

Taxonomy of Podoscirtinae (Orthoptera: Gryllidae). Part 2: Indo-Malayan and Australo-Oceanian Podoscirtini

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Fourteen Indo-Malayan and Australo-Oceanian genera undoubtedly or possibly belonging to Podoscirtini are characterized; 4 new genera, 2 new subgenera, and 17 new species are described; several other species are considered (including revisions of type material, information about systematic position of some forms, and new data on distribution). Status of three generic names is changed into subgeneric (*Peltia*, *Archenopterus*, *Mundeicus*). One tribal name (Adenopterini Otte, 1994) is considered *nomen nudum*. New synonymy (*Promnesibulus* **syn. n.** = *Mnesibulus* s. str.) is established. Lectotypes for *Poliotrella greeni* and *Varitrella conspersa* as well as a neotype for *Matuanus priapus* are designated.

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This paper includes the second part of the partial review of Indo-Malayan Podoscirtini (Gorochov, 2002) and new data on taxonomy of Australo-Oceanian Podoscirtini. The study was based on the collections of 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); Museum National d'Histoire Naturelle, Paris (MNHN); Naturhistoriska Riksmuseet, Stockholm (NHRM); Museum Nacional de Ciencias Naturales, Madrid (MNCN); Muzeum i Instytut Zoologii, Polska Akademia Nauk, Warszawa (MIZP).

INDO-MALAYAN PODOSCIRTINI

Genus **Noctitrella** Gorochov, 1990

Type species: *Noctitrella tranquilla* Gorochov, 1990.

Note. This genus is characterized by the following somatic and genital features: the pronotum is rather long (Fig. I: 1); the structure of male tegmina is primitive (Figs I: 2, 10) (developed stridulatory apparatus, normal oblique veins, large and longitudinal mirror, long apical area, *R* and *M* not fused with each other before the lancet-shaped area); the tympana is typical of many Podoscirtini (outer tympana oval, not large; inner tympana somewhat larger, partly slit-shaped); the metanotal gland is well developed (central concavity with numerous long hairs;

hind lobe of gland distinctly arched) (Figs I: 3, 11, 13, 20); the male anal plate is short and rather simple (Figs I: 6, 14); the male genital plate is widened in the proximal 2/3 and narrowed in the distal part (Figs I: 4, 5) (the latter part soft and varying in shape as in Figs I: 12, 15, 16); the male genitalia are comparatively diverse, but the epiphallus is large, with proximal transverse band and large areas covered with hairs, the guiding rod is rather simple, the ectoparameres are well developed, narrow and with acute apex, the endoparameral apodemes and unpaired apodeme of mold of spermatophore attachment plate are long (Figs II: 1-11). Another characteristic of this genus is the structure of its ovipositor, which has more or less smooth and rounded apex of upper valvae (Figs I: 7-9, 17-19) (the method of oviposition is unknown); this character clearly separates *Noctitrella* from other Podoscirtini (which have the drilling ovipositor).

Composition. Four groups of species may be outlined. The first group is distinguished by the male metanotal gland with hind lobe wide (Fig. I: 11), the epiphallus with short spine-like processes (near apex), the guiding rod with rounded apex, and the presence of distinct additional ectoparamere-like structures near ectoparameres (Figs II: 1-3). This group includes the type species (Vietnam) and probably, *N. hirsuta* Ingrisch, 1997 (Thailand).

The second group differs in the metanotal gland with hind lobe clearly narrower (Fig. I: 3), the epiphallus with long spine-like processes (near

apex), the guiding rod with acute apex, and the absence of distinct additional ectoparamere-like structures (Figs II: 4-6). It includes *N. spinosa* sp. n. only.

The third group is similar to the second one (Figs I: 13, 20), but the epiphallus is lacking spine-like processes, and the guiding rod has bifurcated apex (Figs II: 7-11). It includes *N. ardua* sp. n., *N. parardua* sp. n., and *N. devexa* sp. n.

The fourth group is similar to the second and third ones in the structure of male metanotal gland (Fig. I: 21) and the male genitalia, but it differs in the epiphallus without spine-like processes, the guiding rod not bifurcated, and the ectoparameres very long (Figs I: 22-24). It includes *N. berezini* sp. n. and the Thaiandian *N. plurilingua* Ingrisch, 1997 [the identification of a single female from Chanthaburi Province as belonging to the same species as males from provinces Tak and Nakhon Ratchasima is probably erroneous, because the ovipositor of the above-mentioned female has clearly drilling apex (Ingrisch, 1997: Fig. 97)].

It is necessary to note that the female of *Noctitrella* was unknown before; this genus was described from a single male specimen only (Gorochoy, 1990).

***Noctitrella spinosa* sp. n.**
(Figs I: 1-9; II: 4-6)

Holotype. ♂, **Malaysia**, *Southern Malacca*, "Malaya, Kuala Lumpur, at light, Sept. 1936, N.C.E. Miller" [identified by Chopard as "*Madasumma quadrata* Haan"] (BMNH).

Paratypes. **Thailand**, *Central Malacca*, *prov. Surat Thani*: 1 ♀, 1 nymph, 40 km WSW of Phanom, env. of National Park Khao Sok, primary forest, 20-29.VII.1996, A. Gorochoy (ZIAS).

Description. **Male** (holotype). Body rather long. Head rather high. Scape almost 1.5 times as wide as rostrum between antennal cavities. Coloration of head and pronotum (Fig. I: 1) light brown (almost yellowish) with a pair of blackish spots between eyes, some greyish stripes on vertex and behind eyes, large dark brown spots on upper half of hind part of genae, spotted antennal flagellum, characteristic dark ornament on pronotal disc, blackish stripe along lower edge of pronotal lateral lobes, and several dark dots on lower half of these lobes. Dorsal part of tegmina as in Fig. I: 2, with long apical area; coloration of tegmina yellowish grey (very light) with small brown spots in different areas of dorsal part and small blackish spots between bases of Sc branches in lateral part. Hind wings distinctly longer than tegmina, light greyish. Legs more or less spotted. Lower part of thorax and abdomen light with 3 darkish longitudinal stripes on genital plate (Figs I: 4, 5); upper part of ptero-

thorax and abdomen brown; concavity of metanotal gland (provided with hairs) round (Fig. I: 3); cerci spotted.

Anal plate and genitalia as in Figs I: 6 and II: 4-6.

Female. Similar to male in general appearance, but with slightly darker spots and stripes. Dorsal part of tegmina with somewhat irregular venation; tegmina light brown with reticulate brown and dark grey ornament. Genital plate uniformly yellowish, with hardly distinct apical notch; apex of ovipositor as in Figs I: 7-9.

Length (mm). Body: ♂ 21, ♀ 18.5; body with wings: ♂ 31.5, ♀ 27; pronotum: ♂ 4, ♀ 3.9; tegmina: ♂ 22, ♀ 20.5; hind femora: ♂ 12, ♀ 11.8; ovipositor 10.5.

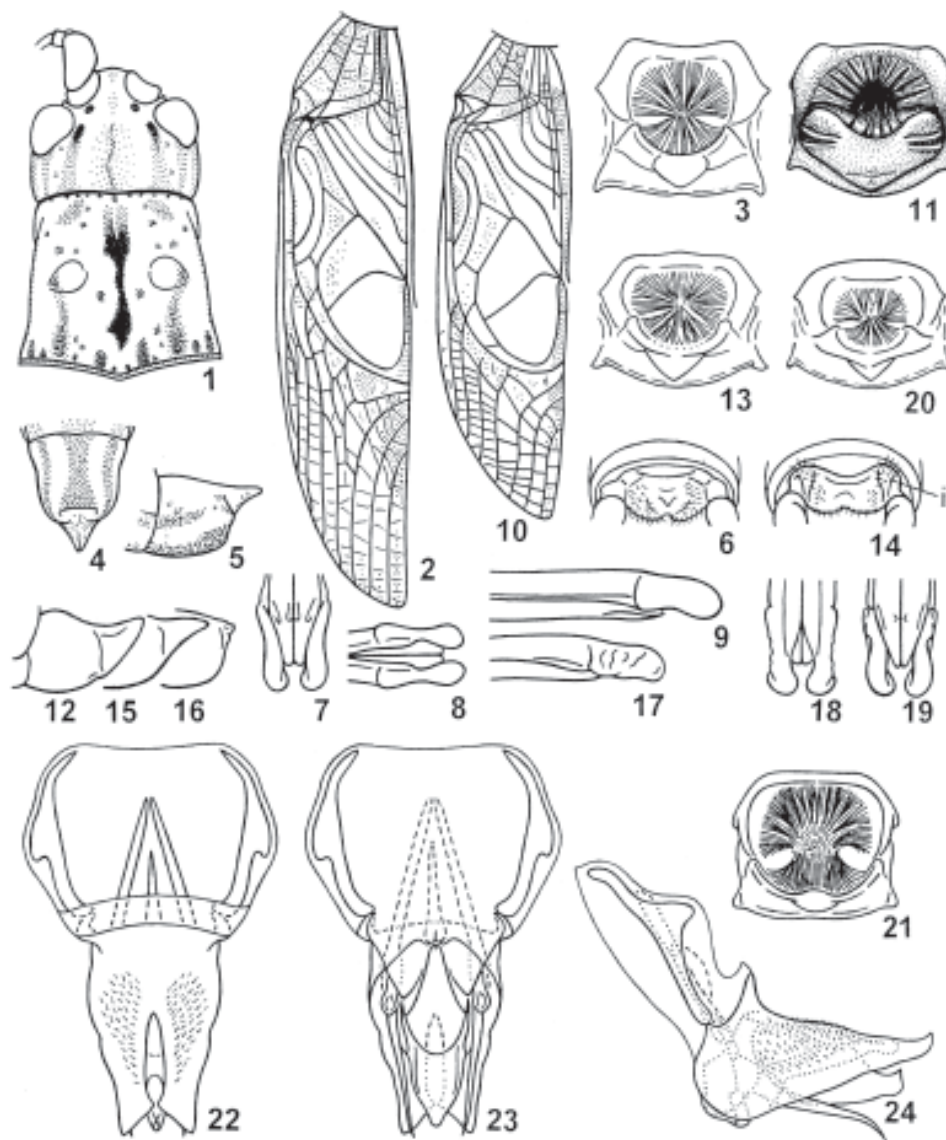
Comparison. The new species is well distinguished from all known indisputable and possible congeners in the structure of the male metanotal gland and the genitalia (see the discussion about the composition of *Noctitrella*).

***Noctitrella ardua* sp. n.**
(Figs I: 13-19; II: 7-9)

Holotype. ♂, **Vietnam**, *prov. Gia Lai*, 20 km N of Kannack, Buon Luoi, 700-800 m, primary forest, 1-10.V.1995, A. Gorochoy (ZIAS).

Paratypes. **Vietnam**: 4 ♀, same data as in holotype, but 1.IV-10.V.1995 (ZIAS); 1 ♂, 1 ♀, same data, but 3-19.XI.1993 (ZIAS); 2 ♂, same province, 40 km N of Kannack, Tram Lap, 800-900 m, primary forest, 11-24.IV.1995, A. Gorochoy (ZIAS); 1 ♂, 2 ♀, same province, 50-60 km N of Kannack, Kon Cha Rang, 1000-1200 m, primary forest, 14-20.IV.1995, A. Gorochoy (ZIAS).

Description. **Male** (holotype). Similar to *N. spinosa*, but head not wider than anterior part of pronotum; scape almost 1.3 times as wide as rostrum between antennal cavities. Coloration of head and pronotum reddish brown with large blackish spot on upper surface of rostral base and between eyes, light brown (almost yellowish) narrow stripes above (along inner edge of eyes) and lower part of head (under apex of rostrum, antennal cavities, and eyes), yellowish scape, light brown antennal flagellum, darkish brown (but not very distinct) large spots on pronotal disc, and small pale spot on hind upper part of pronotal lateral lobes. Dorsal parts of tegmina similar to those of *N. tranquilla* (Fig. I: 10), but with apical area slightly shorter than mirror; coloration of tegmina almost uniformly yellowish, but majority of longitudinal veins brownish grey and small spots between bases of Sc branches dark brown and rather sparse; hind wings distinctly longer than tegmina, light greyish. Legs light brown, almost uniformly coloured, but hind femora with row of dark dots on upper surface and darkish longitudinal line on outer surface. Lower parts of thorax and abdomen light, with small median brown



Figs I (1-24). *Noctitrella*. **1-9**, *N. spinosa* sp. n.; **10-12**, *N. tranquilla* Gor. (holotype); **13-19**, *N. ardua* sp. n. (13, 14, 16, holotype); **20**, *N. parardua* sp. n.; **21-24**, *N. berezini* sp. n. Head of male with pronotum (1), dorsal part of male tegmen (2, 10), and male metanotal gland (3, 11, 13, 20, 21) from above; anal (6, 14) and genital (4, 5, 12, 15, 16) plates of male from behind and slightly from above (6, 14), from below (4), and from side (5, 12, 15, 16); apex of ovipositor from below (7, 19), from above (8, 18), and from side (9, 17); male genitalia from above (22), from below (23), and from side (24). Abbreviation: i, inflation with hairs.

spots on 8th abdominal sternite and basal half of genital plate; upper part of pterothorax and abdomen light brown with numerous small dark marks on abdominal tergites, abdominal plate and cerci. Concavity of metanotal gland (provided with hairs) slightly transverse (Fig. I: 13).

Anal plate similar to that of *N. spinosa*, but with a pair of characteristic inflations provided with distinct hairs (for comparison see Figs I: 6, 14). Genitalia as in Figs II: 7-9.

Variation. Coloration sometimes darker or slightly lighter, but upper surface of both head

and pronotum always with blackish or dark brown spots. Shape of genital plate somewhat varying as its apical part soft (Figs I: 15, 16).

Female. Similar to male in general appearance, but tegminal dorsal part darker (light brown or brownish grey), with slightly more regular venation than in *N. spinosa*, with reticulate ornament similar to that of the latter species, and more or less distinct yellowish longitudinal stripe along upper edge of tegminal lateral part. 8th abdominal sternite and genital plate light; the latter plate with distinct apical notch; ovipositor with apex of upper valvae slightly less smooth than in *N. spinosa* (Figs I: 17-19).

Length (mm). Body: ♂ 20-23, ♀ 16-25; body with wings: ♂ 23-25, ♀ 22-27; pronotum: ♂ 3.8-4.2, ♀ 3.8-4.3; tegmina: ♂ 16-17.5, ♀ 16-18; hind femora: ♂ 11.7-13, ♀ 11.5-13; ovipositor 11-12.

Comparison. The differences of *N. ardua* from all known true and possible congeners are listed in the discussion about the composition of *Noctitrella* and in the description.

***Noctitrella parardua* sp. n.**

(Figs I: 20)

Holotype. ♂, **Vietnam**, prov. *Quang Nam*, Da Nang, small mountains near sea not far from Da Nang, secondary forest, 3-4.XII.1993, A. Gorochoy (ZIAS).

Description. **Male** (holotype). Structure of body (including shape of head, pronotum, anal and genital plates, as well as wing venation and details of genitalia) very similar to that of *N. ardua*, but coloration as in most uniformly coloured specimens of the latter species, and metanotal gland with distinctly smaller round concavity provided with hairs (for comparison see Figs I: 13, 20).

Female unknown.

Length (mm). Body 22; body with wings 23; pronotum 4; tegmina 15.5; hind femora 12.2.

Comparison. The differences from *N. ardua* are given above. From other congeners, *N. parardua* differs in the same characters as *N. ardua*.

***Noctitrella devexa* sp. n.**

(Figs II: 10, 11)

Holotype. ♂, **Vietnam**, prov. *Gia Lai*, 20 km N of Kannack, Buon Luoi, 700-800 m, primary forest, 1-10.V.1995 [imago reared VIII.1995], A. Gorochoy (ZIAS).

Paratypes. **Vietnam:** 1 ♂, 2 ♀, same data as in holotype, but imago reared VI-IX.1995 (ZIAS); 1 ♀, same province, but 50-60 km N of Kannack, Kon Cha Rang, 1000-1200 m, primary forest, 17.IV.1995, A. Gorochoy (ZIAS).

Description. **Male** (holotype). Very similar to males of *N. ardua* and *N. parardua*, but head slightly wider than anterior part of pronotum (almost as in *N. spinosa*), coloration more uniform (without blackish or dark brown spots on upper surface of both head and pronotum, but with

darkish parts behind eyes), metanotal gland indistinguishable from that of *N. ardua*, genitalia in profile with dorsal convexity of epiphallus clearly less abrupt and situated farther from epiphallic apici (in the middle of epiphallus) (Fig. II: 11), genital guiding rod smaller (Fig. II: 10).

Variation. Paratypes somewhat lighter, almost uniformly light brown.

Female. Very similar to female of *N. ardua* including shape of genital plate and ovipositor, but distinguished by size of head and coloration (same distinctions as in male).

Length (mm). Body: ♂ 21, ♀ 20-24; body with wings: ♂ 22-24, ♀ 23-27; pronotum: ♂ 3.5-3.7, ♀ 4.2-4.8; tegmina: ♂ 15-16, ♀ 15-17.5; hind femora: ♂ 11-11.5, ♀ 12-14.5; ovipositor 10.5-13.

Comparison. The differences from *N. ardua* and *N. parardua* are listed above. From other congeners, *N. devexa* differs in the same characters as these species.

***Noctitrella berezini* sp. n.**

(Figs I: 21-24)

Holotype. ♂, **Southern Cambodia**, Elefan Mts., env. of vill. Styeng-Chkhral, 11.II.2002, M. Berezin (ZIAS).

Description. **Male** (holotype). Body medium-sized. Coloration light greyish brown with large dark spot on vertex (from antennal cavities and eyes approximately to hind part of vertex), almost indistinct darkish marks on pronotal disc, darkish stripe along lateral edge of apical area of dorsal tegminal part, several small dark spots between bases of *Sc* branches in lateral tegminal part, and dark spots on apical abdominal tergites and anal plate. Metanotal gland very large (Fig. I: 21). Venation of tegmina more or less intermediate between those in Figs I: 2 and I: 10; hind wings distinctly longer than tegmina.

Anal plate with round apex and without distinct haired inflations (this plate more similar to that from Fig. I: 6, but not to that from Fig. I: 14). Genitalia as in Figs I: 22-24.

Female unknown.

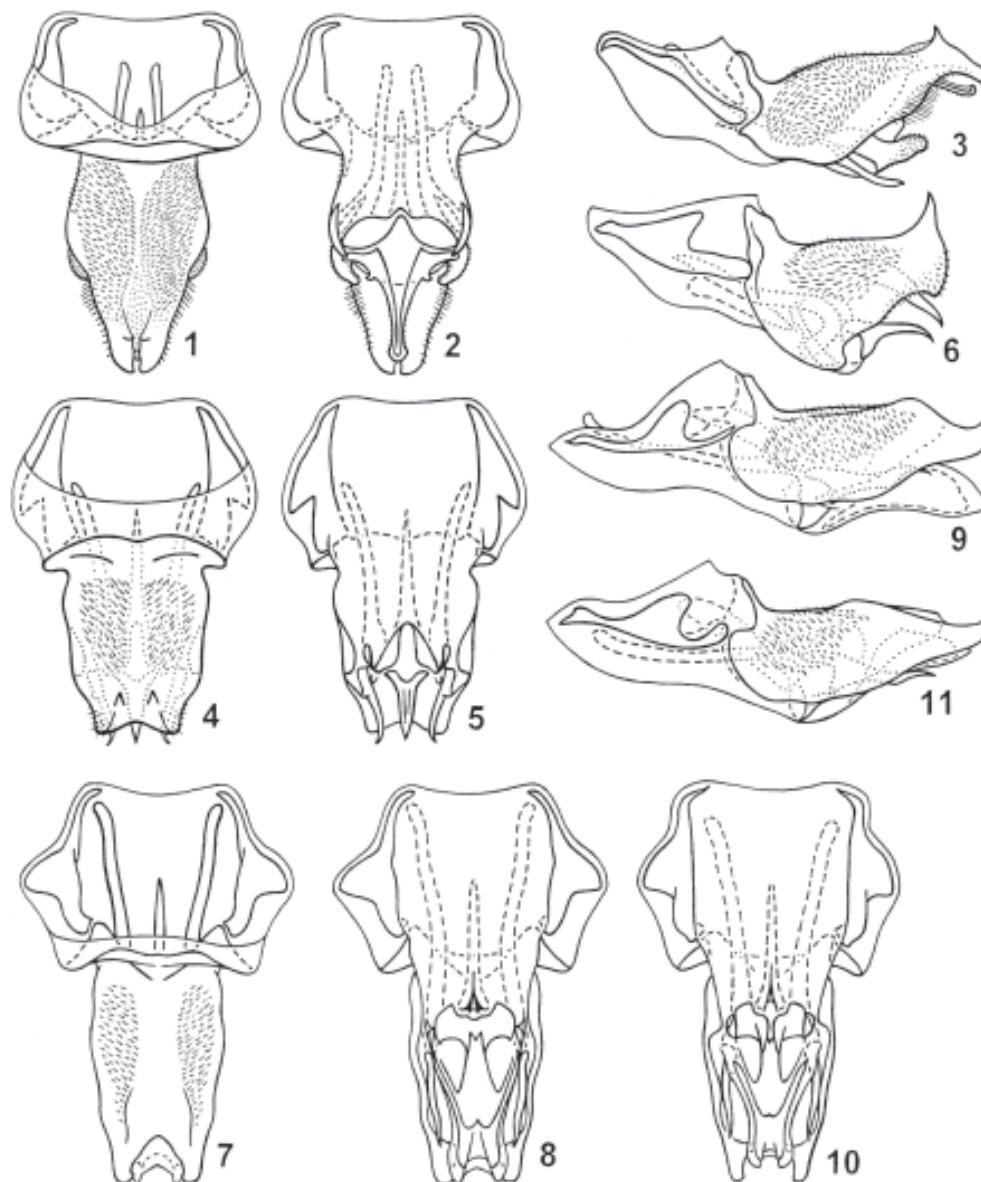
Length (mm). Body 22; body with wings 28; pronotum 3.7; tegmina 19.5; hind femora 12.5.

