

INSECTS OF MICRONESIA

Diptera: Neriidae and Micropezidae (Tylidae)¹

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INTRODUCTION

The United States Office of Naval Research, the Pacific Science Board (National Research Council), the National Science Foundation, Chicago Natural History Museum, and Bernice P. Bishop Museum have made this survey and publication of the results possible. Field research was aided by a contract between the Office of Naval Research, Department of the Navy, and the National Academy of Sciences, NR 160-175.

I am indebted to J. Linsley Gressitt for material from Bishop Museum, Kyushu University, and the National Institute of Agricultural Sciences, Tokyo, to Curtis W. Sabrosky for the material from the United States National Museum, and to Marshall Wheeler for material from his collection. I did not receive Micropezidae material from the United States National Museum because the Micronesian Tylidae material preserved there has been studied and published by Steyskal [1952, U. S. Nat. Mus., Proc. 102 (3294)].

The following symbols indicate the museums in which specimens are stored: US (United States National Museum), CM (Chicago Natural History Museum), BISHOP (Bernice P. Bishop Museum), KU (Kyushu University), NIAS (National Institute of Agricultural Sciences, Tokyo), and MCZ (Museum of Comparative Zoölogy).

The line drawings, except those of the wings, were made by the author: 5× ocular and the 8× objective of a Zeiss binocular microscope, and camera lucida were used. The wing drawings were made by Dorothy Rainwater.

Abbreviations used throughout this report are as follows. Cephalic bristles: *orsa*, anterior upper orbitals; *orss*, superior upper orbitals; *occe*, outer occipital cilia; *vti*, inner vertical; *vte*, outer vertical; *pvt*, postverticals; and *ge*, genal bristle. Thoracic bristles: *npl*, notopleural; *prpl*, propleural; *pp*, propleural

¹ This represents, in part, Results of Professor T. Esaki's Micronesian Expeditions (1936-1940), No. 97.

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hairs; *mpl*, mesopleural; *st*, sternopleural; *sa*, supraalar; *pa*, postalar; *ia*, intralar; *sc*, scutellar; and *dc*, dorsocentral. Wing veins: R_{2+3} , second vein; R_{4+5} , third vein; M_1 , fourth vein; *Ta*, anterior cross vein; *Tp*, cross vein; and Cu_2 , anal cross vein.

This report covers relatively abundant material on the Neriidae from the Mariana Islands and the principal high islands, and many of the atolls of the Caroline and the Marshall Islands. No material was available from the Volcano and Gilbert Islands, Marcus, Wake, Ocean, or Nauru, and as yet no Neriidae are known from these islands. Approximately 300 specimens of this small family of acalyptrate flies were studied from Micronesia.

The first attempt to bring together the published information on the genera and species of the Neriidae was made in the revision by Hennig (1937, Stett. Ent. Zeitung 98). He listed only two species described from Micronesia as follows: *Telostylinus longicoxa* (C. G. Thomson) from "Insula Ascension" and *T. luridus* Enderlein from Jaluit Atoll, Marshall Islands. Without doubt, *T. luridus* is a synonym of *T. longicoxa*. The family is rather poorly represented in the Micronesian area by a single genus, *Telostylinus* Enderlein of the tribe Neriini, and by four endemic species, of which three are new to science.

As far as I know, there are only four genera of the tribe Neriini in the Australian Region (1954, Aczél, Treubia 22: 507). *Gymnonerius* Hendel with a single species (*angusticollis* Enderlein, Cape York, Queensland), *Paranerius* Bigot with a single species (*fibulatus* Enderlein, New Guinea), and *Rhoptrum* Enderlein with two species endemic to New Guinea, are very restricted in their distribution. Only the genus *Telostylinus* Enderlein is widespread. Species of this genus are dispersed throughout the Oriental and Australian Regions. In the Pacific islands, the family Neriidae is represented only by *Telostylinus*.

The geographical distribution of the four Micronesian species is most peculiar. *Telostylinus yapensis*, restricted to Yap, is the only species known from this island. *T. ponapensis* is restricted to Ponape, where it lives together with *T. longicoxa*. Incidentally, Ponape is the only known Micronesian island with two *Telostylinus* species. *T. gressitti* and *T. longicoxa* are widespread, with well-separated areas of distribution. *T. gressitti* is the only species found on the Micronesian islands from Palau to the central Caroline Islands, excluding Yap, whereas *T. longicoxa* is the only species found on the islands from the northern Marianas to the eastern Caroline Atolls, Truk, Kusaie, and the Marshall Islands.

Morphologically, *T. yapensis* seems to be as closely related to *T. ponapensis* as *T. gressitti* is to *T. longicoxa* (and both to *T. lineolatus*). However, I do not wish to propose any apparently obvious, and most probably inaccurate, explanation for this phenomenon without first studying more profoundly the distributional patterns of this family in the neighboring areas.

Flies of the Micropezidae (Tylidae) are well represented in the collection from the Bonin Islands, the southern Mariana Islands, and the principal high islands and several of the atolls of the Caroline Islands. No material is at hand from the Volcano, Gilbert, and Marshall Islands, Marcus, Wake, Ocean, or Nauru, and so far, no Tylidae are known from these islands. Approximately 200 specimens of this family of flies were studied from Micronesia.

The first attempt to bring together the published information on the genera and species of Micropezidae was made in the revision by Enderlein (1922), who lists a single species for Micronesia (Palau) under the name of *Calobata stabilis* Walker (1861), which doubtless is but a synonym of *Mimegralla albimana* (Doleschall). Hennig in the second part of his large monograph (1935, Konowia 14) lists two species as follows: the same species as that of Enderlein under the new name *Mimegralla albimana palauensis*, and *M. longiventris* (C. G. Thomson) from "Insula Ascension," and described two new species, *M. ponapensis* from Ponape and *Rainieria boninensis* from the Bonin Islands, of which *Mimegralla ponapensis* is only a synonym of *M. contraria* (Walker). In 1952 Steyskal [U. S. Nat. Mus., Proc. 102 (3294)] described a new genus (*Townesa*) and three new species (*M. perfulva*, *Townesa spinosa*, and *Crosa yapensis*) from Micronesia. In the relatively abundant material, only these six species represented the family in this area, and I think it unlikely that more species will be discovered in Micronesia.

In the Oriental and Australian Regions, only three genera of the subfamily Taeniapterinae are known at present: *Grammicomyia* Bigot, *Mimegralla* Rondani, and *Mimomyrmecia* Frey, all belonging to the Rainieriini Steyskal (1947; syn. Grallipezini Aczél, 1953). *Mimomyrmecia*, with a single species (*tesselata* Frey), is endemic to the Philippines, whereas *Grammicomyia* and *Mimegralla* are widespread in both regions. However, in Micronesia, only four species of *Mimegralla* have been found, and a single species of a fourth genus of the apomorph tribe Rainieriini, *Rainieria* Rondani, which is widespread in the Neotropical, Nearctic, and Palearctic Regions. This genus, represented on the Bonin Islands by the species *R. boninensis*, here attains the eastern limits of its distribution; and on Formosa, by *R. leucochira* Czerny, attains the southern limits of its distribution. The Bonin and Volcano Islands are part of Micronesia, but their zoogeographical situation is as yet uncertain. It may be significant, however, that the only species of this family known from the Bonin Islands represents a Palearctic element.

In the Oriental and Australian Regions, seven genera of the tribe Trepidariini of the subfamily Tylinae are known, but until now only one species of a single genus, *Crosa* Steyskal, has been found in Micronesia. The species *C. yapensis* is endemic to the Palau Islands and Yap, where it occurs with *Mimegralla albimana*.

The geographical dispersion of the four Micronesian species of *Mimegralla* is remarkable. Two species, each of which represents a monotypic subgenus with an unusual morphological character, have a very reduced area of dispersal. *M. (Steyskalia) perfulva* is restricted to Ponape and *M. (Townesa) spinosa*, to Kusaie, where each lives together with *M. (Mimegralla) contraria*.

On the other hand, both species of the typical subgenus, *albimana* and *contraria*, are widespread in the Oriental and Australian Regions, though they have well separated areas of distribution in Micronesia. *M. (M.) albimana* is the only Rainieriini species found on the Mariana and Palau Islands, Yap, Truk, and the western and central Caroline Atolls. On the Palau Islands and Yap it lives together with *Crosa yapensis* (Tylinae, Trepidariini). *M. (M.) contraria* is distributed on Ponape, Kusaie, and the eastern Caroline Atolls. In Ponape, it occurs with *M. (Steyskalia) perfulva* and in Kusaie, with *M. (Townesa) spinosa*; but on the atolls it is the only known species of this family.

Table 1.—Distribution of Micronesian Neriidae and Micropezidae

	MICRONESIAN ISLAND GROUPS										Other Localities	
	Bonin	N. Mariana	S. Mariana	Caroline						Marshall		
				Palau	Yap	Caroline Atolls	Truk	Ponape	Kusaie			
Neriidae												
1. <i>Telostylinus gressitti</i> *				×		×						
2. <i>T. longicoxa</i>		×		?		×	×	×	×	×	×	
3. <i>T. ponapensis</i> *								×				
4. <i>T. yapensis</i> *					×							
Micropezidae												
1. <i>Mimegralla (M.) albimana</i>			×	×	×	×	×					Oriental and Australian Regions
2. <i>M. (M.) contraria</i>						×		×	×			Oriental and Australian Regions
3. <i>M. (Steyskalia) perfulva</i>								×				
4. <i>M. (Townesa) spinosa</i>										×		
5. <i>Rainieria boninensis</i>	×										×	Neotropical, Nearctic, Palearctic Regions
6. <i>Crosa yapensis</i>				×	×							

* Described as new.

SYSTEMATICS

NERIIDAE

KEY TO AUSTRALIAN GENERA OF NERIINI

1. Projected base of antenna not polished, dull or feebly lustrous (*Rhoptrum* group); pedicel with conspicuous inner keel..... 2
- Projected base of antenna polished and shining (*Nerius* group)..... 3
- 2(1). Postpedicel short oval, tapering into pointed apex; apical region of fore tibiae of male strikingly thickened; larger species..... **Rhoptrum**
- Postpedicel oval to long oval, terminating in a rather wide, rounded apex; fore tibiae of male normal; smaller species..... **Telostylinus**
- 3(1). Postcranium and prothorax considerably elongate, postcranium narrowing toward posterior margin of head; pedicel compressed, without inner keel; anal cell closed by a straight and perpendicular cross vein..... **Gymnonerius**
- Postcranium and prothorax only slightly elongate, postcranium never narrowing toward posterior margin of head; pedicel with conspicuous inner keel; anal cell closed by a convex and receding transverse vein..... **Paranerius**

All of these four genera have a single pair of strong notopleural bristles; only *Gymnonerius* has a weak, hair-like, fore pair.

TRIBE NERIINI

Genus *Telostylinus* Enderlein

Telostylinus Enderlein, 1922, Archiv Naturgesch. A, Jahrgang 88, 5: 141, 142 (type: *Nerius lineolatus* Wiedemann; Ceylon, Siam, Indonesia, New Guinea, Queensland).—Hennig, 1937, Stett. Ent. Zeitung 98: 277.—Aczél, 1954, Treubia 22: 521.

Head (without antennae) always more or less longer than wide or high, and slightly wider than high. Frontal stripe between genovertical plates (frontal orbits) longitudinally impressed. Cephalic and thoracic bristles long and bristle-like, considerably longer than in other Neriini and in *Rhoptrum*. One to three pairs of *orsa* are represented by microscopically short and fine hairs. *Vti* always shorter and weaker than *orss*, *pvt*, and *vte* pairs; in several species *vti* pair only as long and fine as the strongest of *orsa* pairs.

