

# TETTIGONOIDEA OF THE PAPUAN SUBREGION (Orthoptera)

## 1. Mecopodidae

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The present study is based on collections<sup>1</sup> containing different members of the little studied family Mecopodidae and contains a number of new genera and species. To facilitate their recognition, new keys are given for the Indo-Malayan and Australian genera. Many of the earlier workers did not figure their new genera, which makes their study more difficult and I hope to avoid this by illustrating the new genera and species.

All types of the new species will be deposited at the B. P. Bishop Museum, Honolulu.

### KEY TO SUBFAMILIES OF MECOPODIDAE

1. Fastigium of vertex broadly rounded or truncate, about 3-5× as broad as basal antennal segment ..... **Mecopodinae**
- Fastigium of vertex narrow, only ½-1½× as broad as basal antennal segment and mostly pointed at apex, sometimes obtuse or bilobate ..... **Sexavinae**

The subfamily Sexavinae is divided into four groups, three of which are represented in the Papuan Subregion.

### KEY TO PAPUAN GROUPS OF SEXAVINAE

1. Lateral keel of pronotum provided with spines, teeth or lobes, along whole length or part of length; size small to medium ..... **Phrictae**
- Lateral keel of pronotum smooth, at most partly crenulate, or totally absent; size medium to large ..... 2
2. Elytra and wings reaching far behind apex of hind femur; subcosta and radial veins of elytron contiguous basally more than 1/2 their length, apically separated by narrow interspace which is filled by short transverse veinlets ..... **Sexavae**
- Elytra and wings only reach apex of hind femur, sometimes extending slightly beyond; subcosta and radial veins of elytron separated along entire length by narrow interspace, which is filled with short transverse veinlets ..... **Mossulae**

The fourth group of Sexavinae, Pomatonotae, differs from the above three in having a shield-like pronotum, strongly expanded posteriorly. The members of the only known

1. Material collected on the program "Zoogeography and evolution of Pacific Insects" supported by grants from the National Science Foundation, and on a J. S. Guggenheim Memorial Fellowship, 1955-56, by J. L. Gressitt.

genus, *Pomatonota* Burm., occur in South Africa. Kirby, in his well known catalogue, placed *Locusta bicolor* de Haan from Sumatra in this group with a query, but the type has been lost as noted by Karny, who in 1920 studied the collection of de Haan in the Leiden Museum. From the figure of de Haan, I have the impression his specimen is a nymph, but we have to wait for additional material to resolve this question.

KEY TO GENERA OF GROUP PHRICTAE

1. Femora and tibiae without spines, only hind tibiae with pair of apical spines below; elytra leaflike, venation composed of large, regular, angular areas, apex broadly rounded. Queensland..... **Chloracantha**  
Femora and tibiae always with spines..... 2
2. Elytra atrophied, wings represented only by fanlike impression on sides of metanotum; basal segment of antenna with short apical tooth, outer side carinate, inner side with obtuse elevation; ♀ unknown. Queensland..... **Phricta**  
Elytra and wings fully developed, subrudimentary or rudimentary, always recognizable; basal joint of antenna smooth..... 3
3. Fastigium of vertex distinctly extending anteriorly between basal antennal segments, apex more or less acutely pointed; elytra and wings subrudimentary or rudimentary, with reduced venation; ovipositor short, curved upwards ..... 4  
Fastigium of vertex not or scarcely extending anteriorly between basal antennal segments, apex not pointed but bilobate and incised; elytra and wings normally developed; ovipositor short or longer, curved or nearly straight..... 5
4. Elytra reaching middle of hind femur; anterior margin of pronotal disc distinctly rotundate, middle with small tooth, posterior margin truncate, middle subconcave; pro-, meso-, and metasterna all distinctly spined..... **Gressittiella** n. gen.  
Elytra and wings rudimentary, in ♂ reaching little beyond middle of abdomen, in ♀ shorter, not quite reaching posterior margin of abdominal tergite 2; anterior margin of pronotum subrotundate in middle and without tooth, posterior margin truncate; prosternum spined, meso- and metasterna subspined ..... **Leptophyoides** n. gen.
5. Lateral keel of pronotum in pro-, meso-, and metazonae with very distinct teeth, elytra in both sexes slightly narrowing apically or with margins nearly parallel and with thickened or bubblelike tubercles along media vein; ovipositor short, curved; fore and mid femora strongly nodulose above..... **Phrictaetypus**  
Lateral keel of pronotum with distinct teeth only on pro- and mesozonae or only on metazona (not referring to low crenulation on this part of keel)..... 6
6. Lateral lobe of pronotum higher than broad; only pro- and mesozonae with distinct teeth; anterior and median femora smooth dorsally; size medium to large..... **Biroa**  
Lateral lobe of pronotum broader than high or as broad as high ..... 7
7. Elytra broad and oval, slightly widened apically (after I. Bolivar, 1911)..... **Phrictidea**  
Elytra not widened apically, distinctly narrowing apically from middle..... 8
8. Pronotum stellate; pro- and mesozonae without lateral keel; keel of metazona with 2 distinct spines; auditory foramina of anterior tibia conchate; spines of hind legs strongly developed..... **Phrictaeformia** n. gen.  
Pronotum flat, not stellate, lateral keel perceptible but low and with only small

teeth or tubercles; auditory foramina of anterior tibiae open; spines of hind legs much less developed..... *Pseudophrictaetypus* n. gen.

*Gressittiella* Willemse, n. gen.<sup>2</sup>

Size relatively small for members of this family; body robust. Head as seen from above, somewhat shorter than pronotum; frons reclinate, broader than high, smooth with some weakly indicated points and longitudinal impressions, above clypeal margin in middle with rows of fine transverse grooves; cheek with a few shallowly impressed points; vertex practically smooth; antennal scrobae slightly raised between antennae; basal segment of antenna smooth, 2nd joint subglobose, remainder, of antenna slender, long, reaching far behind apex of hind femur, segments increasing in length towards apex; fastigium of vertex short, reaching about middle of basal antennal segment, seen from above with or without a low tuberosity at base, apex of fastigium pointed or subpointed, fastigium seen in profile with frontal margin subconcave and somewhat incurved or with low, small, more or less distinct tubercles; clypeus narrowing downwards; labrum and mouthparts of general form; eyes substalked. Pronotum slightly longer than broad; surface entirely cribriform-punctate, anterior margin of disc distinctly rounded-angulate and produced forward, middle with small tooth or blunt tubercle, posterior margin truncate, subconcave; lateral keels indicated by row of large blunt spines, disc without spines in prozona, mesozona somewhat constricted on both sides with 1 or more small spines, metazona seen in profile obliquely elevated, lateral margin here indicated by row of blunt tubercles or crenulated row of more or less large blunt spines, somewhat variable in specimens studied, mostly with 2-3 distinct teeth; transverse sulci 1 and 3 distinct, 1st straight and percurrent on lateral lobe, 3rd somewhat convexly rounded posteriorly, deeply cut and percurrent on lateral lobe and there connected with transverse sulcus 1 a little above lower margin of lobe; median keel and sulcus both practically absent; lateral lobe somewhat longer than high, anterior margin in middle with blunt spine, lower margin thickened, slightly ascending posteriorly, passing by a rounded bow into anterior and posterior margins; mesozona of lateral lobe with less distinct spine, metazona in upper part, below lateral keel with more distinct blunt spine; humeral angle absent. Elytron and wings present, but with strongly reduced venation; elytron in both sexes reaching or nearly reaching apex of abdomen; wing in ♂ rudimentary, in ♀ reduced to a small fan, with some irregular, fairly thick, longitudinal veins, in both sexes short and reaching or overreaching only middle of abdomen. Elytron in ♂ with stridulatory area large and bulb-shaped; anterior margin of elytron straight, posterior margin convexly rounded, apex narrowly rounded, subtruncate; principal veins partly indicated as straight veins, without distinct bifurcations; small areas filled up by irregular network of thick transverse veinlets; stridulating field in right elytron composed of large round-oval clear, speculum, without veins, remaining part of field with irregular thick reticulation, stridulatory veins however distinct; left elytron without clear speculum, stridulating field filled up by irregular thick reticulation with principal veins thick and contrasting by their lighter colour with surrounding areas. Elytron in ♀ with margins slightly widened apically, apex narrowly rounded; principal veins more or less distinct, without

2. Named in honor of Dr. J. L. Gressitt who collected many new and interesting insects in New Guinea.

distinct bifurcations, areas filled by irregular network of small thick veinlets. Fore and mid femora slightly nodulose dorsally, ventral inner margin only with row of 3-4 spines on apical 1/2: both kneelobes with small spine; tibiae of all legs sulcated dorsally; fore tibia with tympanum distinct and open on both sides, lower margin with row of spines, outer upper margin with only 1-2 small spines a little beyond middle, apex with 4 small apical spines. Mid tibiae on both sides with a row of spines ventrally, inner upper margin with row of 3-5 spines, 4 apical spines. Hind femur ventrally with row of 7-8 spines on ventral inner margin, with row on outer margin of 1-11 somewhat stronger spines; both kneelobes with strong spine; tibia with 4 rows of regularly arranged rows of spines. Prosternum bispinose; meso- and metasternal lobes terminating in distinct short spine.

*Male*: Supra-analplate small, rounded-triangular, middle concavely excavated; cercus small, slightly curved, subconical, apex with minute tooth on inner side; subgenital plate longer than broad, broadest at base, apex concavely excised, both sides with stylus of about same length as depth of apical concavity.

*Female*: Penultimate tergite longitudinally sulcated in middle. Supra-analplate triangular, small, middle concavely excavated; cercus short, conical, slightly curved inwards, apex pointed; subgenital plate somewhat broader than long, its general form triangular, lateral margins rounded, apex concavely excised in middle; ovipositor short, curved upwards from middle, apex more or less pointed, lower margin in apical 1/2 finely crenulated.

Genotype: *Gressittiella castaneopicta* n. sp., by present designation.

The distinct wing reduction probably makes members of this genus incapable of sustained flight. The relatively strong development of the stridulating areas in the male certainly makes it possible to produce a strong sound.

