



SMITHSONIAN INSTITUTION  
U. S. NATIONAL MUSEUM

Vol. 102

Washington : 1952

No. 3294

AUSTRALASIAN STILT-LEGGED FLIES (DIPTERA: TYLIDAE) IN THE UNITED STATES NATIONAL MUSEUM

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COLLECTIONS made during recent years by members of the armed forces in the course of malaria-control work and similar activities have added materially to our knowledge concerning the flies of the family Tylidae in areas not covered in Hennig's recent (1935-1936) monograph. This and other material in the United States National Museum were made available to me through the kindness of the authorities of the Smithsonian Institution, and study has led to the following results:

Eleven new forms are described, for one of which a new genus is erected. The genus *Mimomyrmecia* is transferred from the subfamily Trepidariinae to the Taenipterinae, and descriptive notes are given. Examination of material determined as *Eurybata hexapla* has revealed a compact group of species around that form and the fact that other species placed in the genus are abundantly distinct. A new genus, based upon the second species referred to *Eurybata*, *E. semilauta* Osten-Sacken, has been set up for the latter group. Sufficient material was examined to make possible a preliminary study of the subspecies of *Mimegralla albimana*, a "Formenkreis" widespread in the East and Oceania.

Geographical spellings are taken from maps of the National Geographic Society, especially those of the Pacific Ocean (December 1936) and southeast Asia (October 1944), except that Japanese forms of names for islands formerly under Japanese mandate are not used.

## Family TYLIDAE

## Subfamily TAENIAPTERINAE

## Genus GRAMMICOMYIA Bigot

## 1. GRAMMICOMYIA HALLI, new species

## FIGURE 72, a

*Male*.—Length 8.5–9.5 mm., exclusive of ensiform hypopygial process. Very similar to *G. bergi* Steyskal (1947, p. 7), differing as follows: Anterior part of frons bright creamy yellow, somewhat wider than in *G. bergi*, pale centrally back to ocellar region; third antennal joint largely blackish, but brown basally; anterior hump of mesonotum rather flatter than in *G. bergi*, not rugulose, brown pruinose anteromedianly. Pruinosity of venter and pleura rather thin. Middle and hind femora very little swollen centrally, tapering to each end, dark brown in middle. Hind tibiae black at base, grading into brown in apical half; middle tibiae wholly black. Copulatory fork as figured. Wings as in *G. bergi*. Palpi flat, elongate-oval, with small hairs only, dark brown, somewhat paler apically.

*Types*.—Holotype, male, U.S.N.M. No. 58304, and two male paratypes, NEW GUINEA: Finschhafen, November 9, 1944 (David G. Hall).

*Remarks*.—The hind femora, swollen *centrally*, place this form intermediate between *G. bergi*, in which the femora are swollen basally, and the more typical forms from farther west, which have the hind femora strongly swollen distad of the middle.

## 2. GRAMMICOMYIA SONDAICA Hennig

*Grammicomyia sondaica* HENNIG, Konowia, vol. 14, p. 80, 1935 (Siam, Sumatra, Java).

MALAY STATES: Singapore, 1 specimen.

## Genus MIMAGRALLA Rondani

## 3. MIMAGRALLA ALBIMANA (Doleschall)

*Taeniptera albimana* DOLESCHALL, Nat. Tijdschr. Nederl. Ind., vol. 10, p. 413, pl. 10, fig. 4, 1856.

*Mimegralla albimana* (Doleschall) HENNIG, Konowia, vol. 14, p. 198, 1935.

The various subspecies of *M. albimana* may be rather easily distinguished from other species by the following combination of characters: First posterior cell narrowly open; postvertical bristles lacking; front wholly black (except frequently reddish anteriorly in *M. a. contraria*); antennae reddish yellow, brownish apically or dorsally only; hind basitarsi (except extreme base) whitish.