Pedicel of antennae always with inner keel (*Telostylini* keel). Postpedicel compressed, oval to long oval, narrowing into a wide, rounded apex. Arista short pubescent.

Thorax longer than wide or high, and considerably higher than wide. Mesonotum mostly vittate. Pleurae in some species entirely or mostly dark brown, bordered with a yellow vitta from superior region of postpronotum (humeral lobe) to wing base, which nearly always turns downward, sometimes reaching mesocoxa; in other species, pale, testaceous-yellow pleurae are marked with two dark-brown bands. Oblique anterior band extends from inferior region of postpronotum to procoxa, posterior band transverse, extending usually from mediotergite to metacoxa. Bands may be abbreviated or disrupted and represented only by isolated dark markings. Only one *npl*, one *sc* apical, and one *dc*, prescutellar, pair of thoracic bristles are present in all known species; there are also a *prpl*, a *sa*, and *pa* pair present. *Ia*, *mpl*, and *st* bristles always absent.

On fore legs, tibiae approximately as long as femora (table 2). On mid-legs, femora always slightly longer than tibiae. On hind legs, femora conspicuously longer than tibiae. No variability in number of tibial spurs; spur of fore tibiae absent in all four examined species (0:1:1). Tibiae always considerably longer than corresponding tarsi. Basitarsi usually slightly longer than rest of corresponding tarsi.

Antenna: Scape usually testaceous yellow to yellowish brown with dark-brown to blackish-brown, roundish, apicodorsal spot; pedicel mostly brownish yellow, postpedicel reddish yellow with dorsal and apical margins infusate but, in some dark specimens from Palau Is., almost entirely blackish brown, with only the basal region of its inner side reddish yellow. Scape 0.18-0.25 mm., pedicel 0.34-0.57 (body 0.16-0.38, "inner process" 0.18-0.19) mm. long. Postpedicel elongate oval, 0.34-0.57 mm. long and 0.20-0.30 mm. wide, 1.7-1.9 times as long as wide. Thickened basal joints of arista yellowish brown to blackish brown; arista white and rather densely white pubescent, only its apical one-fourth to one-third dark brown and sparsely dark brown pubescent; pubescence short and shining.

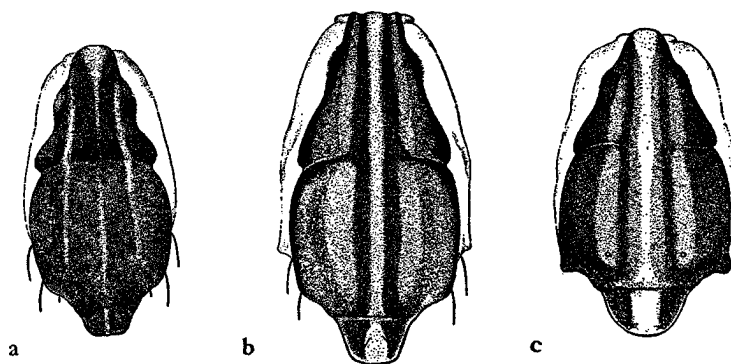


FIGURE 1.—Dorsal view of mesonotum: a, *Telostylinus gressitti*; b, *T. longicoxa*; c, *T. ponapensis*.

Head bristles: Shining black, one or two short, fine, erect, hair-like *orsa*, posterior pair and *vti* pair subequal, anterior pair, if present, microscopically small; one erect and slightly divergent *orss*; one erect, convergent, and crossing *pvt*; and one divergent *vte*, all nearly equal in length. Some short and inconspicuous *occe* bristles present.

Thorax: 1.6-2.2 mm. long, 0.93-1.18 mm. wide, and 1.36-1.77 mm. high. Mesonotum usually dark brown (except for lateral sides, which are as testaceous yellow as pleura) with three, fine, linear, yellowish vittae: a median one mostly interrupted at transverse suture and inconspicuous or absent behind suture; and a pair of lateral vittae on dorso-central line which do not reach anterior margin of mesonotum. In some specimens, the mesonotum is paler in color, yellowish brown, with two pairs of narrow, dark-brown vittae as well as the mentioned yellowish ones, the closely placed, nearly coherent, median pair, and a less conspicuous and less dark lateral pair on both sides of mesonotum. Pleurae pale testaceous yellow; the usual two dark-brown pleural bands in this species and in *T. longicoxa* disrupted and represented only by some brown to dark-brown markings. It is characteristic of this species that the inferior region of the inferior pleurotergite is always brown to blackish brown and that the subalifer sclerite on the pteropleuron (anepimeron) at the wing base and superior pleurotergite are pale yellow; however, in some dark specimens from Palau, the dark-brown spot of the inferior pleurotergite may extend over a narrow adjacent region of the superior pleurotergite. Mediotergite brown to dark brown.

Legs: Coxae pale testaceous yellow as pleurae. Coloration of femora unusually variable in this species; femora generally testaceous yellow to yellowish brown, each with dark-brown to blackish-brown tip and a narrow distomedian ring. Dark specimens from the Palau Is. have mostly brown femora with a broad, yellow subapical ring, situated between the blackish-brown tip and distomedian ring. Specimens from Faraulep and Ifaluk Atolls have testaceous-yellow femora with dark-brown, distomedian ring pale and

inconspicuous or entirely absent and with tip slightly infusate. (Palau specimens are generally darker colored, with larger and darker pleural markings, than the specimens from other islands, but the structural characters do not vary.) Tibiae yellowish brown to dark brown with darker tip, tarsi blackish brown. Tibial spurs as in all Micronesian species 0:1:1. Fore coxa in some specimens with the usual two dorsoapical bristles, in other specimens with one to five short, spine-like, black, dorsal bristles. Fore femora as

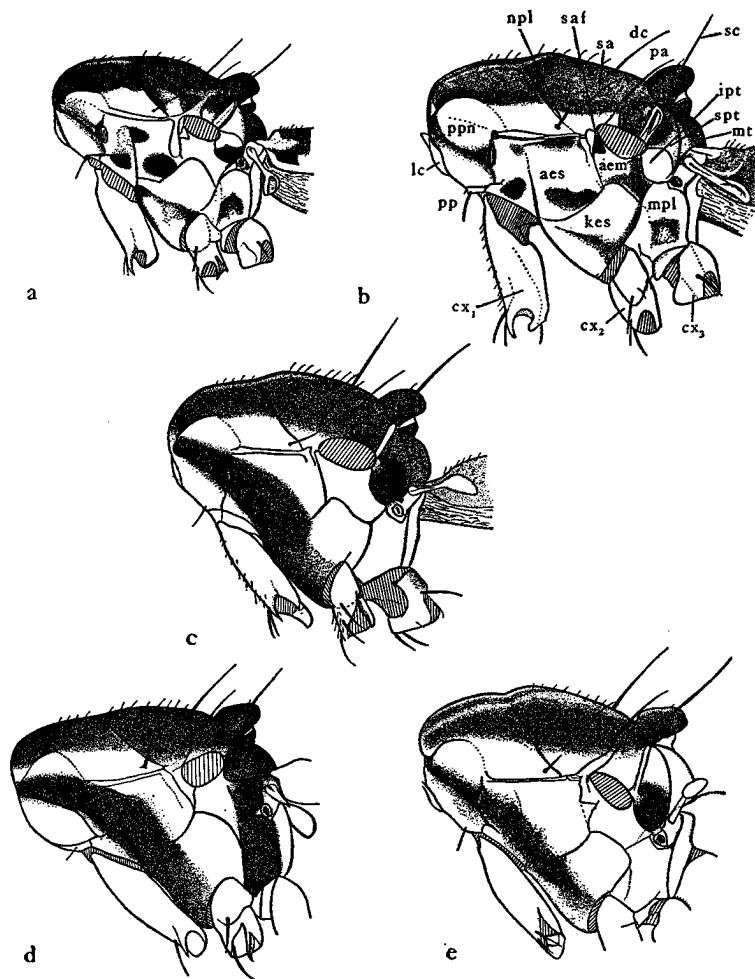


FIGURE 2.—Lateral view of thorax: a, *Telostylinus gressitti*; b, *T. longicoxa*; c, *T. ponapensis*; d, *T. speculator*; e, *T. yapensis*. Abbreviations not previously defined: aem = anepimeron (pteropleuron), aes = anepisternum (mesopleuron), kes = katepisternum (sternopleuron), mpl = meropleurite ("Hypopleuron" part), cx₁ = procoxa, cx₂ = mesocoxa, cx₃ = metacoxa, ipt = inferior pleurotergite, lc = lateral cervical, mt = medio-tergite ("metanotum"), ppt = postpronotum (humeral callus), spt = superior pleurotergite, saf = subalifer sclerite.

It was interesting to find that, within the area of distribution from west to east, the specimens of this species became lighter colored.

2. *Telostylinus longicoxa* (Thomson). (Figures 1, *b*; 2, *b*; 4.)

Nerius longicoxa C. G. Thomson, 1870, Freg. Eugenies Resa, Dipt., 590.

Telostylinus luridus Enderlein, 1922, Archiv Naturgesch. A, Jahrgang 88, 5: 144 (Jaluit, Marshall Is.).

Telostylinus longicoxa Hennig, 1937, Stett. Ent. Zeitung 98: 277.

Male: Body 5.0-9.7 mm. long; wing 3.6-6.1 mm. long and 0.90-1.56 mm. wide, 3.9-4 times longer than wide.

Head: 1.11-2.20 mm. long, 0.75-1.25 mm. wide and 0.63-1.09 mm. high. Male with most elongate head of all the Micronesian forms. Coloration of the head as in *T. gressitti*. Frons at vertex 0.28-0.44 mm. wide. Vertex around ocellar plate covered with faint whitish dusting. Eyes in profile 0.70-1.20 mm. long and 0.51-0.88 mm. high, approximately 1.3 times longer than high, and 3.5 times longer than postcranium (0.20-0.36 mm.). Mouthparts testaceous yellow, labella darker in color.

Antenna: Scape yellowish brown to dark brown; pedicel testaceous yellow to yellowish brown; postpedicel reddish yellow with apical and dorsal margins infuscate. Scape 0.16-0.41 mm. long; body of pedicel in this species usually considerably elongate, 0.28-0.93 (body 0.15-0.66, "inner process" 0.13-0.27) mm. long. Postpedicel 0.34-0.63 mm. long and 0.20-0.36 mm. wide, about 1.7 times as long as broad. Arista white, except for its dark-brown to blackish-brown, shining, basal segments; basal two-thirds densely, apical third sparsely, white pubescent.

Head bristles: Shining black, three or four very short, fine, erect, hair-like *orsa*; *vii* pairs slightly longer and more bristle-like than hind pair of *orsa*; one erect and divergent *orss*, one convergent and crossing *pvv*, one divergent *vte* and *ge*, all subequal in length. Some short and inconspicuous *occe* present.

Thorax: 1.43-2.57 mm. long, 0.82-1.43 mm. wide, and 1.16-1.88 mm. high. Mesonotum yellowish brown to brown with two pairs of darker, brown to dark-brown vittae: One distinct median pair, separated by a whitish-yellow to testaceous-yellow vitta which may be as wide as a dark, bordering vitta, but mostly linear on prescutum and broader on scutum, and never interrupted; lateral pair of dark vittae more indistinct, bordering mesonotum on both sides. Also on mesonotum three narrow, light-colored vittae, the aforementioned median vitta and a testaceous-yellow to yellowish-brown lateral pair, each bordering outer side of median pair of dark vittae. Pleurae pale, testaceous yellow; in place of two usual dark-brown bands, there are only isolated dark markings, similar to those of *T. gressitti*. Characteristic that inferior pleurotergite is always entirely yellow, never marked with a dark spot; conversely, the triangular subalifer sclerite at the wing base on the anepimeron (pteropleuron), and at least superior margin of the superior pleurotergite, brown to dark brown. Mediotergite brown to dark brown, sometimes brown with a dark-brown, median vitta.

