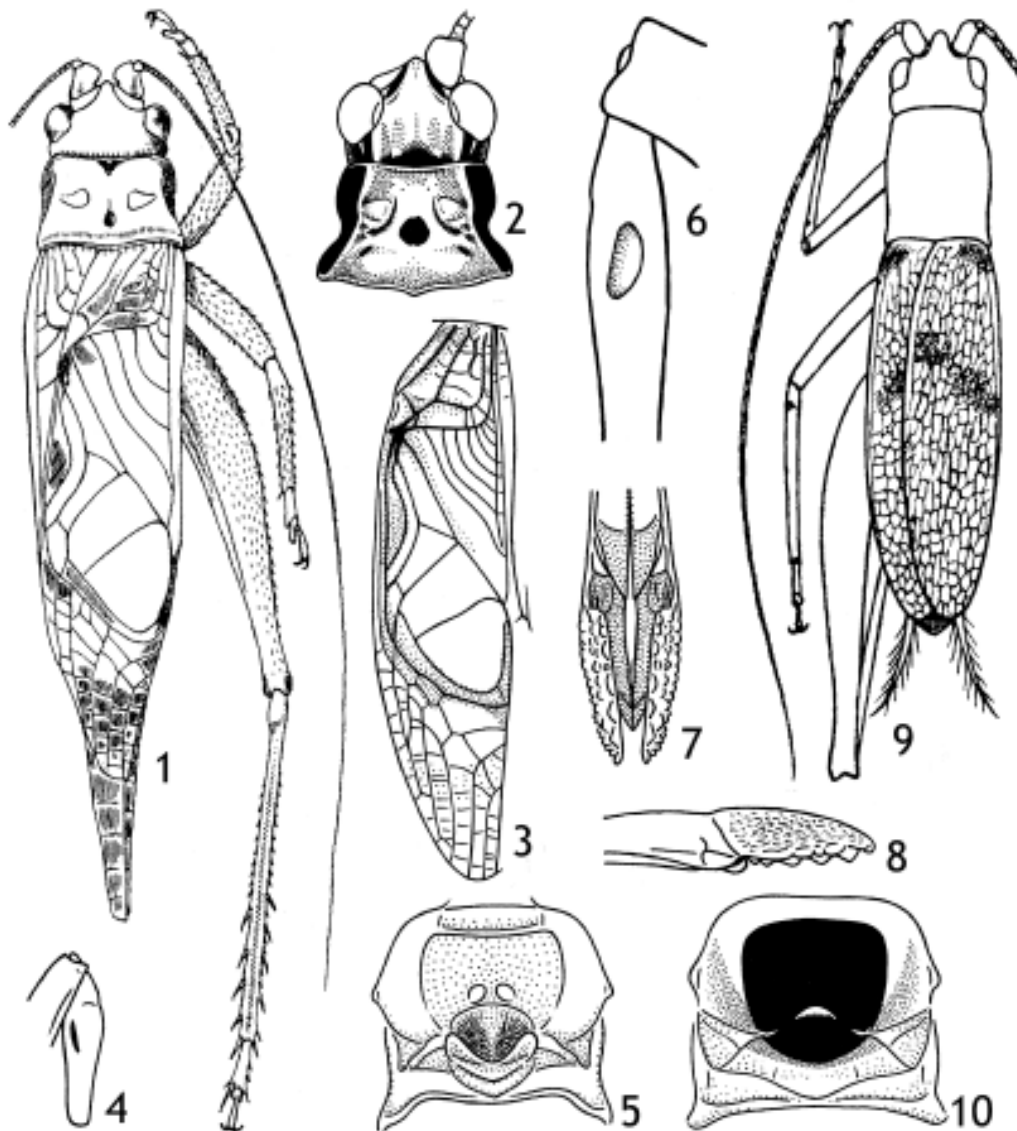
***Pseudotruljalia speciosa* sp. n.**
(Figs VIII: 15; IX: 2-5; XI: 1-3)

Holotype. ♂, **Cameroon**, “Kamerun, Hinterland, Jaunde-Stat., Zenker S.” (MNHU).

Description. Male (holotype). Coloration rather contrasting: head brownish yellow with darker (brown) parts behind eyes (crossed by narrow longitudinal yellow stripes), transverse band on hind part of vertex, small spots on membrane of upper part of antennal cavities, on lateral part of scape, and on outer side of apical segments of maxillary palpi, slightly darkened genae under eyes, a pair of strokes on lower part of rostrum between antennal cavities, and rather indistinct stripe along clypeal suture (Figs VIII: 15; IX: 2); pronotum with brownish yellow disc and dark brown lateral lobes; pronotal disc with blackish round spot at centre and weakly distinct darkish ornament (Fig. IX: 2); pronotal lateral lobes with hardly lighter (brown) central part and light brown narrow anterior, interior, and posterior edges (Fig. VIII: 15); fore coxae light brown with



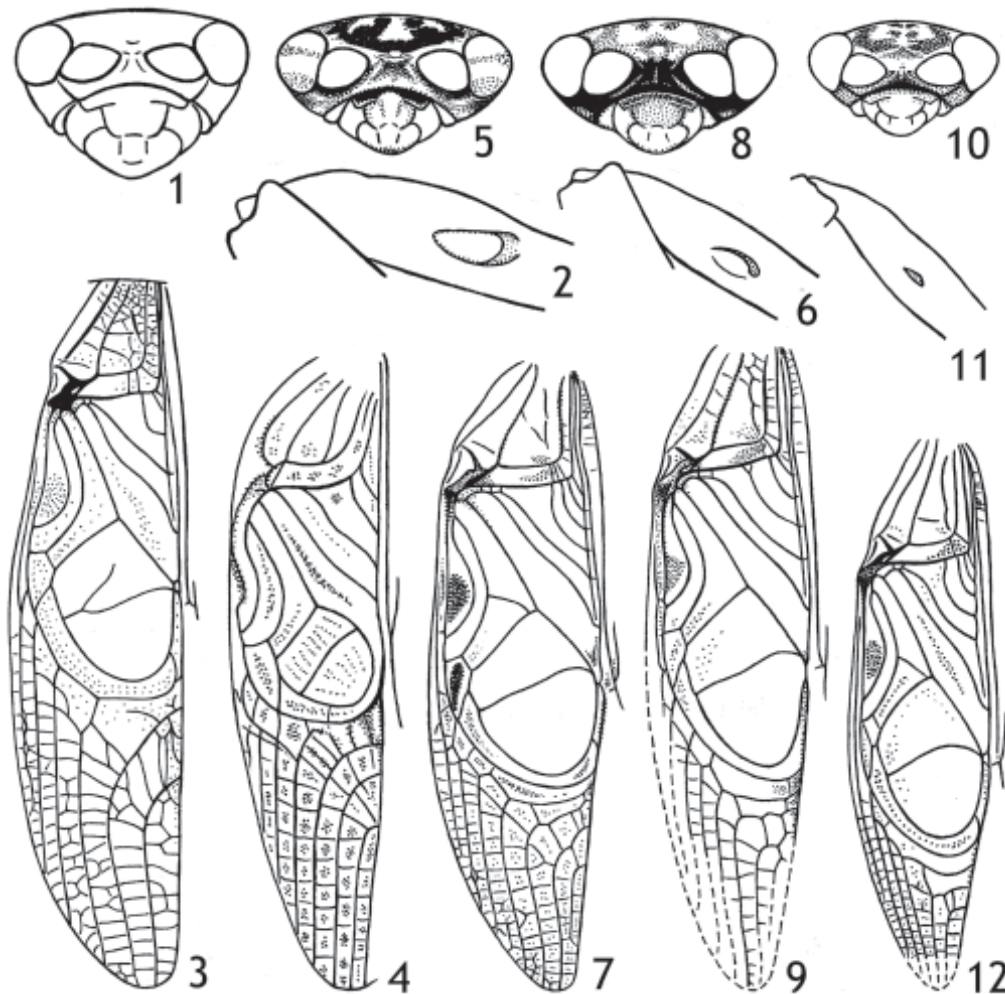
Figs VIII (1-15). 1, 2, *Pachyaphonus murzini* sp. n.; 3, *P. bicolor* Chop. (from Chopard, 1954); 4, 5, *Eumadasumma ?lucens* Chop.; 6, *Depressotrella minuta* sp. n.; 7, 8, *D. modulata* sp. n. (holotype); 9, *D. testata* sp. n.; 10, *Homalotrypus boromensis* Brancs. (from Brancsik, 1895); 11, *Afrotruljalia uvarovi* sp. n.; 12, *A. pulla* sp. n.; 13, *Hemitruljalia viridula* sp. n.; 14, *Acrophonus stenus* sp. n.; 15, *Pseudotruljalia speciosa* sp. n. Head and pronotum from above (1, 4, 6, 7, 9) and from side [2, 5, 8, 10-15 (2, 10-14, coloration not depicted)]; general view from above (3).