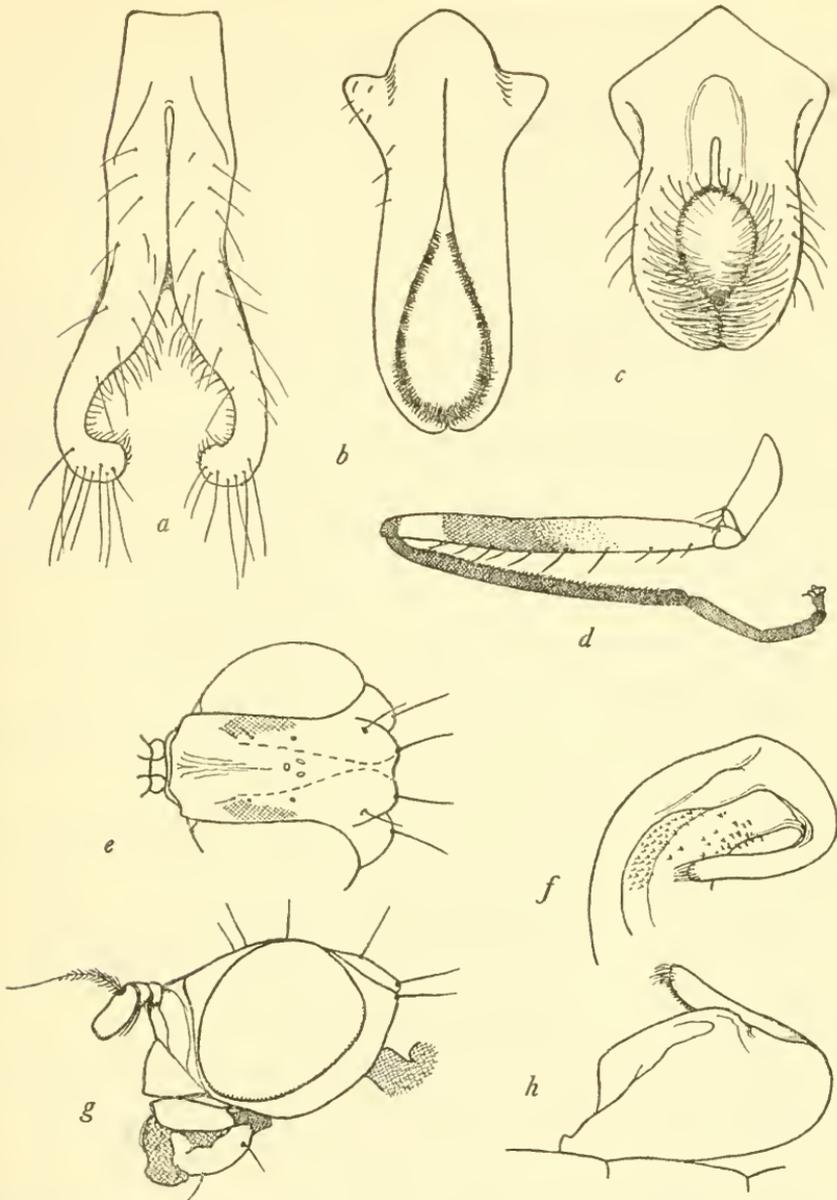


FIGURE 72.—a, *Grammicomyia halli*, new species, copulatory fork. b, *Mimegralla perfulva*, new species, copulatory fork. c, d, *Townesa spinosa*, new species: c, Copulatory fork, d, posterior aspect of left fore leg of male. e-h, *Mimomyrmea tessellata* Frey: e, Dorsal aspect of head, f, ventral aspect of half of copulatory fork, g, lateral aspect of head, h, lateral aspect of copulatory fork.

The examination of a considerable amount of material has enabled me to construct a key, which is presented here in the hope that it will be found to be an improvement over Hennig's rather sketchy one, wherein the subspecies are brought out in several different places among other species. A map (fig. 73), based upon Hennig's data and material examined by me, is also offered as a graphic résumé of the distribution of the various races.

KEY TO THE SUBSPECIES OF *MIMEGRALLA ALBIMANA*<sup>1</sup>

1. Hind femora yellow, with three or less brown or blackish rings, the third ring always clearly subapical, the tip of the femora yellow; when the rings are of some length: Brown with four yellow rings, the fourth covering the tip----- 2  
Hind femora brown or blackish, with 0 to 3 yellowish rings: Basal, distomedian, and apical when complete (sometimes a narrow proximomedian ring divides the median black section in *M. a. striatofasciata*)----- 4
2. Mesopleura with brassy pruinose area posteriorly, which is part of a sternomesopleural band; mesonotum posteriorly usually with a pair of similar but less distinct longitudinal stripes (Philippine Islands: Taiwan; Ryukyu Islands; Marianas Islands; Caroline Islands; Palau Islands).  
3c. *M. a. galbula* (Osten-Sacken)  
Pruinosity of mesopleura indistinct, not sharply delimited, less distinct than that of sternopleura----- 3
3. A reddish interantennal spot present; palpi wholly yellow (Malay States; Borneo; Java)----- 3a. *M. a. albimana* (Doleschall)  
Interantennal spot lacking; tip of palpi black; femoral rings strong (Celebes, Halmahera, Amboina, Aroe Islands; ? Ternate).  
3b. *M. a. sepsoides* (Walker)
4. Hind femora unicolorous black (New Hebrides)---- 3f. *M. a. extrema* Hennig  
Hind femora with yellow rings----- 5
5. Basal hind femoral ring about four times width of femur, the rings well-defined; wings dilute brownish, with a single more distinct crossband in middle; anterior margin of front frequently reddish (New Guinea).  
3d. *M. a. contraria* (Walker)  
Basal hind femoral ring twice or less width of femur----- 6
6. Wings hyaline with 2 well-defined crossbands (Admiralty Islands; Bismarck Islands; Solomon Islands)----- 3e. *M. a. striatofasciata* (Enderlein)  
Wings dilute brownish with a single more distinct crossband in middle---- 7
7. Middle and hind femora with a distinct subapical ring, also yellow at tip below; thorax rather shining above (Samoa; ? Fiji).  
3g. *M. a. samoana* (Czerny)  
Middle and hind femora without distinct subapical ring; thoracic dorsum grayish centrally (Tonga Islands)----- 3h. *M. a. tongana* (Czerny)