Legs: Coxae testaceous yellow; femora testaceous yellow to yellowish brown with darker tips and always without any dark rings. Tibiae dark brown, apices of tibiae and tarsi blackish brown. Fore coxa with the usual two dorsoapical bristles and with one to four short, black, dorsal bristles; fore femora as in *T. gressitti*, with a complete posteroventral row of short, black, obliquely placed spinules. Characteristic that posteroventral hairs in the basal one-third of the hind femora are unusually long; basal third of hind femora in both sexes with conspicuous posteroventral ciliae. Broadest are fore and mid-femora in basal one-third and hind femora near middle.

Wing: Slightly brownish tinged, becoming gradually darker toward costa and wing apex. Dark cloud on tip of R_{2+3} inconspicuous. First costal section 0.09-0.22 mm., second 1.98-3.43 mm., third 0.52-0.75 mm., and fourth 0.11-0.15 mm. long. Prebasal section of M_1 is 0.63-1.25 mm., median (between both cross veins) 0.68-1.04 mm., and ultimate 1.68-2.95 mm. long. *Ta* situated approximately in middle of discoidal cell.

Preabdomen: 1.95-3.48 mm. long and 0.54-1.03 mm. wide; tergites testaceous yellow to reddish yellow, with a narrow median, and two broader lateral, dark-brown vittae; linear posterior margins of second to fifth tergites blackish brown. Lateral membranes and linear sternites yellowish brown.

Postabdomen: Shining testaceous yellow to reddish yellow or yellowish brown, relatively more robust than in *T. gressitti*. 7+8 syntergite 0.57-0.61 mm. long; epandrium 0.70-0.75 mm. long, 0.19-0.25 mm. wide at apex, 0.20-0.31 mm. wide at base; cerci relatively small, slightly shorter than one-half as long as epandrium. Small and linear surstyli relatively long, slightly club-shaped, and completely free.

Female: Like male. Body 5.6-7.3 mm. long; wing 4.1-5.3 mm. long, and 1.2-1.4 mm. wide, 3.4-3.8 times longer than wide.

Head: Considerably shorter than in male, 1.27-1.61 mm. long, 0.95-1.18 mm. wide, and 0.85-1.04 mm. high. Frons at vertex 0.36-0.43 mm. wide. Eyes in profile 0.85-1.03 mm.

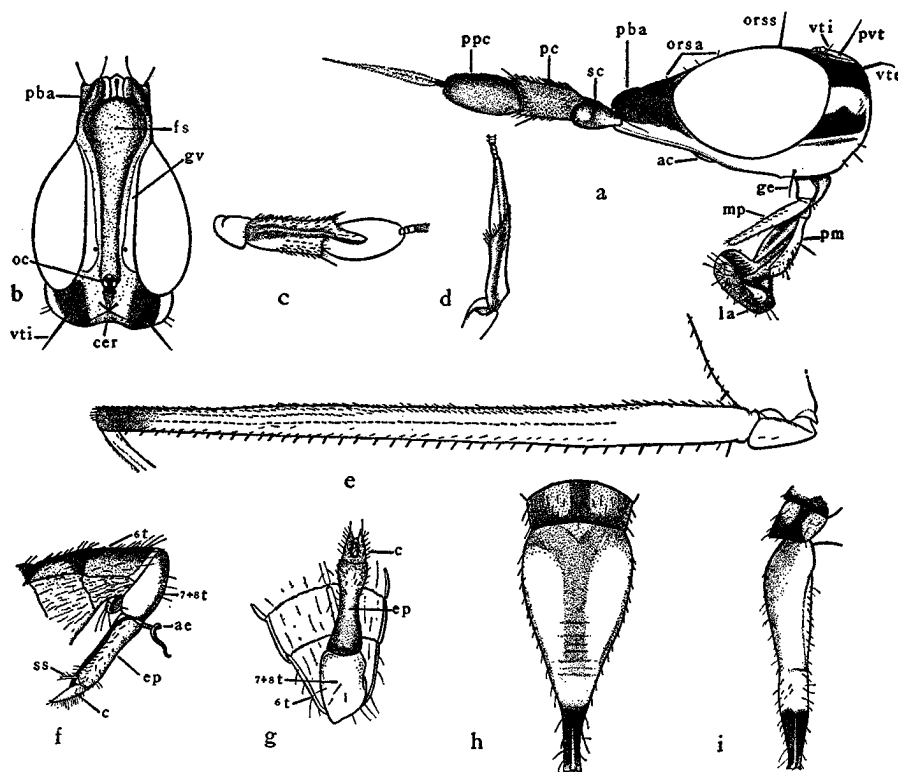


FIGURE 4.—*Telostylinus longicoxa*: a, lateral view of head; b, dorsal view of head; c, interior view of left antenna; d, dorsal view of left antenna (pedicel with *Telostylini* keel); e, posterior view of link fore femur; f, lateral view of male postabdomen; g, dorsal view of male postabdomen; h, dorsal view of oviscapae; i, lateral view of oviscapae. Abbreviations not previously defined: Head, cer = cerebral plate, fs = frontal stripe, gv = genovertical plate, pba = projected base of antennae (part of mf), mp = maxillary palpus, pm = postmentum, la = labella, oc = ocelli. Antennae, pc = pedicel, ppc = postpedicel with arista, sc = scape. Postabdomen, ae = aedeagus (penis + appendages), c = cerci, ep = epandrium, ss = surstyli, 6 t = sixth tergite, 7+8 t = 7+8 syntergite.

Head: Most globose of all Micronesian species, 1.27-1.50 mm. long, 1.16-1.32 mm. wide, and 0.98-1.09 mm. high; pale, testaceous yellow below eye, yellowish to dark brown before eye, continuing behind eye in form of short vitta; between this vitta and the upper, short, broad, dark-brown to blackish-brown vitta, postcranium is dark testaceous yellow. Frons at vertex 0.43-0.52 mm. wide, frontal stripe rich, reddish yellow around ocellar plate, and in most specimens brownish on both sides along wide genovertical plates. Only upper part of postcranium and genovertical plates faintly shining. Vertex around ocellar plate with brownish-white dusting. Eyes in profile 0.85-1.00 mm. long and 0.80-0.86 mm. high, only 1.1 times as long as wide, and 4-5 times longer than postcranium (0.20-0.21 mm.). Mouthparts testaceous yellow; distal half of maxillary palpi more or less conspicuously infusate; labella brown.

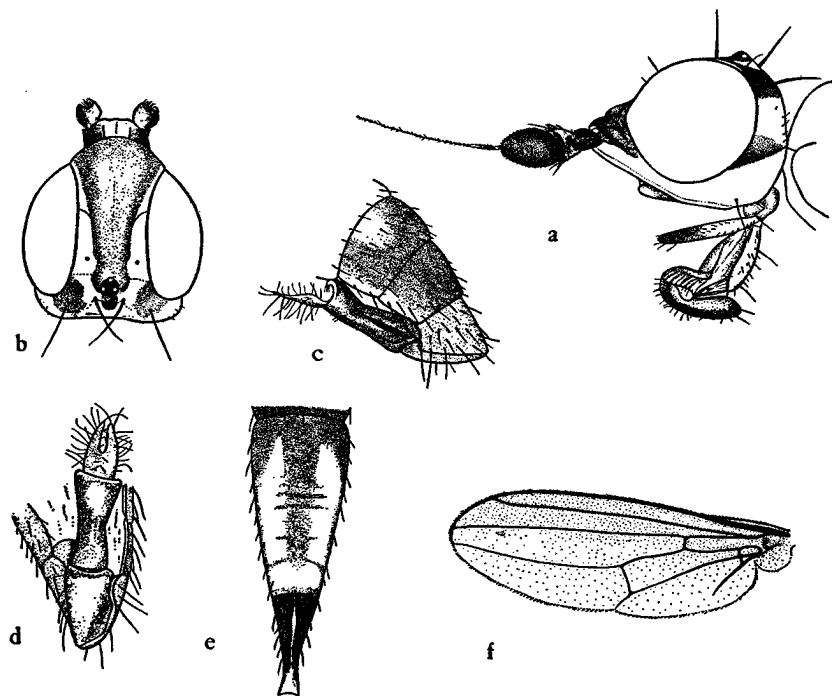


FIGURE 5.—*Telostylinus ponapensis*: a, lateral view of head; b, dorsal view of head; c, lateral view of male postabdomen; d, dorsal view of male postabdomen; e, dorsal view of ov scape; f, wing.

Antenna: Outer side of scape and pedicel brown to dark brown, inner side testaceous yellow; postpedicel oval, dark brown, in some specimens with yellowish basal region. Scape 0.20-0.22 mm., pedicel 0.34-0.36 (body 0.18, "inner process" 0.16-0.18) mm. long; postpedicel 0.41-0.45 mm. long and 0.25-0.30 mm. wide, 1.5-1.6 times longer than wide. Arista dark brown, with short, shining, dark-brown pubescence; thickened basal joints shiny, distad to these short basal section of arista conspicuously paler in color.

Head bristles: Shining black; usually two pairs of short, fine, erect *orsa*, fore pair much weaker, hair-like, hind pair only slightly shorter and weaker than *viti* pair, represented by small but conspicuous bristles; one pair of erect *orss*, one considerably divergent *vite* and a convergent and crossing *pvt*, all subequal in length. Some short *occe* bristles behind eye; *ge* conspicuous.

Thorax: 1.9-2.3 mm. long, 1.25-1.38 mm. wide, and 1.73-1.93 mm. high. Mesonotum laterally dark brown to blackish brown, dorsally yellowish brown with a pair of dark-brown vittae; in median yellowish-brown vitta, testaceous-yellow to whitish-yellow, linear, median vitta which is absent in *T. yapensis*. Scutellum dark to blackish brown, its median third pale yellow. Pleurae pale testaceous yellow, anterior band dark to blackish brown, in this species broader than in *T. yapensis*; posterior dark band abbreviated, not reaching metapleuron; mediotergite yellowish brown to brown, and both pleurotergites dark brown (in some specimens upper half of superior pleurotergite paler, with same coloration as mediotergite). Thoracic bristles shining black.

Legs: Coxae as pale testaceous yellow as pleurae; fore and mid-femora yellowish brown to brown, fore femora at middle and mid-femora distomedianly sometimes slightly and indistinctly paler; tibiae slightly darker than these femora, fore and mid-tibiae and tarsi blackish brown; hind femur in all males examined demonstrate interesting sexual dimorphism, since it is unusually widened and testaceous yellow in color; only a narrow dorsal vitta is yellowish brown to brown like the other femora. Broadest are fore femora at basal fourth, mid-femora at basal third, and hind femora near middle. Fore coxa with usual two dorsoapical bristles and sometimes with an erect stronger hair. Femora unarmed, without spines or spinules.

Wing: Slightly brownish tinged, becoming gradually darker toward costa and wing apex. First costal section 0.18-0.20 mm., second 2.73-2.93 mm., third 0.59-0.61 mm., and fourth 0.18 mm. long. Prebasal section of M_1 0.82-1.00 mm., median 0.88-0.95 mm., and ultimate 2.30-2.41 mm. long. *Ta* situated about middle of discoidal cell.