***Gressittiella castaneopicta* Willemse, n. sp.      Figs. 1-3.**

General coloration castaneous brown with lighter and darker coloured parts. Antennae brown, apical 1/2 with some segments yellowish coloured at base in form of light coloured annulated rings; basal joint blackish brown or black. Head blackish brown, frons with yellowish broad band on both sides, partly continuing on cheek, producing in middle of frons a distinct, broad, sharply limited black band. Clypeal margin blackish brown. Mouthparts largely castaneous to blackish brown. Vertex and fastigium of vertex blackish brown, with lighter coloured band on side behind eye. Pronotum brown, with a more or less large black spot in middle of anterior and posterior margin; transverse sulci on lateral lobe mostly black, lower margin of lateral lobe black, often with blackish spot on anterior angle. Elytra brown, veins brown or yellowish brown, small areolae between veins brown or blackish brown. Legs light yellowish brown, apices of femora brown, sometimes with dark pre-apical ring; hind femur yellowish or sometimes more olivaceous brown, near base with blackish spot or row of small blackish spots dorsally, in middle and in apical 1/3 often with darker coloured brown spot, sometimes forming incomplete ring; spines yellowish brown, sometimes surrounded at bases by a blackish spot, especially on lower side of tibiae; segments of tarsi blackish brown to black, except last segment, which is lighter coloured. Thoracic sterna black, margins of lobes and spines yellowish, strongly contrasting with its surroundings. Abdomen blackish brown, sternites black in middle; genitalia light brown to blackish brown. There is some variation in coloration in specimens studied, as is

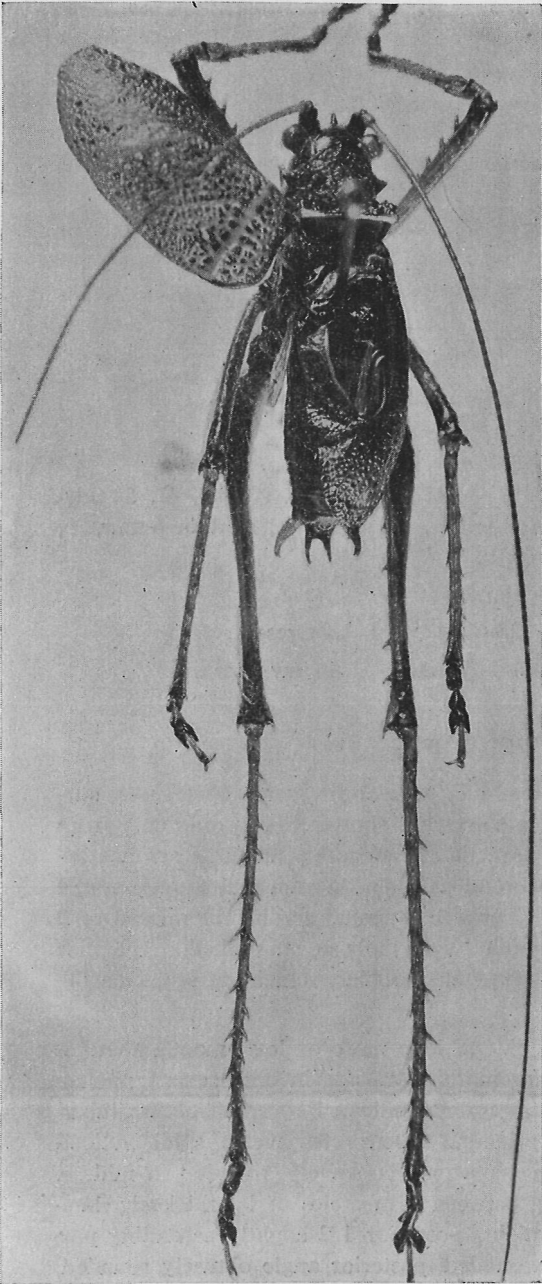


Fig. 1. *Gressittiella castaneopicta* n. gen. et sp.  
Holotype ♂.

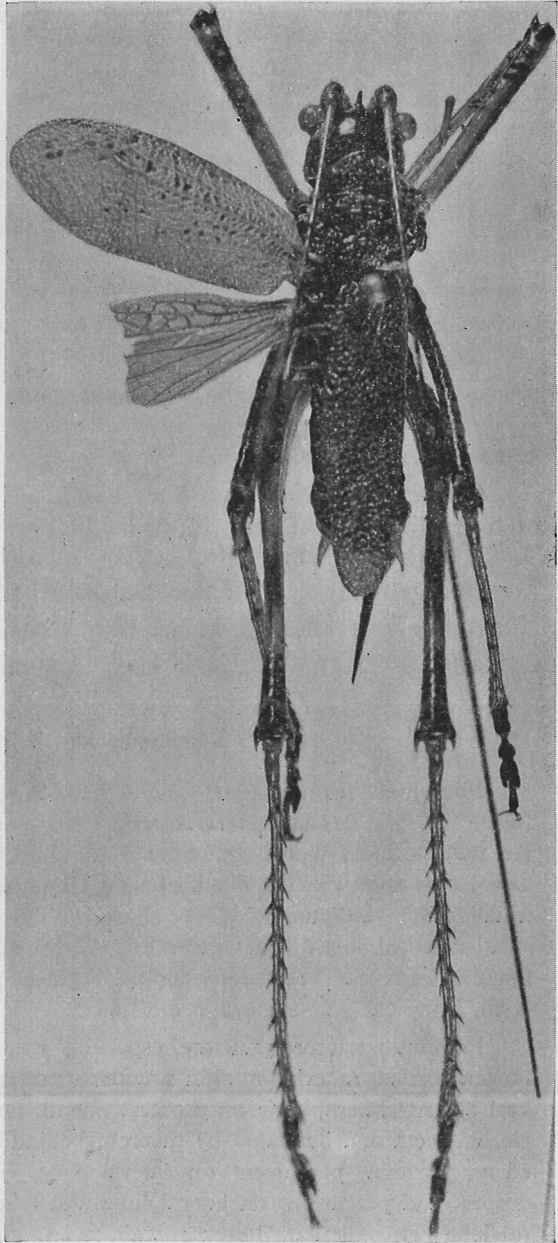


Fig. 2. *Gressittiella castaneopicta* n. gen. et sp.  
Allotype ♀.

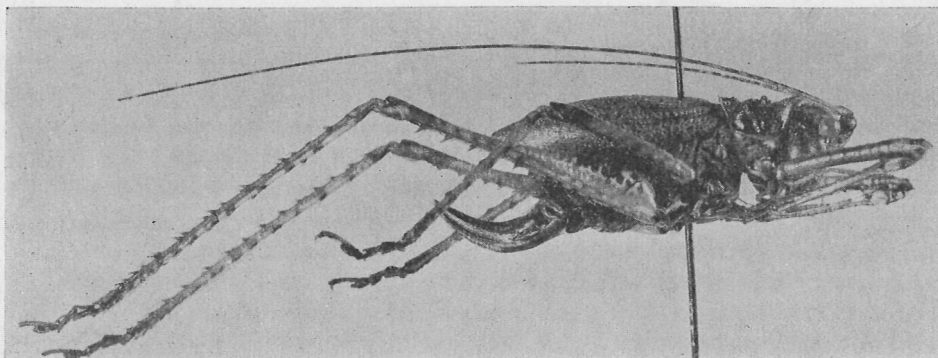


Fig. 3. *Gressittiella castaneopicta* n. gen. et sp. Allotype ♀, in profile.

often the case in Orthoptera.

Measurements (in mm): Body length, ♂, 19, ♀, 21; pronotum, ♂, 4.5, ♀, 5; elytron, ♂, 12.5, ♀, 15; wing, ♂, 5, ♀, 10; anterior femur, ♂, 9, ♀, 10; median femur, ♂, 8, ♀, 10; hind femur, ♂, 16.5, ♀, 19; ovipositor, 8.

DISTRIBUTION: NE New Guinea, E. Highlands.

Holotype, ♂ (BISHOP), Mount Otto, 2200 m, 24-VI-1955, J. L. Gressitt.

Allotype, ♀ (BISHOP), same data. Additional 1 ♂ and 3 ♀ in my possession.

#### **Leptophyoides** Willemse, n. gen.

Size small, form slender, general habitus resembling palaeartic genus *Leptophyes*, subfam. Phaneropterinae. Head as seen from above somewhat shorter than pronotum; frons reclinate, broader than high, frons and cheeks practically smooth; antennal scrobae between eyes somewhat elevated, clypeus about as broad as high; labrum and mouthparts of usual form; fastigium of vertex short, knoblike, between antennal scrobae composed of 2 small more or less distinct tubercles; vertex smooth; eyes globose, substalked. Antennae long, filiform, basal segment smooth, segment 2 elongate-globular, remaining segments filiform, in apical part somewhat elongated.

Pronotum cribroso-punctate, especially disc; lateral lobe more or less smooth, about as long as broad, anterior margin rounded, posterior margin truncate in both sexes; median keel absent; lateral keels on prozona absent, on mesozona indicated by small obtuse tubercle, on metazona indicated by tubercle behind principal sulcus; transverse sulci indicated on prozona, percurrent on lateral lobe, on metazona concavely rounded in middle, deepest and percurrent on lateral lobe and lying between 2 tubercles of lateral keel; lateral lobe perpendicular, lower margin nearly straight, posterior 1/2 slightly ascending posteriorly (more distinctly in ♂), anterior angle rounded, posterior angle obtusely rounded, transverse sulci subconnected a little above lower margin. Elytra and wings strongly abbreviated; in ♂ with elytron reaching little beyond middle of abdomen, in ♀ shorter; wings in both sexes rudimentary; venation in elytra in both sexes rudimentary, only some principal veins visible, which are short and straight; ♂ right elytron with well developed stridulatory field, speculum clear, without veins, relatively large; left elytron wholly filled

up by dense, irregular venation. Fore femur smooth, inner lower margin with 2-5 small spines, outer lower margin without spines, also dorsally, genicular lobes in ♂ with very short spine on both sides, with more in ♀, obtuse minute spines; fore tibia with open auditory foramina, margins of tibia ventrally with about 3-4 spines, dorsally smooth, apical spine only distinct from below; mid femur smooth, with only 1 or 2 ventral spines on outer margin; kneelobes distinctly spined; hind femur ventrally on apical 1/2 of outer margin with 4-6 spines, inner margin smooth or with 3 small spines, kneelobes distinctly spined; tibia with 4 rows of spines, 4 apical spines. Prosternum with 2 spines on anterior margin, in ♂ very small; meso- and metasternal lobes with small spine.