Figs IX (1-10). 1, *Pseudotruljalia? nigronotata* (Chop.) (from Chopard, 1934); 2-5, *P. speciosa* sp. n.; 6-8, *Calyptorhynchus? petersi* Sauss. (holotype); 9, *Paraphasius lepturoides* Chop. (from Chopard, 1927); 10, *Eumadasumma? lucens* Chop. General view of male from above (1, 9); head and pronotum from above (2); dorsal part of male right tegmen (3); inner side of fore tibia (4) and of its proximal half (6); male metanotal gland (5, 10); apex of ovipositor from below (7) and from side (8).

dark brown outer part; fore femora dark brown with light brown base and longitudinal stripe on lower side; middle and hind coxae light brown; middle and hind femora reddish brown with lighter base and dark brown distal part; all tibiae and tarsi dark brown; tegmina almost transparent (slightly greyish), but with brown veins [some of them dark brown: two anal chords, veins in

basal area and along tegminal bend, some veins around distal half of mirror (Fig. IX: 3), and proximal parts of Sc branches]; hind wings, lower part of thorax and abdomen, and cerci light brownish; upper part of pterothorax and abdomen darker (brown). Eyes very large; ocelli absent. Pronotum moderate in length, distinctly narrowed to head, with sharp bend between disc



Figs X (1-12). *Eumadasumma*, *Homalotrypys* and *Depressotrella*, male. **1-3,** *E. ?lucens* Chop.; **4,** *H. boromensis* Brancs. (from Brancsik, 1895); **5-7,** *D. modulata* sp. n. (holotype); **8, 9,** *D. testata* sp. n.; **10-12,** *D. minuta* sp. n. Head, anterior view (1, 5, 8, 10) (1, coloration not depicted); inner side of proximal half of fore tibia (2, 6, 11); dorsal part of right tegmen (3, 4, 7, 9, 12).

and lateral lobes as well as with distinct small concavity at centre of disc (this concavity blackish; Fig. IX: 3). Inner tympanum of fore tibiae rather long and narrow (Fig. IX: 4). Metanotal gland, venation of tegmina, and genitalia as in Figs IX: 3, 5 and XI: 1-3.

Female unknown.

Length (mm). Body 17; body with wings 26; pronotum 2.4; tegmina 18; hind femora 9.5.

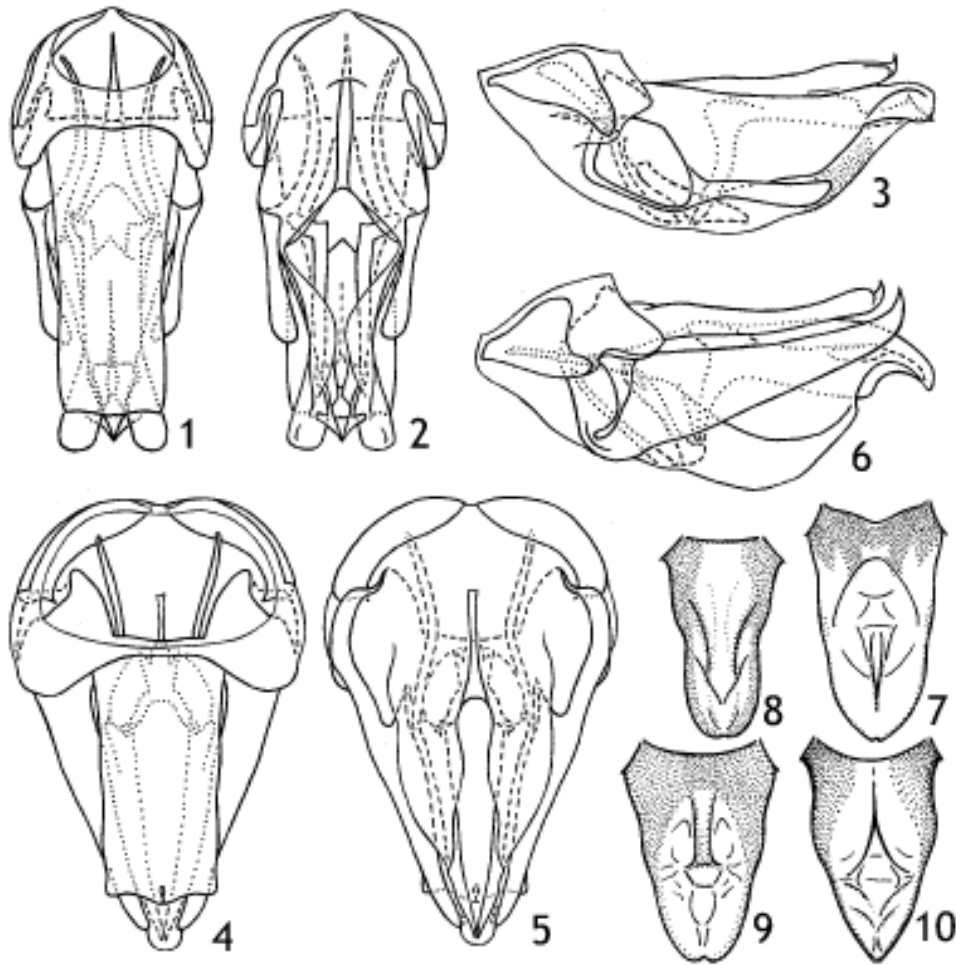
Comparison. *P. speciosa* is similar to *P. ? nigronotata*, comb. n., in the coloration of the pronotum and venation of male tegmina (for comparison, see Figs IX: 1-3), but differs from the

latter species in the larger eyes, absence of the ocelli (in *P. ? nigronotata*, small lateral ocelli are present), the position of dark median spot located almost in the centre of pronotal disc (in its distal part in *P. ? nigronotata*), the darker legs, and more inflated fore tibiae.