Preabdomen: 2.1-2.8 mm. long and 1.1-1.2 mm. wide; tergites subshining testaceous yellow to yellowish brown, except for linear median and two broad lateral vittae which are dark brown; posterior margins of second to fourth tergites bordered by narrow, dark-brown to blackish-brown bands; fifth tergite without vittae. Lateral membranes yellowish to reddish brown; sternites linear, paler in color.

Postabdomen: Shining, dark reddish yellow, and relatively large; 7+8 syntergite always shorter (0.48-0.66 mm.) than epandrium, which is 0.77-0.80 mm. long, 0.25-0.34 mm. wide at apex, and 0.25-0.27 mm. wide at base; cerci unusually long and large, nearly two-thirds as long as epandrium. Basal region of surstyli united to apicolateral margins of epandrium (as in African *Chaetoneria apicalis*), but their short tip is free, subglobose.

Female: Like male. Body 5.3-7.6 mm. long, wing 4.3-5.8 mm. long, and 1.3-1.6 mm. wide, 3.3-3.6 times longer than wide.

Head: 1.13-1.59 mm. long, 1.02-1.43 mm. wide and 0.82-1.18 mm. high. Frons at vertex 0.38-0.57 mm. wide. Eyes in profile 0.80-1.02 mm. long and 0.63-0.93 mm. high, only 1.1-1.2 times longer than high, and 4-5 times longer than postcranium (0.20-0.21 mm.).

Antenna: Scape 0.16-0.22 mm., pedicel 0.27-0.40 (body 0.11-0.20, "inner process" 0.16-0.20) mm. long; postpedicel 0.34-0.50 mm. long and 0.20-0.30 mm. wide, approximately 1.7 times longer than wide. *Thorax*: 1.7-2.3 mm. long, 1.11-1.45 mm. wide, and 1.50-2.09 mm. high.

Legs: As in male, but all femora brown, fore femora with nearly median, and mid-femora with broad, distomedian, testaceous-yellow ring; hind femora wider than others but less wide than in male; broadest are fore and mid-femora at basal third and hind femora at middle. *Wing*: Characters as in male; first costal section 0.14-0.18 mm., second 2.43-3.41 mm., third 0.57-0.63 mm., and fourth 0.18-0.22 mm. long. Prebasal section of M_1 0.75-1.04 mm., median 0.82-1.13 mm., and ultimate 1.88-2.63 mm. long. *Preabdomen*: 1.9-2.8 mm. long and 0.8-1.3 mm. wide; coloration and markings as in male but median, linear, dark-brown vitta in many, and wider, lateral vittae in some specimens may be inconspicuous or nearly absent. *Oviscape*: Shining yellowish to reddish brown with narrow, median, dark-brown vitta; adjoining basal region of median part of ovipositor blackish brown.

Ovipositor 1.47-1.63 mm. long and 0.87-1.09 mm. wide, 1.5-1.7 times as long as wide.

HOSTS. Swept from human feces. Adults were taken also in light traps in cut native forest.

Holotype, male (US 64073), Mt. Temwetemwensekir, 180 m., Ponape, Caroline Is., Jan. 17-19, 1953, Gressitt; allotype, female (BISHOP), southeast

MICROPEZIDAE (TYLIDAE)

I was glad to study this material since in this way I had the chance of definitely settling the status of two misinterpreted *Mimegralla* species. There is a large amount of material at hand from Indonesia and New Guinea, kindly supplied by the authorities of the Museum Zoologicum Bogoriense of the Kebun Raya Indonesia, and by Dr. F. Keiser of the Naturhistorisches Museum Basel. Apparently all the former authors overestimated the taxonomic value of the coloration of the antennae, frons, and especially that of the legs, without taking into consideration the more reliable structural characters of the *Mimegralla* species, of which the most important are those of the male postabdomen. The existing morphological characters of some *Mimegralla* are considered first in this paper, and I intend also to settle the status of the other Oriental and Australian species of this genus.

KEY TO THE MICRONESIAN SUBFAMILIES AND TRIBES OF MICROPEZIDAE

1. Frontal stripe mostly spindle-shaped and situated at level of genovertical plates; its anterior region more or less elevated and convex; ocellar plate usually situated in central region of frontal stripe. Antennae widely spaced, maxillary palpi long. Capitulum of halteres involute (folded upward) and spindle-shaped, apparently massive; petiole long and fine. Distal region of fifth sternite always produced into well-developed copulatory fork, which consists of pair of un-inflated, converging, apical processes, and of more or less elongated stalk. On hind margin of katapisternum (sternopleuron), there is dense vertical fan of many long and fine bristle-like hairs, lighter colored than the other shorter and stronger thoracic bristles. Epandrium conspicuously compressed, in cross section U-shaped; surstyli always absent (*Taenipterinae*; type genus: *Taeniptera* Macquart)..... 2
- Frontal stripe mostly vitta-like and usually more or less impressed between genovertical plates. Ocellar plate situated usually at vertex or at least in posterior region of frontal stripe. Antennae closely spaced, maxillary palpi abbreviated, short. Capitulum of halteres depressed and spatulate, only its narrow apical region involute; petiole short. On upper hind margin of katapisternum there are at most only two or three long, fine bristle-like hairs or one or two bristles present. Epandrium never compressed, short subhemispherical to nearly annular; surstyli always present (*Micropezinae*; type genus: *Micropeza* Meigen)..... 3
- 2(1). Anal cell short, the cross vein, Cu_2 which apically closes this cell always shorter than petiole of this cell (type genus: *Taeniptera* Macquart)..... **Taenipterini**
 Anal cell long, Cu_2 at least as long as, but usually considerably longer than, petiole of this cell (Cu_2+An). (Syn. *Grallipezini* Aczél; type genus: *Rainieria* Rondani.)..... **Rainieriini**
- 3(1). Cross vein between second basal (M) and discoidal ($1M_2$) cells, M_3 , always present. Fifth sternite always produced into copulatory fork which may be strongly inflated (Holarctic *Trepidaria* sp.) and stalkless, or with only short stalk between bases of processes, or with more or less elongated stalk. Usually two or three sternopleural bristles and some hairs present, which are long, fine, and hair-like, one placed beneath the other, and lighter colored than the rest of thoracic bristles (type genus: *Trepidaria* Meigen)..... **Trepidariini**

M_3 completely absent. Copulatory fork never inflated, usually with long stalk, but may be absent. Single (or, exceptionally, two) bristle-like, relatively short, sternopleural bristle, which does not differ in color from the other thoracic bristles (type genus: *Micropeza* Meigen).....**Micropezini**

The tentative suggestions concerning the lines of descent and the interrelations of the principal subdivisions of this family, offered in the following discussion, are based upon a comparative study of morphological characters and their biogeographical distribution.

The above key is much more correct than any previous one, including the key I formerly published (Aczél, 1953, *Acta Zool. Lilloana* 11: 488) when I did not know the Oriental and Australian forms of this family. Among the Australian Trepidariini (Tylinae), many forms may be found which are very similar to the Rainieriini (Taeniapterinae) in general aspect, in having a subglobose head with ocellar plate situated near the central region of frons and with an unimpressed frontal stripe, and in having, on hind region of katepisternum, two or three long, fine, hair-like, sternopleural bristles and many shorter hairs, usually yellow to yellowish brown in color, much lighter red than the other thoracic bristles. In the Oriental and Australian Regions, both subfamilies morphologically approach one another so closely that I now retract my former suggestion (Aczél, 1953, *Acta Zool. Lilloana* 11: 512-513; 1954, *Treubia* 22: 507) to separate Taeniapterinae as an independent family of Tanypezidiformes from the Tylidae, in which more primitive characters have survived (plesiomorph) than in the other subfamily (Tylineae). Nevertheless, it may easily be distinguished from Tylineae by the characters given in the key.

On the basis of the comparative morphology, we may assume that long ago the ancestors of the Tylineae were separated from those of the Taeniapterinae in the area of the Oriental and Australian Regions and that these ancestors most probably possessed surstyli and already at that time a short anal cell. The long anal cell of the recent Taeniapterini (dispersed only in the Neotropical and Ethiopian Regions) is undoubtedly a plesiomorph (primitive) character which existed in the ancestors of this family long before the segregation of both subfamilies. The principal evolutionary tendencies in this family lead apparently in the following directions: The head becomes less globose and the frontal stripe impressed; the antennae become more closely spaced and the maxillary palpi shorter; the dense vertical fan of sternopleural bristle-like hairs becomes gradually sparser until only the one to two upper ones remain; the halteres become gradually less massive looking, more depressed and spatulate; the *pvt*, fore pair of *npl*, and the *dc*, except the prescutellar pair, become reduced and have already disappeared in most groups; the long anal cell becomes gradually shorter and narrower, the converging third and fourth veins tend to unite before attaining the apex of wing; the complete transverse suture tends to be interrupted in the central region of mesonotum; the head and fore region of the thorax tend to be more elongate, et cetera.

Table 3.—Length of Leg (mm.) in Micronesian Micropezidae

	FORE LEG		MID LEG		HIND LEG	
	Femur	Tibia (Basitarsus)	Femur	Tibia (Basitarsus)	Femur	Tibia (Basitarsus)
<i>Mimegralla</i> (<i>Mimegralla</i>) <i>albimana</i>						
Male	2.27-2.95	2.27-3.00	4.85-6.32	4.88-6.38	5.59-6.98	6.09-8.41
Female	2.11-2.77	2.25-3.09	4.54-5.91	4.70-5.68	5.50-6.73	6.07-7.50
<i>M. (M.) contraria</i>						
Male	2.68-2.77	2.68-3.00	5.41-5.80	5.82-6.25	6.04-6.59	7.00-7.95
Female	2.25-2.77	2.32-3.09	5.00-5.75	4.88-6.25	5.11-6.81	6.07-7.95
<i>M. (Steykalia) perfulva</i>						
Male	2.20-2.43	2.20-2.40	5.38-6.41	6.13-7.07	6.27-6.88	4.73-7.95
Female	2.68	2.61-2.70	6.20-7.00	7.04-7.41	7.07-7.77	8.25-8.45
<i>M. (Townesa) spinosa</i>						
Male	2.54-3.75	2.38-3.38	5.04-8.13	5.48-8.81	5.77-8.75	6.59-10.44
Female	2.77-2.80	2.68-2.77	5.98-6.16	6.50	6.84-6.86	7.91
<i>Rainieria boninensis</i>						
Female	2.61	2.77	6.00	6.41	7.43	8.20
<i>Crosa yapensis</i>						
Male	2.11-2.41	2.09-2.11	4.75-4.86	4.50-4.70	4.50-4.52	4.45-4.70
Female	1.68-1.77	1.68-1.80	3.80-4.32	3.80-4.34	3.66-4.13	3.77-4.16

brass-yellow shine. Apex of copulatory fork in lateral view curved conspicuously downward; stalk approximately as long as forceps; oviscape very short, only 1.2 times longer than wide.....*albimana*
 Antennae reddish brown to dark brown, apical region of maxillary palpi always blackish brown. Posterior region of anepisternum dusted dark brown, with reddish-brown luster. Copulatory fork in lateral view straight; stalk conspicuously longer than forceps. Oviscape elongated oval, 1.6-1.7 times longer than wide.....*contraria*

The genus *Tanypomylia* was described by Verbeke (1955) with *Tanypada venusta* Enderlein (1922) designated as type for the *Mimegralla* species with postvertical bristles. However, I consider this genus and *Townesa* Steyskal (1952) as only subgenera since they differ from the typical subgenus *Mimegralla* in only a single important (generic) character.