*Male*: Hind margin of tergite 10 thickened and for a short distance roundly incised in middle; disc of tergite concavely impressed on both sides; supra-analplate not visible in specimen before me; cercus conical in middle, bent inwards nearly rectangularly, from there tapering to pointed apex; subgenital plate pyriform, basal margin concave, at apex with small round incision; no distinct styli.

*Female*: Hind margin of tergite 10 with deep median groove in middle; supra-analplate triangular, broadly rounded at apex; cercus conical, curved, apex pointed; ovipositor short, strongly, but regularly curved upwards, lower margin very finely crenulated, upper margin smooth, apex pointed. Subgenital plate broader than long, hind margin roundly truncate.

Genotype, *Leptophyoides novaeguineae* n. sp., by present designation.



Fig. 4. *Leptophyoides novaeguineae* n. sp. Holotype ♂.

*Leptophyoides novaeguineae* Willemse, n. sp.

Figs. 4, 5.

General coloration uniformly brown to yellowish brown. Spines of lateral keel in ♀ black; elytra yellowish brown, speculum in ♂ elytron hyaline. Legs of general coloration;

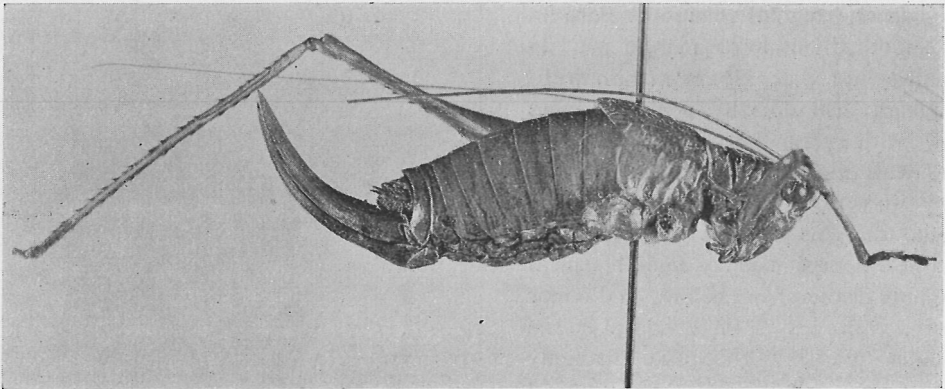


Fig. 5. *Leptophyoides novaeguineae* n. gen. et sp. Allotype ♀.

base of tibiae black. Sterna and abdomen of general coloration. Ovipositor at base somewhat darker coloured.

Measurements (in mm): Body, ♂, 12.5, ♀, 19; pronotum, ♂, 3, ♀, 4; elytron, ♂, 7, ♀, 6; wing, ♂, 3; anterior femur, ♂, 7, ♀, 7; median femur, ♂, 7, ♀, 7; hind femur, ♂, 14, ♀, 16; ovipositor, 10.

DISTRIBUTION: Neth. New Guinea (Wisselmeren).

Holotype ♂ (BISHOP), Neth. New Guinea, Wisselmeren, Urapura Camp, 1530 m, 11-VIII-1955, Gressitt.

Allotype, ♀, Wisselmeren, Okaitadi, 1600 m, 7-VIII-1955, J. L. Gressitt.

***Phrictaetypus viridis* Brunner von Wattenwyl.**

*Phrictaetypus viridis* Br. v. Wattenw., 1898, Senckenb. Naturf. Ges., Abh. 24: 257, pl. 19, fig. 44 (♀).—I. Bolivar, 1903, Mus. Nat. Hungar., Ann. 1: 162-3, (♂).—Kirby, 1906, Syn. Cat. Orth. 2: 356.—Griffini, 1908, Soc. Ital. Sci. Nat., Atti 46: 285.—Caudell, 1916, Genera Ins. 171: 7, pl. 1, fig. 3.—Karny, 1924, Treubia, 5: 146.—Kästner, 1934, Stettin. Entom. Zeit. 95: 29, fig. 4.—Willemse, 1940, Natuurh. Maandbl. 29: 61; 1953, Inst. Royal. Sci. Natur. Belg., Bull. 29 (7): 15 (key to the known species).

This is the type species of the genus and it is useful to redescribe the male genitalia, although the ♂ has been described by Bolivar and Kästner.

*Male*: Penultimate tergite narrow, disc with longitudinal median shallow groove in middle, posterior margin of tergite nearly straight, supra-analplate small, triangular, apex subpointed; cercus conical, from middle slightly curved inwards, apex more or less sharply pointed; subgenital plate somewhat longer than broad, slightly attenuated apically, posterior margin roundly excised; styli short, straight.

NEW BRITAIN (11 spec.): Sio, N. coast, 600 m, VII-1956, E. J. Ford Jr.; Gazelle Pen., Bainings, St. Paul's, 350 m, IX-1955, Gressitt.

***Phrictaetypus aberrans* Willemse, n. sp. Fig. 6.**

Resembling *P. viridis*, but differing principally in presence of bubblelike, somewhat



elevated tubercles, in posterior part of elytron, forming a row from base to apex of about 6 tubercles between media and cubitus and a few between radial sector and media and along posterior margin; tubercles dorsally convex and ventrally concave, with transverse veinlets of reticulation percurrent on tubercles, but not in *viridis*, where spots are smooth and unicolourous black; form of elytron also differs, elytron slightly widened apically, apex truncate-rotundate; radial vein bifurcated at apex and forming 2 radial sectors, 1st arising a little behind middle, 2nd between base of radial sector 1 and apex of elytron; spines along lateral keels of pronotum strongly developed,

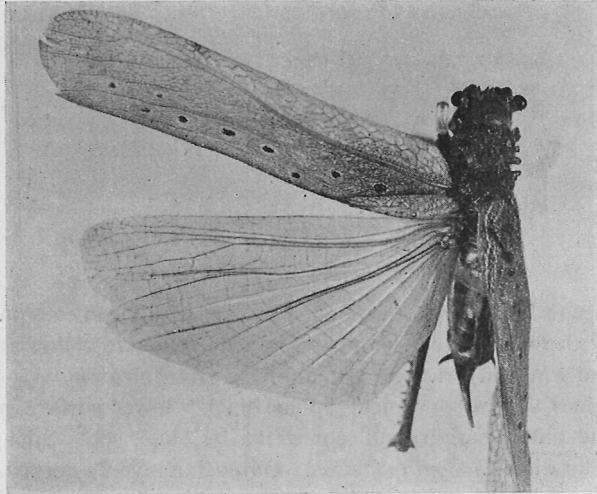


Fig. 6. *Phrictaetypus aberrans* n. sp. Holotype ♀.

obtuse at apices; 1 spine in prozona, 2 in mesozona and 1 in metazona just behind principal transverse sulcus; spines on posterior legs (fore and mid legs missing in specimen before me) distinctly more strongly developed than in other species of this genus. Ovipositor short, curved upwards, apex subpointed, margins of lower valves in apical 1/2 distinctly crenulate, margins of upper valves subsmooth.

Colour brown to yellowish brown. Vertex behind basal antennal segments with lighter coloured oval spot, in *vivo* probably orange or white. Tubercles on elytra black with small veinlets yellowish brown as in whole venation of elytron. Head, pronotum, abdomen and legs of general coloration, uniformly coloured. (Possibly new genus, but male unknown.)

Measurements (in mm): Body length 33, pronotum 8, elytron 48, hind femur 32, ovipositor 10; width of elytron (at the base) 9, width of elytron (near the top) 12.

DISTRIBUTION: Solomon Is. (Bougainville).

Holotype, ♀ (BISHOP), Solomon Is., Bougainville I., Kokure, 690 m, 1-VI-1956, E. J. Ford, Jr.

***Biroa atrospinosa* I. Bolivar. Fig. 7.**

*Biroa atrospinosa* I. Bolivar, 1903, Mus. Nat. Hungar., Ann. 1: 164.—Kirby, 1906, Syn. Cat. Orth. 2: 356.—Caudell, 1916, Genera Ins. 171: 6.—Kästner, 1934, Stettin. Ent. Zeit. 95: 30.—Willemse, 1950 (51), Eos, tom. extraordin. p. 338.

NEW IRELAND (SW): ♀, Gilingil Plantation, 2 m, 7-VI-1956, E. J. Ford, Jr. This species has never been figured but I am now able to do so.

***Biroa curvicauda* Willemse, n. sp. Fig. 8.**

*Female*: Differs from *atrospinosa* by shorter and curved ovipositor. General coloration

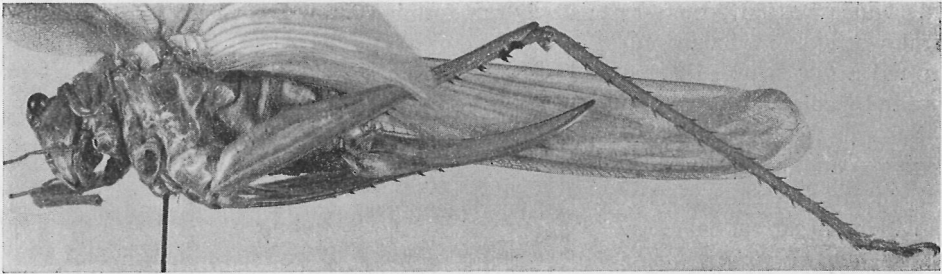


Fig. 7. *Biroa atrospinosa* I. Bolivar. ♀.

green; head, pronotum, anterior part of elytron, sterna and abdomen probably discoloured by dessication to a more or less pale yellow to yellowish brown. Head and pronotum, elytra and wings in structure not differing from *atrospinosa*. Hind femur with row of black-tipped spines ventrally; apical spine black; lower surface just before hind knee black on inner and outer margin and connected by black spot which extends slightly backwards; same coloration as in *atrospinosa*. Ovipositor evenly curved upwards from base, margins smooth, apex pointed, relatively shorter than in *atrospinosa*. Penultimate tergite in middle not with median sulcus as in *atrospinosa*. Supra-analplate, cercus and subgenital plate as in *atrospinosa*.