Genus ***Eumadasumma*** Chopard, 1934

Type species: *Eumadasumma lucens* Chopard, 1934.

Note. This genus is characterized by the following features: the body is strongly dorsoventrally depressed (head flattened and lateral pro-



Figs XI (1-10). Male. 1-3, *Pseudotruljalia speciosa* sp. n.; 4-7, *Eumadasumma ?lucens* Chop.; 8, *Depressotrella minuta* sp. n.; 9, *D. modulata* sp. n. (holotype); 10, *D. testata* sp. n. Genitalia from above (1, 4), from below (2, 5) and from side (3, 6); genital plate from below (7-10).

notal lobes low; Figs VIII: 5; X: 1); the head rostrum is rather narrow, not strongly projected anteriorly (Fig. VIII: 5), with almost angular apex as seen from above (Fig. VIII: 4); the ocelli are absent; the eyes are rather large (Figs VIII: 4, 5); each fore tibia has an open oval outer tympanum and slit-like inner one (Fig. X: 2); hind femora are comparatively thin; male metanotal gland is well developed, somewhat similar to that of *Hemitruljalia* (Fig. IX: 10); the wings are long; male stridulatory apparatus is well developed, with rather large mirror (Fig. X: 3); hind wings are much longer than tegmina; the anal and genital plates are of the same type as in the previous genera (Fig. XI: 7); the male genitalia are with a pair of small hook-like projections at the apex of upper epiphallic lobe; this lobe is long and al-

most parallel-sided; epiphallic ectoparameres are long and thick, provided with hooked apex; membranous windows between these ectoparameres and the bases of lateral epiphallic lobes are very narrow (Figs XI: 4-6); the ovipositor is very long, supplied with a drilling apex.

Included species. Type species only.

***Eumadasumma ?lucens* Chopard, 1934**
(Figs VIII: 4, 5; IX: 10; X: 1-3; XI: 4-7)

Material. **Zaire or Zambia:** 1 ♂, "Kipushi, N. Rhodesia, Silvester Evans, 98.28" (ZIAS) [identified by Chopard(?) and Townsend as *E. lucens*]. **Kenya:** 1 ♀, "Kenya: van Someren, Kaitir, 2.47", "V.G.L. van Someren Collection" (ZIAS) [identified by Townsend as *E. lucens*].

Note. The specimens were received from B. Townsend as an exchange between ZIAS and

BMNH. These specimens and the holotype of this species (Tanzania) were collected in very distant localities of Africa; all have some differences in size and coloration and may belong to two or three very similar species. Coloration of the head and pronotum of the female from Kenya is given in Figs VIII: 4, 5; coloration of the male from Kipushi is very similar, but dark median stripe on pronotal disc is distinctly narrower and does not reach anterior and posterior edges of the pronotum. Some other structures are as in Figs IX: 10; X: 1-3; XI: 4-7.

Length (mm). Body: ♂ 22, ♀ 21; body with wings: ♂ 30, ♀ 33; pronotum: ♂ 2.9, ♀ 3.2; tegmina: ♂ 21, ♀ 24; hind femora: ♂ 11.8, ♀ 12.7; ovipositor 24.

Genus *Depressotrella* gen. n.

Type species: *Depressotrella modulata* sp. n.

Diagnosis. Similar to *Eumadasumma* in general appearance, but distinguished by following features: body more strongly depressed dorsoventrally (Figs VIII: 8; X: 5, 8, 10); head rostrum somewhat wider and with almost truncated apex as seen from above (Figs VIII: 6, 7, 9); eyes slightly larger; inner tympanum distinctly narrower (Figs X: 6, 11); male metanotal gland absent; in male tegmina, oblique veins longer, mirror larger, and apical area shorter (Figs X: 7, 9, 12); male genitalia with shorter upper epiphallic lobe narrowing to apex, slightly shorter epiphallic ectoparameres provided with upper spine-like process near apex, and longer proximal lobule at base of each lateral epiphallic lobe occupying most part of membranous windows between these bases and epiphallic ectoparameres (Figs XII).

Included species. Type species, *D. testata* sp. n. and *D. minuta* sp. n.

Comparison and note. This genus is closely related to the genus *Eumadasumma*, and, possibly, it is only a subgenus of *Eumadasumma*. The differences between these genera are listed above. From *Homalotrypus* Brancs., *Depressotrella* differs in the much smaller eyes and much larger mirror of male tegmina (for comparison, see Figs VIII: 8, 10; X: 4, 7, 9, 12). From all other genera of "*Dolichogryllus*" generic group, it is distinguished by the very depressed body, absence of the ocelli, presence of both (inner and outer) tympana, strongly-developed stridulatory apparatus in male tegmina, and characteristic structure of the male genitalia.

Depressotrella modulata sp. n.

(Figs VIII: 7, 8; X: 5-7; XI: 9; XII: 1-4)

Holotype. ♂, **Namibia**, "Okanhandja, S. W. Africa" (MNHU).

Paratypes. Namibia: 1 ♂, "Damaraland, Ebony Mine a Khanfhis, X.1885, A. Schenck S." (MNHU) [identified as *Rupilius nigrosignatus*]; 1 ♂, "Deutsch S. W. Afrika, Gobabis, X.96, Borchmann S." (ZIAS) [identified as *Xenogryllus* Bol.].

Description. Male (holotype). Coloration yellowish with several dark brown elements [stripes and spots on upper part of head and pronotum (Fig. VIII: 7), parts of genae under and behind eyes, lower half of pronotal lobes (Fig. VIII: 8), and small spots on dorsal tegminal part] and several lighter (brown or brownish) elements [small spot under rostral apex, narrow stripes under antennal cavities and along clypeal suture (Fig. X: 5), two longitudinal stripes on eyes, spots at apex of scape and on basal part of flagellum, numerous small spots on legs, larger spots at apex of hind femora and at base of hind tibiae, upper surface of distal part of hind tibiae (excepting their spines), distal part of all tarsi, longitudinal veins of tegmina, rows of spots along median line of abdomen and along its lateral parts, and base of genital plate (Fig. XI: 9)]. Legs comparatively long, with very narrow inner tympanum (Fig. X: 6). Tegmina with dorsal part as in Fig. X: 7; their lateral part with numerous arched longitudinal veins and without crossveins.

Genital plate and genitalia as in Figs XI: 9; XII: 1-4.

Variation. Coloration of anterior part of head under rostral apex sometimes almost uniformly yellowish; tegminal membranes sometimes almost completely transparent.

Female unknown.