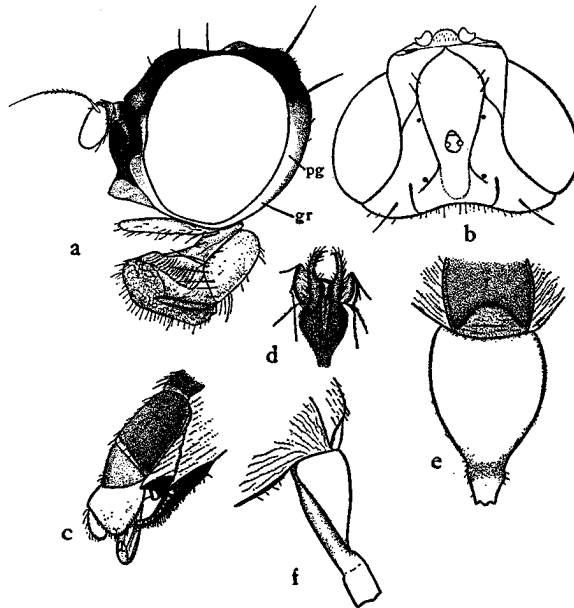


FIGURE 7.—*Mimegralla* (*M.*) *albimana*: a, lateral view of male head; b, dorsal view of male head; c, lateral view of male postabdomen; d, dorsal view of copulatory fork (fifth sternite); e, dorsal view of oviscape; f, lateral view of oviscape. Abbreviations not previously defined: pg = postgena, gr = gular region.

Subgenus *Mimegralla* Rondani

1. *Mimegralla* (*Mimegralla*) *albimana* (Doleschall). (Figure 7.)
Taenioptera albimana Doleschall, 1856, Nat. Tijd. Ned. Ind. 10: 413, pl. X, fig. 4.
Calobata longiventris C. G. Thomson, 1870, Freg. Eugenies Resa, Dipt., 589.

DISTRIBUTION. Malacca, Java, Riouw Archipelago, Borneo, Philippine Is., Ryukyu Is., western Micronesia.

S. MARIANA IS. SAIPAN: Thirteen (BISHOP, KU), Jan. 1945, Hagen; Dec. 1944, Edgar; Donni, Feb. 1936, Esaki; Garapan, Jan. 1938, Aoki; Garapan-Sadog-Tasi and Fanaganan (Fanagam), May 1940, Yasumatsu and Yoshimura; Garapan, Apr. 1946, Krauss; southern part, near Garapan, and As Mahetog area, Dec. 1944, Dybas. GUAM: Eleven (BISHOP), Fullaway (one specimen determined as *Calobata galbula* Osten-Sacken, by Swezey); Agat and Mt. Alifan, Apr. 1946, and Aug. 1952, Krauss; Pilgo River and Pt. Oca, May-June 1945, Bohart and Gressitt.

PALAU. NGAIANGL (Kayangel): Eight, Dec. 1952, Gressitt; Aug. 1956, McDaniel; May 1957, Sabrosky. BABELTHUAP: 27 specimens, Ngerehelong, May 1957, Sabrosky; Ulimang, Dec. 1957, Dybas; Ngiwal, May 1957, Sabrosky; Ngardok, May 1957, Sabrosky; Ngaremlengui, June 1957, Sabrosky; Emertao, Feb. 1938, Esaki; Melekeiok, May 1957, Sabrosky; Imeliik, Netkeng, June 1957, Sabrosky; Iwang, 8 m., Dec. 1952, Gressitt; Airai, Ngarung, May 1957, Sabrosky. KOROR: 30 specimens, Jan. 1938, Esaki (one female determined as *Mimegralla albimana palauensis* Hennig, by Esaki); Apr.-May 1957, two on foliage of Malay apple, low limestone ridge, Apr. 1957, Sabrosky. MALAKAL: One, May 1957, Sabrosky. ULEBSEHEL: Three, Auluptagel (Aurapushekaru), Sept. 1952, Krauss. PELELIU: North end, one, May 1957, Sabrosky. ANGAUR: One, Aug. 1945, Ducoff.

YAP. YAP: Thirty-eight (BISHOP, KU), Aug., Oct. 1952, Krauss; Mar. 1954, Beardsley; hill beyond Yaptown, 50 m., and Mt. Mataade, 60 m., Dec. 1952, Gressitt; Dugor-Kanif-Ruul, Sept. 1939, Esaki; three females, one male, Gagil, Gachapar, June 1957, Sabrosky; female, male, Ruul, June 1957, Sabrosky; five females, three males, Giliman, June 1957, Sabrosky. MAP: Three females, one male, Chol, June 1957, Sabrosky.

CAROLINE ATOLLS (BISHOP). ULITHI: One, Falalop I., Aug. 1952, Beardsley. FAIS: One, Oct. 1952, Krauss. SOROL: One, Oct. 1952, Krauss. WOLEAI: Two, Falalis I., and Utage I., Feb. 1953, Beardsley. FARAULEP: Nine, Faraulep I. and Pigue I., Sept. 1952, Krauss; Falaulep I., Feb. 1953, Beardsley. IFALUK: Two, Ifaluk I., Dec. 1953, Bates. ELATO: Four, Elato I., Feb. 1953, Beardsley. NOMWIN: One, Nomwin I., Feb. 1954, Beardsley. NAMA: One, Nama I., Oct. 1952, Beardsley. KAPINGAMARANGI: Ringutoru I., and Nunukita I., Aug. 1954, Niering.

TRUK (BISHOP, KU). TON (Tol): Four, Mt. Unibot, 180 m., Feb. 1953, Gressitt; Pata, Sabote-Epin, Apr. 1940, Yasumatsu and Yoshimura. WENA (Moen): One, Mt. Chukumong (Teroken), 70-80 m., Feb. 1953, Gressitt. TONOAS (Dublon): Etten (Toloas-Erin), Nov. 1937, Esaki; Oct. 1952, Beardsley.

This is a well-characterized species which may easily be separated from the closely related species by constant structural characters. *Mimegralla contraria* and *M. albitarsis* are independent species and by no means geographical subspecies of *albimana* or *leucopeza*. There were no structural characters by which the examined Micronesian specimens might be separated from the Indonesian specimens on hand (from Java and Riouw Archipelago) or from the Palau specimens. The Palau specimens, with usually more reddish femora, represent only a color variation. The Micronesian specimens in general are slightly darker and have the basal region of the fore basitarsi slightly more extensively black than in the examined Indonesian specimens. Because there are some *albimana* specimens in the Micronesian material with conspicuous shining brass-yellow markings on the thorax, it appears very probable that the *Calobata galbula* Osten-Sacken is also only a color variety of *albimana*. However, I do not desire to establish a synonymy before studying more material of *galbula* specimens from the Philippine Islands.

2. *Mimegralla (Mimegralla) contraria* (Walker). (Figure 8.)

Calobata contraria Walker, 1861, Linn. Soc. London, Proc. 5: 253.—Enderlein, 1922, Archiv Naturgesch. A, Jahrgang 88, 5: 185.

Calobata albimana, Osten-Sacken, 1880, Mus. Civ. Stor. Nat. Genoa, Ann. 14: 454 (part).—de Meijere, 1909, Nova Guinea 9: 362.

Calobata bürgersi Enderlein, 1922, Archiv Naturgesch. A, Jahrgang 88, 5: 184.

Calobata diffundens, Enderlein (*nec* Walker), 1922, Archiv Naturgesch. A, Jahrgang 88, 5: 183.

Calobata impingens Enderlein, 1922, Archiv Naturgesch. A, Jahrgang 88, 5: 183 (part).

Mimegralla contraria albimana, Hennig, 1935, Konowia 14: 201-202.—Steyskal, 1952, U. S. Nat. Mus., Proc. 102 (3294): 166.

Mimegralla ponapensis Hennig, 1935, Konowia 14: 207 (n. syn.).

Mimegralla ponapensis ponapensis, Steyskal, 1952, U. S. Nat. Mus., Proc. 102 (3294): 170.

Mimegralla ponapensis kusaieana Steyskal, 1952, U. S. Nat. Mus., Proc. 102 (3294): 170 (n. syn.).

Male: Body 10.2-11.3 mm. long; wing 7.6-7.9 mm. long and 2.1 mm. wide, 3.6-3.8 times longer than wide.

Head: Subglobose, 1.36-1.43 mm. long, 1.88-2.11 mm. wide and 1.25-1.50 mm. high, approximately as long as high; ground color dark brown to brown black, except testaceous-yellow parafacial plates (facial orbits) before eyes, anterior region of frons, and upper region of mesofacial plate between antennae, which are yellowish brown to dark reddish yellow [in *M. albitarsis* (Wiedemann) it is usually considerably lighter testaceous yellow]. Frontal stripe dull, velvety black, sericeous around ocellar plate with whitish-brown shimmer; cerebral plate with aeneous luster, and the densely dark-brown dusted postgenae (region behind eyes) with only faint greasy luster. Only inferior (gular) region of postcranium is as whitish sericeous as the facial orbits in front of eyes and linear genae, which

1.23-1.57 mm. long, 1.73-2.32 mm. wide, and 1.25-1.66 mm. high. Frons at vertex 0.73-0.93 mm. wide. Eyes in profile 0.88-1.20 mm. long and 1.09-1.50 mm. high, approximately 1.2 times as high as long and 6-8 times longer than postcranium (0.14 mm.). *Antenna*: Postpedicel 0.36-0.38 mm. long and 0.25-0.29 mm. wide, 1.3-1.4 times longer than wide. *Thorax*: 2.5-3.6 mm. long, 1.5-1.9 mm. wide, and 2.0-2.7 mm. high. *Legs and wing*: As in male; first costal section 0.32-0.52 mm., second 2.98-4.20 mm., third 1.30-1.77 mm., and fourth 0.07-0.13 mm. long. Prebasal section of M_1 is 1.52-2.04 mm., median 1.59-1.95 mm., and ultimate 2.11-2.93 mm. long. Cu_2 of anal cell 0.36-0.47 mm., petiole 0.68-1.02 mm. long. *Preabdomen*: 3.9-5.3 mm. long and 0.80-1.07 mm. wide; posterior margin of sixth tergite without conspicuous membranous area. *Oviscape*: Subshining dark brown to brownish black, tip and adjacent median part of ovipositor reddish yellow; ovate and depressed, 1.41-1.86 mm. long and 0.86-1.11 mm. wide, relatively considerably longer than in *M. albimana*, 1.6-1.7 times as long as wide.

HOSTS: Adults were taken sweeping, and were seen congregating on dead giant snails.

DISTRIBUTION. Sumba Is., New Guinea, Ponape, Kusaie, and eastern Caroline Atolls. If *contraria* is synonym of *sepsoides*, which is most probable, Celebes, Halmahera, Amboina, Aru Is., and Ternate complete the area of distribution of the species.

PONAPE. Twenty-one (BISHOP, KU, Wheeler coll.), Colonia, July 1949, Owen and Glassmann, Aug. 1956, Wheeler; Madolenihm (Metalanum), Nov. 1953, Beardsley; Nanpohnmal, Jan. 1953, Gressitt; Mt. Temwetemwen-sekir, 180 m., Jan. 1953, Gressitt; Rohnkiti-One, Colonia-Sankakuyama, Colonia-Palikir, Palikir-Rohnkiti, July 1939 (determined as *M. ponapensis* Hennig, by Esaki, 1944), Nihpit-Kapiro-i-Lehdau (Reitao), Lehdau (Reitao-Ona-U), July 1939, Colonia-Net, Nov. 1939, all Esaki.