Comparison. This species is most similar to *N. plurilingua*, but the epiphallus is narrower and with wider hind notch, the guiding rod is distinctly shorter (clearly not extending to the epiphallic apex) and narrower.

Genus *Trelleora* Gorochoy, 1988

Type species: *Trelleora kryzhanovskiji* Gorochoy, 1988.

Note. This genus is similar to *Noctitrella* and some other Indo-Malayan genera of Podoscirtini in the primitive structure of the male tegmina (Figs III: 1, 10), the presence of oval outer and



Figs II (1-11). *Noctitrella*, male. **1-3**, *N. tranquilla* Gor. (holotype); **4-6**, *N. spinosa* sp. n.; **7-9**, *N. ardua* sp. n.; **10, 11**, *N. devexa* sp. n. Genitalia from above (1, 4, 7), from below (2, 5, 8, 10), and from side (3, 6, 9, 11).

more or less slit-like inner tympana (Figs III: 5, 9), the presence of distinct metanotal gland (Figs III: 2, 15), rather simple shape of male anal and genital plates (Figs III: 3, 4, 16, 17), and brownish coloration of the body. However, *Trelleora* is well distinguished from some of these Podoscirtini by the general appearance (including the

details of coloration) almost as in light representatives of *Zvenella* and *Prozvenella*, the metanotal gland without distinct median process at the middle part of glandular concavity, drilling apical part of the ovipositor (Fig. III: 19), and from all Podoscirtini, in the characteristic male genitalia: the epiphallus is horseshoe-

shaped, distinct membranous lobes are present between the lateral epiphallic lobes, ectoparameres are well developed and articulated with base of guiding rod, this base is almost fused with the mold of spermatophore attachment plate, this mold has more or less short apodeme, endoparameral apodemes are moderately long (Figs III: 6-8, 11, 13, 14).

Composition. Two groups of species may be outlined. The male genitalia of the first group are characterized by the long lateral lobes of the epiphallus provided with small denticles at apex and lacking large hook-like apical processes, the short guiding rod without upper processes, and comparatively small membranous lobes between the above-mentioned epiphallic lobes (Figs III: 6-8). This group includes the type species (Northern Vietnam and Southern China; Figs III: 1-8), *T. suthepa* Ingrisch, 1997 (Northern Thailand; Fig. III: 19), probably *T. sonlensis* Gorochov, 1988 (Northern Vietnam; Fig. III: 9), and possibly, *Madasumma assamensis* Chopard, 1969 (Eastern India).

The male genitalia of the second group differ in the short lateral lobes of the epiphallus with large hook-like apical processes and without small denticles at apex, the guiding rod with upper processes which may be very long, and large membranous lobes between the mentioned epiphallic lobes (Figs III: 11-14, 18). This group includes *T. fumosa* Gorochov, 1988 (Northern Vietnam; Figs III: 10-14), *T. consimilis* sp. n. (Figs III: 15-18), and possibly, *Madasumma graveleyi* Chopard, 1928 (Northern India).

***Trelleora consimilis* sp. n.**
(Figs III: 15-18)

Holotype. ♂, **Vietnam**, prov. Son La, env. of Song Ma, 400-600 m, secondary forest, 3-14.V.1986, A. Gorochov (ZIAS).

Paratype. **China**, Yunnan: ♂, Kingtun, low mountains, 12.VI.1956, A. Zagulajev (ZIAS).

Description. **Male** (holotype). Size rather small for this genus. Rostrum of head between antennal cavities hardly narrower than scape. Ocelli distinct, arranged in shape of triangle. Anterior half of head upper part (from rostral apex to hind edges of eyes) dark brown; posterior half of this part light brown with darkish transverse stripe along hind edge of vertex; other parts of head light brown with dark dots on frons and genae; antennae and palpi uniformly light brownish. Pronotum light brown with dark brown bands along lateral sides of disc (these bands with several lightish narrow transverse stripes and small spots) and numerous dark dots on lateral lobes. Pterothorax and abdomen almost blackish with brown metanotal gland and several light brown

spots on apical abdominal tergites and epiproct. Other parts of body light brownish with dark dots on tibiae, fore and middle femora, with darkish longitudinal line on outer surface of hind femora, and with darkenings on inner and outer sides of hind femoral apex, on lower part at base and apex of hind tibiae, and on hind tarsi. Structure of tegmina as in *T. fumosa* (Fig. III: 10); their coloration light, yellowish grey, almost uniform. Hind wings very light and distinctly longer than tegmina. Tympana similar to those of *T. fumosa* (inner tympanum slightly narrower than in Fig. III: 5). Metanotal gland as in Fig. III: 15.

Anal and genital plates as in Figs III: 16-17. Genitalia distinguished from those of *T. fumosa* (Figs III: 11, 13, 14) only by guiding rod slightly narrower and without high keel along dorsal surface between proximal and distal upper processes (for comparison, see Figs III: 12, 18).

Variation. Paratype with somewhat narrower light areas on upper part of head and on pronotal disc, darker (greyish) hind wings, and slightly spotted distal half of cerci.

Female unknown.

Length (mm). Body 17-19; body with wings 24.5-26; pronotum 2.8-3; tegmina 17-18; hind femora 9.2-10.

Comparison. The new species is very similar to *T. fumosa*, but differs in the less uniform coloration of the head and pronotum, as well as differently-shaped guiding rod in the male genitalia.

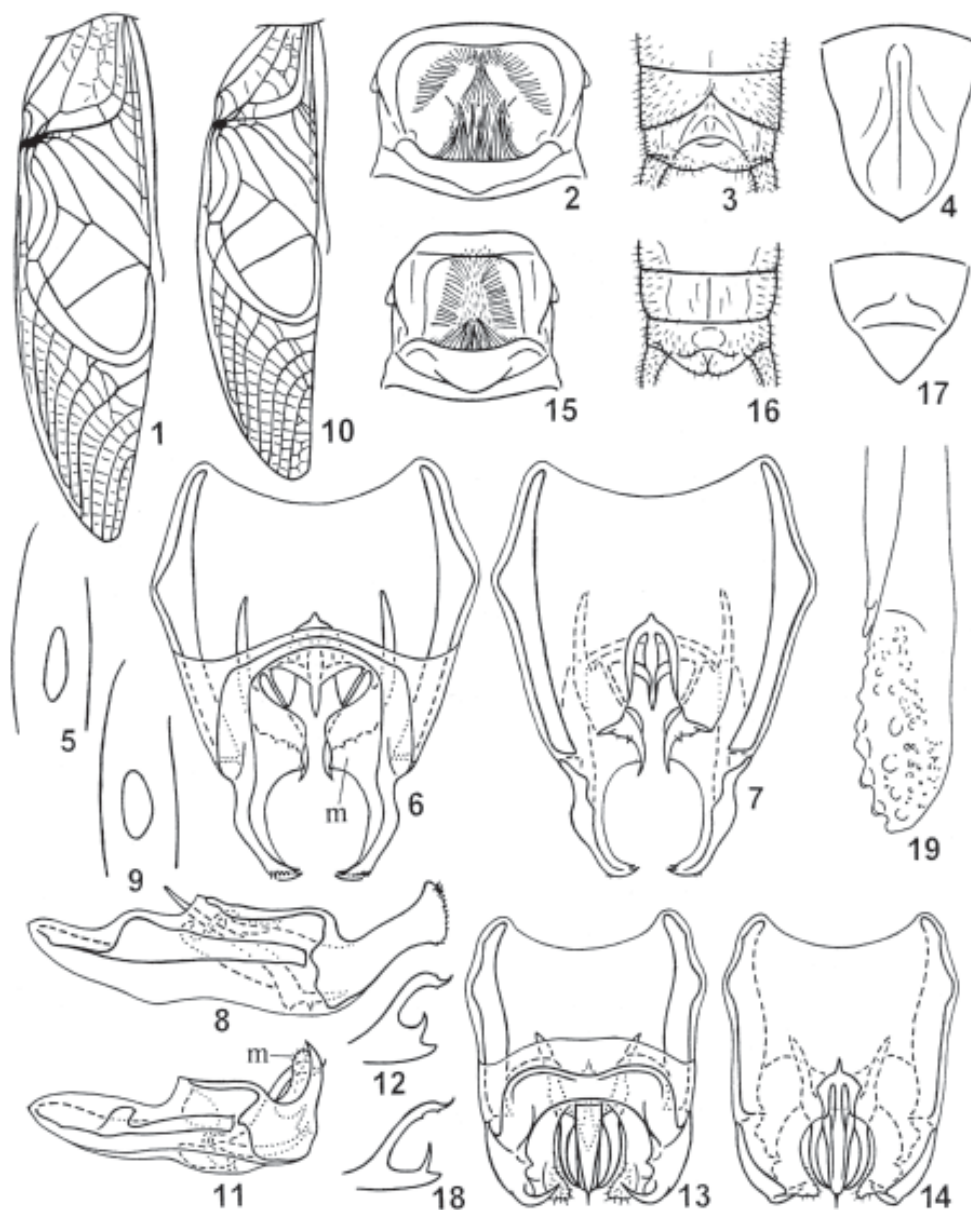
Note. The holotype of this species is one of the paratypes of *T. fumosa*. The genitalia of this specimen were erroneously pictured instead of those corresponding to *T. fumosa* (the holotypes of the both species were collected at the same locality) in the paper with the first description of the latter species (Gorochov, 1988, Figs 11-13).

Genus *Indotrella* gen. n.

Type species: *Indotrella angusta* sp. n.

Diagnosis. Head small, rather low, with distinctly angular rostrum in profile; rostrum narrow (scape approximately 2.5 times as wide as rostrum between antennal cavities). Male pronotum strongly narrowing anteriorly (Fig. IV: 1), depressed dorsoventrally. Male tegmina with primitive venation (similar to those of genera considered above, but mirror more variable: from longitudinal to almost round; Figs IV: 1, 7). Tympana typical of many Podoscirtini (outer tympanum oval, not large; inner one slightly larger, but very narrowly slit-like).

Male anal plate with widely truncated apex (Fig. IV: 12); male genital plate longitudinal, with posterior half strongly narrowing to apex (Figs IV: 2, 11). Male genitalia with longitudinal epiphallus provided with 2 pairs of apical lobes:



Figs III (1-19). *Trelleora*. 1-8, *T. kryzhanovskiji* Gor. (holotype); 9, *T. sonlensis* Gor. (holotype); 10-14, *T. fumosa* Gor. (holotype); 15-18, *T. consimilis* sp. n. (holotype); 19, *T. suthepa* Ingr. (from Ingrisch, 1997). Dorsal part of male tegmen (1, 10); male metanotal gland from above (2, 15); male abdominal apex from above (3, 16); male genital plate from below (4, 17); inner side of fore tibial base with tympanum (5, 9); male genitalia from above (6, 13), from below (7, 14), and from side (8, 11); guiding rod from side (12, 18); apex of ovipositor from side (19). Abbreviation: m, membranous lobe.

one pair directed upward and forward (towards head), other pair directed backward or upward (Figs IV: 3, 5, 8, 9); guiding rod long and wide, semimembranous, freely movable with respect to epiphallus, with complex apex (inner rod situ-

ated inside of almost tube-like outer lobe); endoparameral apodemes rather short, connected with mold of spermatophore attachment plate; this mold fused with base of guiding rod and provided with long apodeme; ectoparameres absent

(Figs IV: 3-5, 8-10). Structure of male metanotal gland not studied. Female unknown.

Included species. Type species and *Madasumma maindroni* Chopard, 1928 (India).

Comparison. This genus differs from the majority of Podoscirtini in the functional type of the male genitalia as in the genera *Zvenella* Gor., *Prozvenella* Gor., and *Madasumma* Walk. (see Gorochov, 2002, Fig. I: 1). From the latter genera, it is distinguished by the characteristic structure of guiding rod apex. The differences from *Poliotrella* Gor. are given below (in the note on *Poliotrella*).

***Indotrella angusta* sp. n.**

(Figs IV: 6-12)

Holotype. ♂, **India**, "Deulali [not far from Mumbai (= Bombay)], oct. 1915, N.B. Kinnear" [identified by Chopard as *Calyptotrypus maindroni* Chop.] (BMNH).

Description. *Male* (holotype). Coloration of head light brown with dark brown ornament on upper surface (Fig. IV: 6); antennae and palpi uniformly brownish. Pronotum with brown (indistinctly spotted) disc and light brown lateral lobes. Tegmina with comparatively narrow dorsal part and longitudinal mirror (Fig. IV: 7); their dorsal part greenish grey, rather light, but with slightly darkened basal area and two spots: behind plectrum and in region of chords. Lower part of thorax light brown, almost yellowish (tergites of pterothorax severely damaged). Legs uniformly yellowish. Ventral and lateral parts of abdomen light brown (including genital plate); anal plate light also (cerci missing); shape of these plates as in Figs IV: 11, 12.

Genitalia narrow. First pair of apical epiphallal lobes (directed upward and forward) fused with epiphallus only by their basal parts; second pair of these lobes directed backward, with rounded apex. Guiding rod with apical part slightly widened and not narrowed before apex. Mold of spermatophore attachment plate, apodeme of this mold, and endoparameral apodemes as in Figs IV: 8-10.

Female unknown.

Length (mm). Body 15; body with wings 19.5; pronotum 2; tegmina 13.5; hind femora 7.7.

Comparison. The new species differs from *I. maindroni* in the narrower dorsal part of the male tegmina with longer mirror (Figs IV: 1, 7) and the narrower male genitalia with different shape of the following structures: epiphallal apical lobes [in *I. maindroni*, the first pair of them (directed upward and forward) is partly fused with the epiphallus, and the second pair is directed upward and characterized by the acute apex], the guiding rod (in *I. maindroni*, it strongly widened

at apex and distinctly narrower before apex), and some other genital structures (for comparison, see Figs IV: 3-5, 8-10).

***Indotrella maindroni* (Chopard, 1928), comb. n.**
(Figs IV: 1-5)

Holotype. ♂, **India**, "Cote de Malabar, Mahe, M. Maindron 1902", "Type", "*Madasumma maindroni* Chop., type, L. Chopard det." (MNHN).

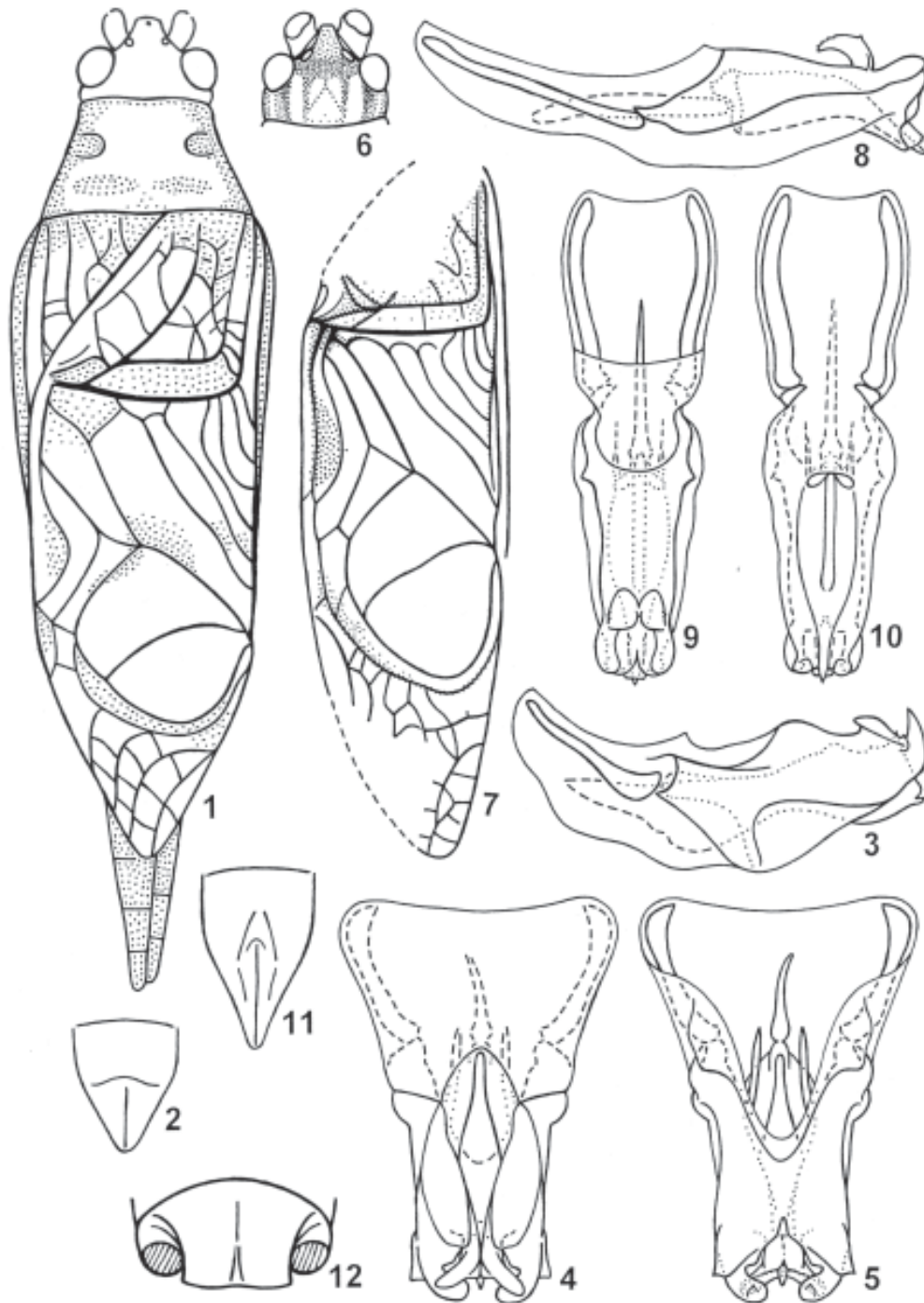
Other material studied. **Hindustan**(?), 1 ♂ [identified by Chopard as *Calyptotrypus maindroni* Chop.] (BMNH).

Note. I had opportunity for only a short study of these specimens. The original description of this species (Chopard, 1928) is sufficiently complete excepting the metanotal gland and abdominal apex with the genitalia (female is unknown). Some of these structures are illustrated here (Figs IV: 2-5). The differences of *I. maindroni* from *I. angusta* are named in the description of the latter species. The record of *I. maindroni* for Uttar Pradesh (Chopard, 1969) may be erroneous.

Genus *Poliotrella* Gorochov, 1988

Type species: *Poliotrella zaitzevi* Gorochov, 1988.

Note. Probably, this genus is closely related to *Indotrella* because the male anal and genital plates, as well as the male genitalia, are rather similar in these genera: the anal plate with more or less widely truncated apex (Figs IV: 12; V: 6, 11), the genital plate with posterior half clearly narrowing to apex (Figs IV: 2, 11; V: 7, 12), the genitalia with longitudinal epiphallus, comparatively short endoparameral apodemes, similar shape and function of the guiding rod (including its apical structure and mobility with respect to epiphallus), and without ectoparameres (Figs IV: 3-5, 8-10; V: 3-5, 9, 10, 14, 15). However, there are significant differences between these genera; *Poliotrella* is larger and characterized by the following distinctive features: clearly lighter coloration, distinctly wider rostrum (scape is 1.5 times as wide as rostrum between antennal cavities), the higher pronotum, slightly wider inner (slit-like) tympana, clearly longer tegminal apical area (for comparison see Figs IV: 1, 7 and V: 1), the distal part of epiphallus turned upward and provided with only small apical notch (the epiphallus of *Indotrella* is different in the structure of distal part and presence of four very characteristic apical lobes) (see Figs IV: 3, 5, 8, 9 and V: 3, 5), apical part of the guiding rod distinctly thinner (see Figs IV: 3, 4, 8, 10 and V: 4, 5), and the inner rod of this part directed upward (see Figs IV: 3, 8 and V: 5, 10, 15). The male metanotal gland is well developed (Fig. V: 2). The ovipositor is normal for Podoscirtini, with drilling apex.



Figs IV (1-12). *Indotrella*, male. **1-5.** *I. maindroni* (Chop.) (1, from Chopard, 1928); **6-12.** *I. angusta* sp. n. Head, pronotum, and wings from above (1); genital (2, 11) and anal (12) plates from below (2, 11) and from above (12); genitalia from side (3, 8), from below (4, 10), and from above (5, 9); head from above (6); dorsal part of tegmen (7).

Included species. Type species (Figs V: 1-10), *Madasumma greeni* Chopard, 1925 (Figs V: 11-15), and possibly *M. albonotata* Chopard, 1936 (Fig. V: 16). All these species are known from Sri Lanka only.

***Poliotrella greeni* (Chopard, 1925)**
(Figs V: 11-15)

Lectotype (designated here). ♂, **Sri Lanka**, "Ceylon, Kandy, V.1910, E.E. Green", "Syntype", "*Madasumma greeni* Chop., type, L. Chopard, det." (BMNH).

Paralectotype. ♀, same data as lectotype (BMNH).

Note. The lectotype and paralectotype are here designated for the stability of nomenclature. I had opportunity for only a very short study of these specimens. The male is very similar to the male of *P. zaitzevi* including the structure of genitalia (the holotype of *P. zaitzevi* is collected near Kandy and deposited at ZIAS; the female of this species is unknown), but it is characterized by the narrower apical part of the anal plate (for comparison, see Figs V: 6, 11), shorter genital plate (see Figs V: 7, 8, 12, 13), slightly deeper apical notch of the epiphallus, distinctly different shape of guiding rod apex (see Figs V: 9, 10, 14, 15), and (judging from Chopard, 1925: Fig. 27b) clearly longer diagonal and oblique veins in tegmina (compare the Chopard's picture with Fig. V: 1). From *P. albonotata*, this species differs in the shape of epiphallus, which is almost identical in profile to that of *P. zaitzevi* (Figs V: 5, 16).

Genus *Varitrella* gen. n.

Type species: *Madasumma nigrifrons* Chopard, 1931.