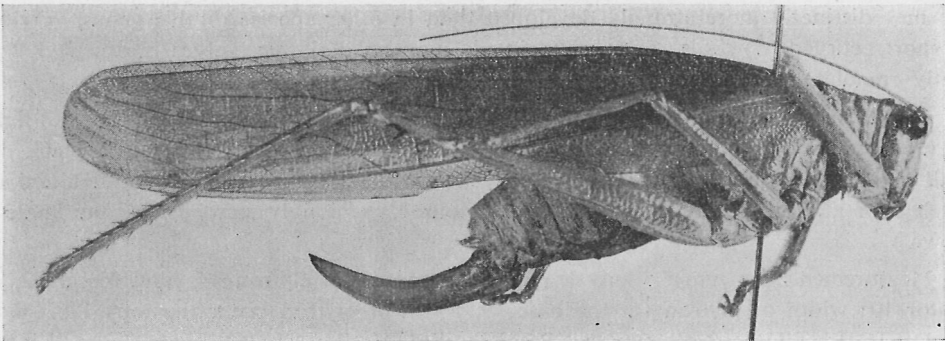


Fig. 8. *Biroa curvicauda* n. sp. Holotype ♀.

*Male*: Unknown.

Measurements (in mm): Body length 40, pronotum 7.5, elytron 64, hind femur 30, ovipositor 15.

**DISTRIBUTION**: New Britain.

Holotype, ♀ (BISHOP), New Britain, Gazelle Pen., Baining, St. Paul's, 350 m, 7-IX-1955, J. L. Gressitt.

#### **Phrictaeformia** Willemse, n. gen.

*Male*: Size large, form robust. Head as seen from above much shorter than pron-

tum; frons much broader than high, subperpendicular, practically smooth; frontal ridge distinct, its margins broadly widening downwards towards clypeal margin; carina lateralis interna and externa subparallel, below the antennal scrobae connected by low, transverse ridge. Frons and cheek distinctly separated by carina lateralis externa; clypeus somewhat broader than high, lateral margins slightly narrowing downwards; labrum and mouthparts of general form; surface of cheek nearly smooth with some transverse shallow impressions; fastigium of vertex very short and obtuse, visible above frontal ridge, divided above into 2 distinct elongated knobs, lying between upper margins of antennal scrobae. Antennae long and slender, composed of elongated segments, basal segment smooth, segment 2 elongate-globose. Eyes globose, substalked.

Pronotum about as long as broad, anterior margin convex anteriorly, posterior margin truncate; lateral keel in pro- and mesozonae absent, in metazona indicated by 2 pointed tubercles; median keel present, but fine, with small tubercle in anterior and posterior margins of disc; transverse sulcus 1 distinct, percurrent on lateral lobe; transverse sulcus 2 faintly indicated on disc; 3rd or principal sulcus distinct, concavely bent in middle, percurrent on lateral lobe and there connected with sulcus 1; lateral lobe subperpendicular, somewhat broader than high, lower margin convex, passing into anterior margin by short rounded bow, into posterior margin by obtuse angle; whole pronotum cribroso-punctate, except a more or less broad stripe along lower and posterior margins; pronotum seen in profile with mesozona lying in lower level than pro- and metazonae, which are ascending. Elytra and wings well developed, reaching far behind top of abdomen, nearly reaching apex of outstretched hind femur; elytron with anterior margin nearly straight, posterior margin straight, both margins gradually narrowing apically, apex narrowly rounded; costa distinct, short, terminating at anterior margin; subcosta straight, terminating at anterior margin near apex; radius straight, separated from subcosta by narrow interspace, terminating at apical margin, with 2 radial sectors, which reach posterior margin; media arcuately bent, at apex connected with radial sector 1; cubitus connected with media after short distance; a little behind this connection divided into 2 branches, which nearly reach posterior margin. Stridulating field in right elytron with speculum clear, long oval, without veinlets, surrounded by cubitus 2 and anal veins 1 and 2; in left elytron filled by dense reticulation, with stridulating veins strongly developed. Wing expanded a little beyond elytron; costa reaching a little beyond middle of anterior margin, subcosta terminating at apex of wing; radius parallel to subcosta, terminating at apex of wing; media faintly indicated, connected with cubitus at base for short distance, cubitus more strongly developed, media and cubitus terminating at hind margin of wing; about 10 anal veins. Femora more or less nodulose or with shallow impressions dorsally; fore femur with margins smooth, only inner lower margin with 5-6 strong teeth, kneelobe on each side with tooth, inner one being stronger; mid femur with margins smooth, except outer lower margin with 6 spines; each kneelobe with strong spine; hind femur with 5-6 small spines on inner lower margin, outer lower margin with 10-12 spines, fore tibia with auditory foraminae conchate, outer upper margin with 4-5 spines, inner upper margin smooth, lower margins each with row of spines, apical spines developed, but small; mid tibia sulcated dorsally and each dorsal margin with a few (2-7) spines, each ventral margin with a row of spines, apical spines present, but minute; hind tibia with rows of spines on 4 margins and 4 spines at apex. Prosternum bispinose; meso- and metasternal lobe rounded apically. Genitalia: Supra-analplate triangular, apex obtuse; cercus cylindrical, slightly narrowing api-

cally and curved inwards, apex subpointed; subgenital plate somewhat longer than broad, posterior margin deeply triangularly incised; styli relatively long and slender.

*Female*: Unknown.

Genotype, *Phrictaeformia insulana* n. sp., by present designation.

***Phrictaeformia insulana* Willemse, n. sp.      Figs. 9, 10.**

*Male*: General coloration reddish to yellowish brown. Clypeus with fine black transverse stripe at base, which on both sides terminates in black triangular spot. Labrum with small black spot at apex. Below lower margin of antennal scrobae black stripe and short black stripe along margin of frontal ridge. Both sides of top of fastigium of vertex with small black spot. Vertex with black median spot at base of elongated knobs and blackish or more blackish brown spot or stripe in middle of lateral side of basal antennal segment. Pronotum of general coloration; spine in middle of anterior and posterior margins and middle of transverse sulcus 1 black. Elytron more reddish brown, with dispersed indefinite darker spots in middle area and along posterior margin. Wing subhyaline. Legs of general coloration with some darker coloured spots, especially at base of blackish tipped spines. Hind femur dorsally on basal part with blackish transverse stripes or spots. Sterna and abdomen of general coloration.

*Female*: Unknown

Measurements (in mm): Body length 34, pronotum 7, elytron 36, fore femur 16, mid femur 16, hind femur 36.5.

**DISTRIBUTION**: New Britain (Gazelle Pen.).

Holotype, ♂ (BISHOP), New Britain, Gazelle Pen., Baining, St. Paul's, 350 m, 6-IX-1955, J. L. Gressitt. Unique type.

***Pseudophryctaetypus* Willemse, n. gen.**

*Female*: Body slender, size medium. Antennae filiform, segments slightly elongated, basal segment smooth; segment 2 subglobose; margins of antennal scrobae slightly elevated and smooth. Fastigium of vertex short, bilobate over entire length, on frons terminating about in middle between antennal scrobae; in middle of fastigium there being narrow transverse impression, below which with a small rounded tubercle. Frons, cheek and vertex practically smooth, with only few shallowly indicated points or impressions; frons and cheeks separated by narrow vertical longitudinal sulcus reaching from below lower margin of antennal scrobae to clypeal margin. Eyes globose, substalked.

Pronotum slightly longer than broad; rugosely punctate but lateral lobe less strongly so; metazona along posterior margin more finely punctate; anterior margins subroundly protruding in front, posterior margin truncate; median keel practically absent, lateral keel present and indicated by row of rugose small tubercles which in pro- and mesozonae are somewhat more strongly indicated in the form of some low obtuse tubercles; transverse sulcus 1 on the disc indicated as a very fine stripe, on the lateral lobe more distinct and deeper, principal sulcus on the disc very fine but perceptible, on the lateral lobe more distinct. Lateral lobe vertically inserted, somewhat longer than broad, lower margin subhorizontal, anteriorly passing into nearly straight anterior margin by rounded angle, posteriorly

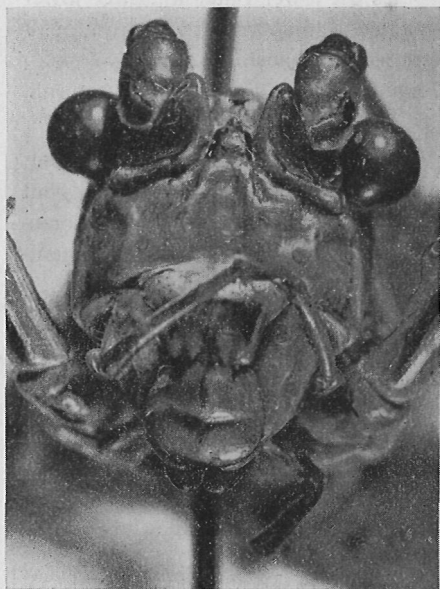


Fig. 9. *Phrictaeformia insulana* n. gen. et sp. Holotype ♂, frontal view.