KUSAIE. Seventeen (BISHOP, KU), July 1949, Owen; Mwot (Inshappu), Jan., Mt. Wakapp, Jan., and Mt. Fuinkol (Fenkol), Lele I., Jan. 1936, Ono; Mutunlik, 22 m., Jan. 1953, Inmen River, 60 m., Jan. 1953, Mwot, Apr. 1953, and Sensrik, 1 m., Apr. 1953, all Clarke; Mt. Fuinkol (Fenkol), 300 m., Jan. 1953, Gressitt; Malem, Lele, and Tafunsak-Mwot, Dec. 1937, all Esaki.

CAROLINE ATOLLS. **MOKIL**: Six (BISHOP), Mokil I., July 1948, Owen; Jan. 1953, Gressitt; Mokil (Kalap) I., July 1949, Owen. **PINGELAP**: One, July 1949, Owen.

This is another well-characterized species, which may easily be distinguished from the allied species by constant structural characters. There were no morphological characters by which the examined Micronesian specimens could be separated from the Indonesian (Sumba Islands) and from the New Guinea specimens at hand. Among the specimens collected from diverse areas, however, a certain variation in the coloration of postpedicel, anterior region of frons and mesofacial plate, and of the legs could be noted. The coloration of the legs in the Micronesian specimens is in general considerably darker than in the Indonesian (Sumba Islands) and New Guinea specimens, while, on the contrary, the anterior region of frons and upper region of mesofacial plate between antennae in the Micronesian specimens is much lighter-colored (reddish

yellow to yellowish red) than in the New Guinea specimens, or those from the Sumba Islands; many of the New Guinea specimens have the anterior region of the frons and the upper region of mesofacial plate between antennae dark brown or but slightly yellowish tinged, whereas all specimens examined from Sumba have the anterior region of frons dark brown or only slightly yellowish tinged, but the upper region of the mesofacial plate yellowish red. The dorso-apical half of the postpedicel in the Micronesian and New Guinea specimens was dark brown, in general darker in the Micronesian specimens, whereas in the specimens from Sumba the antennae were as bright reddish yellow as in *M. albimana*. This specimen might be identified by Hennig's key only as *Mimegralla albimana sepsoides* (Walker).

I am convinced that *Calobata contraria* Walker (1861) is only a synonym of *C. sepsoides* Walker (1859), known to be distributed just between Sumba and New Guinea. The latter name would be the valid name of this species; nevertheless, I do not desire to establish definitely this synonymy without first studying corresponding material from the known area of distribution of "*Mimegralla albimana sepsoides* (Walker)."

The Micronesian specimens of this species, with anterior region of frons yellowish red, could only be identified by Hennig's key (1935, Konowia 14: 83-89) as "*Mimegralla leucopeza albitarsis*." However, the specimens of *M. albitarsis* (Wiedemann, 1819) may easily be separated from the specimens of *contraria* by constant morphological characters.

Subgenus *Steyskalia* Aczél, new subgenus

Body testaceous yellow to brown. Head considerably depressed, frontal stripe flat, in level of the genovertebral plates, dull yellowish red and sericeous with silvery-yellow luster. Eyes in profile transverse oval, slightly longer than high. Frons one-half as wide as total width of head, or slightly less wide. On thorax only hind pair of *npl* is present. Wing uniformly light brown, tinged hyaline, R_{2+3} ending approximately above basal third to middle of ultimate section of M_1 . Anal cell narrow, Cu_2 one-half as long as petiole of cell. Stalk (undivided basal part) of copulatory fork approximately only one-third as long as apical forceps.

Type: *Mimegralla perfulva* Steyskal, by present designation.

This subgenus is endemic in Ponape.

The subgenus differs from all known subgenera and species of *Mimegralla* in having a single pair of *npl* bristles, the body brownish yellow to brown, the anterior region of frontal stripe flat and not convex, and the frons relatively narrow.

3. *Mimegralla* (*Steyskalia*) *perfulva* Steyskal (fig. 9).

Mimegralla perfulva Steyskal, 1952, U. S. Nat. Mus., Proc. 102 (3294): 169.

Male: Body 7.4-8.1 mm. long; wing 6.7 mm. long and 1.4 mm. wide, conspicuously narrow, 4.8 times longer than wide.

Head: Testaceous yellow to yellowish red brown, considerably depressed dorso-ventrally, 1.16-1.25 mm. long, 1.42-1.52 mm. wide and 0.86-0.98 mm. high; genae, inferior (gular) region of postcranium, and facial orbits in front of eyes testaceous yellow and sericeous with silvery-white luster; mesofacial plate between dark brown, shining, antennal foveae as testaceous yellow to reddish yellow as aforementioned regions and anterior border of frons, but without sericeous-silvery pruinosity. Superior region of postcranium (postgenae, cerebral plate) and genovertical plates yellowish red brown, subshining; frontal stripe dull yellowish red, sericeous with silvery-yellow luster, entirely flat, situated on level with genovertical plates; ocellar plate black among the bright yellow ocelli. Frons at vertex only 0.54-0.57 mm. wide, as wide as one-half of total width of head, or slightly less wide. Eyes in profile transverse oval, slightly but conspicuously longer (0.85-0.95 mm.) than high (0.72-0.82 mm.). Mouthparts testaceous yellow to reddish yellow, anteclypeus shining, prementum subshining. Apex of maxillary palpi brownish black.

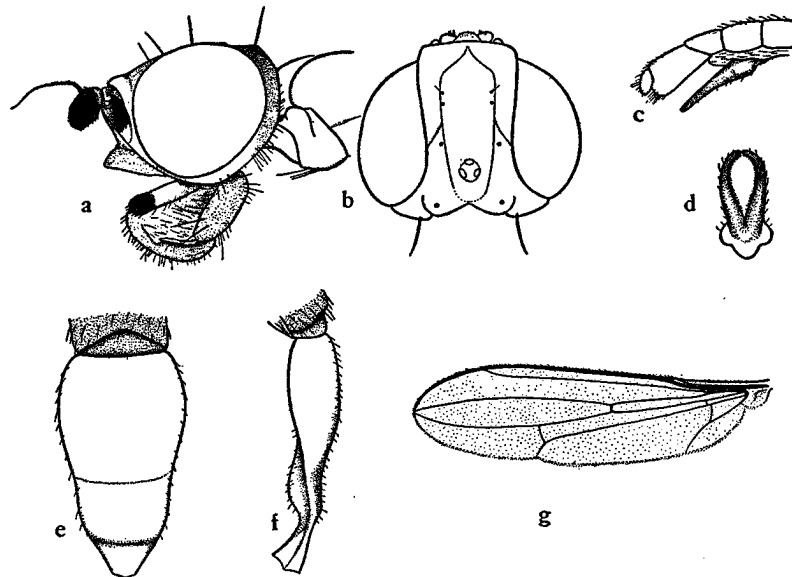


FIGURE 9.—*Mimegralla (Steyskalia) perfulva*: a, lateral view of female head; b, dorsal view of female head; c, lateral view of male postabdomen; d, dorsal view of copulatory fork; e, dorsal view of oviscape; f, lateral view of oviscape; g, wing.

Antenna: Scape, pedicel and narrow basal region of brownish-black postpedicel brownish yellow to reddish yellow. Postpedicel oval, 0.32-0.34 mm. long and 0.23 mm. wide, approximately 1.4 times as long as wide. Arista testaceous yellow, sparsely pubescent, pubescence short and fine.

Cephalic bristles: Shining black; two erect and well-developed *orsa*, posterior nearly as long as the *orss*, anterior much shorter and weaker; *vii* and *vie* bristles subequal and longer than aforementioned pairs; *pvi* and *ge* always absent.

Thorax: 2.7-2.8 mm. long, 1.2 mm. wide and 1.6-1.8 mm. high; pleurae brownish yellow, pleurotergites and mediotergite mostly darker; mesonotum and scutellum chiefly yellowish brown with pair of testaceous yellow, broad, lateral vittae. **Thoracic bristles:** Relatively short, black, and shining, subequal, only divergent *sc* pair considerably, and the *dc* pair slightly, longer than others; single *npl* present; *st* bristle-like hairs yellow with golden shine; two to three fine, brown *pp* with golden shine.

Legs: Coxae and femora testaceous yellow, tips of femora black; each femur with inconspicuous, brownish, distomedian ring, which in some specimens may be absent. Tibiae yellowish brown to dark brown, more yellowish toward the bases and blackish at their tips; tarsi dark brown to blackish brown, fore tarsi darker than mid- and hind tarsi, except apical one-half to two-thirds of basitarsi and entire second segment which are pale yellow.

Wing: Hyaline, uniformly light-brownish tinged, and relatively narrow; R_{2+3} ending approximately above basal one-third to middle of ultimate section of M_1 , or slightly proximal. First costal section 0.57 mm., second 2.85 mm., third 1.32 mm., and fourth 0.07 mm. long; prebasal section of M_1 1.50 mm., median 1.70 mm., and ultimate 2.02 mm. long; ultimate section 1.5 times longer than third costal section. Second costal section 2.2 times longer than third. Anal cell narrow, Cu_2 one-half as long (0.36 mm.) as petiole of cell (0.73 mm.). *Haltere:* Brownish yellow, knob (capitulum) yellowish brown.

Preabdomen: Long and linear, 4.0 mm. long and 0.85 mm. wide; tergites dark brown, subshining, first tergite and narrow lateral regions of others paler; first tergite with long, fine, erect, shining, golden-yellow hairs; other tergites covered with short, fine, appressed black hairs. Sternites testaceous yellow, subshining; fifth sternite produced into simple, testaceous yellow copulatory fork; 0.98 mm. long, with short stalk (0.41 mm. wide) nearly one-third as long as apical forceps (0.34 mm. wide); apical one-third to one-half of this copulatory fork brownish in color.

Postabdomen: Testaceous yellow to yellowish brown. Characteristic of this species that 7+8 syntergite (measured dorsally) always considerably shorter (0.32 mm.) than long, relatively narrow epandrium (0.50 mm.); aedeagus reddish yellow, partly shining.

Female: Like male, body 9.1-9.2 mm. long; wing 7.5 mm. long and 1.9-2.0 mm. wide, 3.5-3.9 times longer than wide, relatively much broader than in male.

Head: 1.54 mm. long, 1.77-1.82 mm. wide, and 1.18-1.20 mm. high. Frons at vertex 0.68 mm. wide. Eyes in profile 1.13-1.18 mm. long and 1.02-1.04 mm. high. *Antenna:* Postpedicel 0.36 mm. long and 0.23-0.25 mm. wide, 1.4 times longer than wide. *Thorax:* 3.3-3.5 mm. long, 1.7-1.8 mm. wide and 2.3 mm. high. *Legs and wing:* As in male; first costal section 0.37-0.45 mm., second 3.75-3.77 mm., third 1.63-1.75 mm. long; prebasal section of M_1 is 1.93-2.04 mm., median 1.70 mm., and ultimate 2.45-2.50 mm. long; Cu_2 0.38-0.45 mm., petiole of anal cell 0.61-0.75 mm. long. *Preabdomen:* 4.3-4.4 mm. long and 1.09-1.13 mm. wide. *Oviscape:* Entirely shining, brownish yellow with reddish tinge, depressed and elongate oval, 1.93-1.98 mm. long and 1.02-1.04 mm. wide, 1.8-1.9 times longer than wide.

DISTRIBUTION: Endemic in Ponape.

PONAPE. Seven specimens (BISHOP, KU), Mt. Temwetemwensekir, slope 150-450 m., Mar. 1948, and Nanipil, Net district, Feb. 1948, Dybas; Nanipil-Nanpohmmal, 65 m., Jan. 1953, Gressitt; Nanipil (Nanpir)-Sankaku Yama, Jan. 1938, and Nihpit, July 1939, Esaki.