3a. *MIMEGRALLA ALBIMANA ALBIMANA* (Doleschall)

Hennig adduces from a study of type material that this, the typical subspecies, was first described from Java. It is also known from the Malay States and Borneo. I have not seen specimens.

<sup>1</sup> *M. a. keiensis* Hennig is not included; see discussion under *M. a. ketensis* (p. 167).

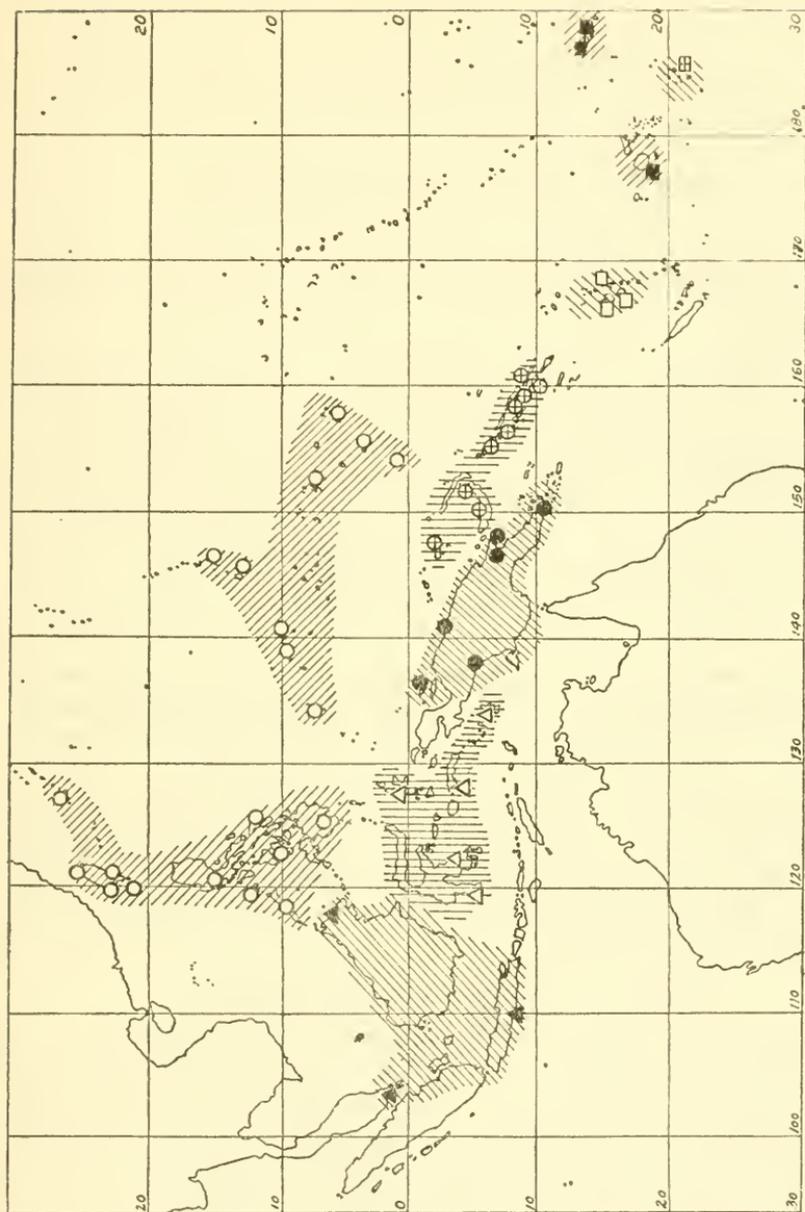


FIGURE 73.—Map showing distribution of the subspecies of *Mimagralla albimana* (Doleschall): ▲ *M. a. albimana* (Doleschall); △ *M. a. sepioides* (Walker); ○ *M. a. galbula* (Osten-Sacken); ● *M. a. contraria* (Walker); ⊕ *M. a. striatofasciata* (Enderlein); □ *M. a. extrema* Hennig; ■ *M. a. samoana* (Czerny); ⊕ *M. a. tongana* (Czerny).