Diagnosis. General appearance rather diverse, but size not small and coloration usually brownish grey. Head with more or less angular rostrum; scape 1.5-2.5 times as wide as rostrum between antennal cavities. Pronotum distinctly or slightly narrowing anteriorly. Tegmina of male primitive [similar to those of genera considered above, but in all known species, mirror longitudinal and apical area long (Figs VI: 1, 4, 10; VIII: 4, 11)]. Tympana typical of many Podoscirtini (outer tympanum oval, not large; inner one slightly larger, slit-like, and yet varying from narrow to rather wide). Metanotal gland absent or strongly reduced (Fig. VI: 16).

Male anal plate more or less simple (Figs VI: 5, 8, 11; VIII: 5, 12); male genital plate with distal part narrower than its proximal part (Figs VI: 6, 13, 15; VIII: 6, 13). Male genitalia with complex apex of guiding rod (inner rod situated between lateral lobes almost as in *Indotrella* and *Poliotrella*, but in some species, lateral lobes long, sometimes strongly sclerotised and articulated with guiding rod; Figs VI: 2, 7, 9, 14, 17);

degree of mobility of guiding rod very diverse (freely movable, only partly movable, or almost immovable with respect to epiphallus). Epiphallus longitudinal, with a pair of angular or spine-like, apical or subapical upper medial projections directed upward (Figs VII: 1, 3, 4, 6, 8, 10, 14; VIII: 1, 3, 8, 10, 14). Mold of spermatophore attachment plate rather diverse, partly fused with base of guiding rod. Endoparameral apodemes narrow and long or not very short. Ectoparameres well developed (Figs VII: 2, 3, 5, 6, 9, 10, 14), partly reduced (Figs VIII: 2, 3), or possibly lost (Figs VIII: 9, 10, 14) (in latter case, type of male genitalia very similar to that of *Zvenella* having ectoparameres probably more or less homologous to guiding rod lobes of *Varitrella*, but not to its ectoparameres). Ovipositor well developed, with drilling apex (Fig. VI: 3).

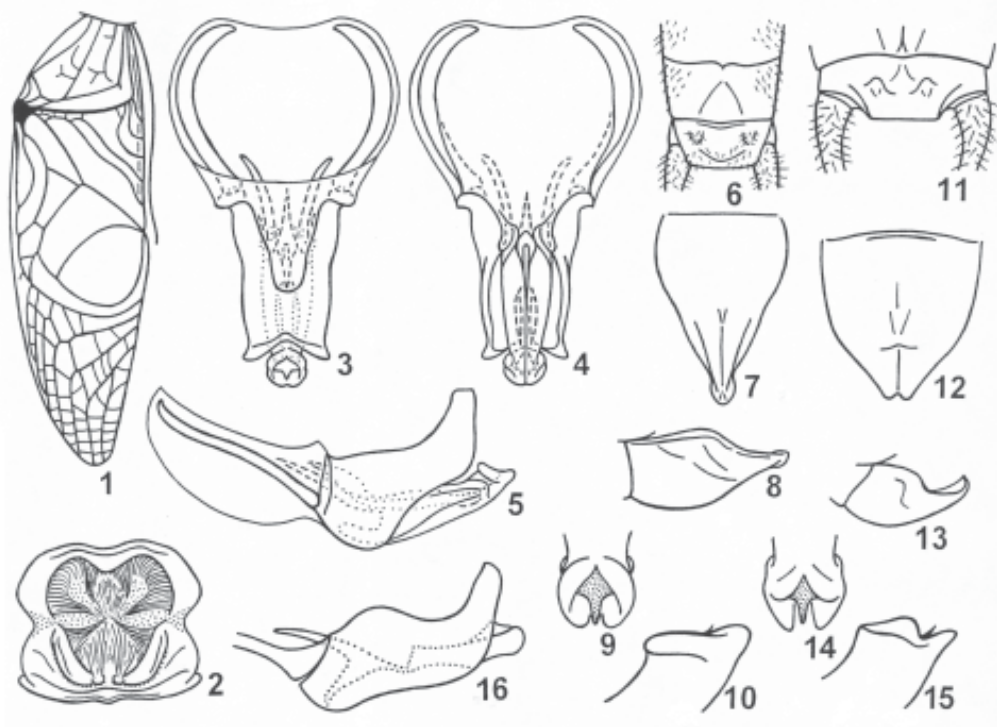
Composition. Four groups of species may be outlined. The first group includes two species with short lateral lobes of the guiding rod and normal ectoparameres: *Gryllus/Phalangopsis quadratus* Haan, 1842 (Java; Figs VI: 1-3 and VII: 1-3) and *Noctitrella glabra* Ingrisch, 1997 (Thailand).

The second group includes two species with short lateral lobes of the guiding rod and modified ectoparameres (lobe-like, with membranous outer and slightly sclerotised inner surfaces): *Paroecanthus conspersus* Stål, 1877 (Philippines; Figs VI: 4-7 and VII: 4-7) and *V. depressa* sp. n. (Figs VI: 8, 9; VII: 13, 14).

The third group includes one or two species with long lateral lobes of the guiding rod (but not strongly sclerotised and not articulated with guiding rod) and normal ectoparameres: *P. saussurei* Stål, 1877 (Philippines; Figs VI: 10-14 and VII: 8-10) and *Madasumma bakeri* Chopard, 1925 (Philippines; Figs VI: 15 and VII: 11, 12), if it is not a synonym of *V. saussurei*.

The fourth group is characterized by the lateral lobes of guiding rod long, heavily sclerotised and articulated with guiding rod, as well as ectoparameres partly reduced or possibly lost; it includes type species (Malacca and Sumatra; Figs VI: 16, 17 and VIII: 1-7), probably *Platydictylus varipennis* Walker, 1869 (Sri Lanka; Figs VIII: 8-13), and possibly, *Calypotrypypus irroratus* Saussure, 1878 (Sri Lanka) or *M. incerta* Chopard, 1928 (Sri Lanka) usually considered as synonyms of *V. varipennis* (their synonymy is problematical; see Fig. VIII: 14).

These groups are distinguished significantly from each other, and possibly, they are subgenera or closely related genera, but for the clarification of this problem, it is necessary to examine additional material. Some species with not described or insufficiently studied male genitalia may also belong to *Varitrella*: *Gryllus/Platy-*



Figs V (1-16). *Poliotrella*, male. **1-10**, *P. zaitzevi* Gor. (holotype); **11-15**, *P. greeni* (Chop.) (lectotype); **16**, *P.? albonotata* (Chop.) (from Chopard, 1936). Dorsal part of tegmen (1); metanotal gland from above (2); genitalia from above (3), from below (4), and from side (5, 16); distal part of abdomen from above (6, 11); genital plate from below (7, 12) and from side (8, 13); apex of guiding rod from above (9, 14) and from side (10, 15).

dactylus pilosus Haan, 1842 (this species, described from Borneo, is usually considered as a synonym of *V. quadrata* from Java, but this synonymy is questionable), *Madasumma mjobergi* Chopard, 1930 (Borneo), *Calypotrypus maculithorax* Chopard, 1930 (Borneo).

Comparison. *Varitrella* differs from all other Podoscirtini in the characteristic guiding rod in combination with the structure of epiphallal apical part, the presence of ectoparameres and/or secondary ectoparameres (possibly originated from guiding rod lobes), and strong reduction or loss of the metanotal gland in the male.

***Varitrella quadrata* (Haan, 1842), comb. n.**
(Figs VI: 1-3; VII: 1-3)

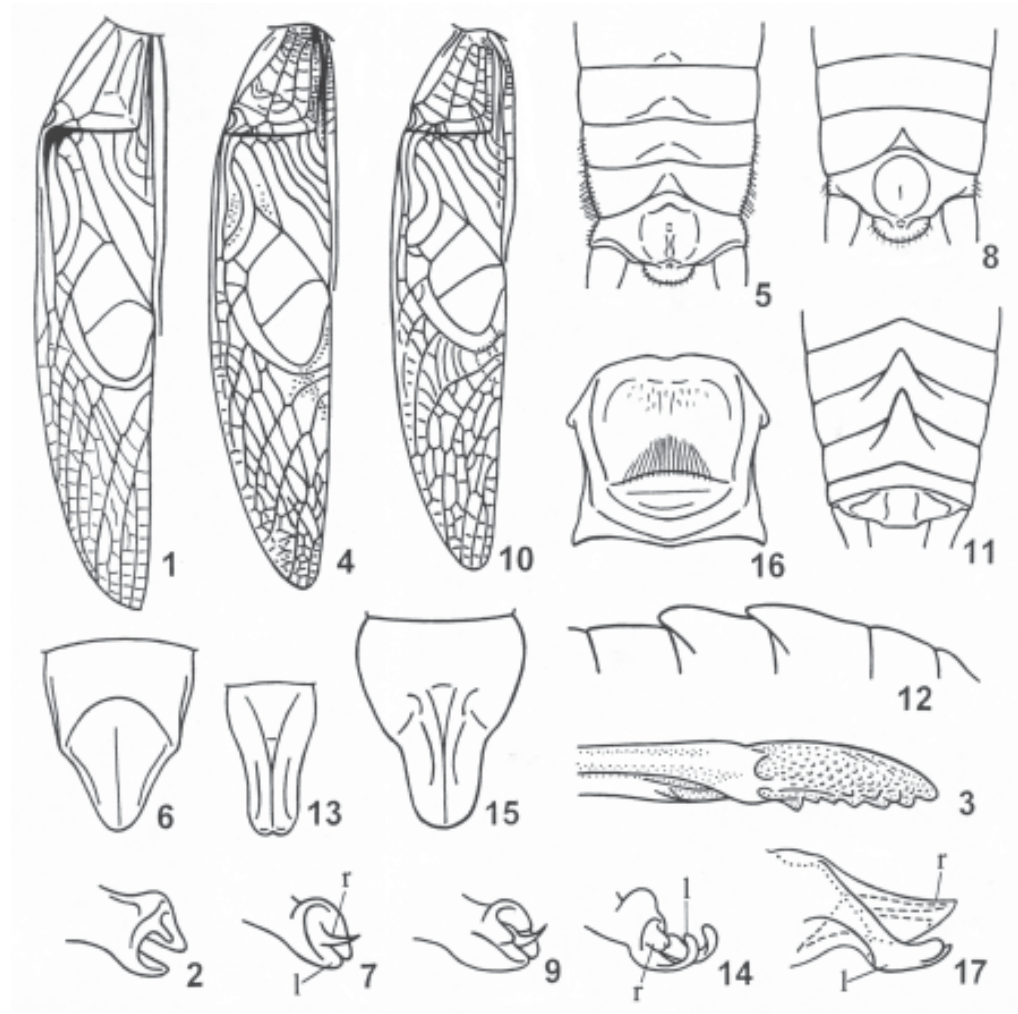
Material. **Indonesia, Java:** 1 ♂, 3 ♀, 20-25 km SE of Bogor, Pangrango Mts., env. of Cemande, 1000 m, forest, 27.XI-7.XII.1999, A. Gorochoy (ZIAS).

Note. The body shape is generally elongate. The coloration is greyish with longitudinal dark stripes on lateral parts of scapes, eyes, on the head behind the eyes, and on the pronotum, darkish band along the median part of upper surface

of both the head and the pronotum, numerous dark dots on different parts of the body, and more or less darkened dorsal part of female tegmina (this part of male tegmina is indistinctly spotted). The head is comparatively high, with clearly angular rostrum (the scape is almost 1.8 times as wide as the rostrum between antennal cavities) and small ocelli (the distance between ocelli is not shorter than ocelli). The pronotum is characterized by almost parallel lateral sides and rather low lateral lobes. The dorsal part of male tegmina is as in Fig. VI: 1. The male metanotal gland is absent. The inner tympana are not very narrow (almost as in Fig. III: 5). The abdominal tergites are without processes; the male genitalia are as in Figs VI: 2 and VII: 1-3; the apex of ovipositor is as in Fig. VI: 3.

Length (mm). Body: ♂ 20, ♀ 22-26; body with wings: ♂ 28, ♀ 32-35; pronotum: ♂ 3, ♀ 3.5-3.8; tegmina: ♂ 20, ♀ 21-23; hind femora: ♂ 12, ♀ 14-16; ovipositor: 16-18.

This species was indicated by Chopard (1969) also for some territories other than Java. These records are to be checked.



Figs VI (1-17). *Varitrella*. 1-3, *V. quadrata* (Haan); 4-7, *V. conspersa* (Stål) (holotype); 8, 9, *V. depressa* sp. n.; 10-14, *V. saussurei* (Stål) (holotype); 15, *V. ?bakeri* (Chop.); 16, 17, *V. nigrifrons* (Chop.). Dorsal part of male tegmen (1, 4, 10); apex of guiding rod from side and slightly from below (2, 7, 9, 14); apex of ovipositor from side (3); distal part of male abdomen from above (5, 8, 11) and upper part of its tergites from side (12); male genital plate from below (6, 13, 15); metanotal gland from above (16); guiding rod from side (17). Abbreviations: *l*, lateral lobe; *r*, inner rod.

***Varitrella conspersa* (Stål, 1877), comb. n.**
(Figs VI: 4-7; VII: 4-7)

Lectotype (designated here). ♂, **Philippines**, *Babuyan Is.* (?), "Ins. Philipp.", "Semper", "264", "Typus", "*Paroecanthus conspersus* Stål", "*Philippotrella conspersa* (Stål), det. Gorochov A., lectotypus, design. Gorochov" (NHRM).

Note. The body is elongate (almost as in *V. quadrata*). The coloration is light brownish grey with darkish and yellowish lateral longitudinal lines behind eyes, dark spots near ocelli, darkened sparse rings of antennae, dark dots on the

pronotum and legs, yellowish stripe along the lateral edge of dorsal tegminal part, and a spot in lateroproximal corner of tegminal apical area. The head and pronotum are somewhat depressed dorsoventrally, with distinctly angular, narrow rostrum (the scape is almost twice as wide as the rostrum between antennal cavities), small ocelli (almost as in *V. quadrata*), and low lateral pronotal lobes; the male pronotum is slightly narrowing anteriorly. The male tegmina are with venation as in Fig. VI: 4. The male metanotal gland is absent. The inner tympana are slightly nar-

rower than in *V. quadrata*. The abdominal tergites are without processes; the male anal and genital plates are as in Figs VI: 5, 6; the male genitalia and the spermatophore attachment plate are as in Figs VI: 7 and VII: 4-7.

Length (mm), ♂. Body 24; body with wings 31; pronotum 3.2; tegmina 21 (hind legs are missing).

The lectotype is here designated for the stability of nomenclature. The female with unclear geographic label, loaned to me from NHRM as a syntype of this species (paralectotype), actually belongs to another species. It is possible that the female of *V. conspersa* is unknown.

Varitrella depressa sp. n.

(Figs VI: 8, 9; VII: 13, 14)

Holotype. ♂, **Philippines**, Luzon I.(?), "Filipinas, Braseo grande, Mazarredo" [identified as *C. saussurei* Stål, probably by Bolí var] (MNCN).

Description. *Male* (holotype). Very similar and closely related to *V. conspersa*, but differs in all the features listed below: coloration with darkish longitudinal stripes also on eyes, without darkenings near ocelli, and with hardly distinct darkened rings of antennae; rostrum somewhat narrower (scape almost 2.5 times as wide as rostrum between antennal cavities); male anal plate with central concavity more round and apical part slightly wider (for comparison see Figs VI: 5, 8); male genitalia with apex of guiding rod somewhat different (see Figs VI: 7, 9), with apical epiphallal lobes noticeably narrower, and with sclerotized part of ectoparameres much wider (see Figs VII: 6, 14); spermatophore attachment plate with distal lobes clearly wider and with spine-like proximal lobes distinctly longer (see Figs VII: 7, 13).

Female unknown.

Length (mm). Body 22; body with wings 33; pronotum 3.7; tegmina 22; hind femora 15.5.

Comparison. The differences from *V. conspersa* are listed above. The differences from all other probable congeners are given in the paragraph about composition of *Varitrella*. From two possible representatives of this genus with insufficiently studied male genitalia (see the same paragraph), *V. depressa* differs in the general outlines of the epiphallus.

Varitrella saussurei (Stål, 1877), **comb. n.**

(Figs VI: 10-14; VII: 8-10)

Holotype. ♂, **Philippines**, Babuyan Is.(?), "Ins. Philipp.", "Semper", "Babuanon 14-20/6.64", "Typus", "*Paroecanthus saussurei* Stål", "*Philippotrella saussurei* (Stål), det. Gorochov A., holotypus, monotypus" (NHRM).

Note. This species is somewhat similar to *V. conspersa* and *V. depressa*, but differs in all the features listed below: the body is slightly shorter;

the coloration is uniformly brownish grey with light sparse rings of antennae and with yellowish marks on tegmina as in the both above-mentioned species; the head is less depressed dorso-ventrally; its rostrum is wider (the scape is 1.5-1.7 times as wide as rostrum between the antennal cavities); the ocelli are distinctly larger (the distance between them is much shorter than ocelli); the pronotum has rather high lateral lobes; the inner tympana are comparatively wide (almost as in Fig. III: 9); the male tegmina are with slightly smaller mirror and somewhat longer apical area (Fig. VI: 10); the 7th and 8th male abdominal tergite each bears median angular process directed forward (Figs VI: 11, 12); the anal plate is truncated at apex (Fig. VI: 11); the male genitalia are with long lateral lobes of the guiding rod apex (Fig. VI: 14), normal ectoparameres, shorter mold of the spermatophore attachment plate, and characteristic shape of the epiphallus (Figs VII: 8-10). The female of *V. saussurei* is unknown.

Length (mm). Body 20; body with wings 29; pronotum 3.1; tegmina 20; hind femora 13.7.

Varitrella ?bakeri (Chopard, 1925), **comb. n.**

(Figs VI: 15; VII: 11, 12)

Material. 1 ♂, **Philippines**, Mindanao I. [identified as *Calypotrypus saussurei* aff. and *pilosus* Haan] (MNCN).

Note. This male is very similar to the holotype of *V. saussurei*, but there are some small differences in the shape of the following structures: the genital plate (for comparison see Figs VI: 13, 15), mold of the spermatophore attachment plate (see Figs VII: 9, 11), and the guiding rod apex (see Figs VII: 10, 12). This specimen and the type material of *V. bakeri* (not studied by me) originate from the same island, but the description of *V. bakeri* is insufficient for distinguishing this species from *V. saussurei*. It is not impossible that these species names are synonyms.

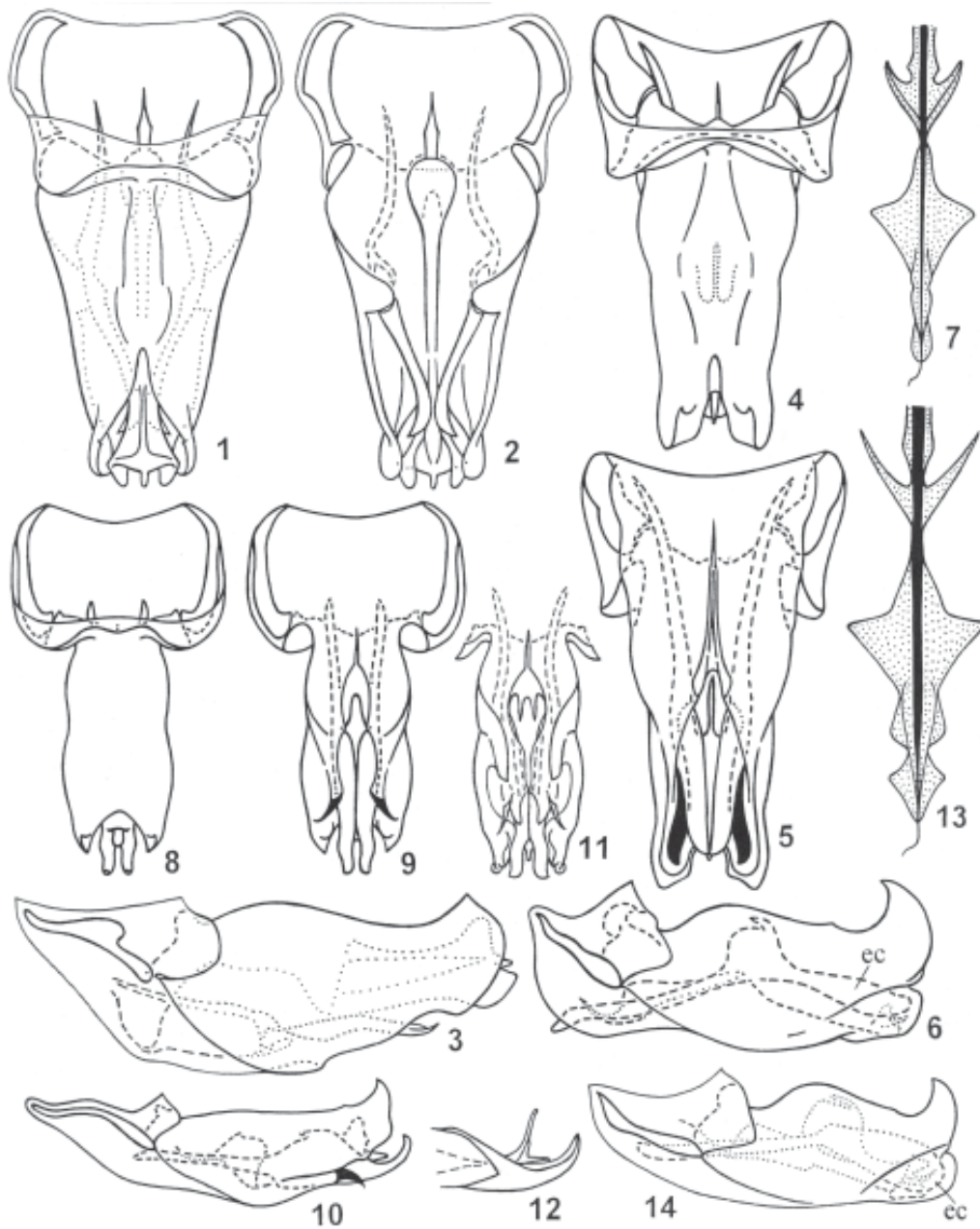
Varitrella nigrifrons (Chopard, 1931), **comb. n.**

(Figs VI: 16, 17; VIII: 1-7)

Holotype. ♂, **Malaysia**, Malacca, "Kedah Peak, Dec. 8.1915 Coll.", "*Madasumma nigrifrons* Chop., L. Chopard, det., Type" (BMNH).