Steyskal stated that this species, since it runs in Hennig's key to *Mimegralla leucopeza*, may be a subspecies of that form. However, it is certain that *M. perfulva*, which by a series of outstanding characters is easily distinguishable from all other known *Mimegralla* species, has an isolated situation in this genus, deserving the erection of a separate subgenus for it. *Mimegralla albitalarsis* (Wiedemann, 1819) is closely related to *M. albimana* and *C. contraria* and widespread in the Oriental Region from Tonkin and Siam throughout the Indonesian islands to the Philippine Islands. *Mimegralla leucopeza* (Wiedemann, 1824), described from Burma, is unknown to me; perhaps it represents an independent species.

Subgenus *Townesa* Steyskal

Townesa Steyskal, 1952, U. S. Nat. Mus., Proc. 102 (3294) : 171-172.

Head subglobose, postvertical bristles absent. Thorax always with two pairs of *npl*. Wing hyaline, without transverse bands. Tips of third and fourth veins never united before attaining apex of wing.

Type: *Townesa spinosa* Steyskal.

This subgenus is endemic in Kusaie (eastern Caroline Is.).

The typical species of *Townesa*, which were considered by Steyskal as a genus, have the same general morphological characters as the *Mimegralla* species with the exception that conspicuous anteroventral and posteroventral bristles are present on the fore femora of both sexes, which is a rather unusual character in the subfamily Taeniapterinae. I cannot, however, accept *Townesa* as a distinct genus on the basis of a single important morphological character, but only as a subgenus of *Mimegralla*. Evidently in this case, it is only a specific character that the basal one-half to two-thirds of the arista is "distinctly and abundantly short" pubescent, since this pubescence is present in all examined *Mimegralla* species; but it is usually more or less shorter or finer and more inconspicuous than in *spinosa*.

The present subgenus as accepted herein may be easily distinguished from all others as indicated in the key to subgenera and species. The type species resembles *albimana* and *contraria* in most respects, but the fore tarsi lack white-colored parts.

4. *Mimegralla* (*Townesa*) *spinosa* (Steyskal), n. comb. (fig. 10).

Townesa spinosa Steyskal, 1952, U. S. Nat. Mus., Proc. 102 (3294) : 172, fig. 72, c-d.

Male: Body 8.0-11.1 mm. long; wing 5.3-7.2 mm. long and 1.4-1.8 mm. wide, 3.8-4.0 times as long as wide.

Head: Subglobose, 1.11-1.59 mm. long, 1.38-1.95 mm. wide and 1.07-1.52 mm. high, almost as high as long and considerably wider than long. Ground color of head dark brown to blackish brown; facial orbits before eyes and mesofacial plate testaceous yellow to yellowish brown, antennal foveae shining; anterior region of frons yellowish brown, lustrous; hind part of genovertical plate and postgenae (of postcranium) with pale bluish shine; cerebral plate covered with brownish dusting and faintly shimmering. Facial orbits, the linear genae and inferior (gular) region of postcranium sericeous, in certain light with silvery-white luster. Frons at vertex 0.52-0.75 mm. wide; approximately half as wide as total cephalic width; frontal stripe not so dull velvety black as in *albimana* and *contraria* but dark brownish gray to bluish black tomentose with faint metallic shimmer. Anterior region of frontal stripe only very slightly convex. Eyes in profile 0.82-1.13 mm. long and 1.00-1.38 mm. high, nearly 1.2 times higher than long and 7-8 times longer than width of postcranium (0.11-0.14 mm.). Mouthparts: Prementum shining, testaceous yellow, labella dark brown, maxillary palpi and anteclypeus yellowish brown to brown, anteclypeus shining.

Antenna: Scape and pedicel yellowish brown to reddish brown, postpedicel dark brown to blackish brown with basal and inferior regions reddish yellow. Postpedicel compressed oval, 0.34-0.41 mm. long and 0.18-0.21 mm. wide, approximately 1.9 times longer than wide. Arista dark brown except thickened, yellowish basal segments, with basal one-half

to two-thirds conspicuously pubescent; this pubescence slightly denser and larger than in other Micronesian species of *Mimegralla*.

Cephalic bristles: Shining black, relatively long; two erect and slightly divergent *orsa*, anterior pair shorter and weaker; one erect and slightly convergent *orss*, slightly longer than hind *orsa* and situated in this species more posteriorly than in others, approximately level with anterior ocelli; one divergent *vti* and one strongly divergent *vte*, nearly equal in length, slightly longer than the *orss*; *pot* and *ge* always absent. On postcranium (inferior region of cerebral plate, postgenae and gular region), erect hairs are relatively longer and more numerous than in other Micronesian *Mimegralla* species; those on gular region longest.

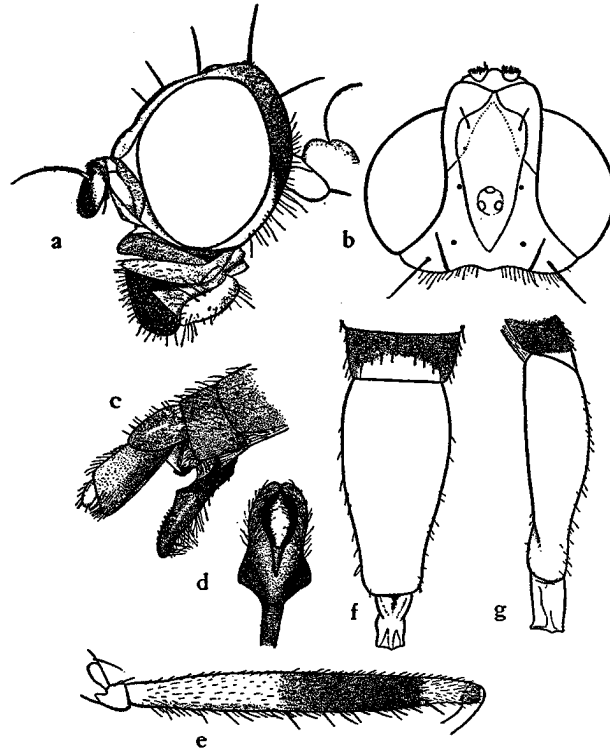


FIGURE 10.—*Mimegralla (Townesa) spinosa*: a, lateral view of male head; b, dorsal view of male head; c, lateral view of male postabdomen; d, dorsal view of copulatory fork; e, posterior view of male right fore femur; f, dorsal view of oviscape; g, lateral view of oviscape.

Thorax: 2.4-3.6 mm. long, 1.1-1.8 mm. wide and 1.3-1.6 mm. high, dark brown to brown in ground color but propleura yellowish tinged; pleurae with greenish metallic luster or shine; mesonotum and superior region of anepisternum (mesopleura) densely, dark brown dusted, mesonotum with pair of metallic, greenish, shimmering, broad sub-lateral vittae, which unite anteriorly on hump.

Thoracic bristles: Black and shining, two *npl*, one *sa*, one *pa*, one *dc*, one *sc*; two to four *pp* and long, fine sternopleural bristle-like hairs dark brown with iridescent luster. Sexual dimorphism in number of *pp*, since females have 10 to 12.

Legs: Coxae and femora testaceous yellow; tips of all femora dark brown to blackish brown, fore femora with large, distomedian, blackish-brown ring while mid- and hind femora with only narrow, indistinct, preapical, brown rings and with more inconspicuous, brownish, distomedian ring or dorsal spot. Fore tibiae and tarsi blackish brown, mid- and hind tibiae and tarsi dark brown, basitarsi with shining, golden-yellow, dense, ventral hairs. Fore femora with eight to 16 conspicuous, black, shining anteroventral and posteroventral bristles.

Wing: Hyaline, nearly evenly yellowish brown tinged; tips of third and fourth veins not united before attaining costa in apex of wing. First costal section 0.38-0.68 mm., second 2.13-3.13 mm., third 1.32-1.63 mm., and fourth 0.04-0.07 mm. long; second costal section 1.6-1.9 times as long as third. Prebasal section of M_1 is 1.36-1.88 mm., median 1.16-1.81 mm., and ultimate 1.59-2.09 mm. long; ultimate section 1.2-1.3 times as long as third costal section. Cu_2 0.32-0.38 mm., petiole (Cu_2+a) 0.41-0.70 mm. long. *Haltere:* Stem pale brown, knob dark brown.

Preabdomen: Long and linear, 4.5-6.7 mm. long and 0.57-0.85 mm. wide. Tergites and sternites dark brown to brownish black, dark brown dusted and faintly lustrous except for shining sixth tergite. First tergite with long, fine, erect, brownish-yellow hairs; other tergites covered with appressed, short, brown-black hairs. Sixth tergite only about one-half as long as fifth. First sternite basally concave, longer than wide, second sternite strongly narrowed toward apex from wide base, third and fourth sternites linear, fifth sternite produced into simple, yellowish-brown, shining copulatory fork which rests on shining, yellowish-brown, crescent-shaped sixth sternite. Copulatory fork relatively large, 0.82-1.04 mm. long, with basal part (0.50-0.52 mm. wide) approximately as long as apical forceps (0.41-0.43 mm. wide).

Postabdomen: Epandrium longer than subconical, shining, yellowish-brown 7+8 syntergite (0.43-0.57 mm.) but dorsally considerably shorter (0.27-0.36 mm.); compressed epandrium yellowish brown to brown, lustrous; cerci yellow. Aedeagus shining, semi-translucent, reddish yellow, knee segment usually surpassing apex of epandrium and nearly always visible below cerci.

Female: Like male; body 8.6-8.9 mm. long (without ovipositor), wing 6.5-7.0 mm. long and 1.9-2.0 mm. wide, 3.4-3.5 times longer than wide. *Head:* 1.50-1.52 mm. long, 1.85-1.88 mm. wide, and 1.36-1.45 mm. high. Frons at vertex 0.70-0.72 mm. wide. Eyes in profile 1.10-1.11 mm. long and 1.30-1.43 mm. high, 1.2-1.3 times as high as long and approximately 8 times longer than width of postcranium (0.14 mm.). *Antenna:* Postpedicel 0.43 mm. long and 0.23-0.23 mm. wide, 1.8-1.9 times longer than wide. *Thorax:* 3.1-3.5 mm. long, 1.8 mm. wide and 2.2 mm. high. *Legs and wing:* As in male but four to six anteroventral and posteroventral bristles of fore femora are smaller than in male. First costal section 0.41-0.48 mm., second 3.00-3.16 mm., third 1.77-1.80 mm., and fourth 0.07-0.09 mm. long; prebasal section of M_1 1.70-1.77 mm., median 1.63 mm., and ultimate 2.02-2.025 mm. long; Cu_2 0.38 mm., petiole of anal cell 0.66-0.70 mm. long. *Preabdomen:* 3.7-4.4 mm. long and 0.82-1.02 mm. wide. In this species, as in *M. albimana*, feebly chitinized, nearly membranous, semicircular region on sixth tergite in front of oviscape. *Oviscape:* Shining, dark, reddish brown to blackish brown, depressed elongate oval, 1.80-1.82 mm. long and 0.95-0.98 mm. wide, 1.8-1.9 times longer than wide; adjoined median part of ovipositor black.

HOSTS: Many adults were taken in light traps.

DISTRIBUTION: Endemic on Kusaie (eastern Caroline Is.).

KUSAIE. Seventeen specimens (BISHOP, KU), July 1949, Owen; Mt. Wakapp, Jan. and Mt. Fuinkol (Fenkol), Lele, Jan. 1936, Ono; Matanluk (Japan), 16 m., Jan. 1953, Gressitt; Matanluk (Mutunlik), 22 m., Feb., Lele I., 100 m., Feb., and "Hill 541," 165 m., Apr. 29, 1953, Clarke; Lele, Nov., Dec. 1937, Esaki.