## 3b. MIMAGRALLA ALBIMANA SEPSOIDES (Walker)

*Calobata sepsoides* WALKER, Proc. Zool. Soc. London, vol. 3, p. 124, 1859.

*Mimegralla albimana sepsoides* (Walker) HENNIG, Konowia, vol. 14, p. 200, 1935.

I have not seen material referable to the subspecies, but Hennig cites records from Celebes, Amboina, Halmahera, Aroe Islands and Ternate (?).

## 3c. MIMAGRALLA ALBIMANA GALBULA (Osten-Sacken)

*Calobata galbula* OSTEN-SACKEN, Berliner Ent. Zeitschr., vol. 26, p. 202, 1882.—  
SWEZEY, Bernice P. Bishop Mus. Bull. No. 189, p. 198, 1946.

*Mimegralla albimana galbula* (Osten-Sacken) HENNIG, Konowia, vol. 14, p. 200.  
*Mimegralla albimana palauensis* HENNIG, Konowia, vol. 14, p. 201, 1935 (new synonym).

RYUKYU ISLANDS: Okinawa, 12 specimens. TAIWAN: Hokuto, 1 specimen. PHILIPPINE ISLANDS: Luzon, 10 specimens; Samar, 1 specimen; Negros, 1 specimen; Palawan, 2 specimens; Calamian group (Culion Island), 1 specimen. MARIANAS ISLANDS: Guam, 9 specimens; Saipan, 1 specimen. CAROLINE ISLANDS: Yap, 1 specimen; Ulithi Atoll, 7 specimens; Truk, 7 specimens; Nukuoro Atoll, 2 specimens; Ponape, 2 specimens. KAPINGAMARANGI, 1 specimen. PALAU ISLANDS: Peleliu, 1 specimen; Koror, 5 specimens; Babelthuap, 3 specimens.

Hennig (1935, p. 200) cites *M. a. galbula* from the Philippine Islands (Palawan, Mindanao, Luzon) and Taiwan (several localities, including Lambe Island). Our extra-Philippine material is generally a little smaller and paler; the dark femoral bands are narrower or reduced to indistinct spots on the dorsal side of the femora and the wing pattern is very indistinct; but the Philippine specimens also vary in these respects and it is deemed unwise to recognize any distinctions. The Palau Islands material varies enough to bring it well within the limits of *galbula*.

## 3d. MIMAGRALLA ALBIMANA CONTRARIA (Walker)

*Calobata contraria* WALKER, Proc. Linn. Soc. London, vol. 5, p. 253, 1861.

*Mimegralla albimana contraria* (Walker) HENNIG, Konowia, vol. 14, p. 201, 1935.

NEW GUINEA: Cyclops Mountains, 5 specimens; Finschhafen, 20 specimens; Hollandia, 4 specimens; Milne Bay, 2 specimens; Nadzab, Markham River Valley, 3 specimens; Toem, 2 specimens.

The type was from Dorey, and Hennig cites the following localities, also all in New Guinea: Ramoi; Soron; Lorentz River; Alkmaar; Biak Island; Rivier Kamp; Simpsonhafen. This large form is one of the more distinct ones. Most specimens have the anterior margin of the front reddish, an exceptional character in the *M. albimana* circle.

## 3c. MIMAGRALLA ALBIMANA STRIATOFASCIATA (Enderlein)

*Calobata striatofasciata* ENDERLEIN, Arch. für Naturg., vol. 88 (A5), p. 184, 1922.  
*Mimegralla albimana striatofasciata* (Enderlein) HENNIG, Konowia, vol. 14, p. 202, 1935; Stettiner Ent. Zeit., vol. 98, p. 49, 1937.—STEYSKAL, Occas. Pap. Mus. Zool. Univ. Michigan, No. 502, p. 9, 1947.—BERG, Occas. Pap. Mus. Zool. Univ. Michigan, No. 503, pp. 3-8, pls. 1-2, 1947.

ADMIRALTY ISLANDS: 2 specimens; Los Negros, 1 specimen. SOLOMON ISLANDS: Guadalcanal, 17 specimens; Russell Island, 1 specimen; New Georgia, 3 specimens: Florida Island, 4 specimens; Treasury Island, 1 specimen; Bougainville Island, 7 specimens.

The type of *M. a. striatofasciata* was from Ralum, in the Bismarck Islands, and Hennig reports the subspecies from Mioko (Duke of York Island, 1935) and New Britain (1937). Our Admiralty Islands material is most nearly typical, with distinct wing bands and a strong hind femoral pattern, including a distinct preapical dark band.

A wide variation exists, however, in the coloration of this form and although some evidence of a cline toward the east is present, some of the specimens from Bougainville, Florida, and New Georgia approach those from the Admiralties.