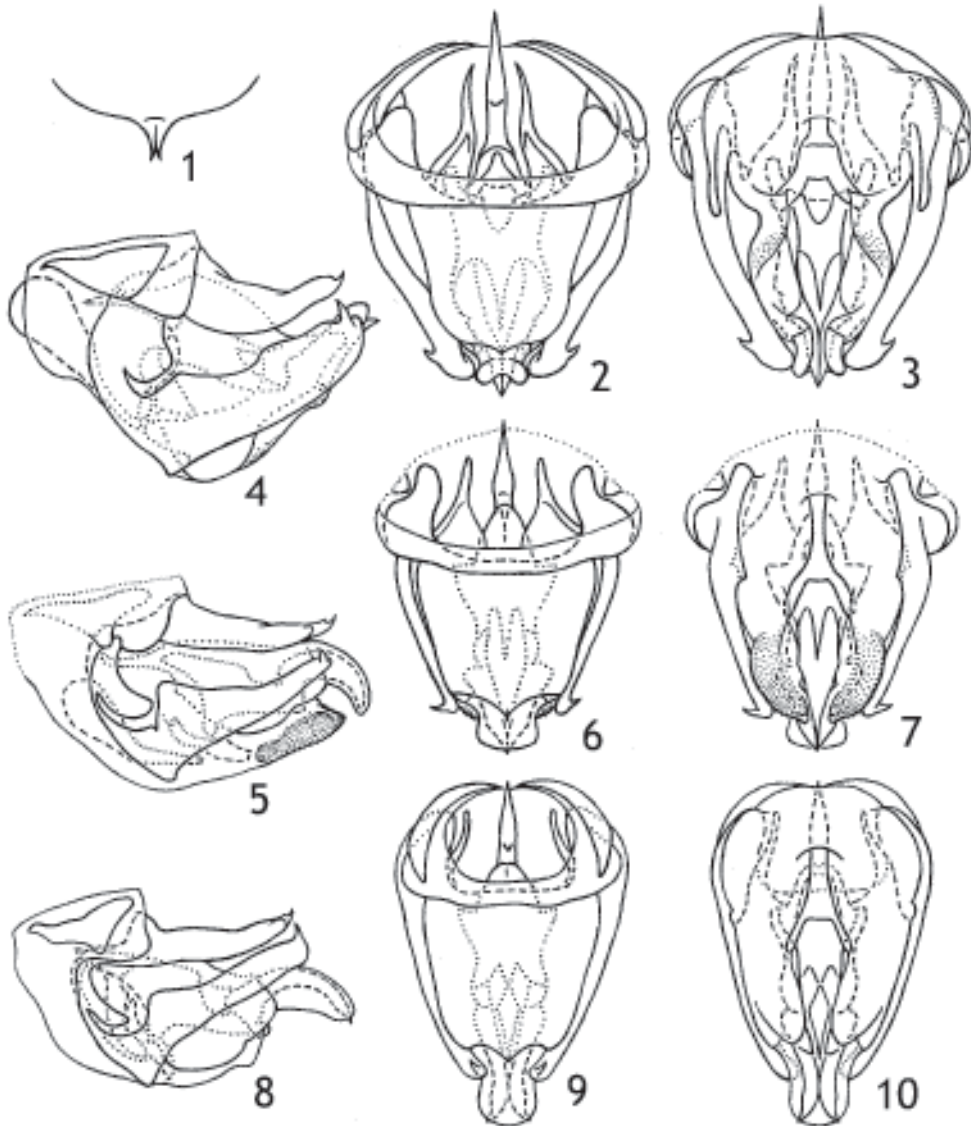
Length (mm). Body 17-20; body with wings 25-27; pronotum 2.4-2.6; tegmina 19-21; hind femora 11.

Depressotrella testata sp. n.

(Figs VIII: 9; X: 8, 9; XI: 10; XII: 5-7)

Holotype. ♂, **Botswana** or **South Africa**, "Brit. S. W.-Afrika, L. Schultze S." (MNHU) [identified as *Rupilius nigrosignatus*].

Description. Male (holotype). Very similar to *D. modulata*, but distinguished by following characters: stripes and spots on upper part of head and pronotum less distinct, brown or brownish (Fig. VIII: 9); anterior part of head under eyes, antennal cavities, and rostral apex almost dark brown (Fig. X: 8); dark spots on other parts of body less distinct or smaller (Figs X: 9; XI: 10); dorsal part of tegmina with oblique veins almost parallel, chords shorter, mirror longer and narrower, and apical area longer (Fig. X: 9); genitalia with distinctly narrower bases of lateral epiphallic lobes and distal part of their ectoparameres; membranous windows between these bases and ectoparameres longer; proximal lobule of these bases distinctly longer (Figs XII: 5-7).



Figs XII (1-10). *Depressotrella*, male. **1-4.** *D. modulata* sp. n. (holotype); **5-7.** *D. testata* sp. n.; **8-10.** *D. minuta* sp. n. Apex of proximal (upper) lobe of epiphallus anterodorsally (1); genitalia from above (2, 6, 9), from below (3, 7, 10), and from side (4, 5, 8).

Structure and coloration of legs unknown (they missing).

Female unknown.

Length (mm). Body 16; body with wings 26; pronotum 2.5; tegmina 21.

***Depressotrella minuta* sp. n.**

(Figs VIII: 6; X: 10-12; XI: 8; XII: 8-10)

Holotype. ♂, **Namibia**. "D. S. W.-Afrika, Kung-Buschmannld, Lübbert S.V." (MNHU) [identified as *Rupilius nigrosignatus*].

Description. Male (holotype). Similar to both previously-considered congeners, but distinctly smaller. Coloration of head and pronotum more similar to that of *D. modulata* than *D. testata* (Figs VIII: 6; X: 10), but coloration of other parts of body most similar to that of *D. testata* (Figs X: 12; XI: 8); fore and middle legs almost uniformly yellowish (hind legs missing). Inner tympanum clearly shorter than in *D. modulata* (Fig. X: 11). Tegmina as in previous congeners, but their dorsal part more similar to that of *D. testata* (ex-

cept oblique veins which more similar to those of *D. modulata* (Fig. X: 12).

Genitalia as in *D. testata*, but proximal part of ectoparameres narrower, distal one wider (but narrower than in *D. modulata*), and membranous lower distal lobes of guiding rod distinctly shorter (Figs XII: 8-10).

Female unknown.

Length (mm). Body 14.5; body with wings 20; pronotum 1.9; tegmina 14.

AFRICAN PODOSCIRTINAE WITH UNSTUDIED MALE GENITALIA

Some taxa of African Podoscirtinae are studied insufficiently or known only from female. At present, it is impossible to infer whether they are closely related to any of the above genera (or to "*Dolichogryllus*" generic group as a whole) or not. These taxa are considered here, whereas the African representatives with primitive male genitalia characteristic of "*Podoscirtus*" generic group were considered in the previous paper (Gorochov, 2004).

The genus *Homalotrypus* Brancsik, 1895 includes only the type species (*H. boromensis* Brancsik, 1895) described from a single male (environs of Zambezi River: "Boromam"). It is a rather large cricket with the dorsoventrally depressed and spotted body, very large eyes (Fig. VIII: 10), and developed stridulatory apparatus (Fig. X: 4). The genitalia of this specimen are exposed and probably reversed (Brancsik, 1895: Tab. IX, Figs 8a, e); their structure is unclear. From the previous genera, this one differs in the distinctly larger eyes and the venation of dorsal tegminal part (comparatively small, almost round mirror and long apical area).

Paranaudus Saussure, 1878 including only the type species (*Anaudus terebrans* Saussure, 1878) was described as a separate subgenus, from a single specimen (female from Zanzibar). It is slightly smaller than the above species and clearly distinguished from all previous genera by the apterous body and presence of only outer tympanum (Saussure, 1878: Fig. LXXII). Another species, *P.(?) micropterus* Chopard, 1925 (Madagascar) has been included in this genus by Chopard (1952), but this inclusion is probably erroneous, because the species is characterized by the presence of short tegmina and absence of the tympana (Gorochov, 2004).