Other material studied. **Indonesia**, Sumatra, prov. West Sumatra: 1 ♂, 20 km E of Sasak, env. of National Park Harau Valley, equator, 600 m, primary forest, 24-26.XI.1999, A. Gorochov (ZIAS). **Thailand**, Malacca, prov. Phetchaburi: 1 nymph, 50 km SW of Phetchaburi City, env. of National Park Kaeng Krachan, 400 m, secondary forest near reservoir, 2-5.VIII.1996, A. Gorochov (ZIAS).

Note. *V. nigrifrons* is similar to *V. saussurei* in the shape of body, but differs in all the features listed below: the body is distinctly spotted (the coloration is brownish grey with dark brown or



Figs VII (1-14). *Varitrella*, male. **1-3**, *V. quadrata* (Haan); **4-7**, *V. conspersa* (Stål) (holotype); **8-10**, *V. saussurei* (Stål) (holotype); **11, 12**, *V. ?bakeri* (Chop.); **13, 14**, *V. depressa* sp. n. Genitalia from above (1, 4, 8), from below (2, 5, 9, 11; in Fig. 11 rami not shown), and from side (3, 6, 10, 14); attachment plate of spermatophore from below (7, 13); guiding rod from side (12). Abbreviation: *ec*, inner sclerotised part of ectoparamere.

blackish anterior part of epicranium, small spots behind eyes, clearly spotted tegmina including lateral tegminal area and legs; hind femora are with more or less distinct dark brown transverse

band in the middle part); the rostrum is narrower (the scape is twice or slightly more than twice as wide as the rostrum between antennal cavities); the ocelli are distinctly larger (almost as in *V.*

quadrata, *V. conspersa*, and *V. depressa*); the male tegmina are with much larger mirror and distinctly shorter apical area (Fig. VIII: 4); the metanotal gland is partly reduced (Fig. VI: 16); the abdominal tergites are without processes; the male anal and genital plates are as in Fig. VIII: 5-7; the male genitalia are with small (strongly reduced) ectoparameres and large lateral lobes of guiding rod articulated with this rod and bifurcated (Figs VIII: 1-3). The female of *V. nigrifrons* is unknown.

Length (mm). Body 17-22; body with wings 27-32; pronotum 3-3.5; tegmina 19-22; hind femora 9-11.

Varitrella varipennis (Walker, 1869), **comb. n.** (Figs VIII: 8-13)

Holotype. ♂, Sri Lanka, "*Platydictylus varipennis* Wlk., Type, Det. B. Uvarov, 1925" (BMNH).

Note. This species is somewhat similar to *V. nigrifrons*. In *V. varipennis*, the head is brownish grey with dark spot between ocelli, darkish and lightish small marks on frons and clypeus, and light labrum. The pronotum is slightly narrowed in anterior part. The male tegmina are spotted (including their lateral part), their dorsal part as in Fig. VIII: 11. The legs are indistinctly spotted. The ventral parts of thorax and abdomen are rather light, brownish grey, but with darkish median stripe on the abdomen; the dorsal part of abdomen is with small dark spots; the male anal and genital plates are as in Figs VIII: 12, 13. The male genitalia are without ectoparameres (they are lost), but with lateral lobes of the guiding rod articulated with this latter and not bifurcated (Figs VIII: 8-10).

Length (mm). Body 15; body with wings 22.5; pronotum 2.8; tegmina 16.5; hind femora 9.

The holotype is without any geographic label, but in the first description of this species, it is indicated that this specimen is from "Ceylon" and "from Dr. Thwaites' collection" (Walker, 1869). Two other species names (*Calyptotrypus irroratus* Saussure, 1878; *Madasumma incerta* Chopard, 1928) are usually considered as synonyms of *V. varipennis* (Chopard, 1968; Otte, 1994). The types of *C. irroratus* (from Sri Lanka) are not studied by me. The holotype of *M. incerta* is a female (from Sri Lanka also) studied by me in BMNH. It is very similar to the holotype of *V. varipennis*, but slightly larger, with reddish tinge on the pronotal disc and more numerous small darkenings on tegminal dorsal part; its genital plate has rather deep apical notch; the ovipositor is normal for this genus. It is possible that the both species or one of them do not belong to *V. varipennis*, as the Chopard's picture of a speci-

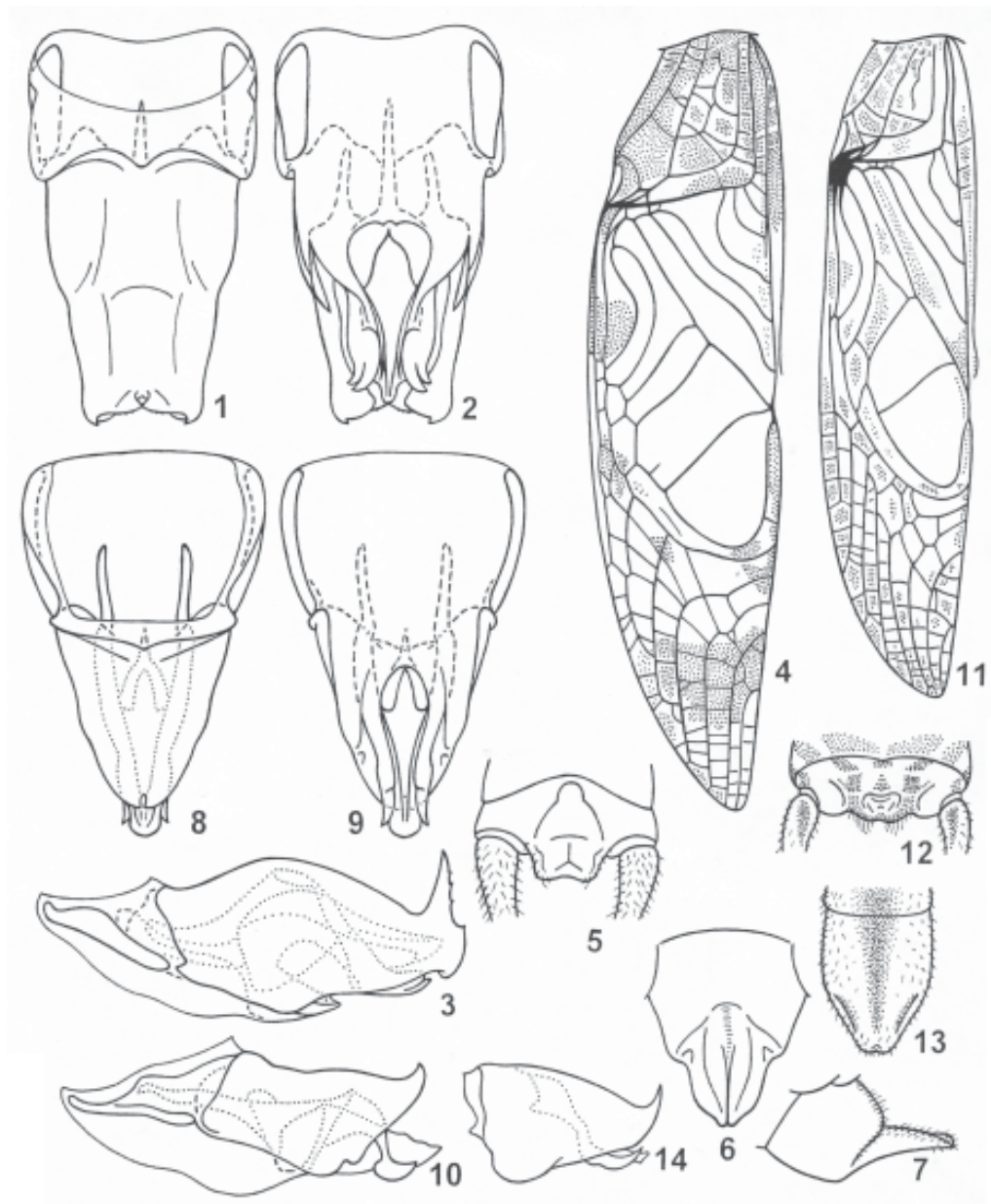
men from Sri Lanka identified by him (Chopard, 1936: Fig. 20) as *V. varipennis* displays that the male genitalia of this specimen are rather different from those of *V. varipennis* (for comparison, see Figs VIII: 10, 14).

Genus **Mnesibulus** Stål, 1877

Type species: *Mnesibulus lineolatus* Stål, 1877.

Note. This genus partly corresponds to *Mnesibulus* sensu Chopard (1968) and Otte (1994), as all species from India and Sri Lanka are excluded here (males of these species are very different in the genital characters and probably have no abdominal gland). The other representatives of *Mnesibulus* (I do not write "indisputable", because the type species is very insufficiently studied) are characterized by the rather narrow rostrum (the scape is twice or slightly more than twice as wide as the rostrum between antennal cavities), presence of the male abdominal gland (which is analogous to the metanotal gland of the previous genera), characteristic shape of the male anal plate (with truncated or weakly notched apex and large central concavity on the dorsal surface) (Figs IX: 2, 5, 7, 8, 11, 14, 19; XII: 11), distinctly inflated fore tibiae with more or less large tympana (the outer tympanum is almost round; the inner one is slit-like, but slightly or significantly widened) (Figs X: 4; XIII: 6), and characteristic structure of the male genitalia (the epiphallus has transverse fold at the base, deep apical notch, and a pair of rather large apical processes directed more or less laterally; the guiding rod is from freely movable to slightly movable with respect to the epiphallus; distal part of this rod is complex, widened, with apical concavity and short inner rod in the centre of this concavity or with paired sclerotised hooks and median lobe; ectoparameres are developed, situated near the base of guiding rod or moved towards its apex; endoparameral apodemes are long; the mold of spermatophore attachment plate is rather wide, with unpaired apodeme) (Figs X: 1-3, 7-9, 12-14; XI: 1-3, 5-7, 9; XII: 1-3, 7-10, 14; XIII: 1-3). The ovipositor in this genus has normal drilling apex (Figs X: 6; XIII: 8).

Composition. Two subgenera: *Mnesibulus* s. str. (*Promnesibulus* Shiraki, 1930 is provisionally considered here a synonym of this subgenus because of similarity of the abdominal gland and the male genitalia) and *Amnesibulus* subgen. n. Two species (from Sulawesi and Philippines), usually included in *Mnesibulus*, possibly belong to the tribe Aphonoidini (*Platydictylus signatipennis* Walker, 1869) and to the subfamily Itarinae (*Mnesibulus strigatipes* Bolí var, 1913) (their types are females studied by me).



Figs VIII (1-14). *Varitrella*, male. **1-7**, *V. nigrifrons* (Chop.) (holotype); **8-13**, *V. varipennis* (Walk.) (holotype); **14**, *V. sp.* (from Chopard, 1936: Fig. 20). Genitalia from above (1, 8), from below (2, 9), and from side (3, 10); dorsal part of tegmen (4, 11); anal (5, 12) and genital (6, 7, 13) plates from above and slightly from behind (5, 12), from below (6, 13), and from side (7); distal part of genitalia from side (14).

Subgenus *Mnesibulus* s. str.

Note. The body size is small for this tribe. The male has primitive structure of tegmina: the stridulatory apparatus is well developed (Figs IX: 3, 4, 6, 10, 13), *R* and *M* are not fused with each

other. The male abdominal gland consists of a large tubercle or a process on the 6th tergite, a diverse haired structure on the 5th tergite, and, sometimes, a small tubercle on the 7th tergite (Figs IX: 2, 5, 7, 8, 11, 14, 15).

Included species. Type species of *Mnesibulus* (Philippines), *Gryllus/Phalangopsis bicolor* Haan, 1878 (Java and adjacent territories; Figs IX: 1-3; X: 1-11), *Mnesilobus pallidulus* Bolí var, 1889 (Philippines; Figs IX: 8; XI: 1-4), *Mnesibulus nigrifrons* Chopard, 1930 (Kalimantan; Fig. XII: 14), *M. okunii* Shiraki, 1930 (Taiwan; type of *Promnesibulus*), *M. nigrolineatus* Chopard, 1931 (Malacca; Figs IX: 9-11; XII: 5-7), *M. striatipes* Chopard, 1969 (Malacca; Fig. XI: 9), *M. (M.) luzoni* sp. n., *M. (M.) malacca* sp. n., *M. (M.) borneoensis* sp. n., probably *M. splendidulus* Stål, 1877 (Philippines), *Calyptotrypus simodus* Saussure, 1878 (Philippines; it is usually considered a synonym of *M. lineolatus*), *C. brunnerianus* Saussure, 1878 (Java), and *M. annulipes* Chopard, 1930 (Kalimantan).

***Mnesibulus (Mnesibulus) bicolor* (Haan, 1878)**
(Figs IX: 1-3; X: 1-11)

Material. **Indonesia, Java:** 1 ♂, "Buitenzorg [Bogor], 27-29.VII.907, E. Bruggan" (ZIAS); 1 ♀, "Java, K. Fruhstorfer S." (MIZP); **Sumatra:** 1 ♂, 1 ♀, "Fort de Kock, 920 m, 1924, E. Jacobson" [identified by Chopard as *Madasumma bicolor* Haan] (BMNH). **Thailand:** 1 ♀, *prov. Nakhon Ratchasima*, National Park Khao Yai, 800 m, "night collecting", 15-18.X.1990, S. Ingrisch (Ingrisch's collection); 1 ♀, *prov. Surat Thani*, National Park Khao Sok, "40 km on road Phanom – Takuapa, on light", 28.X-19.XI.1995, M. Mostovsky (ZIAS); 1 ♀, *prov. Trat*, Chang I. (Siam Bay), low mountains near sea, forest, 5-20.XI.2000, A. Gorochoy & L. Anisyutkin (ZIAS). **China:** 1 ♀, *Hainan I.*, "Diao Lao Shan, polydominant trop. forest", 900 m, 26-30.VII.2000, N. Orlov (ZIAS).

Note. This species is characterized by the following: the distinctive coloration [the head, pronotum, pleurites of pterothorax, tibiae, fore and middle femora are almost dark brown or (usually in females) blackish; fore and middle tarsi are light brown; hind femora are dark with two whitish transverse bands; hind tarsi are with whitish proximal and dark distal halves; wings are light brown or yellowish, but with slightly darker or (usually in females) very dark tegminal lateral area; ventral part of thorax and abdomen is light brown; their dorsal part is more or less darkish] (Fig. IX: 1); the venation of the male tegmina is almost as in Fig. IX: 6, with moderately elongated mirror contacting with the lateral edge of tegminal dorsal part on a very short distance (Fig. IX: 3); the male abdominal gland has longitudinal convexity on the 5th tergite and has no tubercle on the 7th tergite (Fig. IX: 2); the genital plates are as in Figs X: 5, 10, 11; the male genitalia are with rather long epiphallus and its apical processes, slightly widened apex of guiding rod lacking paired sclerotised hooks, and very finely denticulated ectoparameres situated almost near the base of this rod (Figs X: 1-3, 7-9). The distribution of this species, described

from Java, is rather wide (from Sumatra to South-East China). It is not impossible that *M. brunnerianus*, described by Saussure from Java also and having the similar coloration, is a synonym of *M. bicolor*.

***Mnesibulus (Mnesibulus) luzoni* sp. n.**
(Figs IX: 4, 5; X: 12-14)

Holotype. ♂, **Philippines, Luzon I.**, "Philip. 22-VIII-77 Bo. Cale, 7 km NW Tanauan, Batangas Prov., 14°07', 121°06'E" [identified by Townsend as *Mnesibulus brunnerianus* (Sauss.)] (BMNH).

Paratype. ♀, same data as holotype (BMNH).

Description. *Male* (holotype). Similar to *M. bicolor* in size and shape of body, tegminal venation, structure of abdominal gland, shape of anal and genital plates, and structure of genitalia, but coloration more light and uniform [light brown with slightly darkish area between rostral apex and middle part of vertex, and distinctly darkened (brown) upper side of hind tibiae (their spines light)], tegmina with 5 oblique veins and longer mirror (distal part of tegmina missing) (Fig. IX: 4), abdominal gland with characteristic median area on 4th tergite (Fig. IX: 5), genitalia with apical epiphallic processes directed somewhat forward (towards head), with guiding rod apex slightly narrower, and with differently-shaped mold of spermatophore attachment plate (Figs X: 12-14).

Female. Very similar to male, but pronotal disc and tegminal base with brownish darkenings. It distinguished from female of *M. bicolor* by coloration only.

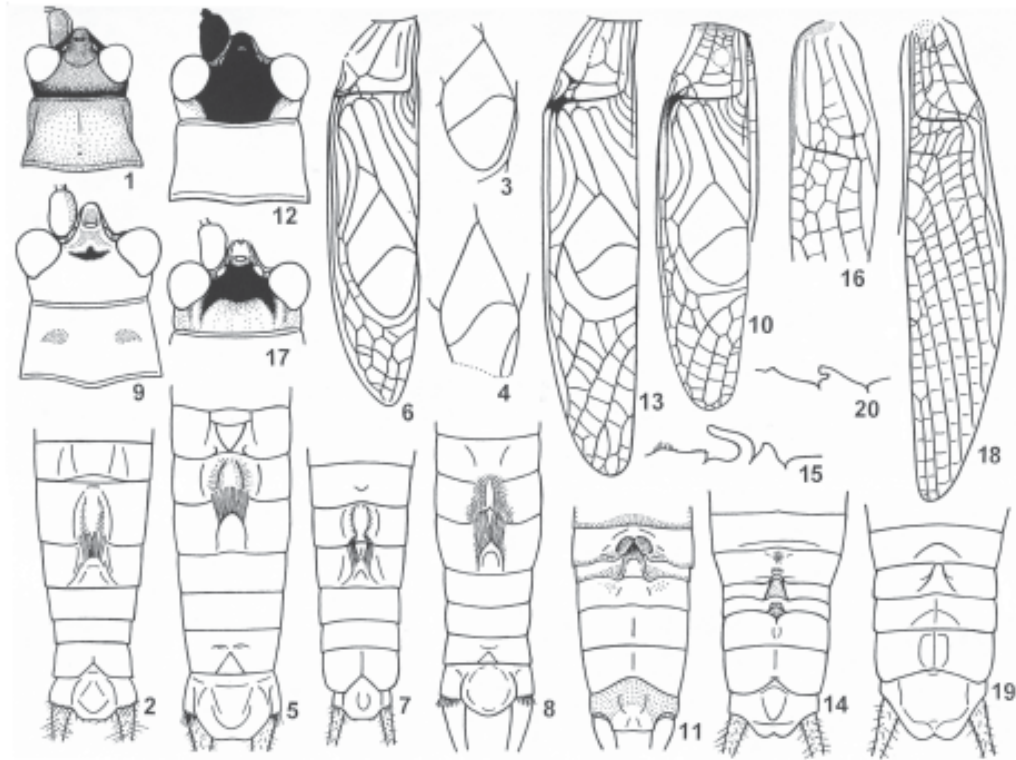
Length (mm). Body: ♂ 11, ♀ 14; body with wings: ♂ 15, ♀ 19; pronotum: ♂ 1.9, ♀ 2.1; tegmina, ♀ 13; hind femora: ♂ 6.8, ♀ 7.2; ovipositor 4.5.

Comparison. The differences from *M. bicolor* (and possibly, from *M. brunnerianus*) are listed above. *M. luzoni* differs from *M. lineolatus* (and possibly, from *M. simodus*), *M. splendidulus* and *M. annulipes* in the clearly more uniform coloration of the pronotum and/or legs, from *M. pallidulus*, in the distinctly smaller apical part of the guiding rod, from *M. okunii*, in the clearly wider distal half of ectoparameres, from *M. nigrifrons*, *M. nigrolineatus* and *M. striatipes*, in the different coloration of head as well as the structure of the male genitalia.

***Mnesibulus (Mnesibulus) pallidulus* (Bolí var, 1889)**
(Figs IX: 8; XI: 1-4)

Lectotype. ♂, **Philippines**, "Sibul", "1224", "*M. pallidulus* Bol.", "Lectotypo" (MNCN).

Note. This species is characterized by the uniformly brownish grey coloration, but the antennal



Figs IX (1-19). *Mnesibulus*, male. 1-3, *M. bicolor* (Haan) (1, 2, from Java; 3, from Sumatra); 4, 5, *M. luzoni* sp. n.; 6, 7, *M. malacca* sp. n.; 8, *M. pallidulus* Bol. (lectotype); 9-11, *M. nigrolineatus* Chop. (holotype); 12-15, *M. borneoensis* sp. n.; 16, *M. congruus* (Walk.) (holotype); 17-19, *M. silentus* sp. n. Head and pronotum from above (1, 9, 12, 17); abdomen from above (2, 5, 7, 8, 11, 14, 19); tegminal mirror (3, 4); dorsal part of tegmen (6, 10, 13, 18) and its proximal half (16); abdominal gland from side (15, 20).

flagellum, labrum, labium, palpi, lateral pronotal lobes, the ventral part of thorax and abdomen are slightly lighter, and the wings are yellowish, semitransparent. The venation of male tegmina is more or less similar to that of *M. bicolor* and *M. luzoni*. The abdominal gland and the anal plate of male are as in Fig. IX: 8. The male genital plate is slightly shorter than in *M. bicolor* (and *M. luzoni*) and with less angular apex (Fig. XI: 4). The male genitalia are characterized by the large guiding rod apex provided with paired hook-like sclerites and short membranous lobe between the distal parts of these sclerites; the ectoparameres are situated near the base of guiding rod; the mold of spermatophore attachment plate is very characteristic (Figs XI: 1-3). The female is probably unknown.