## 3f. MIMAGRALLA ALBIMANA EXTREMA Hennig

*Mimegralla albimana extrema* HENNIG, Konowia, vol. 14, p. 203, 1935.

NEW HEBRIDES: Espiritu Santo (Turtle Bay and Segond Channel) 29 specimens.

This form was described from Pentecost Island and Malekula Island, also in the New Hebrides. It is a large and distinct form.

## 3g. Mimegralla ALBIMANA SAMOANA (Czerny)

*Cyclospheo samoanus* CZERNY, Stettiner Ent. Zeit., vol. 93, p. 271, 1932.

*Mimegralla albimana samoana* (Czerny) HENNIG, Konowia, vol. 14, p. 202, 1935.  
*Calobata (Neocalobata) deferens* MALLOCH, Insects of Samoa (British Mus. Nat. Hist.), pt. 6, fasc. 9, p. 346, Feb. 23, 1935 (new synonym).

SAMOA: Tutuila, October 26, 1946, D. G. Hall collector, 1 specimen.

## 3h. MIMAGRALLA ALBIMANA TONGANA (Czerny)

*Cyclospheo tonganus* CZERNY, Stettiner Ent. Zeit., vol. 93, p. 272, 1932.

*Mimegralla albimana tongana* (Czerny) HENNIG, Konowia, vol. 14, p. 203, 1935.

I have not seen specimens of this form, which was described from the Tonga Islands.

## 3k. MIMAGRALLA ALBIMANA KEIENSIS Hennig

*Mimegralla albimana keiensis* HENNIG, Konowia, vol. 14, p. 201, 1935.

Not seen by me. It was described from three female specimens from the Kai (Kei or Key) Islands. It is likely that it is but a variant of *M. a. sepsoides*, which is known from the neighboring Aroe (Aru) Islands.

## 4. MIMAGRALLA BINGHAMI (Enderlein)

*Calobata binghami* ENDERLEIN, Arch. für Naturg., vol. 88, ser. A5, p. 186, 1922.  
*Mimegralla binghami* (Enderlein) HENNIG, Konowia, vol. 14, p. 210, 1935.

INDIA: Assam (Hellgate), September 22, 1943, D. E. Hardy collector, 3 specimens.

Described from Sikkin.

## 5. MIMAGRALLA COERULEIFRONS (Macquart)

*Calobata coeruleifrons* MACQUART, Diptères exotique nouveaux ou peu connus, vol. 2, No. 3, p. 24, pl. 33, fig. 2, 1843.

*Mimegralla coeruleifrons* (Macquart) HENNIG, Konowia, vol. 14, p. 193, 1935.

MALAY STATES: Singapore, 5 specimens. INDIA: Bengal, Tezgaon, 1 specimen.

A widely distributed species from India and South China to the Sunda Islands.

## 6. MIMAGRALLA CEDENS CHRYSOPLEURA (Osten-Sacken)

*Calobata cedens* WALKER, Proc. Linn. Soc. London, vol. 1, p. 135, 1857.

*Calobata chrysopleura* OSTEN-SACKEN, Berliner Ent. Zeitschr., vol. 26, p. 201, 1882.

*Mimegralla cedens chrysopleura* (Osten-Sacken) HENNIG, Konowia, vol. 14, p. 205, 1935.

PHILIPPINE ISLANDS: LUZON, Mount Maquiling, 3 specimens.

Known only from the Philippine Islands; the typical subspecies is from Borneo.

## 6a. MIMAGRALLA CEDENS THAIENSIS Cresson

*Mimegralla thaiensis* CRESSON, Trans. Amer. Ent. Soc., vol. 52, p. 269, 1926.

*Mimegralla niveimana* CRESSON, Trans. Amer. Ent. Soc., vol. 52, p. 269, 1926.

*Mimegralla cedens thaiensis* Cresson, HENNIG, Konowia, vol. 14, p. 204, 1935.

Hennig lists the above synonymy of *M. niveimana* with a query. I have compared male paratypes of *M. thaiensis* with the male type of *M. niveimana*, and I feel that I can confirm the synonymy. All the specimens are from the same locality in lower Siam. The copulatory fork of this form differs somewhat from that of *M. cedens chrysopleura*.

## 7. MIMAGRALLA CONFINIS (Walker)

*Calobata confinis* WALKER, Proc. Linn. Soc. London, vol. 1, p. 37, 1857.

*Mimegralla confinis* (Walker) HENNIG, Konowia, vol. 14, p. 211, 1935.

PHILIPPINE ISLANDS: LUZON (Mount Maquiling) 3 specimens; Mindanao (Davao), 1 specimen.

A widely distributed species already known in the Philippines from Luzon and Basilan Island.