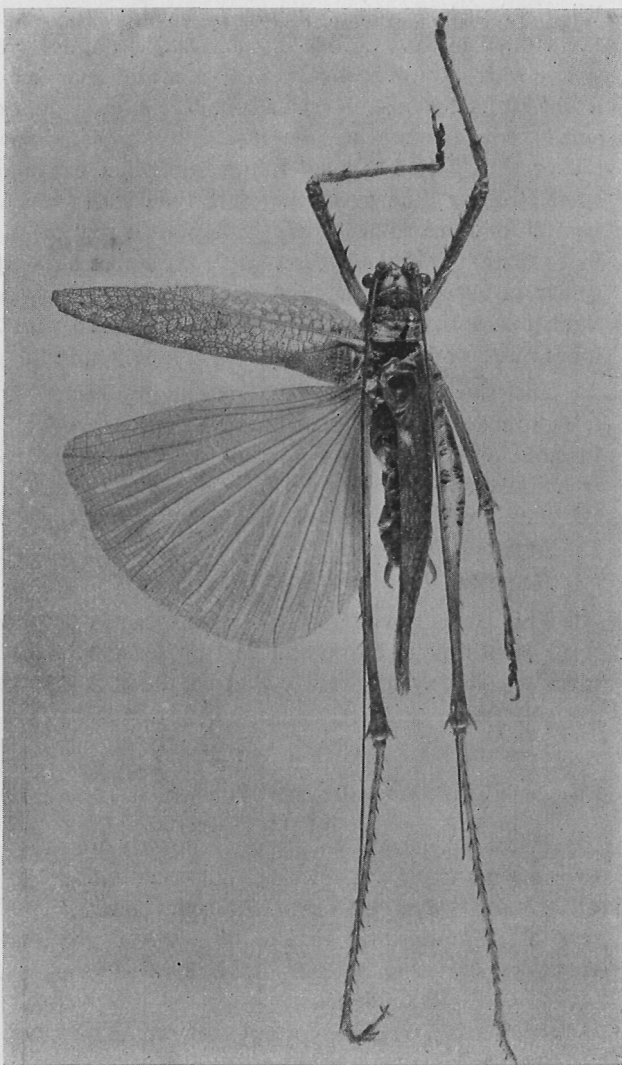


Fig. 10. *Phrictaeformia insulana* n. gen. et sp. Holotype ♂.

by rounded bow into posterior margin, posterior margin straight, without humeral angle. Elytra and wings reaching apex of hind femur; elytron slightly narrowing apically from middle, anterior margin very slightly convex and sub-parallel to posterior margin, apex narrowly rounded; principal veins distinct amongst dense reticulation; costa very short; subcosta straight, parallel to radius, reaching apex; radius bifurcated at apex, separated from subcosta by narrow interspace with transverse veinlets near the apex, simple radial sector arising in apical 1/3; media simple, straight, indistinct at origin, terminating at posterior margin near apex; cubitus connected with analis at base along great distance, from there straight and simple and terminating at posterior margin of elytron; analis straight.

Wing subcycloid; costa at base arcuately bent, simple, terminating near apex of wing; radius and media parallel to subcosta, separated from each other by very narrow interspace with few transverse veinlets; media near apex bifurcated; cubitus arcuately bent; about 10 anal veins. Fore and mid femora nodulose dorsally. Spines on legs relatively small; fore femur with row of 4 spines on inner lower margin, outer lower margin without or with only 1-2 small spines, somewhat irregularly arranged; kneelobes spined, inner spine stronger than outer one; fore tibia with foramina auditoria on both sides open, both ventral margins spined; mid femur with row of 5 spines on lower outer margin, lower inner margin without spine; both kneelobes strongly spined; hind femur with row of 7 spines on lower outer and 6-7 spines on lower inner margin, both kneelobes strongly spined; hind tibia spined on all 4 carinae. Prosternum with 2 small spines; meso- and metasternal lobes more or less triangular, apex obtusely spined.

Posterior margin of penultimate tergite somewhat rounded. Supra-analplate triangular, apex rounded, disc of plate concave; cercus conical, attenuated towards apex, slightly bent inwards, apex sharply pointed; ovipositor short, curved upwards, apex pointed, base somewhat inflated, lower margin finely serrate, upper margin subsmooth, or subserrate; subgenital plate much broader than long, posterior margin arcuately rounded.

*Male*: Unknown.

Genotype, *Pseudophrictaetypus uniformis* n. sp., by present designation.

This genus resembles *Phrictaetypus*, but is differentiated by the much less strongly developed spines along the lateral keel of pronotum and on the legs. Since the male is still unknown, it may be possible that we are dealing with only an aberrant form of the genus *Phrictaetypus*.

***Pseudophrictaetypus uniformis* Willemse, n. sp. Fig. 11.**

*Female*: General coloration yellowish brown. Head with some irregular dark stripes or spots on frons and cheeks; antennae reddish or yellowish brown, basal segment light olivaceous brown, with some irregular, dark, more or less distinct stripes; pronotum of general coloration; elytron reddish brown, more greenish in apical 1/2, principal veins somewhat darker coloured; wing hyaline; legs of general coloration; fore and mid femora

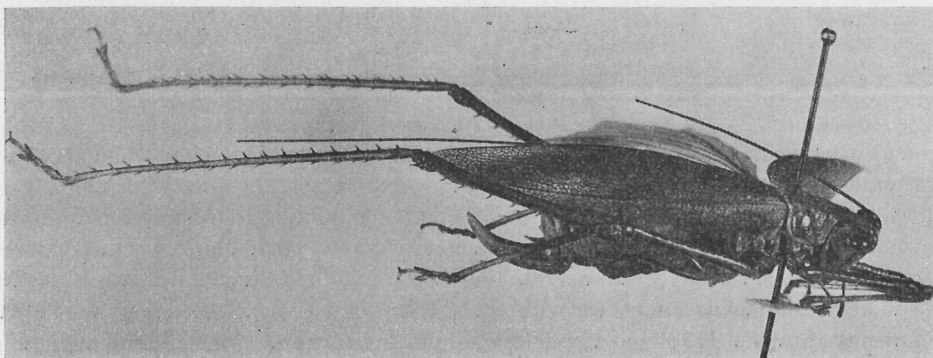


Fig. 11. *Pseudophrictaetypus uniformis* n. gen. et sp. Holotype ♀.

darker coloured dorsally, outer lower margin with blackish stripe; fore tibia dark brown around auditory foramina; mid tibia at base blackish brown dorsally and ventrally; hind femur with brownish stripe on inner area at base, near knee somewhat darker coloured; hind tibia greenish, basal 1/2 more yellowish brown, spines of same colour; sterna yellowish brown; abdomen with sternites brown, tergites yellow; ovipositor yellowish brown, apical 1/2 yellow, dorsally in middle with dark brown spot.

Measurements (in mm): Body length 27, pronotum 4.5, elytron 27, fore femur 10, mid femur 11, hind femur 22, ovipositor 8.

DISTRIBUTION: New Guinea (Papua).

Holotype, ♀ (BISHOP), Papua, Kokoda-Pitoki, 400 m, 23-III-1956, J. L. Gressitt.

#### KEY TO GENERA OF GROUP SEXAVAE

1. Fore and mid tibiae without apical spines; elytron relatively narrow, ratio of length to width, 1 : 6 or 7; subgenital plate of ♂ with or without styli ..... **Segestes**  
Fore and / or mid tibiae with 1 or 2 apical spines dorsally, variable, but never without spine; subgenital plate of ♂ always with styli, may be small but perceptible..... 2
2. Body stout; elytron broad, ratio of length to width in ♂ 1 : 3 or 4.5, in ♀ 1 : 4 or 5.8; head as seen from above shorter than or as long as pronotum; lateral lobe of pronotum generally higher than long; ♂ subgenital plate shallowly excised dorsally at posterior margin ..... **Sexava**  
Body slender; elytron narrower, ratio of length to width in ♂ 1 : 5.5-7, in ♀ 1 : 6 or 7; head somewhat longer than pronotum; lateral lobe of pronotum longer than high or as long as high; ♂ subgenital plate narrower and deeply excised dorsally at posterior margin ..... **Segestidea**

**Segestes** Stål, 1877.

*Segestes* Stål, 1877, Vet. Akad. Forh., Oefv. **34**: 45.—Redtenbacher, 1892, Zool.-bot. Ges. Wien, Verh. **42**: 197.—Kirby, 1906, Syn. Cat. Orth. **2**: 359.—Caudell, 1916, Genera Ins. **171**: 3, 12.—Hebard, 1922, Acad. Nat. Sci. Philad., Proc. **74**: 176.—Karny, 1924, Treubia **5**: 150; 1931, Ibid. **12** (suppl.): 67, 71.—Kästner, 1934, Stettin. Ent. Zeit. **95**: 45.—Willemse, 1957, Tijds. Ent. **100** (1): 42.

#### KEY TO SPECIES OF SEGESTES

##### Males

1. Fastigium of vertex long, reaching a little beyond or only reaching top of antennal scroba. New Guinea ..... **acuminatus**  
Fastigium of vertex shorter, not reaching top of antennal scroba ..... 2
2. Hind femur unicolourous brown. Philippines ..... **fuscus**  
Hind femur lighter coloured, not brown ..... 3
3. Subgenital plate with styli ..... 4  
Subgenital plate without styli ..... 5

4. Both kneelobes of hind femur with 2 strong spines; inner area of hind femur sometimes orange. New Guinea ..... **decoratus**  
Only outer kneelobe of hind femur with 1 spine; inner area of hind femur blackish brown. Philippines ..... **beieri**
5. Only inner kneelobe of hind femur with spine; posterior margin of subgenital plate triangularly excised. Celebes ..... **celebensis**  
Both kneelobes of hind femur with spines ..... 6
6. Inner basal area of hind femur blackish brown; posterior margin of subgenital plate triangularly excised. Philippines ..... **vittaticeps**  
Inner basal area of hind femur not blackish brown; posterior margin of subgenital plate deeply incised; inner kneelobe of hind femur double-spined. Obi ..... **frater**

#### Females

1. Subgenital plate longer than broad, with posterior, narrow prolongation bearing narrow triangular incision. Philippines ..... **punctipes**  
Subgenital plate shorter than or nearly as long as broad ..... 2
2. Fastigium of vertex long, reaching a little beyond antennal scroba. New Guinea...  
..... **acuminatus**  
Fastigium of vertex shorter, not reaching antennal scroba ..... 3
3. Hind femur completely brown. Philippines ..... **fuscus**  
Hind femur lighter coloured, not completely brown ..... 4
4. Hind femur on basal inner area dark brown..... 5  
Hind femur on inner basal area not dark brown..... 6
5. Fore femur with 1 spine ventrally; outer kneelobe of mid leg with 1 spine; anterior angle of lateral lobe of pronotum rounded. Philippines ..... **vittaticeps**  
Fore femur without spines ventrally; outer kneelobe of mid leg without spine; anterior angle of lateral lobe of pronotum with downward directed, sharp keel.  
Philippines ..... **beieri**
6. Both kneelobes of hind femur with 2 strong spines; body large; hind femur on inner area mostly orange coloured. New Guinea..... **decoratus**  
Only inner kneelobe of hind femur with 2 spines, outer kneelobe with only 1 spine; body medium-sized ..... 7
7. Elytron longer than 60 mm. Obi I. .... **frater**  
Elytron not exceeding 55 mm. Palau Is. .... **unicolor**

**Segestes acuminatus** Kästner. Figs. 12, 13.

*Segestes acuminatus* Kästner, 1934, Stettin. Ent. Zeit. 95: 46, figs. 18, 19.