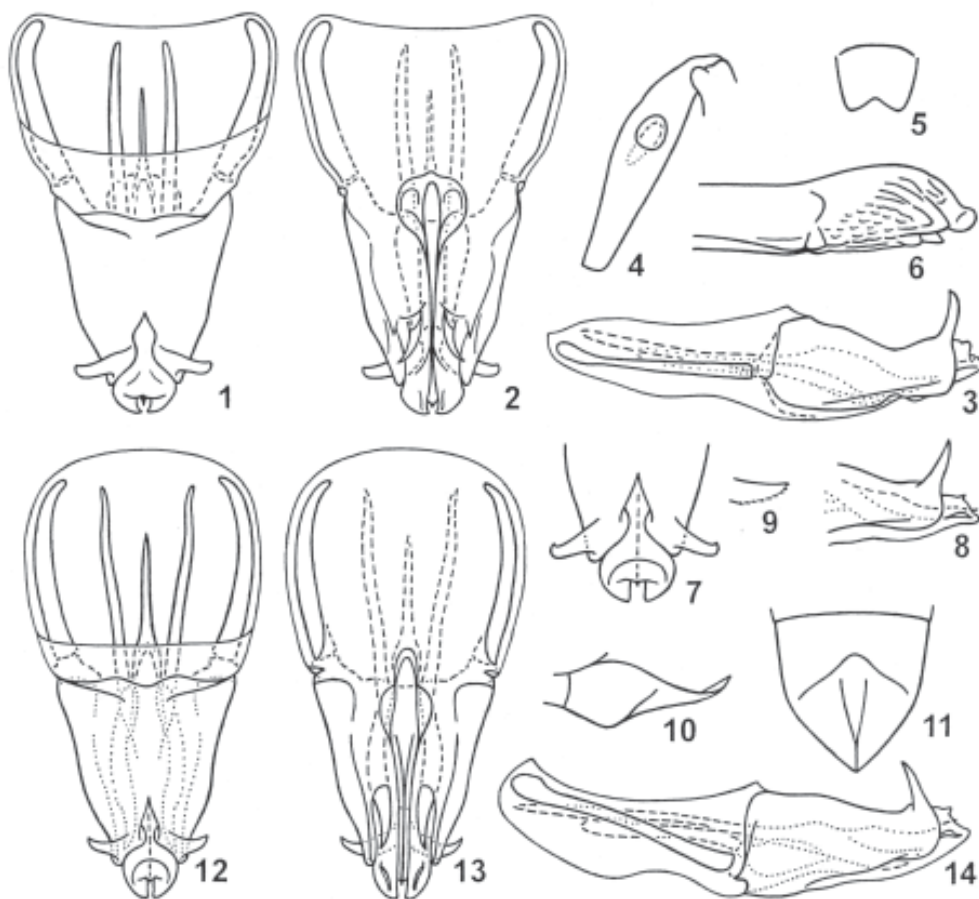
Length (mm). Body 10.5; body with wings 15; pronotum 1.7; tegmina 10.5; hind femora 6.8.

***Mnesibulus (Mnesibulus) malacca* sp. n.**
(Figs IX: 6, 7; XI: 5-8)

Holotype. ♂, **Malaysia, Malacca**, "Upper Perak, Sedong Raja Rahim, 11.9.1941" (BMNH).

Description. *Male* (holotype). Coloration uniformly brown with light brown (semitransparent) wings. Fore tibiae as in *M. bicolor* (Fig. X: 4), but with slightly wider inner tympanum. Venation of tegminal dorsal part as in Fig. IX: 6. Abdominal gland and anal plate as in Fig. IX: 7.

Genital plate almost identical to that of *M. bicolor* (see Figs X: 11 and XI: 8). Genitalia similar to those of *M. pallidulus* in general shape of epiphallus, size of apical part of guiding rod, and structure of ectoparameres, but epiphallic apical notch deeper, apex of guiding rod with paired hook-like sclerites less developed (not distinct), and shape of mold of spermatophore attachment plate clearly different (Figs XI: 5-7).



Figs X (1-14). *Mnesibulus*. 1-11, *M. bicolor* (Haan) (1-4, from Java; 5, 6, from Thailand; 7-11, from Sumatra); 12-14, *M. luzoni* sp. n. Male genitalia (1-3, 12-14) and their distal part (7, 8) from above (1, 7, 12), from below (2, 13), and from side (3, 8, 14); fore tibia from side (inner tympanum outlines shown by dots and interrupted line) (4); genital plate of female (5) and male (10, 11) from below (5, 11) and from side (10); apex of ovipositor from side (6); ectoparamere without base from side (9).

Female unknown.

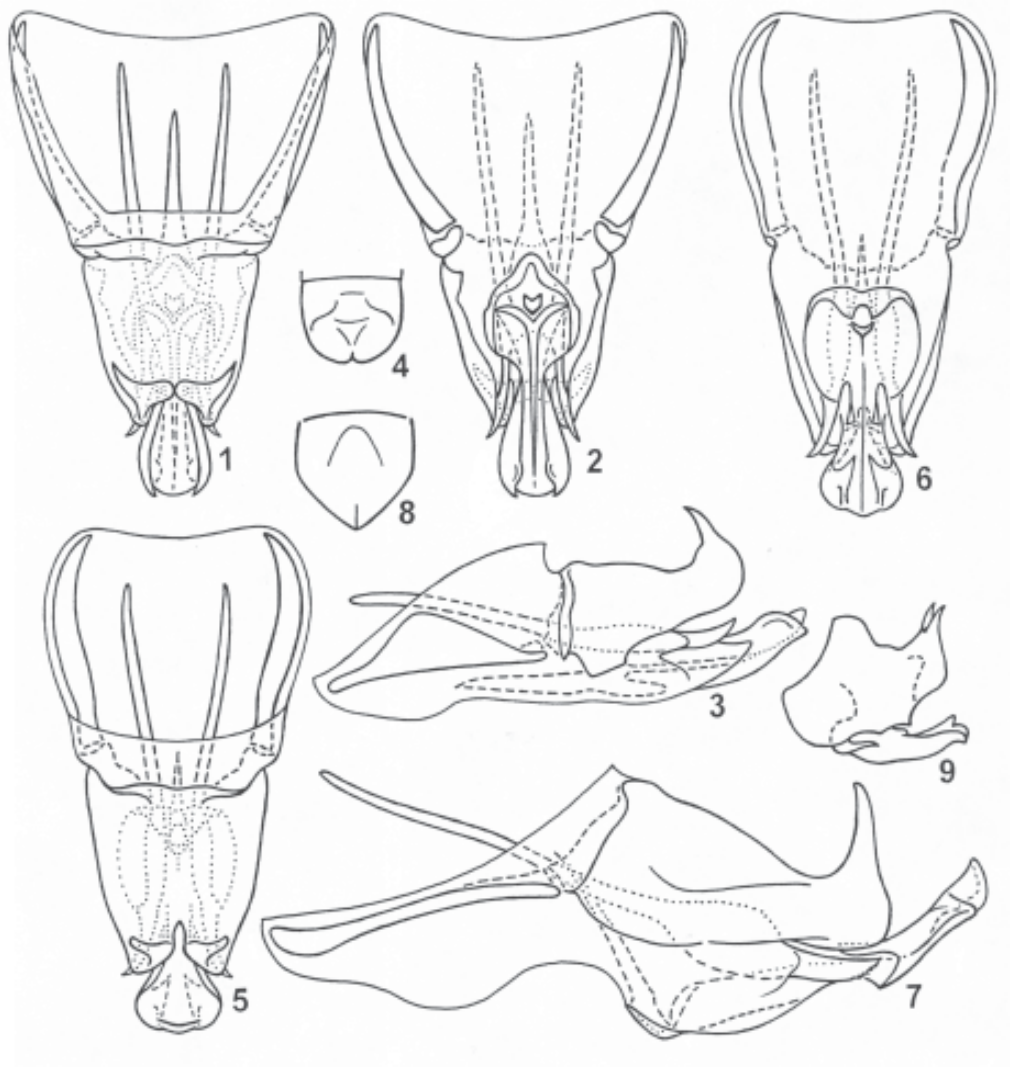
Length (mm). Body 11.5; body with wings 16; pronotum 1.5; tegmina 10.5; hind femora 6.7.

Comparison. *M. malaccae* is very similar to *M. pallidulus*, but well distinguished by the above-mentioned characters of the male genitalia. This new species differs from *M. okunii* in the much shorter diagonal vein and larger mirror in the male stridulatory apparatus, from *M. luzoni*, in the larger apical part of guiding rod and differently-shaped mold of the spermatophore attachment plate in the male genitalia, and from all other species of this subgenus, in the more uniform coloration and some mentioned details of the male genitalia.

***Mnesibulus (Mnesibulus) nigrolineatus* Chopard, 1931**
(Figs IX: 9-11; XII: 5-7)

Holotype. ♂, **Malaysia, Malacca**, "Selangor F.M.S., Gombak Valley, Oct. 12th 1921, H.M. Pendlebury", "Holotype", "*Mnesibulus nigrolineatus* Chop., type" (BMNH).

Note. The genitalia of holotype are missing. This species is characterized by the almost uniform, light yellowish brown coloration (but with the following details: dark short transverse stripe on vertex between the eyes, dark longitudinal lines on fore and middle femora, and dark stripe along the upper surface of hind tibiae) (Fig. IX: 9), almost oval (not long) mirror of the male



Figs XI (1-9). *Mnesibulus*, male. **1-4**, *M. pallidulus* Bol. (lectotype); **5-8**, *M. malacca* sp. n.; **9**, *M. striatipes* Chop. (from Chopard, 1969). Genitalia (1-3, 5-7) and their distal half (9) from above (1, 5), from below (2, 6), and from side (3, 7, 9); genital plate from below (4, 8).

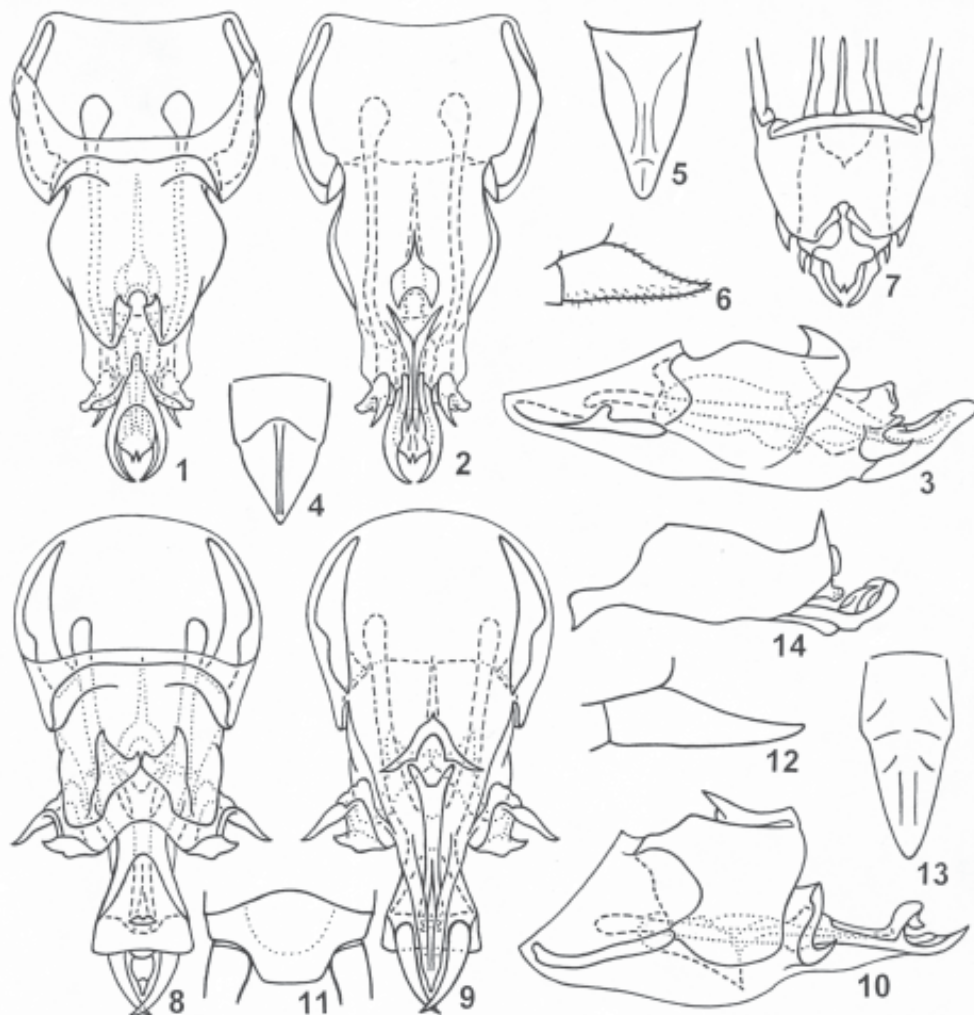
tegmina contacting with the lateral edge of tegminal dorsal part on a rather long distance (Fig. IX: 10), the abdominal gland with characteristic concavity on 5th tergite (Fig. IX: 11), the narrow male genital plate (Figs XII: 5, 6), and, judging from Chopard (1931), the male genitalia with short epiphallus and complex apex of the guiding rod divided into long paired hook-like sclerites and rather large median lobe with slightly bifurcated apex (Fig. XII: 7). The female is probably unknown.

Length (mm). Body 14; body with wings 20; pronotum 1.8; tegmina 13; hind femora 8.5.

***Mnesibulus (Mnesibulus) borneoensis* sp. n.**
(Figs IX: 12-15; XII: 1-4)

Holotype. ♂, **Malaysia, Kalimantan, Sabah**, "Kini Balu [Kinabalu], North Borneo (Rolle 1900)" (ZIAS).

Description. *Male* (holotype). Head with blackish upper part and base of antennae; fore part of head (from rostrum to apex of labrum) and re-



Figs XII (1-14). *Mnesibulus*, male (holotype). 1-4, *M. borneoensis* sp. n.; 5-7, *M. nigrolineatus* Chop. (7, from Chopard, 1931); 8-13, *M. congruus* (Walk.); 14, *M. nigrifrons* Chop. (from Chopard, 1930). Genitalia from above (1, 7, 8), from below (2, 9), and from side (3, 10, 14); genital (4-6, 12, 13) and anal (11) plates from below (4, 5, 13), from side (6, 12), and from above (11).

mainder of antennae dark brown; genae, parts behind eyes, labium, and maxillae light brown (Fig. IX: 12). Other parts of body light brown (almost yellowish) with brown longitudinal lines on fore femora (two dark lines along lower keels and one somewhat lighter line on inner side), on middle femora (three parallel lines on outer side), and on fore and middle tibiae (two parallel lines on upper side fused with each other not far from tibial base), with dark brown upper part of hind tibiae, brown segment 2 of hind tarsi, and dark brown spot on tegminal base. Tegmina with mirror more or less similar to those of *M. nigro-*

lineatus, but with much longer apical area (Fig. IX: 13). Abdominal gland with long and curved process on 6th tergite, short process (or tubercle) on 7th tergite, and two very small median tubercles and a pair of small hind lobules on 5th tergite (Figs IX: 14, 15).

Anal and genital plates as in Figs IX: 14 and XII: 4. Genitalia with short epiphallus and its apical processes directed somewhat forward (towards head); guiding rod large, strongly protruding behind epiphallus, with apex similar to that of *M. nigrolineatus*, but ectoparameres also protruding behind epiphallus (moved towards apex

of this rod) and characteristic fold (sclerotised and distinctly exposed) present between them (Figs XII: 1-3).

Female unknown.

Length (mm). Body 12; body with wings 18.5; pronotum 1.7; tegmina 13.3; hind femora 7.2.

Comparison. *M. borneoensis* is similar to *M. nigrolineatus* in the structure of the male genitalia and to *M. nigrifrons*, in the coloration. It is distinguished from the first species by the coloration of head (for comparison, see Figs IX: 9, 12) and the shorter guiding rod (see Figs XII: 1, 7), from the second one, by the coloration of legs (in *M. nigrifrons*, all legs are without distinct brown lines) and the shape of epiphallus (see Figs XII: 3, 14), and from all other species of this subgenus, by the uniform coloration of the pronotum and hind femora, the characteristic abdominal gland, and the structure of the male genitalia.

Subgenus *Amnesibulus* subgen. n.

Type species: *Mnesibulus (Amnesibulus) silentus* sp. n.

Diagnosis. Body medium-sized for Podoscirtini. Male tegmina with strongly reduced stridulatory apparatus: former stridulatory vein and traces of chords retained only, other veins almost parallel, resembling those in female (Figs IX: 16, 18) (*R* and *M* as in nominotypical subgenus). Male abdominal gland with tubercle (or process) on 7th tergite and shallow concavity on 6th tergite; 5th abdominal tergite simple (Fig. IX: 19).

Included species. Type species (Sulawesi; Figs IX: 17-20 and XIII: 1-8) and *Laurepa congrua* Walker, 1869 (Philippines; Figs IX: 16 and XII: 8-13).

Mnesibulus (Amnesibulus) silentus sp. n. (Figs IX: 17-20; XIII: 1-8)

Holotype. ♂, **Indonesia, Sulawesi**, "South Celebes" (ZIAS).

Paratype. ♀, same data as in holotype (ZIAS).

Description. *Male* (holotype). Coloration light reddish brown with blackish band between eyes (as in Fig. IX: 17), dark brown short stripe between antennal cavities (under rostral apex), and yellowish wings (tegmina crossveins entirely and longitudinal veins partly reddish excepting distal part of tegmina). Head rather high, somewhat higher than in *Mnesibulus* s. str., with large ocelli. Venation of dorsal tegmina as in Fig. IX: 18; lateral part of tegmina with very numerous oblique *Sc* branches and distinct crossveins between them. Fore tibiae somewhat narrower than in *Mnesibulus* s. str., with outer tympanum smaller and inner one wider (for comparison, see Figs X: 4 and XIII: 6).

Abdominal gland, anal and genital plates as in Figs IX: 19, 20 and XIII: 4, 5. Genitalia (Figs XIII: 1-3) with characteristic shape of epiphallus; guiding rod not very long, with hook-shaped apical sclerites not very large, median apical lobe rod-like, and upper apical lobe clearly curved upward; ectoparameres small, disc-shaped, with small denticles and lower hook; mold of spermatophore attachment plate with apodeme distinctly widened near apex.

Female. Similar to male, but dark brown stripe between antennae occupying rostral apex and bifurcated between lower parts of antennal cavities (on middle part of frons), anterior half of pronotal disc partly darkened, tegmina crossveins more or less yellowish. Genital plate rather short and wide, with narrow apical notch (Fig. XIII: 7). Ovipositor long, with apex as in Fig. XIII: 8.

Length (mm). Body: ♂ 19, ♀ 17; body with wings: ♂ 26, ♀ 32; pronotum: ♂ 2.3, ♀ 3; tegmina: ♂ 17, ♀ 23; hind femora: ♂ 10.5, ♀ 13; ovipositor 15.5.

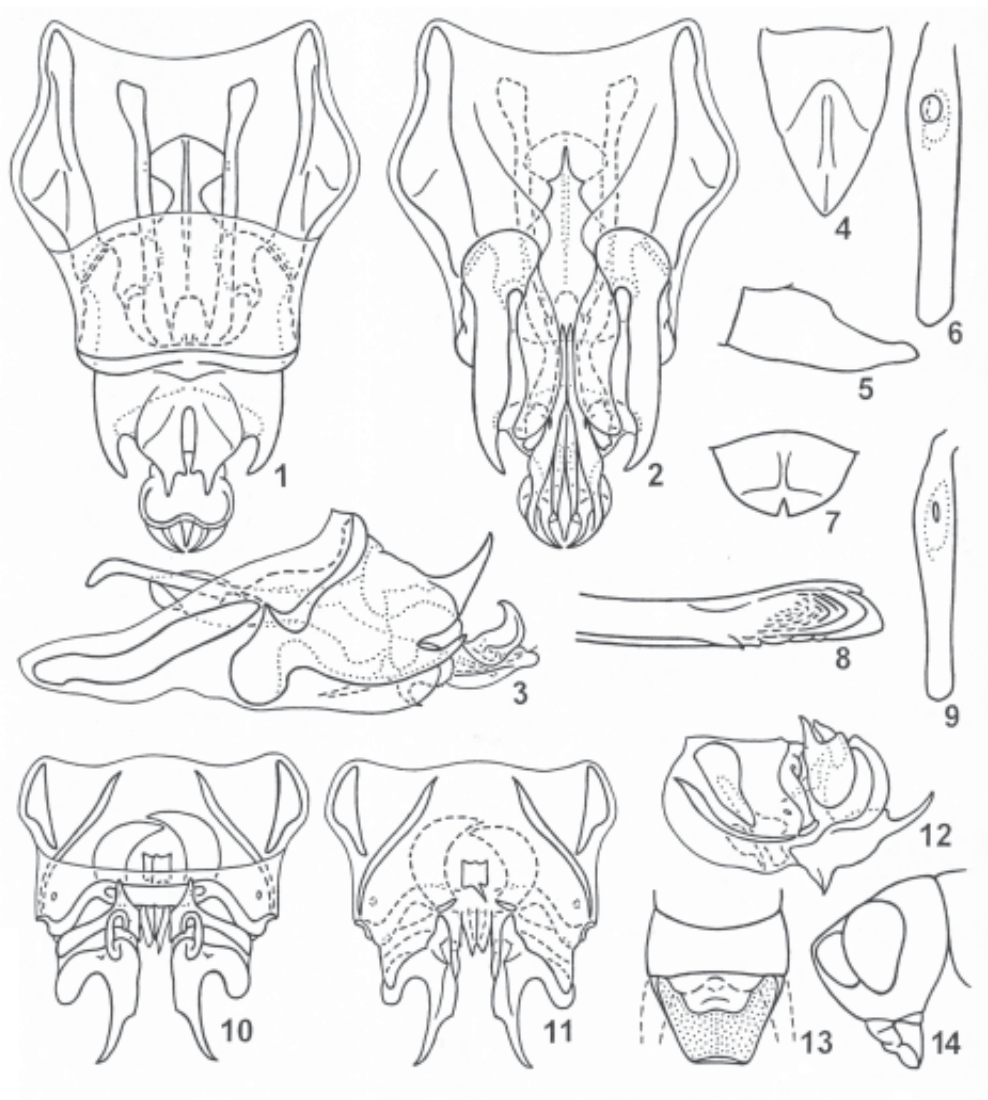
Comparison. The differences from the second species of this subgenus are given below.