## 8. MIMAGRALLA CONTINGENS CONTINGENS (Walker)

*Calobata contingens* WALKER, Proc. Linn. Soc. London, vol. 7, p. 221, 1864.

*Mimegralla contingens* (Walker) ENDERLEIN, Arch. für Naturg., vol. 88 (A5), p. 195, 1922.—HENNIG, Konowia, vol. 14, p. 90, 1935.

NEW GUINEA: Nadzab, 2 specimens.

Already known from several localities in New Guinea, as well as from Misoöl and Halmahera. Other subspecies are known from Ternate (*M. c. lunaria*), northern Australia (*M. c. australica*), and the Solomon Islands (*M. c. solomonis*).

## 8a. MIMAGRALLA CONTINGENS NOVAEHEBRIDEANA, new subspecies

*Female*.—Length 10 mm. Preapical white fascia of wing very broad, in middle a little wider than first posterior cell; wing veins  $R_2$  and  $R_3$  ending slightly apicad of *tp*; mesofrons with distinct tomentum; base and apex of middle and hind femora yellowish, apex of hind femora for about one-fifth length of femora with traces of a preapical dark ring, but yellowish color is rather dark and not sharply delimited; middle and hind tibiae and tarsi wholly black.

*Remarks*.—This race has the tomentose mesofrons of *M. c. lunaria* and *M. c. salomonis*. The former, however, has a very narrow preapical wing fascia and the tips of the middle and hind femora but little paler, while from the latter it may be distinguished by the wholly black middle and hind tibiae and strong dark wing fascia.

*Types*.—Holotype and one paratype, U.S.N.M. No. 58305, NEW HEBRIDES: Espiritu Santo Island, Nav. Med. School Ser. No. 18/34, sp. 20; two paratypes, same locality, Second Channel, August 29, 1943, Laffoon collector.

## 9. MIMAGRALLA PERFULVA, new species

## FIGURE 72, b

*Male and female*.—Length of body 8–10 mm.; length of wings 6.6–7.7 mm. Color brownish yellow, except as further noted. Head of general body color, including mesofrons; ocellar triangle blackish; third antennal joint, except at extreme base, black; antennal grooves shining black with whitish pruinose patch below; palpi black in apical third. Posterior frontal bristle anterior to anterior ocellus by length of ocellar triangle; two well-developed anterior frontals; arista blackish, brown at base, toward base with a few short hairs. Postvertical bristles lacking.

Thorax with presutural lateral border of mesonotum rather broadly dark brown, pruinose, and with traces of median longitudinal dark

margins postsuturally; only one notopleural bristle, situated in posterior corner of notopleural area; scutellum dark brown laterally.

Abdomen very dark brown, but somewhat paler basally and apically. Copulatory fork figured is yellowish with black mesal spinules.

Legs of general body color; tips of femora black, on fore femora for distance equal to twice the width, on middle and hind femora for distance equal to width, an indistinct darker ring at apical third of femora. Fore tibiae black except at base, middle and hind tibiae dark brown. Fore tarsi black, except apical half of basitarsi and basal two-thirds of second joint, which parts are pale yellow; middle and hind tarsi brown, blackish apically, the hairs black, except part of the plantar brush.

Wings uniformly tinged with light brown; the basal crossvein its own length apicad of vein closing the anal cell; first posterior cell narrowly open; second vein ending 0.36 to nearly 0.5 the distance from *tp* to apex of wing. Knobs of halteres gray-brown.

*Types*.—Holotype, male, U.S.N.M. No. 58981, CAROLINE ISLANDS: Ponape (Mount Dolennankap), 1,700 to 2,000 feet, August 10, 1946 (H. K. Townes No. 1648); allotype, female, same locality, 1,800 feet, August 11, 1946 (H. K. Townes No. 1651); paratypes, four males, five females, same data as allotype; one female, same data as holotype.

*Remarks*.—Since this species runs in Hennig's key (1935, p. 83) to *Mimegralla leucopeza*, it may be a subspecies of that form. However, the general yellowish color is more extensive than in any race of *M. leucopeza*, and the wide separation from the nearest station of that species (*M. l. albitarsis*, Manila, Philippine Islands) also makes doubtful its identity with *leucopeza*.

#### 10. MIMAGRALLA PONAPENSIS PONAPENSIS Hennig

*Mimegralla ponapensis* HENNIG, Konowia, vol. 14, p. 207, 1935.

CAROLINE ISLANDS: Ponape Island, Colonia, 29 specimens.

#### 10a. MIMAGRALLA PONAPENSIS KUSAIEANA, new subspecies

*Male and female*.—Middle femora yellow at base for distance equal to twice the diameter of the part, then black to 0.6 the whole length, then yellow for about 1.5 times the diameter and finally brown, but yellow again apicoventrally. The hind femora are yellow for 3.5 diameters, then black to 0.6 the whole length, the yellow portion with a preapical brown section.