NE NEW GUINEA: ♂, Bubia, Markham Valley, 50 m, 19-IX-1955, J. L. Gressitt.

In ♂ (until now unknown) fastigium of vertex not quite as long as figured for ♀ by Kästner, but difference too small to be of any importance.

Measurements (in mm): Body length 45, pronotum 6, elytron 60, fore femur 14, mid femur 12, hind femur 30.



**Sexava** Walker, 1870.

*Sexava* Walker, 1870, Cat. Derm. Salt. Brit. Mus. 3: 437.

*Moristus* Stål, 1873, Vet. Akad. Forh. Oefv. 30: 47.—Stål, 1874, Rec. Orth. 2: 67.—Redtenbacher, 1886, K. K. Naturh. Hofmuseum (Wien) Ann. 1: 179, Taf. 11, fig. 24.—Karsch, 1891, Berlin. Ent. Zeits. 36 (2): 343.—Redtenbacher, 1892, Zool.-bot. Ges. Wien Verh. 42: 189, 200.

*Sexava* Kirby, 1906, Syn. Cat. Orth. 2: 359.—Caudell, 1916, Genera Ins. 171: 3, 12.—Hofeneder, 1919, Senckenb. Naturf. Gesellschafts. Abh. 36: 439–446, pl. 32.—Karny, 1924, Treubia 5: 150; Ibid. 7: 183.—Leefmans, 1927, Inst. Plantenz. (Buitenzorg) Meded. 72: 9, 12, 56.—Karny, 1931, Treubia 12: 67, 75.—Willemse, 1940, Natuurh. Maandbl. 29: 83; 1957, Tijds. Ent. 100 (1): 42.

***Sexava femorata*** Willemse. Fig. 14.

*Sexava femorata* Willemse, 1940, Natuurh. Maandbl. 29: 80, 83, figs. 17, 18.

NE NEW GUINEA: ♂, Boana Mission, Huon Pen., 900 m, 4, 5–IX–1956, E. J. Ford, Jr.

Measurements (in mm): Body length 49, pronotum 9, elytron 70, fore femur 20, mid femur 18, hind femur 45.

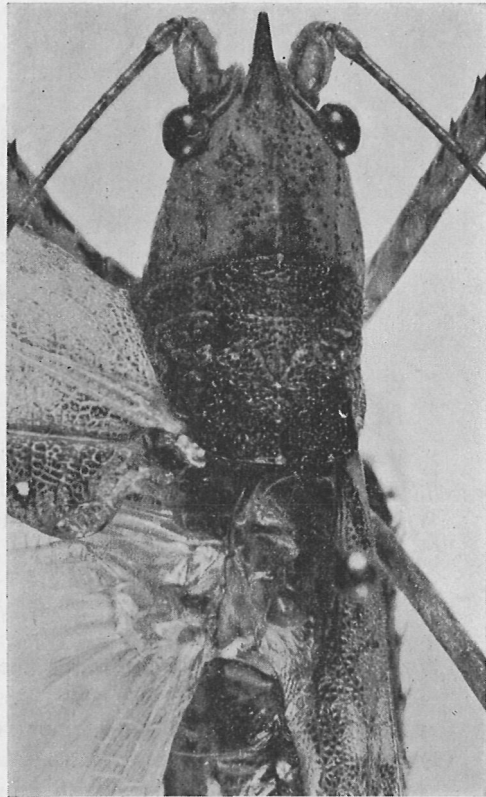


Fig. 12. *Segestes acuminatus* Kästner ♂. Head and pronotum from above.

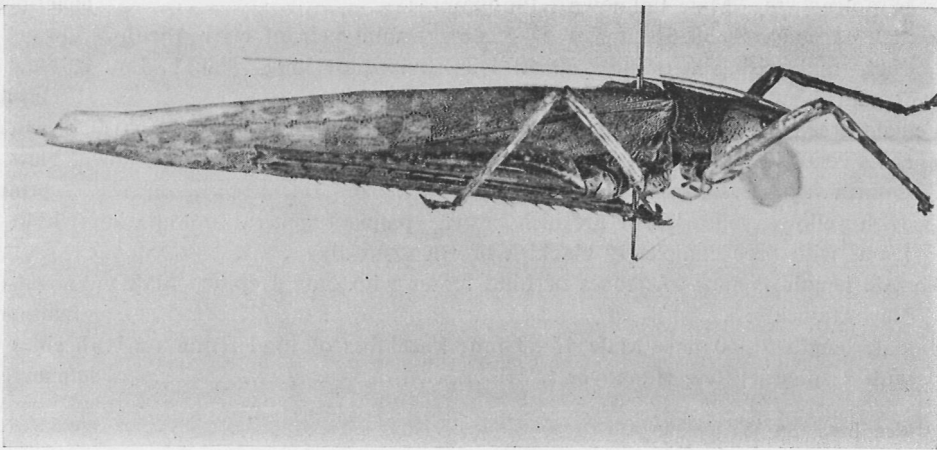


Fig. 13. *Segestes acuminatus* Kästner ♂. Lateral view.

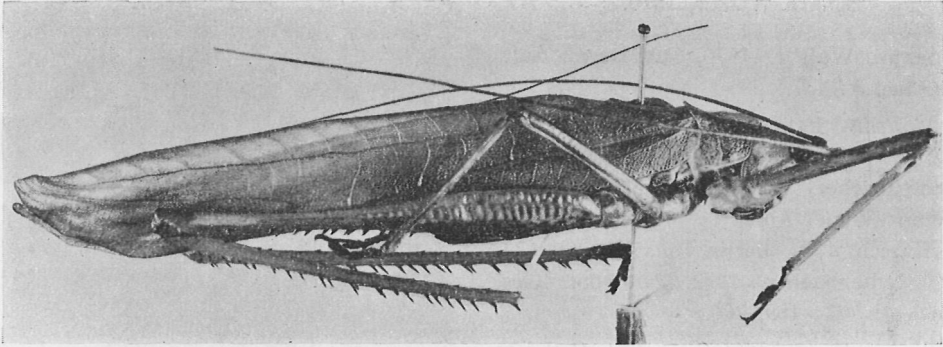


Fig. 14. *Segestidea femorata* Willemse ♂. Lateral view.

#### Segestidea I. Bolivar, 1903.

*Segestidea* I. Bolivar, 1903, Mus. Nation. Hungar., Ann. **1**: 166.—Kirby, 1906, Syn. Cat. Orth. **2**: 359.—Caudell, 1916, Genera Ins. **191**: 3, 13.—Willemse, 1957, Tijds. Ent. **100** (1): 42.

#### KEY TO SPECIES OF SEGESTIDEA

1. Elytron gradually narrowing towards apex; apex sharply angulate; anterior margin forming near apex a broad bow, passing into posterior margin by acute angle; radius with 3 branches, hind femur ventrally at base blackish brown. Obi I. ... **sorora**  
Elytron with apex truncately rounded, anterior and posterior margin at apex not forming acute angle; radius with 2 or 3 branches; hind femur unicolourous or at base blackish brown ventrally ..... 2
2. Hind femur unicolourous, base not blackish brown ventrally..... 3  
Hind femur with base blackish brown ventrally ..... 4
3. Length of body, ♀ 38 mm; radial veins of elytron with 2 branches, first arising in apical 1/4. Male unknown. Philippines ..... **punctipennis**  
Length of body, ♂ 38–51 mm, ♀ 51–55 mm; radial vein of elytron with 2–3 branches, first arising at or near apical 1/3; ovipositor long. Pak I., Lou I., New Britain, New Ireland ..... **insulana**
4. Female green, palpi orange coloured; hind femur red with rows of blackish brown spots ventrally; sides of thorax with a broad brown band. Male unknown. New Guinea ..... **princeps**  
Greyish yellow, yellowish or greenish brown, palpi of general colouration; hind femur with base completely blackish brown ventrally ..... 5
5. Female length 45 mm; kneelobes of hind femur with only 1 spine. Male unknown. New Guinea ..... **marmorata**  
Female length 51–60 mm. Male 47–53 mm; kneelobes of hind femur on both sides with 2 spines. New Hannover I. .... **hannoverana**

*Segestidea insulana* Willemse.

*Segestidea insulana* Willemse, 1957, Tijds. Ent. **100** (1): 41, 42, pl. 4 (right elytron & wing);

1958, *Natuurh. Maandbl.* 47: 122.

NEW BRITAIN: Ti, Nakanai Mts., 28-VII-1956, E. J. Ford, Jr.; Sio, N. coast, 24-VII-1956; Gazelle Pen., Keravat, 60 m, 11-IX-1955, J. L. Gressitt; Bainings, St. Paul's, 350 m, 7-IX-1955, J. L. Gressitt; Gaulin, 23-V-1956, J. L. Gressitt, on *Pandanus*. NEW IRELAND: Gilingil Pl., 2 m, 16, 17-VII-1956, J. L. Gressitt. ADMIRALTY IS.: Los Negros, XI-1945, W. Wagner, Jr. & D. Grether, 31 spec.