Mnesibulus (Amnesibulus) congruus (Walker, 1869), **comb. n.** (Figs IX: 16; XII: 8-13)

Holotype. ♂, **Philippines**, "Phil. Isla 42 22", "Holotype", "*Laurepa congrua*. One of Walker's series so named. Type" (BMNH).

Note. This species is rather similar to *M. silentus*, but differs in all the characters listed below: the coloration is without reddish tinge; dark transverse band between the eyes is narrower; the vein along the proximal half of lateral edge of dorsal tegmina part is darkish; the area between this vein and chords in the male tegmina is narrower (for comparison, see Figs IX: 16, 18); in the male abdomen (the abdominal gland is not studied), the anal plate has whitish median concavity and truncated apex (see Figs IX: 19 and XII: 11); the male genital plate is narrower (see Figs XII: 12, 13 and XIII: 4, 5); the male genitalia are very different (see Figs XII: 8-10 and XIII: 1-3): the epiphallus is shorter and with differently-shaped apical processes, the guiding rod is very long, its hook-shaped apical sclerites are very large, the median lobe between them is strongly S-shaped in profile, the ectoparameres are differently-shaped and slightly moved towards the guiding rod apex, the shape of mold of the spermatophore attachment plate and its apodeme is different also. The female is probably unknown.

Length (mm). Body 15; body with wings 22; pronotum 2; tegmina 16.5; hind femora 9.5.



Figs XIII (1-14). *Mnesibulus* and *Atrella*. **1-8.** *M. silentus* sp. n.; **9-14.** *A. modesta* sp. n. Male genitalia from above (1, 10), from below (2, 11), and from side (3, 12); genital plate of male (4, 5) and female (7) from below (4, 7) and from side (5); fore tibia from side (inner tympanum outlines shown by dots and interrupted line) (6, 9); apex of ovipositor from side (8); male abdominal apex from above (13); head from side (14).

Genus *Atrella* gen. n.

Type species: *Atrella modesta* sp. n.

Diagnosis. Size comparatively small. Body and wings rather long. Head high (Fig. XIII: 14); scape almost 1.5 times as wide as rostrum between antennal cavities. Pronotum with clearly angular hind lobe of disc. Male tegmina without traces of stridulatory apparatus; their dorsal part with seven longitudinal veins almost regularly

spaced and more or less parallel; lateral area with *Sc* branches almost longitudinal (weakly oblique); tegminal crossveins sparse. Hind wings much longer than tegmina. Legs typical of Podoscirtini, but inner tympanum open and outer tympanum rudimentary (Fig. XIII: 9). Metanotal or abdominal glands absent.

Male anal plate small, with transverse fold not far from base (Fig. XIII: 13); male genital plate apically narrowed. Male genitalia very charac-

teristic (Figs XIII: 10-12): epiphallus short and divided into 5 separated sclerites (a pair of distal ones with upper hooks and hind processes, a pair of middle sclerites narrow and with upper spines, and unpaired proximal sclerite being narrow and strongly transverse), guiding rod small, consisting of unpaired upper part (with sclerotisation) and a pair of lower membranous lobes, rami divided into two sclerites.

Included species. Type species only.

Comparison. *Atrella* differs from all other Podoscirtini in the characteristic set of characters: the shape of head, pronotum, and male anal plate, the absence of stridulatory apparatus, metanotal and abdominal glands, the structure of tympana and male genitalia (especially that of epiphallus).

***Atrella modesta* sp. n.**
(Figs XIII: 9-14)

Holotype. ♂, **Indonesia**, Java, "Java, Pedaschenko, 1901" (ZIAS).

Description. *Male* (holotype). Coloration light brown with hardly darker head and pronotum, slightly lighter wings, and almost indistinctly spotted legs. Head with distinctly angular rostrum (Fig. XIII: 14). Pronotum slightly narrowing anteriorly. Tegmina with six branches of Sc. Fore tibiae (with tympana) as in Fig. XIII: 9.

Anal plate with small apical notch; genital plate narrowing to round apical part (but this part looks almost truncated as seen from above, because its apex is curved upward; Fig. XIII: 13). Genitalia as in Figs XIII: 10-12, with weakly asymmetrical mold of spermatophore attachment plate and characteristic endoparameral apodemes (their distal parts curved medially).

Female unknown.

Length (mm). Body 11; body with wings 18; pronotum 1.9; tegmina 12.5; hind femora 8.

INDO-MALAYAN PODOSCIRTINI WITH UNCLEAR GENERIC POSITION

***Madasumma? fletcheri* Chopard, 1935**
(Figs XIV: 1-5)

Holotype. ♂, **Myanmar** (= **Burma**), "U. Burma, Lashio: 3000 ft., 23-24.8.14, Fletcher coll.", "*Madasumma fletcheri* Chop., type, L. Chopard, det.", "Holotype", "genitalia absent" (BMNH).

Note. This species is similar to the representatives of the genus *Trelleora* in the general appearance (the coloration is light brown with dark brown area from the rostral apex to the hind parts of eyes, hind part of vertex, and longitudinal bands behind the eyes, brown antennae and not very distinct spots on the pronotal disc, and yel-

lowish tegmina with slight brownish spots as in Fig. XIV: 1) and the structure of fore tibiae. It is similar also to species of the genus *Madasumma* in the venation of the male tegmina (Fig. XIV: 1) and shape of the male genital plate (Figs XIV: 3, 4). On the contrary, the shape of male anal plate (Fig. XIV: 2) and, judging from Chopard (1935), the structure of male genitalia (Fig. XIV: 5) are clearly different in all these taxa (the genitalia of the holotype are missing). The female is unknown.

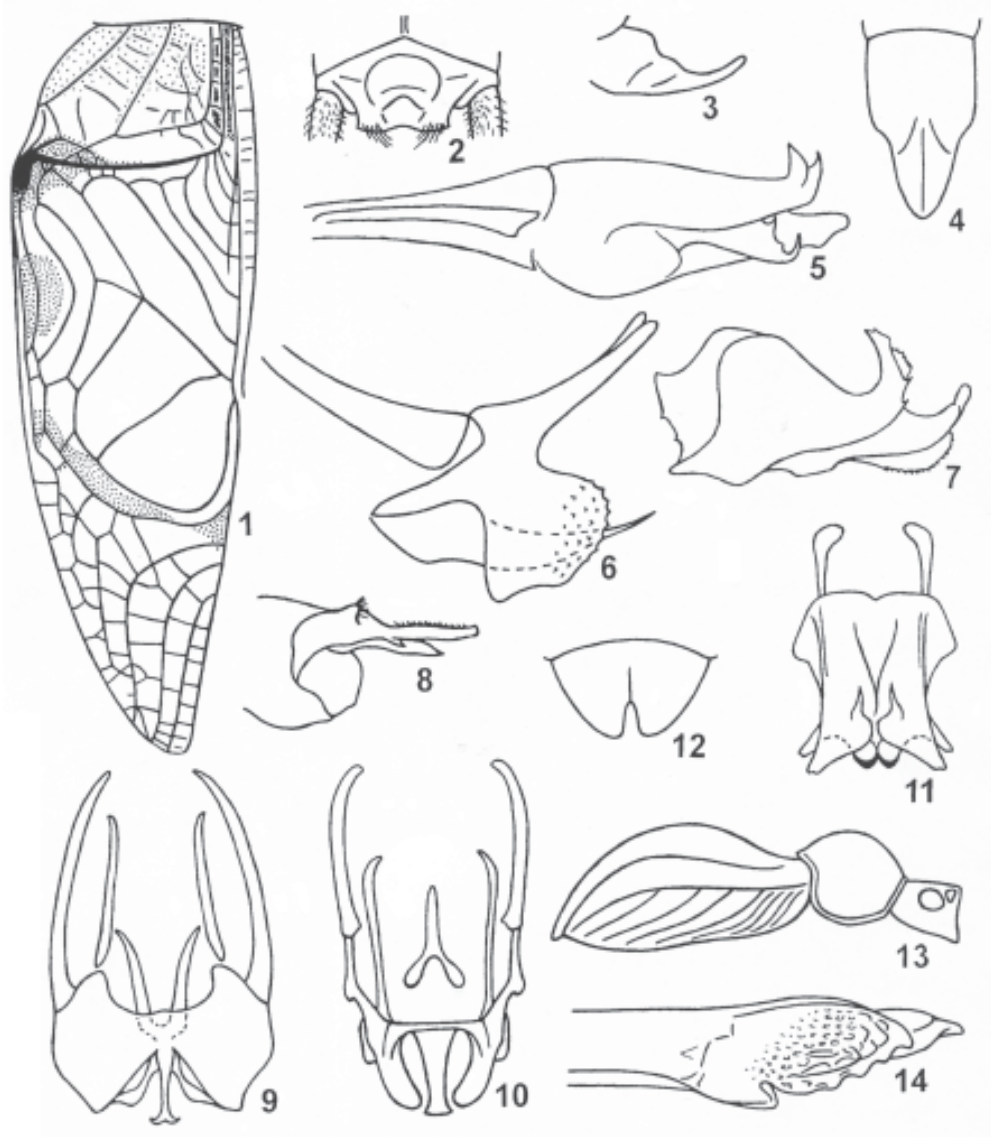
Length (mm). Body 19; body with wings 28; pronotum 2.8; tegmina 19; hind femora 11.5.

Other Indo-Malayan Podoscirtini with unclear generic position

Generic position of several other Indo-Malayan species, undoubtedly belonging to Podoscirtini and formerly included in the genera *Madasumma* Walk., *Calypotrypus* Sauss., and *Mnesibulus* Stål (Chopard, 1968; Otte, 1994), is unclear. They are insufficiently studied or described from females only.

The species *Madasumma vicina* Chopard, 1925 (Philippines), *M. valida* Chopard, 1936 (Sri Lanka; Fig. XIV: 6), *M. melanonotum* Chopard, 1969 (India; Fig. XIV: 7), *M. keralensis* Vasanth, 1991 (India), *Calypotrypus roonwali* Bhowmik, 1977 (India), *Mnesibulus andrewesi* Chopard, 1928 (India; Fig. XIV: 8), and *M. pallipes* Chopard, 1936 (Sri Lanka; Fig. XIV: 9) are described from males and characterized by the slit-like inner and open outer tympana, developed stridulatory apparatus, and, judging from Chopard (1928, 1936, 1969), Bhowmik (1977: Fig. 3A), and Vasanth (1991: Fig. 2), the characteristic male genitalia strongly different from all known representatives of Podoscirtini (except for *M. ? vicina* with unknown male genitalia, but distinguished by the very large tegminal mirror).

Another taxon indisputably belonging to Podoscirtini is the genus *Pseudomadasumma* Shiraki, 1930. This genus is described from the male of a single species (*P. maculata* Shiraki, 1930; Taiwan). It is not impossible that *Pseudomadasumma* is a synonym of one of the genera considered here (excepting *Atrella*, because the structure of male tegmina and tympana in *Pseudomadasumma* are typical of this tribe) as the description by Shiraki does not contain any information about the male genitalia of this genus. However, *P. maculata* is well distinguished from all the above-mentioned Podoscirtini by the very long, low, narrow pronotum, arched stridulatory vein, comparatively small and almost round mirror, and rather short apical area in the male tegmina (Shiraki, 1930: Fig. 22).



Figs XIV (1-14). Indisputable and possible Podoscirtini. **1-5**, *Madasumma? fletcheri* Chop. (holotype; 5, from Chopard, 1935); **6**, *M.? valida* Chop. (from Chopard, 1936); **7**, *M.? melanotum* Chop. (from Chopard, 1969); **8**, *Mnesibulus? andrewesi* Chop. (from Chopard, 1928); **9**, *M.? pallipes* Chop. (from Chopard, 1936); **10**, *Corixogryllus abbreviatus* Bol. (from Chopard, 1969); **11**, *Aphonoides? griseipennis* Chop. (from Chopard, 1969); **12-14**, *Scepastus pachyrrhynchoides* Gerst. Dorsal part of male tegmen (1); anal (2) and genital (3, 4, 12) plates of male (2-4) and female (12) from above (2), from side (3), and from below (4, 12); male genitalia from side (5-8) and from above (9-11); general appearance of head, pronotum, and tegmina from side (13); apex of ovipositor from side (14).

The tribal position of *Platydictylus pallidus* Walker, 1869 (Bangladesh), *P. indecora* Walker, 1869 (Thailand), *Madasumma fuscineris* Stål, 1877 (Philippines), *M. fuscoirrorata* Chopard,

1925 (Philippines), *Calypotrypus tibialis* Sausure, 1878 (Moluccas and, possibly, Philippines), and *Mnesibulus fuscipennis* Chopard, 1928 (India) is also more or less evident (all are described

from females only) as the structure of tympana and other parts of the body in these species seems to be typical of Podoscirtini. They may belong to above-mentioned genera (except *Atrella*). For example, the type of *P.?* *pallidus* (studied by me in BMNH) is somewhat similar to species of the genus *Sonotrella* Gor. in the general appearance.

INDO-MALAYAN TAXA POSSIBLY BELONGING TO PODOSCIRTINI

Genus *Scepastus* Gerstaecker, 1863

Type species: *Scepastus pachyrrhynchoides* Gerstaecker, 1863.

Note. This genus includes a single species described from one female specimen only with very peculiar structure of the pronotum and tegmina (in this connection, its tribal position is unclear). *Scepastus* is distinguished from all other Podoscirtini by the semiglobular pronotum which is clearly wider than head, the large legs which are longer than in the majority of Podoscirtini and with distal halves of fore and middle femora somewhat wider than their proximal halves, the semisclerotised tegmina protruding slightly behind the abdominal apex and, in profile, with concave basal part and convex (semiglobular) rest of the tegmina (Fig. XIV: 13). The other characters are more or less typical of this tribe [the head is not high, with distinctly angular rostrum (Fig. XIV: 13); the tympana are not large, normal for Podoscirtini: outer tympanum is open, and inner one is slit-like; the ovipositor has drilling apex (Fig. XIV: 14)].

Scepastus pachyrrhynchoides Gerstaecker, 1863 (Figs XIV: 12-14)

Material. Philippines, 1 ♀, "62" (ZIAS).

Note. This species was described from the Luzon Island. It is characterized by the peculiar coloration [black with lighter (brownish or yellowish) antennal flagellum, labial palpi, the base of maxillary palpi, stripes along all pronotal edges and along the costal edge of tegmina, seven rather large spots on other parts of tegmina, and several small spots on the pterothorax and abdomen], rather narrow rostrum of head (the scape is almost 1.5 times as wide as the rostrum between the antennal cavities), the shape of pronotum and female tegmina as in Fig. XIV: 13 (for tegminal venation, see Gerstaecker, 1863: Taf. I, Fig. 3), the hind legs with rather narrow femora and a few tibial spines, the female genital plate with deep median notch (Fig. XIV: 12), and the apex of ovipositor as in Fig. XIV: 14. The male is unknown.

Length (mm). Body 14; body with wings 16; pronotum 4.3; tegmina 11; hind femora 7.5; ovipositor 7.

Other Indo-Malayan taxa possibly belonging to Podoscirtini

Genera *Corixogryllus* Bolí var, 1899 and *Aphasius* Saussure, 1878 include only their type species (*C. abbreviatus* Bolí var, 1899 from Hindustan; *A. ritsemae* Saussure, 1878 from the Timor Island). These species differ from all other Indo-Malayan Podoscirtini in the loss of stridulatory apparatus (in male) and tympana. *Corixogryllus*, judging from Chopard (1969), is characterized also by the peculiar shape of the male genitalia (Fig. XIV: 10). The male genitalia of *Aphasius* are unknown, therefore it is not impossible that these genera may be closely related to each other. The tribal position of these genera is unclear.

Aphonoides griseipennis Chopard, 1969 was included in this genus because of the similarity to *Aphonoides* Chop. in the absence of tegminal stridulatory apparatus and in the structure of tympana: inner tympanum is oval, outer one is strongly reduced or lost. However, judging from Chopard (1969), the male genitalia of this species are more similar to those of Podoscirtini, than of Aphonoidini (Fig. XIV: 11), whereas the rather similar tegmina and tympana are present also in *Atrella* (their male genitalia are markedly different). It is necessary to indicate that the holotype of *A.?* *griseipennis* is a female from Malacca, and the only known male of this species (paratype) is collected at Sumatra.

Platydictylus signatipennis Walker, 1869 (Sulawesi), described from a single female (briefly studied by me in BMNH) and erroneously included in *Mnesibulus* (Chopard, 1968; Otte, 1994), is also similar to the above-mentioned species, to *Atrella* and to Aphonoidini, but it differs from the first and second taxa in the more spotty coloration.

Generic and tribal positions are also unclear in *Anizotrypus indivisus* Saussure, 1878 (Kali-mantan), *Mundeicus sexmaculatus* Chopard, 1969 (Malacca), and *M. trimaculatus* Chopard, 1969 (Myanmar) described only from females. Initially, they were included by the authors in the Oceanian (the type species of *Anizotrypus* Sauss. is from the Fiji) and Australian (*Mundeicus* Chop.) taxa and characterized by the presence of the outer tympanum only (*A.?* *indivisus*) or the retention of both tympana: outer and inner (*M.?* *sexmaculatus* and *M.?* *trimaculatus*).

AUSTRALO-OCEANIAN PODOSCIRTINI

Genus **Hemitrella** gen. n.

Type species: *Hemitrella papuana* sp. n.

Diagnosis. Head is typical of Podoscirtini (Fig. XV: 8): not high, with rather large lateral ocelli, indistinct median ocellus, and roundly angular (in profile), narrow rostrum (scape 2-2.5 times as wide as rostrum between antennal cavities). Pronotum rather long, low, and with round bend between disc and lateral lobes. Legs of normal type for this tribe, but without outer tympanum or only with its traces (inner tympanum rather large, slit-like, but not narrow; Fig. XV: 5). Male tegmina with stridulatory apparatus partly reduced (as a result of feminization): mirror and diagonal vein absent, stridulatory vein rather narrow (but with stridulatory teeth), plectrum well developed, chords almost parallel (possibly, this apparatus is capable of slight stridulation, as it is provided with secondary mirror-like area, consisting of large cells around stridulatory vein, and large plectral cell near it; Figs XV: 2, 4, 7, 9, 10). Metanotal and abdominal glands absent.

Anal plate simple, not large, with rounded hind part. In male, genital plate much larger, longitudinal, in shape of triangle folded along median line (Figs XVI: 4, 5; XVII: 4, 5, 9, 10). In female, genital plate elongated, with almost rounded apical notch (Fig. XVI: 9). Male genitalia rather diverse, but epiphallus always elongated and with three distal lobes [median lobe curved upward and/or forward (towards head), lateral ones smaller and almost hook-shaped]; guiding rod always divided into two lobes (upper lobe wider, with a pair of longitudinal sclerites, and connected with endoparameral apodemes; lower lobe longer, protruding behind epiphallus, and connected with mold of spermatophore attachment plate); ectoparameres always well developed (rather long and narrow, with acute and almost hooked apex); endoparameral apodemes long and narrow; mold of spermatophore attachment plate with more or less wide proximal part (Figs XVI: 1-3, 6-8; XVII: 1-3, 6-8). Ovipositor normal, with drilling apex (Fig. XV: 11).

Included species. Type species, *Aphonoides raggei* Bhowmik, 1982, *H. proxima* sp. n., *H. halmaherae* sp. n., and *H. cyclopea* sp. n.

Note. A single female specimen of this genus is known. It is collected in New Guinea ("D. N. Guinea, Lordberg, 7.XII.12, Kais. Augustafl. Exp. Burgers S.G."; MNHU). Its species position is unknown, as it somewhat differs from all species of *Hemitrella* in the coloration (the structure of body is similar to that of males; tegminal venation is typical of females of this tribe; the lengths of hind femora and ovipositor are almost equal).

Hemitrella papuana sp. n.

(Figs XV: 1, 2; XVI: 1-5; XVII: 13)

Holotype. ♂, New Guinea, "D. N. Guinea, Hunstein-spitze, 3.III.13, Kais. Augustafl. Exp. Burgers S.G." (MNHU).

Paratype. ♂, same data as holotype, but "26.II.13" (ZIAS).

Description. *Male* (holotype). Body long, medium-sized. Coloration light brownish with slightly darker spots and bands on head and pronotum (as in Fig. XV: 1), small brown spots on legs (and one spot situated on upper surface of middle part of hind tibiae, larger and rather dark) and on tegmina (tegmina spots situated in region of some crossveins and along most lateral vein of dorsal part). Head comparatively low (slightly lower than in Fig. XV: 8). Tegmina long, with rather narrow dorsal part and very large plectral cell (its size almost equal to that of secondary mirror-like area; Fig. XV: 2); hind wings much longer than tegmina.

Genital plate very long, with narrow distal part (Figs XVI: 4, 5). Genitalia with very large (long) lower lobe of guiding rod and rather large upper lobe of this rod; upper lobe slightly protruding behind epiphallus, with apical notch and rather wide sclerotisations; ectoparameres comparatively short; mold of spermatophore attachment plate very long (Figs XVI: 1-3). Spermatophore with long tube-like attachment plate imperceptibly turning into long tube (Fig. XVII: 13).

Variation. Paratype with slightly more contrasting spots (especially distinct on pronotal lobes; these latter with wide yellowish band along lower edge and dark brown longitudinal band above).

Female unknown.

Length (mm). Body 22-23.5; body with wings 28-30; pronotum 3-3.2; tegmina 19-20; hind femora 11.5-12.