The genus *Rupilius* Stål, 1876 including only the type species (*R. nigrosignatus* Stål, 1876 described from a single female from "Damara") is similar to *Paranaudus* in the size and presence of only outer tympanum, but differs in the presence of long wings (Stål, 1876). From the other genera of "*Dolichogryllus*" generic group, *Rupi-*

lius is distinguished by the above-mentioned structure of tympana.

Paraphasius Chopard, 1927 containing only the type species (*P. lepturoides* Chopard, 1927; "East Africa: Tandala") is characterized by the slender body with very long pronotum and thin legs, absence of the tympana and male stridulatory apparatus, slightly shortened tegmina (and, possibly, reduced hind wings) with irregular venation of their dorsal part (Fig. IX: 9). All these characters clearly distinguish this genus from other genera of the Podoscirtinae (Chopard, 1927).

Aphonomorphus diadematus Bolí var, 1910 (Equatorial Guinea: Cabo San Juan) is described from a single male characterized by the comparatively small size and long tegmina without stridulatory apparatus. The structure of ocelli and tympana was undescribed (Bolivar, 1910). Later, this species was transferred to the genus *Aphonoides* Chop. (Aphonoidini) by Chopard (1968; as "*dimidiatus*"). However, other representatives of both the taxa are only American (*Aphonomorphus* Rehn) or exclusively Australasian-Oceanian (Aphonoidini); they are unknown from Africa. This species may be related to *Pachyaphonus* considering the complete absence of male stridulatory apparatus, but this character is insufficient to make such a conclusion.

Calyptotrypus petersi Saussure, 1878 was described from a single female collected in Sudan (Saussure, 1878: "Senaar") and deposited in MNHU. I examined the specimen designated as the holotype of *C. petersi* during the visit to this museum, but it is provided with another geographical label ("Samar, Jagor"). Possibly, this specimen was collected by F. Jagor during his famous expedition to the Philippines (Samar I.), and Saussure erroneously read the name "Samar" as "Senaar" or "Sennar" (two variants of name of the same town in Sudan). This specimen is a large cricket with rather light coloration (almost uniformly greyish brown) and the head slightly depressed dorsoventrally; upper part of the head, pronotum and dorsal part of tegmina as well as hind tibiae and apical parts of hind femora are hardly darker than all other parts of body; the ocelli are rather large, convex, and situated not far from each other; the tegmina are very long and with the distinct longitudinal veins; hind wings are distinctly longer than tegmina; outer tympanum is open and almost round, inner one is slit-like but distinctly widened (Fig. IX: 6); the ovipositor is well developed, with drilling apex as in Figs IX: 7, 8. The generic position of this species is unclear. In general appearance, it is similar to representatives of Indo-Malayan *Vari-trella* Gor. and Madagascan *Fryerius* Uv. From all African Podoscirtinae, it is distinguished by

the following combination of characters: large size, uniform coloration, large ocelli, and comparatively short ovipositor.

Length (mm). Body 22.5; body with wings 36; pronotum 3.7; tegmina 26; hind femora 16; ovipositor 16.8.

The enigmatic *Podoscirtus tacitus* Saussure, 1878 with unclear geographic data (Saussure, 1878: "La Guinée?" and "Java?") was transferred to the genus *Munda* Stål (Aphonoidini) by Chopard (1968). He considered that the specimen originated from Java. This species is clearly distinguished from all African Podoscirtinae by the absence of male stridulatory apparatus and the presence of both (inner and outer) tympana.

Finally, the African genus *Orthanaudus* Karny, 1910, originally included in Podoscirtinae, belongs to Gryllinae, and a single species, *O. mutus* Karny, 1910, was recently synonymized with *Clearidas nigriceps* Stål, 1876 (Gorochov, 1996).

GEOGRAPHICAL PART

DISTRIBUTION OF THE GENERA OF PODOSCIRTINI

This partial revision of the Old World Podoscirtini, containing descriptions of many new genera and subgenera, enables one to clarify some features of the generic distribution of Podoscirtini. The range of this tribe (almost entirely tropical but including some subtropical territories) is divided into 7-8 regions with almost endemic generic compositions.

The Indo-Malayan fauna consists of two large regional faunas with only a single common genus: (1) fauna of the Indian Subcontinent (= Hindustan) and Sri Lanka (4 endemic genera), (2) that of Indochina, the Malay Archipelago and the Philippines (15-16 endemic genera). The generic composition of these faunas is shown in Fig. XIII*. The subgenus *Amnesibulus* Gor. is recorded on this map as a separate genus. [It is not inconceivable that *Amnesibulus* is a distinct genus, which includes only the type species from Sulawesi, as this species is very different from all species of the subgenus *Mnesibulus* Stål in the structure of the male genitalia; *M. congruus* (Walk.) from the Philippines, previously included in *Amnesibulus* (Gorochov, 2003), seems to be more closely related to the subgenus *Mnesibulus*, as the similar reductions of the male stridulatory apparatus in the type species of *Amnesibulus* and in *M. congruus* may be a result of convergence]. The genus *Aphasius* Sauss. from Timor

is not indicated on the map, because its male genitalia are unknown, and its tribal position (Podoscirtini or Aphonoidini) is unclear. The occurrence of *Varitrella* Gor. in both the regions is also problematic, as this genus consists of several groups of species which may have only convergent similarity in the structure of the guiding rod (a similar convergence is observed in *Mnesibulus*).

The Podoscirtini of the Indian Subcontinent and Sri Lanka are poorly studied. However, it is very likely that more than five genera occur in this region, considering that some species from this region mistakenly described in the genera *Madasumma* Walk., *Calyptotrypus* Sauss., and *Mnesibulus*, have insufficiently studied male genitalia and very probably belong to new endemic genera.

The fauna of Indochina (including more northern territories of Asia from the Himalaya to Japan) and that of the Malay Archipelago include six common, widely distributed genera. One of them, *Sonotrella* Gor., includes an Indochinese subgenus (*Sonotrella* s. str.) and two Malayan ones, characteristic also for the Sunda Isles (*Calyptotrella* Gor. and *Megatrella* Gor.). The division of this region into the two above parts is supported also by the distribution of other genera: six genera are endemic for Indochina and three ones, for the Malay Archipelago. It is unexpected that all rather numerous endemic Indochinese genera are distributed only in northern Indochina and adjacent northern territories. Possibly, it is a result of our insufficient knowledge of the Podoscirtini of more southern territories. The fauna of the Philippines is characterized by the presence of two widely distributed genera (*Mnesibulus* and *Varitrella*) and a single endemic genus (*Scepastus* Gerst.). Its generic composition is very insufficiently studied.

Within Australia and Oceania, three regions with completely endemic generic composition of Podoscirtini may be outlined, although the data are very preliminary: (1) Australia (3 endemic genera), (2) New Caledonia, the Loyalty Islands, Norfolk and Lord Howe islands (4-5 endemic genera), (3) New Guinea and the nearest islands (1 endemic genus) (Fig. XIV). There is a single genus distributed in Australia, Fiji, and Samoa (*Hemiphonus* Sauss.). Possibly, it is represented by the same species in all these regions. *Mundecus* Chop., a subgenus of *Hemiphonus*, has been recorded for Indochina and Malacca, but this indication is very doubtful (Gorochov, 2003). Possible causes for such distribution of *Hemiphonus* will be discussed below.