The middle and hind tibiae, which in *M. p. ponapensis* are practically wholly black or sometimes a little brownish distomedially, in *M. p. kusaieana* are yellowish except at each end.

The whole insect is otherwise as in the typical race, the thoracic dorsum of both races largely brownish pruinose, the antennae and palpi blackish apically, and the frons reddish anteriorly.

*Types*.—Holotype male, allotype female, and three each male and female paratypes, U.S.N.M. No. 58982, CAROLINE ISLANDS: KUSAIE Island (Lcle), August 21, 1946 (H. K. Townes No. 1815); paratypes, four each males and females, same locality, August 19, 1946 (Oakley No. 1726); four females, KUSAIE Island (Mount Tafeyät), 500 to 800 feet, August 2, 1946 (H. K. Townes No. 1812); five males, three females, MAJURO Atoll (Majuro Village), August 28, 1946 (H. K. Townes Nos. 1989, 1992).

### Genus MIMOMYRMECIA Frey

#### 11. MIMOMYRMECIA TESSELLATA Frey

FIGURE 72, *c-h*

*Mimomyrmecia tessellata* FREY, Not. Ent., vol. 7, p. 75, 1927.—BRYAN, Proc. Hawaiian Ent. Soc., vol. 8, p. 34, 1932.—HENNIG, Konowia, vol. 14, p. 309, 1935.

PHILIPPINE ISLANDS: LUZON (Mount Maquiling), 7 specimens; (Mount Banahao), 2 specimens; (Los Banos), 2 specimens; (Limay, Bataan), 1 specimen; (Manila), 1 specimen; NEGROS OCCIDENTALE (Victoria) 1 specimen.

Examination of the above material has revealed that the genus is definitely taeniapterine, rather than trepidariine, as Hennig, in the lack of material, presumed it to be. It will run in my key to the genera of African and Oriental Taeniapterinae (1947, p. 6) to couplet 3, the first three characters of the first alternative suit. The arista, however, is plumose. The affinities seem to lie definitely with *Grammicomyia*, but the development of the back of the head into three protuberances distinguishes *Mimomyrmecia* from any other Palearctic genus.

#### TOWNESA, new genus

*Genotype*.—*Townesa spinosa*, new species.

Very similar to *Mimegralla*, to which genus it will run in my key (1947, p. 6), agreeing in all particulars. The type of *Mimegralla*, *M. coeruleifrons* (Macquart), as well as all other species of *Mimegralla* known to me, has no armature of any kind on the fore femora. *Townesa*, however, has a row of 8 to 12 strong bristles nearly as long as the diameter of the femora along the whole length of each lower side of the fore femora of the male, and 3 to 5 similar but somewhat smaller bristles on each side of the apical half of the fore femora of the female. The legs are very long and uniformly slender; the first

posterior cell of the wing is very narrow apically but not closed; the second vein exceeds the level of *tp* by the length of *tp*; postvertical bristles are lacking; two well-developed anterior frontals are present definitely within the tomentose mesofrontal area; the posterior frontals are about opposite the anterior ocellus; and the bristles of the mesonotum include 1 *dc*, 2 *sa*, and 2 strong *ntpl*. The arista is distinctly and abundantly short plumose.

*Remarks.*—I take pleasure in naming this genus in honor of the discoverer of its type species, Dr. H. K. Townes.

12. TOWNESA SPINOSA, new species

FIGURE 72. *c, d*

*Male and female.*—Length of body 8 to 9 mm.; length of wings 6 to 6.8 mm. Color of body black.

Head with mesofrons black-tomentose; parafrontals shining black with bluish reflection; medifacies brown with black lower margin; clypeus, palpi, and antennae brown, the antennae with third joint black above and in apical half and with arista black apically, brown at base, and furnished with short plumosity.

Thorax lightly greenish-brown-pruinose on pleura and sternum, dark-brown-pruinose on notum, except broad sublateral greenish subshining stripes, which meet anteriorly across the anterior hump. Postalar calli shining brownish.

Abdomen black, dark-brown-pruinose with gray incisures, except segment bearing the copulatory fork and those posterior to it, which are shining. Copulatory fork as figured (fig. 72, *c*), bearing dense, rather long dark brown hairs ventrally and mesally, also with denser and shorter black bristles mesally.

Legs brownish yellow; fore femora of male as in figure 72, *d*, the shaded parts black, in female similar but with fewer bristles (cf. generic diagnosis above); fore tibiae black; fore tarsi light brown basally, apically blackish; middle and hind femora with extreme apex black, preapical narrow ring of black, and indistinct distomedian ring or dorsal spot; middle and hind tibiae dark brown, their tarsi yellow basally, brown apically.