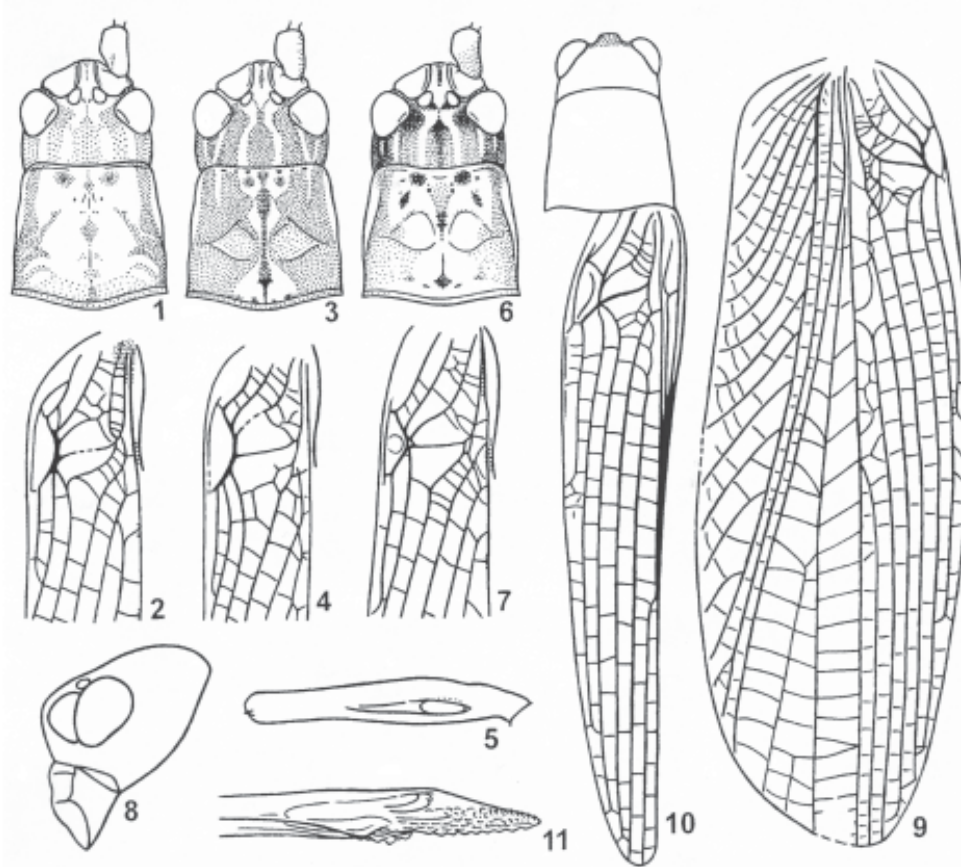
Comparison. *H. papuana* is distinguished from *H. raggei* by the lighter rostrum and areas near the lateral ocelli as well as the more spotted other part of the body.

Hemitrella proxima sp. n.

(Figs XV: 3-5; XVI: 6-8; XVII: 12)

Holotype. ♂, New Guinea, "D. N. Guinea, Schraderbg. 5.-13.VI.13, Kais. Augustafl. Exp. Burgers S.G." (MNHU).

Description. *Male* (holotype). Similar to male of *H. papuana* in size, shape of body, general coloration (hind legs missing), structure of wings, shape of genital plate, and other characters (including structure of genitalia). Distinctive features are listed below: darkish (brown) ornament of head and pronotum more distinct and occupying larger areas (especially on pronotal disc) (Fig. XV: 3); tegmina with light brownish membranes of



Figs XV (1-11). *Hemitrella*, male (1-10) and female (11). **1, 2,** *H. papuana* sp. n. (holotype); **3-5,** *H. proxima* sp. n.; **6, 7,** *H. cyclopea* sp. n. (holotype); **8, 9,** *H. halmaherae* sp. n.; **10,** *H. raggei* (Bhowm.) (holotype); **11,** *H. sp.* Head with pronotum (1, 3, 6) and with right tegmen (10) from above (10, rostrum of head directed somewhat downward); proximal half of dorsal part of right tegmen (2, 4, 7); inner side of fore tibia (5); head from side (8); left tegmen (9); apex of ovipositor from side (11).

most cells in dorsal and lateral parts and with much darker (brown and dark brown) majority of veins (*R* and the most lateral vein of dorsal part yellowish, without spots; Fig. XV: 4); male genitalia (Figs XVI: 6-8) with smaller apical notch of median distal lobe of epiphallus, wider base of its lateral distal lobes, more curved sclerites of upper lobe of guiding rod, wider proximal and narrower distal parts of ectoparameres (their apical part less hooked), wider proximal part of mold of spermatophore attachment plate. Spermatophore similar to that of *H. papuana*, but its attachment plate covered with somewhat thickened and darkened external mass [in *H. papuana*, this mass clearly thinner and very light; for comparison see Figs XVII: 12, 13 (additional sac at apex of tube in holotype of *H. proxima* possibly a result of contents flow from ampulla)].

Female unknown.

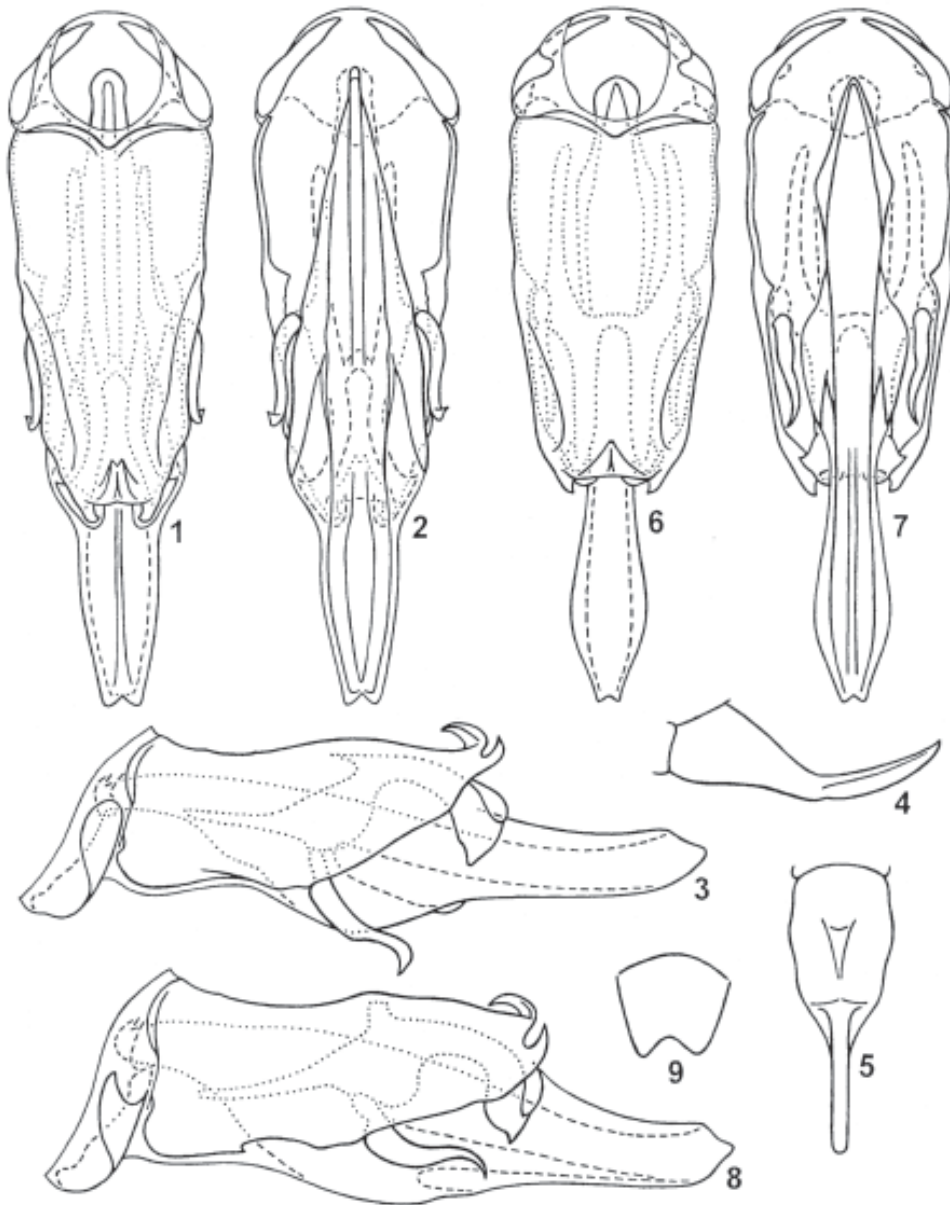
Length (mm). Body 26; body with wings 29; pronotum 3.4; tegmina 20.

Comparison. The differences from *H. papuana* are listed above. From *H. raggei*, this new species differs in the same characters as *H. papuana*.

***Hemitrella halmaherae* sp. n.**
(Figs XV: 8, 9; XVII: 1-5)

Holotype. ♂, **Indonesia, Halmahera I.** (MIZP).

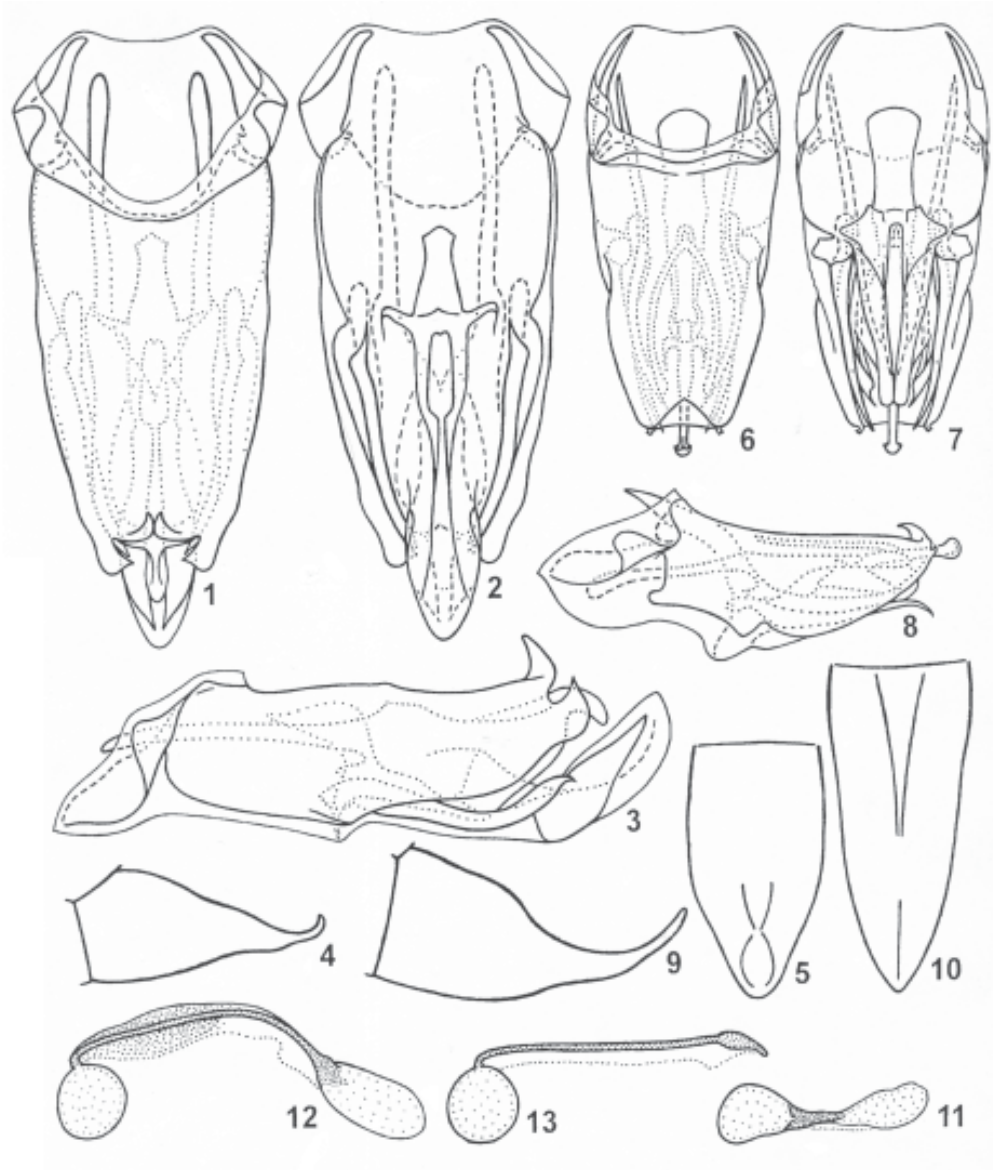
Description. Male (holotype). Shape of body similar to that of both previous species, but size distinctly larger. Coloration uniformly light brown, but with somewhat darker (brown) venation of dorsal and lateral parts of tegmina and with small dark brown spots near bases of hind



Figs XVI (1-9). *Hemitrella*. 1-5, *H. papuana* sp. n. (holotype); 6-8, *H. proxima* sp. n.; 9, *H.* sp. Male genitalia from above (1, 6), from below (2, 7), and from side (3, 8); genital plate of male (4, 5) and female (9) from side (4) and from below (5, 9).

tibial spines (but not of apical spurs). Head slightly higher than in *H. papuana* and *H. proxima* (Fig. XV: 8). Structure of wings similar to those of *H. papuana* and *H. proxima*, but with distinctly smaller plectral cell (clearly smaller than secondary mirror-like area; Fig. XV: 9).

Genital plate much shorter than in both previous species (Figs XVII: 4, 5). Genitalia (Figs XVII: 1-3) with epiphallus provided with wide lateral distal lobes; guiding rod large; its lower lobe comparatively short, with distal part somewhat curved upward and bearing a pair of lateral



Figs XVII (1-13). *Hemitrella*, male. **1-5**, *H. halmaherae* sp. n.; **6-11**, *H. cyclopea* sp. n. (holotype); **12**, *H. proxima* sp. n.; **13**, *H. papuana* sp. n. (holotype). Genitalia from above (1, 6), from below (2, 7), and from side (3, 8); genital plate from side (4, 9) and from below (5, 10); spermatophore from side (11-13).

sclerites; upper lobe of guiding rod slightly shorter than lower one, with membranous and narrow apical lobe; ectoparameres long and not very thin; mold of spermatophore attachment plate rather short and with comparatively narrow proximal part [in genitalia of holotype, spermatophore absent (missing?)].

Female unknown.

Length (mm). Body 30; body with wings 34; pronotum 4.5; tegmina 22.5; hind femora 15.5.

Comparison. *H. halmaherae* is distinguished from *H. papuana* and *H. proxima* by the more uniform coloration and the very different shape of many genital structures in the male. From *H. raggei*, this new species differs in the uniform coloration of head and comparatively smaller plectral cell in the male tegmina.

Hemitrella cyclopea sp. n.
(Figs XV: 6, 7; XVII: 6-11)

Holotype. ♂, **New Guinea**, "Neu-Guinea, Cyclopendgeb., lag. 1, 800 m, 18.8-2.9.28, Mayr leg." (MNHU).

Paratype. ♂, same data as holotype (ZIAS).

Description. *Male* (holotype). Similar to *H. papuana* and *H. proxima* in size, shape of body, and coloration; differs in all the characters listed below: ornament of head and pronotum with darker (dark brown) parts (Figs XV: 6, 7); tegmina spotted almost as in *H. papuana*; their plectral cell distinctly smaller (clearly smaller than secondary mirror-like area; Fig. XV: 7); genital plate distinctly shorter than in *H. papuana* and *H. proxima*, but clearly longer than in *H. halmaherae* (Figs XVII: 9, 10); genitalia and spermatophore different (Figs XVII: 6-8, 11); epiphallus with very small lateral distal lobes, guiding rod shorter than in all previous species, its upper lobe not protruding behind epiphallus, lower lobe of guiding rod thin and slightly protruding behind epiphallus, its apex widened, ectoparameres long and very thin, mold of spermatophore attachment plate medium-sized (shorter than in *H. papuana* and *H. proxima*, but longer than in *H. halmaherae*) and with very wide proximal part, spermatophore with short attachment plate not separated from short tube (additional sac at apex of tube possibly of the same origin as in holotype of *H. proxima*).

Variation. Paratype with slightly more uniform coloration than in holotype. Its genitalia with somewhat smaller apical widening of lower lobe of guiding rod and hardly wider mold of spermatophore attachment plate.

Female unknown.

Length (mm). Body 18-19; body with wings 26-28; pronotum 3-3.2; tegmina 17-18.5; hind femora 11-12.

Comparison. *H. cyclopea* is distinguished from *H. papuana*, *H. proxima* and *H. halmaherae* by the characteristic male genitalia with the smallest guiding rod. From *H. raggei*, the new species differs in the different coloration of head (especially, of the rostrum and area near lateral ocelli) and distinctly smaller plectral cell in the male tegmina (for comparison, see Figs XV: 6, 7, 10).

Hemitrella raggei (Bhowmik, 1982), **comb. n.**
(Fig. XV: 10)

Holotype. ♂, **New Guinea**, "Dutch New Guinea: Cyclops Mts., Sabron, 930 ft., VI.1936, L.E. Cheesman, B.M. 1936-271", "Sabron, Camp 1", "Holotype", "*Aphonoides raggei* Bhowmik, holotype, det. H.K. Bhowmik, 1973" (BMNH).

Note. This specimen is collected near the type locality of *H. cyclopea*. These species are similar to each other in the size and shape of body,

but *H. raggei* has clear differences in the coloration and a small difference in tegminal venation: the head is light brown with dark brown rostrum and transverse spot near lateral ocelli (these dark areas are fused with each other), as well as with four narrow longitudinal darkish (hardly distinct) stripes on vertex; other parts of body are practically uniformly light brown with many tegminal veins darker (brown); the male tegmina are with large plectral cell which is more or less similar in size with secondary mirror-like area (Fig. XV: 10). The distal part of the holotype abdomen (including the genitalia) is missing. The female is unknown.

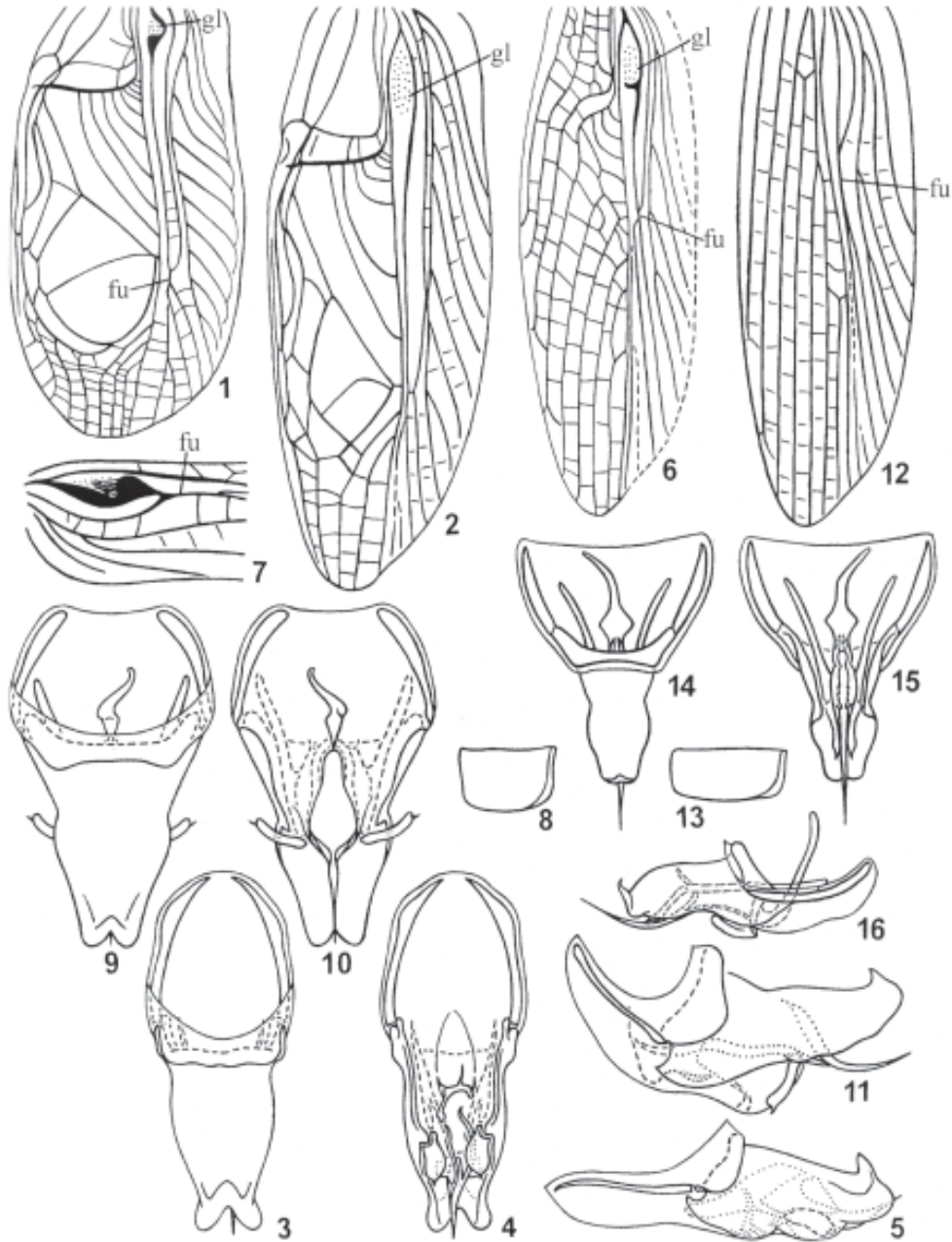
Length (mm). Body with wings 27; pronotum 3.3; tegmina 18; hind femora 12.5.

Genus Adenopterus Chopard, 1951

Type species: *Adenopterus norfolkensis* Chopard, 1951.