* The generic names, *Valia* Gorochov, 1985 (Indochinese Podoscirtini) and *Valia* Alexeev, 1979 (Hymenoptera) are homonyms; I propose here a replacement name, *Valiatrella* **nom. n.** instead the junior homonym.

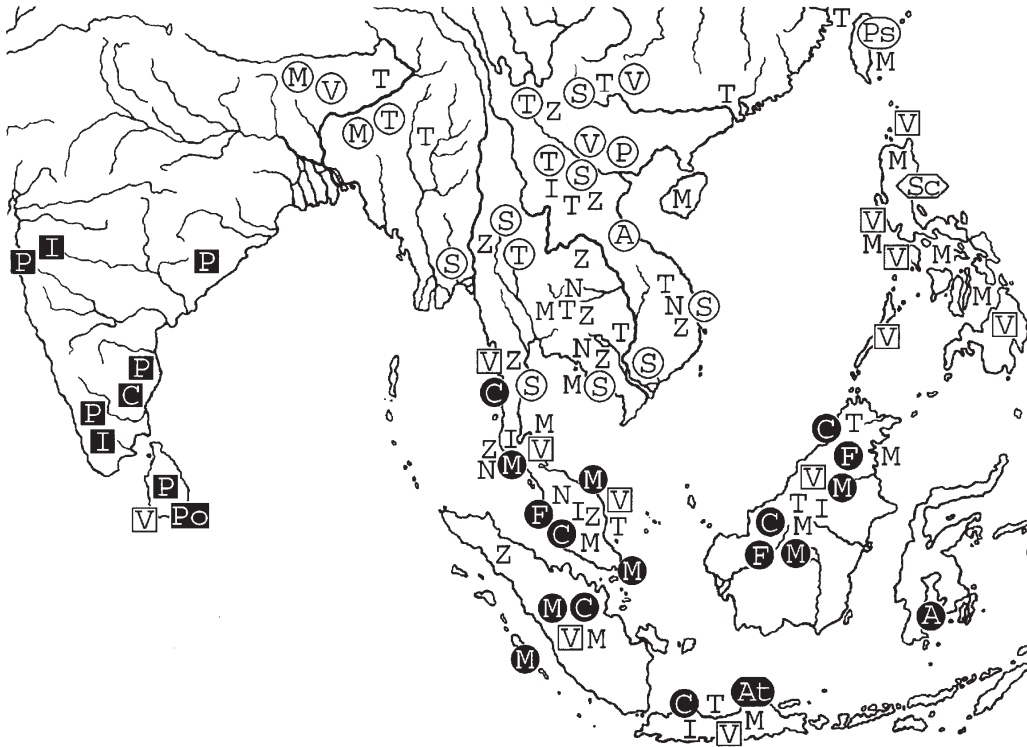


Fig. XIII. Distribution of Indo-Malayan genera.

- | | | |
|----------------------------------|---|------------------------------|
| 1. Very wide distribution | N - <i>Noctitrella</i> Gor. | Ⓥ - <i>Valiatrella</i> Gor. |
| Ⓥ - <i>Varitrella</i> Gor. | ⓈⓐⓂ - <i>Sonotrella</i> Gor. | c) Malay Archipelago |
| 2. Hindustan and Sri Lanka | T - <i>Truljalia</i> Gor. | Ⓐ - <i>Amnesibulus</i> Gor. |
| Ⓒ - <i>Corixogryllus</i> Bol. | Z - <i>Zvenella</i> Gor. | ⒶⓉ - <i>Atrella</i> Gor. |
| Ⓘ - <i>Indotrella</i> Gor. | b) Indochina (except Malacca) | Ⓕ - <i>Furcitrella</i> Gor. |
| ⓐⓐ - <i>Poliotrella</i> Gor. | and adjacent northern territories | Ⓒ - <i>Sonotrella</i> |
| ⓐ - <i>Prozvenella</i> Gor. | Ⓐ - <i>Abaxitrella</i> Gor. | (<i>Calypotrella</i> Gor.) |
| 3. Indochina, Malay Archipelago, | Ⓜ - <i>Madasumma</i> Walk. | Ⓜ - <i>Sonotrella</i> |
| and adjacent territories | ⓐ - <i>Phyllotrella</i> Gor. | (<i>Megatrella</i> Gor.) |
| a) wide distribution | ⓐⓈ - <i>Pseudomasumma</i> Shir. | d) Philippines |
| I - <i>Idiotrella</i> Gor. | Ⓢ - <i>Sonotrella</i> (<i>Sonotrella</i>) | ⓈⒸ - <i>Scepastus</i> Gerst. |
| M - <i>Mnesibulus</i> Stål | Ⓣ - <i>Trelleora</i> Gor. | |

The Podoscirtini fauna of Lord Howe Island consists of a single genus, *Insulascirtus* Otte & Rentz. Representatives of this genus are apterous and very similar in the structure of the body and male genitalia to those of *Trellescirtus* Gor., one of two subgenera of the genus *Calscirtus* Otte, Alex. & Cade (in these subgenera, known only from New Caledonia, the wings are well

developed and the male tegmina has a stridulatory apparatus). I cannot exclude that *Trellescirtus* is more closely related to *Insulascirtus* than to *Calscirtus*, therefore this taxon is considered as a genus on the map.

The fauna of New Guinea and the nearest islands is very poorly studied. Two variants are possible: either the Podoscirtini fauna of this re-

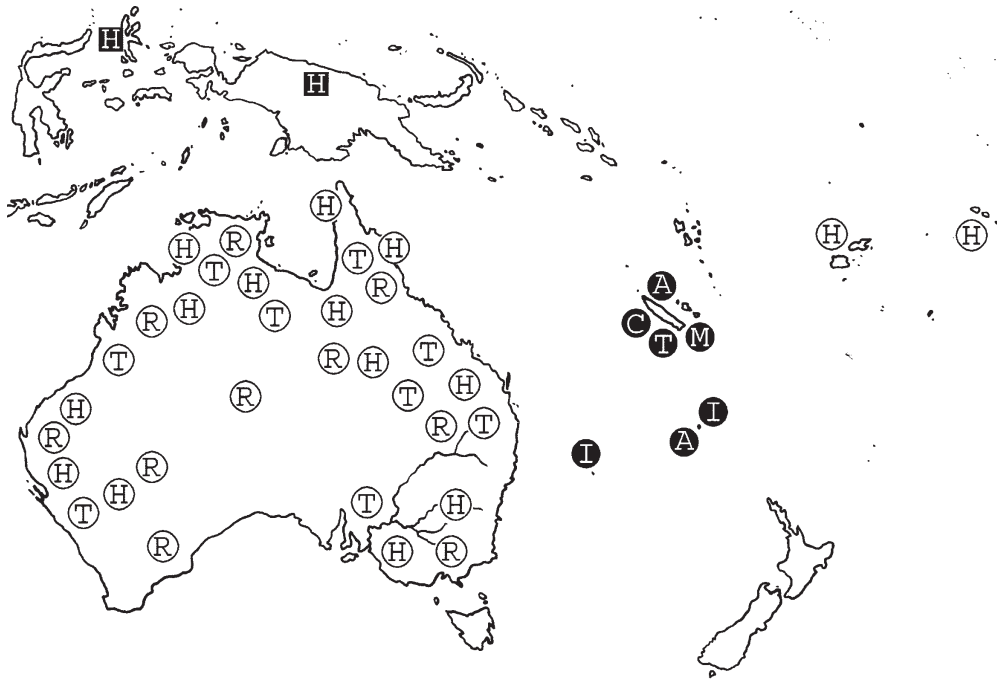


Fig. XIV. Distribution of Australo-Oceanian genera.