KEY TO GENERA OF GROUP MOSSULAE

1. Elytron not reaching apex of hind femur ..... 2
- Elytron reaching to or beyond apex of hind femur ..... 7
- 2 (1). Elytron coriaceous, principal veins more or less distinctly indicated..... 3
- Elytron not coriaceous, but with normal venation ..... 5
- 3 (2). Fastigium of vertex short, spinelike, top subacute, not divided into 2 tubercles or tuberosities; auditory foramina of fore tibiae open on both sides; ♂ stylus very thick and large, extending upwards and touching undersurface of last tergite, surface finely granulose, somewhat widened apically, apex with rows of hairs more or less regularly arranged ..... **Ocica**
- Fastigium of vertex divided into 2 obtuse tubercles or acuminate and undivided; auditory foramina of fore tibiae open on both sides or 1 side conchate; ♂ stylus styliform, straight ..... 4
- 4 (3). Fastigium of vertex divided into 2 obtuse tubercles converging anteriorly and touching each other in middle; auditory foramina of fore tibiae conchate on outer side, inner side open; fore and mid femora without spines, hind femur with only 1 spine; subcosta and radius separated at base, interspace with some transverse veinlets; ovipositor relatively long and nearly straight ..... **Paradiaphleboopsis**
- Fastigium of vertex not divided into 2 tubercles, but spinelike; auditory foramina of fore tibiae open on both sides; all femora with spines; genicular lobes of mid and hind femora with 2 spines, fore femur with only 1 spine on outer kneelobe; subcosta and radius separated from base to apex; ovipositor very short ..... **Dasyphleps**
- 5 (2). Auditory foramina of fore tibia conchate on both sides ..... 6
- Auditory foramina of fore tibia open on both sides; kneelobes with only 1 spine, except outer kneelobe of fore femur which is only sharply pointed; elytron very short, 15 mm. Statura minor, 21 mm..... **Diaphlebus novaeguineae**
- 6 (5). Elytron broadest at base. Statura major, 37-40 mm ..... **Neodiaphlebus (notatus)**
- Elytron broadest in middle. Statura minor, 24-28 mm ..... **Diaphlebopsis**
- 7 (1). Metazona of pronotal disc with distinct crenulated lateral keel ..... 8
- Metazona of pronotal disc without lateral keel, sometimes with rough sculpturing ..... 12
- 8 (7). Elytron broadest near base, attenuated towards apex ..... **Huona**
- Elytron broadest in middle or near apex ..... 9
- 9 (8). Elytron broadest in middle, not extending beyond hind knee ..... 10
- Elytron broadest in apical part ..... 11
- 10 (9). Auditory foramina of fore tibia open on both sides ..... **Diaphlebus**

- Auditory foramina of fore tibia conchate on both sides; ovipositor long ..... **Paradiaphlebus**
- 11 (9). Elytron reaching beyond hind knee; ovipositor short ..... **Albertisiella**  
 Elytron not reaching apex of hind knee; auditory foramina conchate.. **Mossuloides**
- 12 (7). Pronotum smooth; elytron relatively narrow; styli of ♂ subgenital plate about as long as depth of incision of its posterior margin; ♀ subgenital plate without median incision; ovipositor short, not or scarcely reaching beyond hind knee..... **Paramossula**  
 Pronotum coarsely sculptured; ovipositor longer, reaching about middle of outstretched hind tibia ..... 13
- 13 (12). Elytron relatively narrow; styli in ♂ very short; cercus in ♂ slender, simple ..... **Eumossula**  
 Elytron broader; styli in ♂ long, about as long as depth of incision of posterior margin of subgenital plate; cercus in ♂ simple or broad and bifurcated near apex..... **Mossula**

**Ocica salomonis** Willemse. Figs. 15, 16.

*Eleaoptera salomonis* Willemse, 1940, Natuurh. Maandbl. 29: 80, figs. 14-16.

SOLOMON IS.: Malaita I., Tangtalau to Kwalo, 200-300 m, 30-IX-1957, J. L. Gressitt, 2 ♂, ♀; same, 24-IX-1957, ♀; Tangtalau, 150-200 m, 26-IX-1957, J. L. Gressitt, ♀; Auki, 2-20 m, 21, 22-IX-1957, J. L. Gressitt, 4 ♂, 5 ♀; E. of Kwalo (E. of Auki), 350 m, 29-IX-1957, 2 ♂. Apparently common on Buma I., from where originally described (Malaita) and also known from Aola I. (Guadalcanal). The description of last abdominal segment of ♂ (which was mutilated) needs some corrections.

*Male*: Posterior margin of penultimate tergite in middle slightly concave; supra-anal-

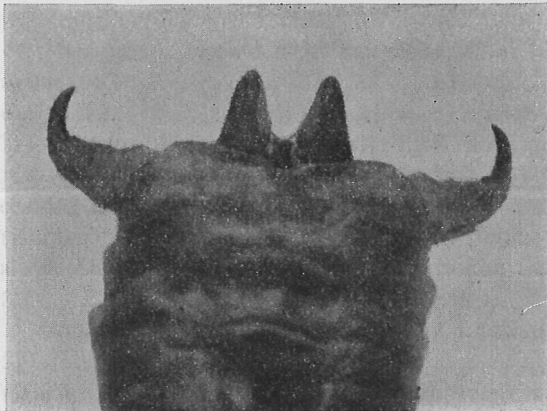


Fig. 15. *Ocica salomonis* Will. ♂. Apex of abdomen from below.

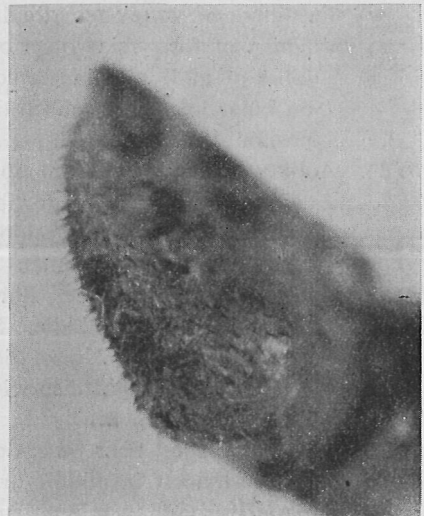


Fig. 16. *Ocica salomonis* Will. ♂. Stylus as seen from above.

plate indistinct in all specimens before me, probably very small; cercus well developed, conical, in middle more or less angulately curved inwards, apex obtuse, its surface granulate and hairy, on inner margin with row of low, regular, apically obtuse tubercles, normally, when in rest, lying crosswise under subgenital plate; subgenital plate broad, somewhat longer than broad, its lateral margins thick and elevated, posteriorly touching each other in middle; styli very thick and large, erected upwards and touching underside of last tergite, separated *inter-se* only by narrow interspace, when seen in profile curved, and somewhat widened towards apex, extreme apex angulately bent, obtuse and protruding, directed backwards, its surface finely granulate and dorsally hairy in 2, more or less regular rows.

**Paramossula basalis** Caudell.

*Mossula basalis* Caudell, 1916, *Genera Ins.* 171: 11, footnote, pl. 3, fig. 1 (not pl. 2, fig. 10).

*Paramossula basalis* Willemse, 1940, *Natuurh. Maandbl.* 29: 70, figs. 10–12; *Inst. Royal Sci. Nat. Belg., Bull.* 29 (7): 14.

SOLOMON IS.: Malaita I., Tangtalau, 200 m, 30–IX–1957; Tangtalau–Kwalo, 200–300 m, 24–IX–1957; Auki, 2–20 m, 22–IX–1957, all collected by J. L. Gressitt. 5 specimens.

**Mossula variopicta** Willemse, n. sp. Figs. 17, 18.

Body stout, robust. Head as seen from above distinctly shorter than pronotum. Antennae very long, about 3–4 × as long as body; segments in basal part short and broad, gradually becoming more slender towards the apex; segment 3 as long as 2. Fastigium of vertex short, seen from above obtusely pointed, arcuately passing into its lamellated part on frons, which reaches downwards to about middle of antennal scroba, and there interrupted by narrow transverse incision, including median ocellus; margin of antennal scroba on inner side strongly lamellate and elevated, margin smooth and rounded. Frons nearly vertical, somewhat broader than high; surface irregularly transversely strigate, more distinctly indicated especially between frons and cheek; carinae lateralis interna and externa present, but low, latter more distinct; cheeks subsmooth, with some irregular rows of points. Eyes small, long oval, somewhat protruding. Vertex and occiput subsmooth.

Pronotum with disc flat, not saddle-shaped, coarsely and heavily sculptured; anterior margin angulately rounded, posterior margin truncate or truncately rounded; transverse sulcus 1 present, percurrent on lateral lobe; sulcus 3 distinct, in middle arcuately bent and lying behind middle, percurrent on lateral lobe; median keel practically absent or only indicated in pro- and metazonae; lateral keel in metazona in some specimens indicated by row of irregular tubercles, variable and not distinctly forming lateral keel. Lateral lobe nearly vertical, roundly inserted, sculpturing as on disc, except lower margin partly smooth; lower margin thickened, anterior 1/2 nearly horizontal, posterior 1/2 slightly ascending posteriorly, whole of this margin arcuately bent; anterior and posterior margin nearly straight, posterior with shallowly indicated humeral angle; in lower part of lateral lobe, transverse sulcus 1 and 3 of disc subconnected; lateral lobe about as long as high or little longer than high. Elytra and wings well developed, in ♂ not quite reaching, in ♀ extending slightly beyond apex of hind femur; elytron broad, in ♂ slightly narrowing apically from its middle, in ♀ not or scarcely narrowing; in both sexes with apex broadly rounded; ♂ elytron with anterior margin nearly straight or subconvex, posterior margin straight; costa

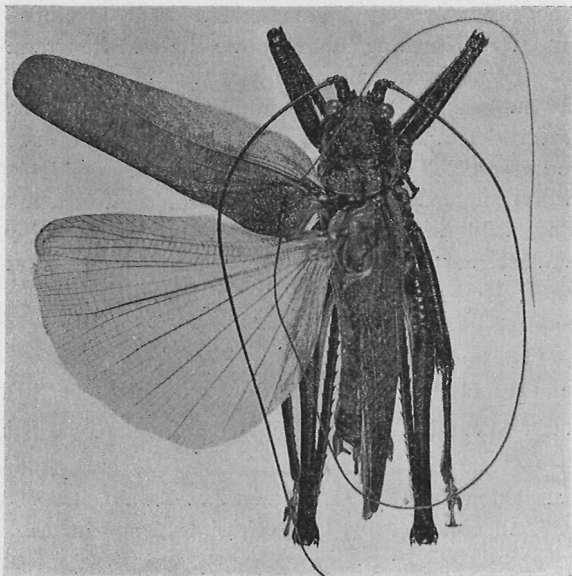


Fig. 17. *Mossula variopicta* n. sp. Holotype ♂.