Genus *Rainieria* Rondani

Rainieria Rondani, 1843, Nuovi Ann. Sci. Nat. Bologna 10: 40; 1850, Nuovi Ann. Sci. Nat. Bologna III, 2: 180 (type: *Calobata calceata* Fallén; Europe).—Cresson, 1926, Am. Ent. Soc., Trans. 52: 268; 1930, Am. Ent. Soc., Trans. 56: 318.—Czerny, 1930, IN Lindner, Die Fliegen Palearkt. Reg., 42a, Tylidae, 11.—Hennig, 1935, Stett. Ent. Zeitung 96: 57-58; 1938, Ins. Matsumurana 13: 5.—Aczél, 1950, Acta Zool. Lilloana 8: 169-170, 360.

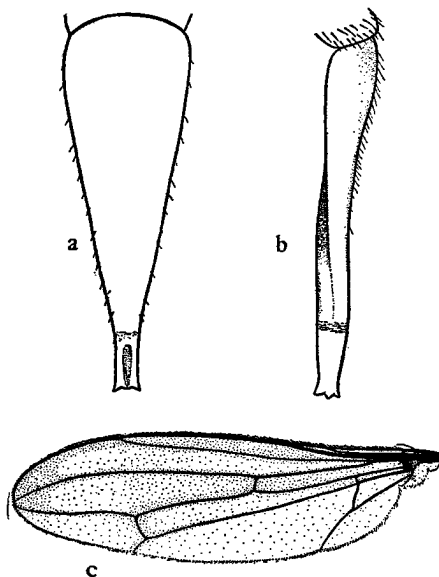


FIGURE 11.—*Rainieria boninensis*: a, dorsal view of oviscape; b, lateral view of oviscape; c, wing.

Tanipoda Rondani, 1856, Dipt. Ital., Prodr. 1: 116.

Tanypoda Schiner, 1864, Fauna Austriaca, Dipt. 2: 191.—Enderlein, 1922, Archiv Naturgesch. A, Jahrgang 88, 5: 197 (part).—Frey, 1927, Notulae Ent. 7: 70.

This genus is well characterized in the key to genera; it is widespread in the Neotropical, Nearctic, and Palearctic Regions and penetrates into the northwestern region of Micronesia with a single species.

5. *Rainieria boninensis* (Hennig). (Figure 11.)

Crepidochaetus boninensis Hennig, 1935, Konowia 14: 300.

Rainieria boniensis, (lapsus) Hennig, 1938, Ins. Matsumurana 13: 5-8, figs. 5, 6, 8.

ous new morphological character which I first noted in this species, later also in other New Guinea species of this genus: The shining metapleural sclerites widen, expand behind the metacoxa and cover completely (in some New Guinea forms, incompletely) the usually membranous area situated between the metacoxa and the first abdominal sternite. So far as I know, this character occurs in the family Tylidae only in some Australasian Trepidariini.

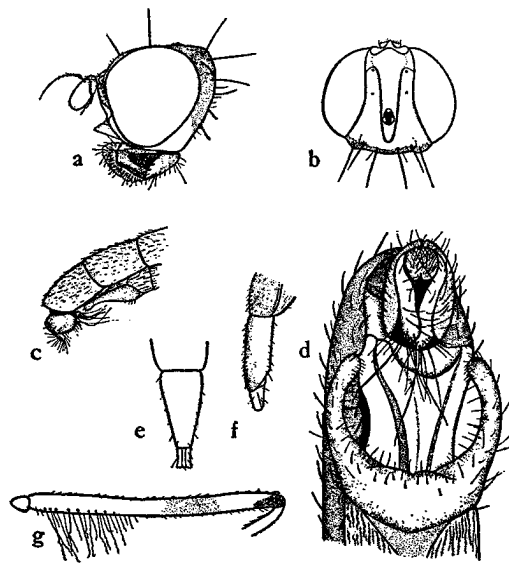


FIGURE 12.—*Crosa yapensis*: a, lateral view of male head; b, dorsal view of male head; c, lateral view of male postabdomen; d, ventral view of male postabdomen; e, dorsal view of oviscapae; f, lateral view of oviscapae; g, posterior view of male right fore femur.

6. *Crosa yapensis* Steyskal (fig. 12).

Crosa yapensis Steyskal, 1952, U. S. Nat. Mus., Proc. 102 (3294):177-178, fig. 74, i.

Male: Body 7.8 mm. long; wing 5.2-5.4 mm. long and 1.3 mm. wide, 4.0-4.1 times as long as wide.

Head: Subglobose, 1.04-1.06 mm. long, 1.18-1.27 mm. wide and 0.88 mm. high, slightly wider than long and longer than high; testaceous yellow, except impressed frontal stripe dull yellowish red to brown; anterior part of abbreviated genovertical plates shining brown; posterior part of genovertical plate, postgenae, and cerebral plate of postcranium yellowish brown and subshining since it is covered with sparse, fine, brown dusting. Inferior (gular) region of postcranium, linear genae, and parafacial plates (facial orbits) in front of eyes silvery yellow sericeous. Eyes in profile 0.85-0.89 mm. long and 0.85-0.86 mm. high and 8-10 times as long as width of superior region of postcranium (0.09-0.11 mm.). Mouthparts testaceous yellow, labella yellowish brown, abbreviated maxillary palpi with long, black, apical bristle.

Antenna: Testaceous yellow, scape and pedicel slightly darker in color; postpedicel compressed, oval, 0.27 mm. long and 0.18 mm. wide, 1.5 times longer than wide. Arista black, thickened basal segments dark brown, basal half conspicuously pilose.

Cephalic bristles: One proclined and distinct *orsa*, one erect and nearly parallel *orss*; *vii* and *vte* pairs divergent, *pvt* pair parallel. On inferior margin of cerebral plate in all specimens examined, pair of divergent and widely spaced, hair-like, but conspicuous, small bristles (*cer*).

Thorax: 2.3-2.4 mm. long, 1.1-1.2 mm. wide and 1.4-1.5 mm. high; pleurae shining brownish yellow, pleurotergites yellowish brown; pleural vitta narrow, dull lead gray but sericeous and (seen from above) strong, silvery-white luster; vitta runs from narrow inferior margin of propleura across middle region of anepisternum (mesopleura). Mesonotum, scutellum, and mediotergite yellowish brown and lustrous, covered with fine dusting; propleura and pronotum golden-yellow dusted. *Thoracic bristles:* Black and shining; one *npl*, one slightly divergent prescutellar *dc*, one *sa*, one *pa*; *npl* and *pa* subequal in length, *sa* shorter, *dc* longer than these; one very closely spaced, erect, divergent, apical *sc*, longer than *dc*. On upper hind region of katepisternum (sternopleuron), two long and erect bristle-like hairs of equal length, one below other, and beneath these two to three still shorter bristle-like hairs, one approximately two-thirds as long as superior two but rest shorter; furthermore, in front of these three to five scattered, erect, short, fine hairs, all shining, golden yellow; these sternopleural hairs and bristle-like hairs appear to be modest remains of decorative, sternopleural fan of erect bristle-like hairs of a taeniopterine fly. Propleurae below with only short, fine, shining, golden-yellow hair and microscopic pubescence.

Legs: Coxae and femora testaceous yellow; apex of femora brown and indistinct, brown preapical ring on fore femora. Tibiae and tarsi yellowish brown, tibiae with dark-brown apices. Basitarsi of fore and hind legs appear lighter colored since fore basitarsi anteroventrally and hind basitarsi posteroventrally are densely covered with shining, golden-yellow hairs. Nearly whole basal half of fore femora furnished with loose, shaggy, long, fine, antero- and posteroventral hairs, brown with yellowish-brown shine. Basal one-third to one-fourth of mid- and hind femora, in both sexes, with two rows (antero- and posteroventral) of tiny, but conspicuous, black spinules.

Wing: Pale brownish tinged and conspicuously iridescent. Pterostigma absent since tips of subcostal and first longitudinal veins very closely placed. First costal section therefore absent; second 1.00-3.13 mm., third 0.80-0.88 mm., and fourth 0.09-0.13 mm. long; prebasal section of M_1 1.25-1.36 mm., median 1.11-1.16 mm., and ultimate 1.59-1.61 mm. long; ultimate section 1.8-2 times as long as third costal section, because second vein long, ending nearly above distal third of ultimate section of M_1 . Anal cell short, shape same as in Rainieriini species since Cu_2 is slightly retrograde; Cu_2 usually slightly shorter (0.25-0.27 mm.) than petiole of anal cell (0.34 mm.).

Preabdomen: Long and linear, 4.1 mm. long and 0.7-0.8 mm. wide, tergites yellowish brown to blackish brown, laterally more yellowish; sternites and lateral membranes brownish yellow to yellowish brown. Fifth sternite produced into simple, very wide, shining, testaceous-yellow copulatory fork, 0.50-0.52 mm. long and 0.56 mm. wide, with stalk much wider than long and situated between bases of processes; sixth sternite elongate, whitish yellow, and shaped similarly to some South American *Tylos* species.

Postabdomen: Reddish to brownish yellow, subshining; epandrium in profile considerably wider (0.30-0.32 mm.) than long (0.13-0.20 mm.); surstyli simple and lobate with short, and some long, apical hairs, as shining golden yellow as hairs of cerci.

Female: Like male; body 6.2-6.9 mm. long; wing 4.5-4.9 mm. long and 1.2-1.3 mm. wide, 3.7-3.8 times longer than wide.

Head: 0.85-0.91 mm. long, 0.95-1.09 mm. wide, and 0.75-0.85 mm. high. Eyes in profile as long as high (0.66-0.73 mm.) and 7-8 times longer than postcranium. *Antenna:* Postpedicel 0.25-0.27 mm. long and 0.18 mm. wide, 1.4-1.5 times as long as wide. *Thorax:* 1.9-2.2 mm. long, 1.1 mm. wide and 1.2-1.4 mm. high. *Legs and wing:* As in male but fore femora without long and shaggy ventral hairs below. Second costal section 2.86-2.93

mm., third 0.68-0.86 mm., and fourth 0.11-0.12 mm. long. Prebasal section of M_1 is 1.09-1.13 mm., median 1.04-1.20 mm., and ultimate 1.43-1.66 mm. long; ultimate section 1.9-2.1 times longer than third costal section; Cu_2 is 0.20-0.23 mm., petiole of anal cell 0.20-0.32 mm. long. *Preabdomen*: 3.2-3.5 mm. long and 0.63-0.66 mm. wide. *Oviscape*: Yellowish brown but narrow dorsal vitta and apical third dark brown, densely brown dusted, elongate ovate and relatively small, 0.66-0.68 mm. long and 0.34 mm. wide, 1.9-2 times longer than wide.

HOSTS: Adults were swept or taken in light traps.

DISTRIBUTION: Western Caroline Is.

PALAU. Ten specimens (BISHOP). BABELTHUAP: Ngiwal, jungle, May 1957, Sabrosky; Imeliik, Netkeng, June 1957, Sabrosky. ULEBSEHEL (Aulup-tagel): 60 m., Sept. 1952, Krauss; Ngarmalk, 25 m., Dec. 1952, Gressitt. NGURUKDABEL: Ngaremediu, May 1957, Sabrosky.

YAP. Four (BISHOP). YAP: Oct. 1952, Krauss; Mt. Tabiwol (Gillifitz), 150 m., Nov. and Mt. Madaade (Matade), 60 m., Dec. 1952, Gressitt; Giliman, June 1957, Sabrosky. MAP: Chol, June 1957, Sabrosky.

New to the Palau Islands.