1. New Guinea and the nearest islands

H - *Hemitrella* Gor.

2. Australia, Fiji and Samoa

H - *Hemiphonus* Sauss.

R - *Riatina* Otte & Alex.

T - *Tamborina* Otte & Alex.

3. New Caledonia, Norfolk and Lord Howe islands

A - *Adenopterus* Chop.

C - *Calscirtus* Otte, Alex. & Cade

I - *Insulascirtus* Otte & Rentz

M - *Matuanus* Gor.

T - *Trellescirtus* Gor.

gion is highly endemic (it is very probable as similar situation was discovered in the New Guinean Phalangopsinae), or it is very similar to the fauna of one of the nearest regions and may be considered as its part.

A most interesting generic distribution of Podoscirtini is in Africa and Madagascar (Fig. XV). The fauna of Madagascar and the nearest islands consists of 10 endemic genera and a single subgenus (*Brevitrella* Gor.) of the almost exclusively African genus *Kilimagryllus* Sjöst. This subgenus is recorded on the map as a separate genus (it is not impossible that these taxa are not very closely related). All the Madagascan genera belong to "Podoscirtus" generic group characterized by a rather primitive type of the male genitalia.

The African fauna includes no genera common with other regions except Madagascar (*Brevitrella*). There are 13-14 endemic genera in this region. The majority of them (8) belong to "Dolichogryllus" generic group related to the Indo-

Malayan genus *Truljalia* and having the highly modified type of the male genitalia. Some of four genera with unstudied male genitalia also may belong to the same group. A few endemic taxa (*Parametrypa* Br. v. W. and *Kilimagryllus* s. str.) belong to "Podoscirtus" generic group.

Finally, a few endemic American genera are known which also may belong to the tribe Podoscirtini (*Aphonomorphus* Rehn and some others), but their taxonomy and geography require a special study including comparisons with the endemic American tribes of Podoscirtinae.

PRELIMINARY HYPOTHESES ON HISTORICAL GEOGRAPHY OF THE PODOSCIRTINI

The high generic endemism of the Podoscirtini results from the low ability of this group to overcome geographical barriers. The comparatively narrow sea spaces between Africa and



Fig. XV. Distribution of Afro-Madagascan genera.

- | | | |
|-------------------------------------|-----------------------------------|-----------------------------------|
| 1. "Podoscirtus" generic group | (S) - <i>Spinotrella</i> Gor. | (H) - <i>Hemitruljalia</i> Gor. |
| (A) - <i>Atruljalia</i> Gor. | (St) - <i>Stenotrella</i> Gor. | (Pa) - <i>Pachyaphonus</i> Chop. |
| (B) - <i>Brevitrella</i> Gor. | (U) - <i>Ultratrella</i> Gor. | (P) - <i>Pseudotruljalia</i> Gor. |
| (E) - <i>Eupodoscirtus</i> Gor. | (Z) - <i>Zvenellomorpha</i> Gor. | 3. Genera with uncertain position |
| (F) - <i>Fryerius</i> Uv. | 2. "Dolichogryllus" generic group | H - <i>Homalotrypus</i> Brancs. |
| (K) - <i>Kilimagryllus</i> Sjost. | (Ac) - <i>Acrophonus</i> Bol. | P - <i>Paranaudus</i> Sauss. |
| (M) - <i>Malgasotrella</i> Gor. | (A) - <i>Afrotruljalia</i> Gor. | Pa - <i>Paraphasius</i> Chop. |
| (N) - <i>Neozvenella</i> Gor. | (De) - <i>Depressotrella</i> Gor. | R - <i>Rupilius</i> Stål |
| (Pa) - <i>Parametrypa</i> Br. v. W. | (D) - <i>Dolichogryllus</i> Bol. | |
| (P) - <i>Podoscirtus</i> Serv. | (E) - <i>Eumadasumma</i> Chop. | |

Madagascar as well as between the Malay Archipelago, New Guinea, Australia, and Lord Howe Island present almost complete barriers to dispersal by these insects, even though they fly well. Their successful invasions to oceanic islands or isolated continents were very rare. During long intervals between such invasions, numerous endemic genera have formed. Large territories of land also can be significant barriers for Podoscirtini (for example, the regions of Indian Subcontinent and Indochina).

Judging by the palaeontological finds, Eurasia was one of the most important territories for the evolution of Podoscirtinae. An earliest possible representative of this subfamily was described from Eocene Baltic amber (Chopard, 1936: *Madasumma europensis* Chop.). [This species does not belong to *Madasumma* Walk., and it is impossible to include it in any recent tribe. Another species from Baltic amber, *Stenogrylloides brevipalpus* Chopard, 1936, also included in Podoscirtinae in the same paper, possibly does not

belong to this subfamily; for this species, the genus *Stenogrylloides* Chopard, 1936* was established]. Another fossil taxon possibly belonging to Podoscirtini was also recorded from Europe (*Sharovella* Gor. from Miocene of the North Caucasus).

During many millions years, the climate of most part of Eurasia was warmer and more humid than at present, possibly subtropical. It is conceivable that Podoscirtinae were distributed over much larger territory of Eurasia than now, and this continent might have been one of the sources of the Podoscirtinae faunas for other territories. This hypothesis supposes that the most primitive group of Podoscirtini, characterized by both pairs of tympana open and the primitive male genitalia, first developed in Eurasia, but some its representatives (the ancestors of Australo-Oceanian genera and Afro-Madagascan "*Podoscirtus*" generic group except for *Fryerius* Uv.) overcame seas and reached New Guinea, Australia, New Caledonia, Africa, and Madagascar. The history of other tribes of the subfamily is less clear.

Conceivably, the described process took place over a very long time. For example, this primitive group first could reach Africa (possibly, this occurred in Oligocene, before the end of isolation of Africa) and began differentiation into species and genera, and only much later (possibly, in Miocene), it reached Madagascar. Probably, *Kilimagryllus*, *Brevitrella* and *Parametrypa* are the recent remainders of this primitive group. The first penetration to Madagascar has been performed by a single common ancestor of the genera *Podoscirtus* Serv., *Eupodoscirtus* Gor., *Atruljalia* Gor., *Malgasotrella* Gor., *Neozvenella* Gor., *Spinotrella* Gor., *Ultratrella* Gor., and *Zvenellomorpha* Gor. All these Madagascan genera are characterized by the presence of a tubercle on the hind part of each medial (upper) apical epiphallic process of the male genitalia; *Stenotrella*, lacking such tubercle, is possibly a descendant of the same ancestor, as strong reduction of this tubercle is found in some species of the previous genera. Possibly, all evolution of these taxa passed in Madagascar only.