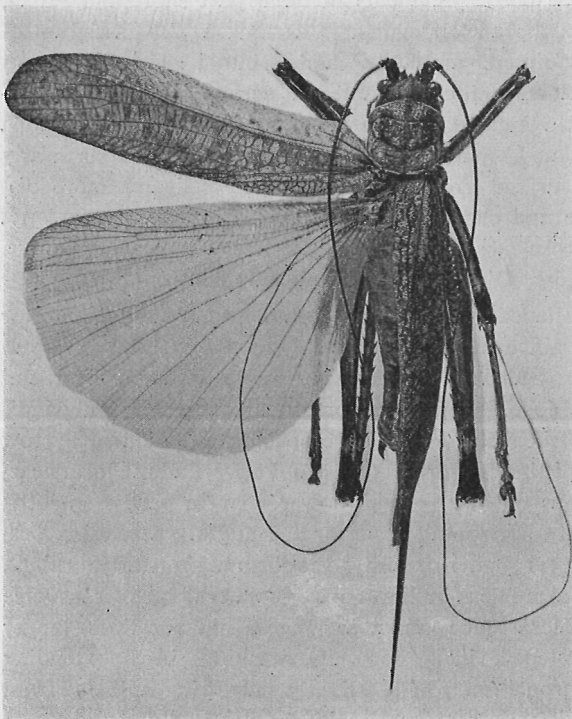


Fig. 18. *Mossula variopicta* n. sp. Allotype ♀.

short, terminating at anterior margin; subcosta simple, slightly curved at base, terminating at anterior margin near apex; radius nearly parallel to subcosta, distinctly separated by narrow interspace with regular transverse veinlets; radial sector on apical 1/3 of radius, simple and terminating at apical margin; radial sector 2 near apex of rs 1, terminating at apical margin; median vein slightly curved at base, simple, terminating at lower part of apical margin; cubitus connected at base with media along short distance, simple, terminating at posterior margin and nearly parallel to media. Speculum in right elytron long, oval, in basal 1/3 divided by strong oblique vein into 2 hyaline areas, surrounding veins strong and elevated; in left elytron no hyaline speculum, but whole area filled by strong and strong reticulation; elytron in ♀ broader, not or scarcely widened posteriorly, apex broadly rounded, anterior margin with basal dilation, costa longer than in ♂; subcosta bifurcated near apex; radius bi- or trifurcated at apex, radial sector 1 bifurcated before middle; media as in ♂; cubitus bifurcated at basal 1/4, principal branch long and straight; media and cubitus terminating in posterior margin, cubitus branch 2 short, bifurcated at apex; 2-3 straight or irregular anal veins; left elytron as described above; right elytron with some variation as to courses of principal veins; some further variation amongst the specimens before me. Wing subcycloid; costa very short; subcosta simple, terminating at apical margin; radius with radial sector near apex, in addition with 1 or 2 bifurcations at apex; media simple, at base con-

nected with cubitus; cubitus bifurcated about in middle; 9-10 anal veins. Legs strong; fore femur with row of 5-6 spines ventrally on inner margin, outer margin smooth, both kneelobes with strong spine; tibia with row of spines ventrally on both margins; auditory foramina open on both sides; mid femur with row of 8 spines ventrally on outer margin, inner margin smooth, both kneelobes spined; hind femur reaching little behind apex of abdomen, incrassate at base, ventrally with row of 12 spines on outer margin, inner margin with 4-5 spines in apical 1/2, both kneelobes with 2 spines, lower spine a little longer than upper one; hind tibia strongly spined on its 4 margins. Prosternum bispinose. Meso- and metasternal lobes triangular, laterally erected, apically subspined.

*Male*: Posterior margin of penultimate tergite triangularly incised in middle; supra-analplate narrow, triangular, apex rounded; cercus strong and thick, slightly bent inwards, subcylindrical, cleft at apex into shorter and stronger spine on outer side and longer, more slender one on inner side; subgenital plate long, narrow, much longer than broad, slightly tapering towards apex, posterior margin deeply triangularly incised in middle, base of incision rounded; styli somewhat widened apically, about as long as depth of incision.

*Female*: Posterior margin of penultimate tergite rounded, roundly incised in middle; cercus conical, slightly curved, apex pointed; ovipositor long, somewhat longer than hind femur, straight or nearly straight, margins smooth, apex sharply pointed; subgenital plate about as long as broad, lateral margins narrowing apically from middle, posterior margin rounded, with large triangularly rounded incision at middle.

General coloration very variable, generally castaneous brown to black, variegated with yellowish brown spots or stripes. Antenna brown, not distinctly annulated, segments 1 and 2 largely black; antennal scroba partly or mostly marginated with black or blackish brown; frons yellowish to yellowish brown, some specimens with 6 longitudinal dark brown or blackish brown stripes, 2 in middle of frons and 1 along carina lateralis externa, stripes percurrent from lower margin of antennal scroba to clypeal margin, middle ones sometimes continuing on clypeus; in some specimens stripes interrupted or so broad they blend together and whole frons becomes more or less totally brownish black or yellowish brown; ckeeks of same colour as frons, showing also this variability; vertex and occiput dark brown, fastigium of vertex mostly black, behind eyes sometimes with broad, more or less distinct dark brown band, sometimes in middle of vertex black, longitudinal stripe, continuing on disc of pronotum. Pronotum yellowish brown to castaneous brown, disc in middle with blackish median stripe; along lateral keel also with broad blackish stripe; lateral lobe in middle or in posterior angle with dark spot; anterior and lower margin chiefly lighter coloured, whole of its coloration fairly variable. Elytra brown, with dispersed darker brown irregular spots in different areas, veins partly yellowish, partly brown, anterior area as a rule somewhat lighter coloured than remaining part of elytron. Wing slightly infumate, veins dark brown. Anterior and median femora yellowish brown with black; along inner and outer lower carinae a shining black or blackish brown stripe, above which is row of blackish brown spots or stripes on inner and outer areas near apex, before knee often totally blackish brown with lighter coloured spot on inner area, sometimes whole femur blackish brown, very variable; fore and mid tibiae of same coloration as femora, fore tibia black or castaneous brown along lighter coloured auditory foramina; hind femur yellowish brown, dark brown or reddish brown ventrally, outer area with some rows of dark brownish spots or short stripes, inner area lighter coloured, great variability of coloration, sometimes whole femur castaneous brown or black; hind tibia blackish or light yellowish

brown, spines black. Sterna and venter of abdomen yellowish brown, margins of different segments mostly black; ovipositor yellowish brown, blackish brown near apex.

Measurements (in mm): Body length ♂ 41–44, ♀ 55–57, pronotum ♂ 9–10, ♀ 10–11, elytron ♂ 40–41, ♀ 56–59, fore femur ♂ 16, ♀ 18–20, mid femur ♂ 18–19, ♀ 23, hind femur ♂ 34–35, ♀ 41, ovipositor 43–44.

DISTRIBUTION: Solomon Is. (Malaita I.)

Holotype, ♂ (BISHOP), Solomon Is., Malaita I., Auki 2–20 m, 22-IX-1957, J. L. Gressitt; allotype, ♀, same data. 5 ♂ 2 ♀, Malaita I., Tangtatau and Auki to Tangtatau.

Eight species are known in the genus *Mossula*. The new species can be differentiated by the features as given in the key. The key contains seven species and only *M. kiriwina* Hebard (Kiriwina I.) is not included.

#### KEY TO SPECIES OF MOSSULA

1. Vertex and pronotum with median black stripe dorsally; frons with 8 black spots.  
Distribution uncertain..... **vitticollis**  
Vertex and pronotum without median black stripe or band ..... 2
2. Incision on posterior margin of ♂ subgenital plate obtusely angulate, nearly quadrate and with rounded angles; styli short, about as long as 1/2 depth of incision; lateral lobe of pronotum as high as broad; metasternal lobes broad, obtusely rounded; ovipositor slightly curved, short, 26 mm; lower margin of hind femur shining black in basal 1/2 with 6 black points along margin; before hind knee blackish, yellowish to yellowish brown broad preapical ring before knee. Ceram...**caudelli**  
Incision on posterior margin of ♂ subgenital plate acutely angulate; styli more than 1/2 length of depth of incision ..... 3
3. Metazona of pronotum with indication of lateral keel formed by rows of small irregular tubercles or rugosities.....4  
Metazona of pronotum without distinct indication of lateral keel, sometimes with few irregular tuberosities..... 5
4. Pronotum sellate; median keel finely indicated; incision on hind margin of ♂ subgenital plate shallow; hind femur shining black ventrally at base with row of black points along outer lower margin; ♂ 33–35 mm, ♀ 41–45 mm, ovipositor 24–26 mm. Buru I. .... **toxopei**  
Pronotum flat, not sellate; median keel indistinct; incision on posterior margin of ♂ subgenital plate much deeper; hind femur not shining black ventrally at base, without row of black points; ♂ 41–44 mm, ♀ 55–57 mm, ovipositor 33–44 mm. Solomon Is. .... **variopicta** n. sp.
5. Wing strongly infumate; metasternal lobes obtuse, triangularly expanded; subgenital plate of ♂ narrow, deeply and roundly excised; ovipositor nearly straight; ♂ 39–42 mm, ♀ 46–47 mm, ovipositor 34–40 mm. New Guinea ..... **loriae**  
Wing not or only slightly infumated..... 6
6. Male cercus long, reaching about apex of subgenital plate; incision on posterior margin of subgenital plate arcuately excised; apex of elytron relatively narrow; length of hind femur 42 mm; ♂ 44 mm. Female unknown. New Britain.. **intermedia**  
Male cercus distinctly terminating before apex of subgenital plate; incision on posterior margin of subgenital plate triangular; apex of elytron broader; length of hind femur 36 mm, ♂ 45 mm, ♀ 50–60 mm, ovipositor 37–39 mm. Solomon Is. .... **salomonis**