Note. This genus is distributed in the group of isolated islands not far from Eastern Australia: New Caledonia, the Loyalty Islands, and the Norfolk Island. It is characterized by the following complex of characters: the rostrum is narrow and angular (the scape is 2-2.5 times as wide as the rostrum between antennal cavities); both tympana (outer and inner) are open (more or less oval); the upper surface of pterothorax and abdomen are without any gland; the male tegmina are rather diverse (initially, with stridulatory apparatus and characteristic humeral gland, but both may be reduced and disappear) (Figs XVIII: 1, 2, 6, 7, 12); the male genital plate is elongate, with narrow distal part almost acute at apex; the male genitalia are rather uniform [the epiphallus is longitudinal; its upper apical projection is unpaired and not bifurcated; the guiding rod is very thin and with filament-like distal part (virga); the ectoparameres are well developed and with hook-shaped apex; the endoparameral apodemes are long and narrow; the mold of spermatophore attachment plate has a ribbon-like proximal sclerotisation] (Figs XVIII: 3-5, 9-11, 14-16); the ovipositor is well developed and has drilling apex.

Otte (1994) interpreted this genus as a separate tribe (Adenopterini), but he did not give any tribal description. Therefore, Adenopterini Otte, 1994 must be considered *nomen nudum*. Moreover, *Adenopterus* is related to the genera *Matuanus* Gor., *Hemiphonus* Sauss., and possibly, to some other Australo-Oceanian genera, as their male genitalia are more or less similar and the both tympana are open. The advisability to divide the tribe Podoscirtini into two or more tribes is not evident, as the tympanal structure is rather diverse in Podoscirtini, and it is unclear whether the slit-like inner tympanum of most Podoscirtini is their synapomorphy or a result of numerous parallelisms.



Figs XVIII (1-16). *Adenopterus*, male. 1, *A. gressitti* (Otte); 2-5, *A. amoensis* (Otte); 6, *A. hemiphonus* (Otte); 7-11, *A. norfolkensis* Chop.; 12-16, *A. roseolus* (Gor.). Tegmen (schematically) (1, 2, 6, 12); tegminal gland (7) and pronotum (8, 13) from side; genitalia from above (3, 9, 14), from below (4, 10, 15), and from side (5, 11, 16). 1 and 6, from Otte, Alexander & Cade, 1987. Abbreviations: gl, gland; fu, fusion of R with M.

Composition. This genus is divided into 3 subgenera: *Adenopterus* s. str., *Peltia* Gorochoy, 1986, stat. n., and *Archenopterus* Otte, Alexander & Cade, 1987, stat. n. The most primitive (paraphyletic) subgenus *Archenopterus* is divided into two possibly holophyletic groups.

The first group is characterized by the very large stridulatory apparatus in the male (possible synapomorphy), short zone of fusion between *R* and *M* before the lancet-like area in the tegmina (Fig. XVIII: 1) as in *Idiotrella* Gor. and *Tamborina* Otte & Alex. (the synapomorphy of this group and parallelism to *Idiotrella* and *Tamborina*), the tegminal gland developed in male (symplesiomorphy), and ectoparameres not widened (symplesiomorphy). This group includes *Archenopterus gressitti* Otte, 1987 (the type species), *A. bouensis* Otte, 1987 and *Archadenopterus hemipteroides* Otte, 1987.

The second group is distinguished by the stridulatory apparatus not very large (possible symplesiomorphy) or reduced (parallelism to two other subgenera), veins *R* and *M* not fused to each other in tegmina (Fig. XVIII: 2; symplesiomorphy) or these veins fused on a short section (in one species; Fig. XVIII: 6; parallelism to two other subgenera and to the first group), the tegminal gland developed in male (symplesiomorphy), and its ectoparameres strongly widened (Figs XVIII: 4, 5; synapomorphy). This group includes *Archenopterus amoensis* Otte, 1987, *A. maai* Otte, 1987 and *A. hemiphonus* Otte, 1987.

Adenopterus s. str. (possibly, paraphyletic taxon also) is characterized by the secondary absence of stridulatory apparatus in the male (synapomorphy and also a parallelism to some representatives of the second group of *Archenopterus*) and veins *R* and *M* fused on a rather long distance in the male tegmina (almost as in Fig. XVIII: 12; synapomorphy and also a parallelism to the first group of *Archenopterus* and to *A. hemiphonus*), as well as by the tegminal gland developed in male and ectoparameres not widened (Figs XVIII: 10, 11; symplesiomorphies). This subgenus includes *Podoscirtus saussurei* Chopard, 1915, *Adenopterus norfolkensis* Chopard, 1951, *A. sarrameus* Otte, 1987, *A. yahouensis* Otte, 1987, *A. tchambicus* Otte, 1987, *A. crouensis* Otte, 1987, *A. lifouensis* Otte, 1987, and possibly, two species with unknown males: *A. baloghi* Gorochoy, 1986 and *A. admirandus* Otte, 1987.

Peltia (probably, holophyletic subgenus) is similar to *Adenopterus* s. str. in the structure of male tegmina (Fig. XVIII: 12; synapomorphy of these subgenera or parallelism) and the shape of ectoparameres (Figs XVIII: 15, 16; symplesiomorphy), but the tegminal gland is lost (Fig. XVIII: 12; synapomorphy), and the body is more

depressed dorsoventrally (the pronotal lobes are much lower; Figs XVIII: 8, 13; possible synapomorphy). This subgenus includes *Podoscirtus sarasini* Chopard, 1915, *P. rouxi* Chopard, 1915, *Peltia roseola* Gorochoy, 1986 (the type species), *Adenopterus sylvaticus* Otte, 1987, and possibly, some other species of the genus *Adenopterus* included in the “*kraussi* group” by Otte, Alexander & Cade (1987) and described by Desutter-Grandcolas (1997) (subgeneric and, sometimes, generic positions of some these species described from females only, are unclear).

Genus **Matuanus** Gorochoy, 1986

Type species: *Podoscirtus priapus* Saussure, 1878.

Note. This genus is closely related to *Adenopterus*; it is also distributed in New Caledonia and the Loyalty Islands. *Matuanus* differs from *Adenopterus* in the less diverse structure of the male tegmina [the stridulatory apparatus is absent or vestigial (Fig. XIX: 1), *R* is not fused with *M*, and the humeral gland is absent], the epiphallus with upper apical projection small and bifurcated (Figs XIX: 2, 4, 8, 10), and the guiding rod much thicker and without filament-like apical part (Figs XIX: 3-7, 9, 10).

Included species. Type species, *Podoscirtus rufidulus* Saussure, 1878, *Aphonus caledonicus* Saussure, 1878, *Matuanus flavomaculatus* Gorochoy, 1986, *M. elegans* Otte, 1987, *M. neoplumus* Otte, 1987, *M. rufomaculatus* sp. n., and possibly, *M. mirabilis* Desutter-Grandcolas, 1997. It is very probable that two species from New Guinea were included in this genus by Otte (1994) erroneously; they may belong to the genus *Munda* Stål (Aphonoidini).

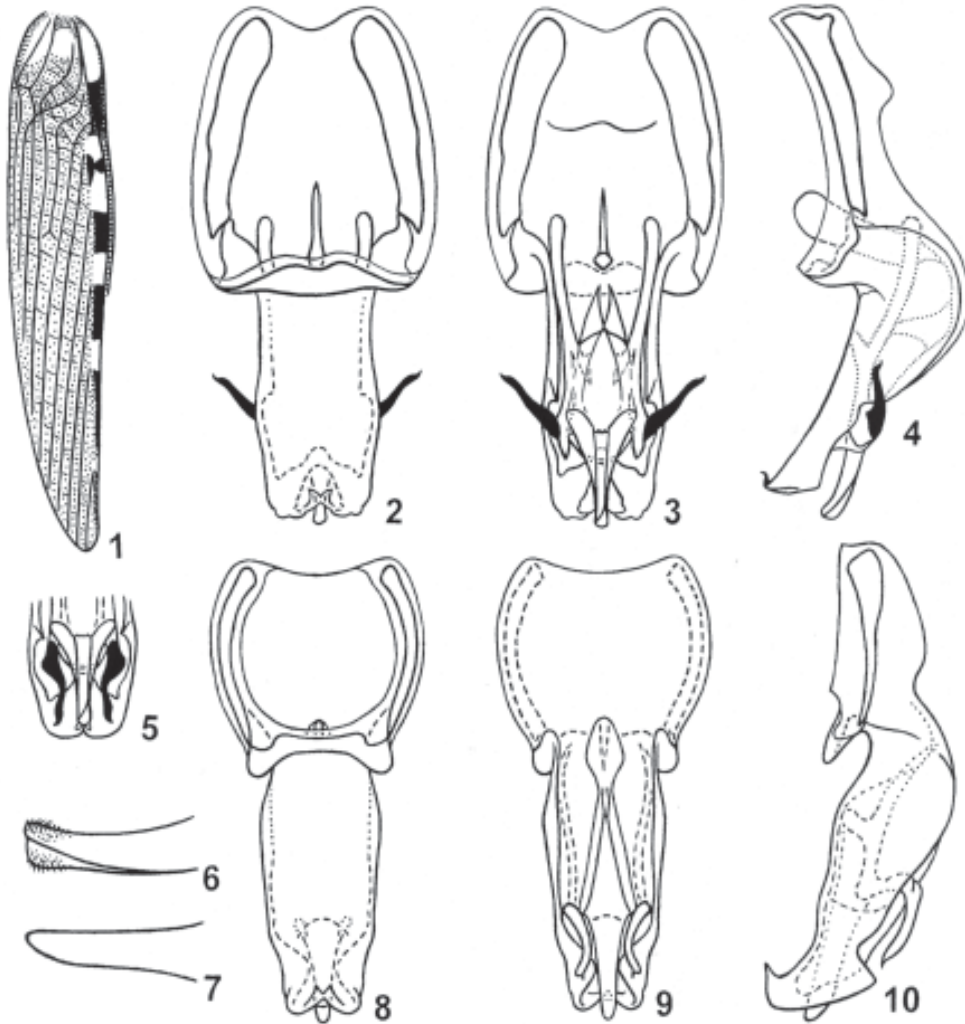
Matuanus priapus (Saussure, 1878) (Figs XIX: 1-6)

Neotype (designated here). ♂, New Caledonia, Mt. Koghi (ZIAS).

Other material studied. 1 ♂, 1 ♀, same data as neotype (ZIAS).

Note. The neotype of this species is here designated for the stability of this name belonging to the type species of *Matuanus*. The syntypes of this species, described from “La Nouvelle Caledonia” (Saussure, 1878), are probably missing (Otte, Alexander & Cade, 1987), and the Saussure's description gives no possibility to distinguish *M. priapus* from any similar species. The description of this genus was based by me on the study of the above-mentioned specimens (Gorochoy, 1986).

Description. **Male** (neotype). Very similar to *M. elegans* in coloration (light brown with very dark brown spot on vertex behind ocelli, rather



Figs XIX (1-10). *Matuanus*, male. **1-6**, *M. priapus* (Sauss.) (neotype); **7-10**, *M. rufomaculatus* sp. n. Dorsal part of tegmen (1); genitalia from above (2, 8), from below (3, 9), and from side (4, 10); distal part of genitalia with other position of ectoparameres from below (5); guiding rod from side (6, 7).

large brown spots on genae separated from above-mentioned spot by narrow light stripes behind eyes, smaller dark brown spots under rostral apex and along clypeal suture, brown disc and upper halves of lateral lobes of pronotum, yellowish and dark brown spots along lateral edge of tegminal dorsal part, and numerous small and large brown spots on legs), structure of wings (Fig. XIX: 1), and shape of abdominal apex including genitalia (Figs XIX: 2-6), but distinguished by larger and less numerous spots along lateral edge of tegminal dorsal part (Fig. XIX:

1) and distinctly shorter pubescence on guiding rod apex of genitalia (Fig. XIX: 6).

Variation. Second male with abdominal tergites and upper edges of genital plate clearly darker (almost brown) than abdominal sternites and rest of genital plate.

Female. Similar to male, but larger and with somewhat more numerous spots along lateral edge of tegminal dorsal part (these spots also different in size: yellowish spots short and dark spots much longer). Genital plate almost square, with a pair of hind lobes rounded and separated from each other by distinct (but not very large) notch.

Length (mm). Body: ♂ 17-19, ♀ 23; body with wings: ♂ 25-27, ♀ 34; pronotum: ♂ 2.9-3.1, ♀ 3.8; tegmina: ♂ 18-19, ♀ 24; hind femora: ♂ 12-13, ♀ 15.5; ovipositor 13.

Matuanus rufomaculatus sp. n.
(Figs XIX: 7-10; XX: 9)

Holotype. ♂, **Loyalty Is.**, Lifou I., "Lifu" (MIZP).

Description. *Male* (holotype). Body smaller than that of *M. priapus*, dorsoventrally depressed. Coloration very dark brown with hardly lighter middle and proximal antennal parts, legs and genital plate, not large reddish spot on tegminal dorsal part near its base, transparent intercalary triangle of tegmina, and grey hind wings. Head low, with strongly angular rostrum; ocelli distinct, small. Pronotum hardly narrowing anteriorly, with rather low lateral lobes. Legs with both tympana elongate, not large (outer tympanum slightly smaller than inner one).

Abdominal apex very similar to that of *M. priapus*, but genitalia almost identical to those of *M. caledonicus* and *M. flavomaculatus* (Figs XIX: 7-10; XX: 9).

Female unknown.

Length (mm). Body 16; body with wings 20; pronotum 2.6; tegmina 13.5; hind femora 10.

Comparison. *M. rufomaculatus* differs from all other congeners in the almost uniform dark coloration; it is additionally distinguished from *M. neoplumus* by the distinctly longer guiding rod in the male genitalia, from *M. priapus*, in the different shape of distal part of the epiphallus, and from *M. mirabilis*, in the other shape of distal and proximal parts of the epiphallus.

Genus **Caliscirtus** Otte, Alexander & Cade, 1987

Type species: *Caliscirtus* (as "*Caledoscirtus*") *amoa* Otte, 1987.

Note. This genus from New Caledonia is characterized by the well developed stridulatory apparatus in the male tegmina (with rather large longitudinal mirror), tegminal *R* and *M* not fused with each other, absence of the tegminal gland, fore femora strongly thickened (more strongly than in all previous genera), and fore tibiae with both tympana open, oval and not very large. However, the male genitalia of *Caliscirtus* are very different. This genus is divided into two groups, which must be considered the subgenera: *Caliscirtus* s. str. (including *C. amoa* only) is distinguished by the narrow epiphallus with two pairs of elongate hind lobes, *Trellescirtus* subgen. n. [with *C. timbiensis* Otte, 1987 (the type species) and *C. paniensis* Otte, 1987] is characterized by the distinctly wider epiphallus with the single hind lobe, which is widened in profile distally and with slight notch apically.

Genus **Hemiphonus** Saussure, 1878

Type species: *Hemiphonus vittatus* Saussure, 1878.

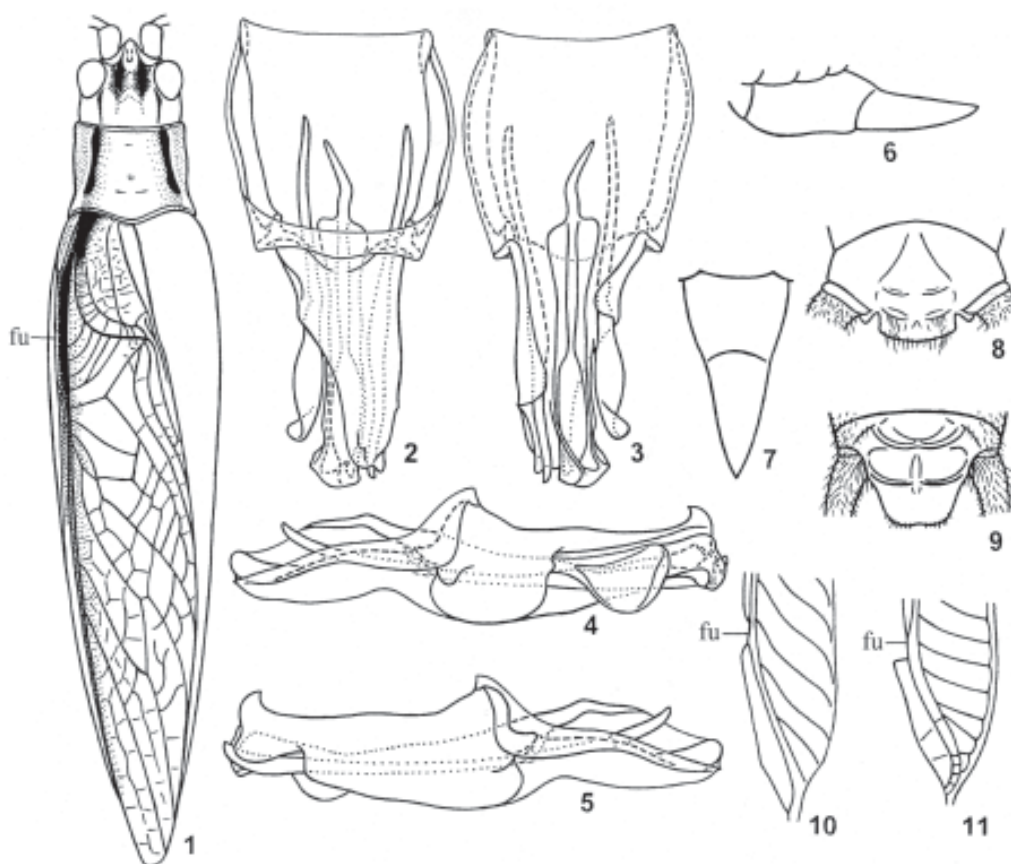
Note. This genus is characterized by the following characters: the body is rather long and slender; the rostrum between antennal cavities is narrow (the scape is much wider); both tympana are open and elongate (inner tympanum is slightly inversed); tegminal *R* and *M* are partly fused with each other (on a comparatively long distance); the stridulatory apparatus of male tegmina is partly reduced or absent (Fig. XX: 1); the metanotal gland is not developed; the male genitalia are strongly asymmetrical; their epiphallus long and provided with unpaired upper apical process; the ectoparameres are more or less developed; the guiding rod is comparatively large (with the apical part semimembranous and rather wide); the endoparameral apodemes are long and narrow; the mold of spermatophore attachment plate and its apodeme are rather long (Figs XX: 2-5).

Otte & Alexander (1983) included in this genus only three Australian species: *Platydictylus continuus* Walker, 1869 (= *H. vittatus* Saussure, 1878 = *H. vicinus* Chopard, 1951), *H. wilparina* Otte & Alexander, 1983, and *H. yinbiliko* Otte & Alexander, 1983. In addition, it is very probable that several other Australian species of Podoscirtini, included by these authors in the genus *Mundeicus* Chopard, 1951, must be placed in the same genus as its second subgenus. These subgenera are distinguished from each other by the structure of the male tegmina: subgenus *Hemiphonus* s. str. with three above-mentioned species, by the presence of traces of the stridulatory apparatus (stridulatory vein, chords, and, sometimes, partly reduced mirror; Fig. XX: 1), and subgenus *Mundeicus* stat. n. with seven species listed by Otte & Alexander (1983), by disappearance of traces of the stridulatory apparatus (male genitalia of both subgenera are very similar).

Hemiphonus (Hemiphonus) wilparina Otte & Alexander, 1983
(Figs XX: 1-8)

Material. **Samoa Is.**, 1 ♂, "Samoa" [identified as *vittatus* Brunn.] (MIZP).

Note. This species is described from Australia. Here, it is recorded for Samoa for the first time. Possibly this species was indicated by Chopard (1968) from the Fiji as *H. vittatus*. The specimen studied by me is very similar to Australian ones: the head is dorsoventrally depressed; the scape is almost 3 times as wide as the rostrum between antennal cavities; the apex of this rostrum is almost angular; the coloration of head is yellowish (including antennae and palpi) with a



Figs XX (1-11). *Hemiphonus*, *Matuanus* and *Tamborina*, male. **1-8**, *H. wilparina* Otte & Alex.; **9**, *M. rufomaculatus* sp. n.; **10**, *T. australis* (Walk.); **11**, *T. ? affinis* (Chop.). Head, pronotum and left tegmen from above (1); genitalia from above (2), from below (3), and from side (4, 5); genital (6, 7) and anal (8, 9) plates from side (6), from below (7), and from above (8, 9); distal half of lateral part of tegmen (10, 11) (from Otte & Alexander, 1983). Abbreviation: fu, fusion of *R* with *M*.

pair of brown spots between the eyes and a pair of dark lines behind them; the pronotum is slightly narrowing anteriad, yellowish with darkish stripes along the lateral edges of disc and narrow whitish border along the lower (lateral) edge of these stripes; the lateral pronotal lobes are rather low; the male tegmina are yellowish with rather wide dark brown stripe along the lateral edge of their dorsal part; tegminal venation is as in Fig. XX: 1; the male anal plate is rather simple (Fig. XX: 8); the male genital plate is gradually narrowing towards the acute apex and with narrow transverse fold (Figs XX: 6, 7); the male genitalia are as in Figs XX: 2-5.

Length (mm). Body 19; body with wings 28; pronotum 3; tegmina 19; hind femora 10.7.

Genus **Tamborina** Otte & Alexander, 1983

Type species: *Madasumma ocellata* Chopard, 1951.

Note. Otte & Alexander (1983) included seven Australian species in this genus. These species are characterized by the well developed stridulatory apparatus and the veins *R* and *M* fused on a short distance before the lancet-like area in the male tegmina (as in *Idiotrella*, some *Adenopterus*, and *Hemiphonus*). Seven other Australian species were included by these authors in the Asian genus *Madasumma* Walk., but they are characterized by the same characters (Figs XX: 10, 11), and their male genitalia are very similar to those of *Tamborina*. The small differences in coloration, which were used to divide all these species

into two genera, are insufficient. Therefore, I provisionally include *Madasumma affinis* Chopard, 1925, *M. kanina* Otte & Alexander, 1983, *M. jirrandia* Otte & Alexander, 1983, *M. ilima* Otte & Alexander, 1983, *M. choota* Otte & Alexander, 1983, *M. loorea* Otte & Alexander, 1983, and *M. malteea* Otte & Alexander, 1983 in the genus *Tamborina*.

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