When considering Australo-Oceanian Podoscirtini, it is necessary to note that all known Australo-Oceanian genera, including *Tamborina* Otte & Alex., probably belong to the above-considered primitive group. [My previous supposition about possible relationship between *Tamborina* and *Idiotrella* (Gorochov, 2002) is probably erroneous, as *Tamborina* has the open inner tym-

panum, but in *Idiotrella* it is distinctly slit-like]. The Podoscirtini fauna of Australia is known better than those of New Guinea, the Indian Subcontinent, and Africa. Low number of Australian and, possibly, New Guinean genera of Podoscirtini is possibly a result of competition with representatives of Aphonoidini, which are especially numerous and diverse in these two regions. The penetration of Australian species of *Hemiphonus* to the Fiji and Samoa is probably a recent phenomenon. These crickets may be spread by people or migrate on natural tree rafts; in the latter case, we must wait for finds of the same species in New Guinea and the Solomon Islands, as only through these islands, the natural expansion of recent species is most probable from Australia to very distant Fiji and Samoa beside New Caledonia and the Loyalty Islands (on the assumption that these species were always absent in the latter islands).

Colonization of New Caledonia by Podoscirtini could pass through New Guinea and the Solomon Islands or through Australia. Podoscirtini might have reached this island much later than both the above-mentioned regions (as in the case of Madagascar). Possibly, the New Caledonian Podoscirtini differentiated in this island from two ancestors, which gave two groups of closely related taxa: (1) *Matuanus* Gor. and *Adenopterus* Chop., and (2) *Calscirtus* and *Trellescirtus*. This hypothesis is supported by a certain morphological similarity of taxa in each of two pairs. The relationship of these pairs to each other (closer than to other primitive Podoscirtini) is not evident. Apterous *Insulascirtus* might have originated from flying *Trellescirtus* or from common ancestor of *Calscirtus* and *Trellescirtus* on one of two small islands (Norfolk I. or Lord Howe I.) and later have reached the second one using natural tree rafts.

The second period of Podoscirtini evolution probably began in Eurasia as well. In this period, Podoscirtini with slit-like inner tympana appeared and became widely distributed. At first, these crickets evidently had the primitive male genitalia more or less similar to those of "*Podoscirtus*" generic group. The genera *Fryerius* (Madagascar and the adjacent islands), *Varitrella*, *Mnesibulus* and, possibly, *Noctitrella* Gor. (Asia) are the probable recent remainders of such Podoscirtini. There are two possible ways of penetration of the *Fryerius* ancestor to the latter region: through Africa or through sea space between the Indian Subcontinent and Madagascan region.

* The generic name of recent Madagascan Podoscirtini, *Stenogrylloides* Chopard, 1952 (type species *Stenogrylloides lucens* Chopard, 1952) is its homonym; I propose here a replacement name, *Stenotrella* **nom. n.** instead the junior homonym.

However, the majority of recent Asian Podoscirtini have slit-like inner tympana and modified male genitalia. They form 6-7 evolutionary branches some of which probably originated from representatives of Podoscirtini similar to *Vari-trella*, *Mnesibulus*, *Noctitrella* and *Fryerius* in the structure of tympana and the male genitalia. One of these branches possibly includes some genera with very movable guiding rod and lacking epiphallallic ectoparameres: *Zvenella* Gor., *Prozvenella* Gor., *Indotrella* Gor., *Poliotrella* Gor., and, possibly, *Madasumma* Walk. It is interesting that all species of Podoscirtini from the Indian Subcontinent and Sri Lanka studied by me belong to these genera. It is not improbable that essential part of the recent fauna of Podoscirtini in this region originated from a single common ancestor that had reached Hindustan when it was situated quite near Asia (Early Miocene?).

Another branch of such Podoscirtini includes *Truljalia* Gor. and “*Dolichogryllus*” generic group. It is related to *Madasumma* and probably originated from its ancestor; in this branch, the epiphallallic ectoparameres are secondary, and the guiding rod is less movable or practically immovable. A representative of this branch might have reached Africa after the end of its isolation (Middle Miocene). In Africa, its descendants formed several genera (“*Dolichogryllus*” generic group), which now constitute the majority of species in the African fauna of Podoscirtini.

Probably, Podoscirtini with the slit-like inner tympana successfully displaced Podoscirtini with only open tympana. In Asian regions, the second group (with only open tympana) was almost completely replaced. At present, only a single representative of this group is known (*Atrella* Gor. in Java); it is not impossible that the enigmatic monotypic genus *Corixogryllus* Bol., known from the Indian Subcontinent and having no tympana, is also a remainder of the second group. The faunas of these regions include mainly Podoscirtini with the slit-like inner tympana belonging to several branches, but in Africa, such Podoscirtini are represented by only one branch, and possibly therefore the genera with the primitive state of tympana are more numerous in Africa (*Kilimagryllus* Sjöst., *Parametrypa* Br. v. W., etc.) than in Asia. However, the ability to overcome seas by the Podoscirtini with slit-like inner tympana is less than by the Podoscirtini with more primitive tympana (the first group did not reach Australia and Oceania).

Some features of morphology and distribution of the Podoscirtini demonstrate an interesting phenomenon. Both sister groups, the Indo-Malayan genus *Truljalia* and the African “*Dolichogryllus*” generic group, show the more or less similar level of diversity in the male genitalia.

Each of these sister groups may be considered as a genus divided into several subgenera on the basis of male genital structure. However, the external morphology of all *Truljalia* species is very uniform (all species represent the same life form), and undoubtedly all these species should be included in the same genus. In contrast to this, external morphology of “*Dolichogryllus*” generic group is very diverse (various life forms), and it is reasonable to divide it into several genera.

For this phenomenon, I can propose the following explanation. In the highly competitive environment that includes representatives of several branches of Podoscirtini with the slit-like inner tympana, change of life form by these crickets is very difficult because all accessible adaptive areas are occupied by numerous species of Podoscirtini with high competitive ability. The adaptive evolution in such conditions flows slowly, without quick changes in important adaptive characters, and the genetic drift is reflected mainly in the change of characters less closely associated with environment, for example in structure of the male genitalia (Gorochov, 2001). This type of evolution is characteristic of *Truljalia*.

Once a new group (for example, “*Dolichogryllus*” generic group) penetrates to the territory suitable for the colonization and subsequent adaptive radiation (Africa), and lacking any serious competitors (for example, there are only primitive Podoscirtini with both pairs of tympana open), its adaptive evolution progresses very quickly, as the change of life form (and external morphology, respectively) happens easily. At the same time, the characters less closely associated with environment (for example, structure of the male genitalia) have a rate of changes similar to that of the genetic drift (as in *Truljalia*). An analogous situation evidently took place also in most of Madagascan Podoscirtini after the penetration of the first representative of this tribe to Madagascar.

So, the following hypothesis is proposed: the rate of changes in the copulatory apparatus (provided the latter is compound) and rate of genetic drift are rather similar and possibly more or less constant; in the latter case, changes in such copulatory apparatus as well as molecular changes may be considered a certain kind of biological clock.

Acknowledgements

For the loan of the material for this study, I wish to thank the late Dr. G.B. Popov and J. Marshall (BMNH), Dr. K.K. Günther and I. Dorandt (MNHU), Dr. V. Lorente and Dr. I. Izquierdo (MNCN) as well as Dr. A. Liana (MIZP). This work is supported by the Russian Foundation for Basic Research (grant no. 04-04-48189).

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Received 11 August 2004