Halteres evenly light brown; *ta* interstitial with vein closing anal cell. Halteres with yellow stem, blackish knob.

*Types.*—Holotype and four paratypes, males, U.S.N.M. No. 58983, CAROLINE ISLANDS: Kusaie Island (Mount Tafeyät), 500 to 800 feet, August 20, 1946 (H. K. Townes No. 1810); allotype and one paratype, females, same locality, August 2, 1946 (H. K. Townes No. 1812); paratypes, three males, Kusaie (Lele Island), August 19, 1946 (Oakley No. 1726).

Subfamily TREPIDARIINAE

KEY TO THE AUSTRALASIAN GENERA OF TREPIDARIINAE<sup>2</sup>

- 1. Upper part of metanotum conical and surpassing scutellum.
  - Nestima Osten-Sacken
  - Metanotum of ordinary form..... 2
- 2. Middle and hind femora on lower side before the tip with a series of spinules. 3
  - Middle and hind femora unarmed below..... 4
- 3. Wings strongly fasciate or tessellate with dark brown; mesofrons shining medially, flat and strongly angulate apically..... Eurybata Osten-Sacken
  - Wings with but indistinct pattern; mesofrons tomentose, strongly convex in front and truncate..... Crosa, new genus
- 4. Scutellum turned upward; head spheroidal; three fronto-orbital bristles.
  - Gongylocephala Czerny
  - Scutellum horizontal above; head somewhat depressed; wing with third costal division more than half as long as ultimate section of fourth vein..... 5
- 5. Middle and hind femora thickened basally; arista plumose.
  - Crepidochaetus Enderlein
  - Middle and hind femora slender; arista bare to plumose.
    - Trepidarioides Frey
    - Cothornobata Czerny
    - Metopochetus Enderlein

Of the last three genera I have seen only one representative, *Trepidarioides territa* Osten-Sacken, and I am unable to find good distinctive characters in the literature.

Genus EURYBATA Osten-Sacken

On examining a series of specimens included in *Eurybata hexapla* it became evident to me that Osten-Sacken was correct when, in describing the second species of *Eurybata*, *E. semilauta*, he stated that later authors might see fit to place it in another genus. *Eurybata* may be distinguished from *Crosa*, new genus (p. 176), which is based upon *E. semilauta*, as in the foregoing key, by the characters of the head represented in figure 74, *a*, *b*, and in the male by a lack of long hairs on the basal ventral side of the fore femora. The abdomen is shining apically and near the segmental sutures.

It was also evident that two new species were included with *E. hexapla*. These species are included in the following key to the species of the restricted genus *Eurybata*. All species are known only from the Philippine Islands.

<sup>2</sup>The genus *Mimomyrmecia* Frey has been removed from this subfamily (see p. 171). The genera *Formicosepsis* De Meijere and *Cypselosoma* Hendel have been referred here by Hennig (1941), although Hennig has later (*in litt.* Sabrosky, 1949) indicated that *Cypselosoma* is a cluslid. These two genera may be distinguished from all other Tylidae by the possession of strong vibrissae and ocellar bristles. *Calycopteryx* Eaton, from the Kerguelen and Heard Islands, a fly with rudimentary wings, has also been referred here by Hennig (1934).

## KEY TO SPECIES OF THE GENUS EURYBATA OSTEN-SACKEN

1. Dark fasciae of wing uniform and straight; fore tibiae whitish; mesonotum wholly shining or very indistinctly pruinose; *male*: copulatory fork with two long divergent prongs (fig. 74, *e*)----- *E. hexapla* Osten-Sacken  
The wing fascia distad of *tp* (fifth from base of wing) projecting basad between third and fourth veins or all fasciae broken, forming a checkered pattern ----- 2
2. Only the fifth fascia uneven; fore tibiae blackish except at tips; mesonotum with distinct prescutellar brown-pruinose spot; *male*: copulatory fork with short arms inflexed at ends (figs. 74 *f, g*) 15----- *E. nigritiba*, new species  
Wings with checkered pattern; fore tibiae only a little brownish distomedially; mesonotum wholly shining; *male*: copulatory fork with short arms, knobbed at tip and slightly convergent (fig. 74, *h*) -- *E. tessellata*, new species

## 13. EURYBATA HEXAPLA Osten-Sacken

FIGURE 74, *a, b, e*

*Eurybata hexapla* OSTEN-SACKEN, Berliner Ent. Zeitschr., vol. 26, p. 206, 1882.—BEZZI, Philippine Journ. Sci., vol. 2, ser. 3D, p. 155, 1917.—FREY, Not. Ent., vol. 7, p. 7, 1927.

PHILIPPINE ISLANDS: LUZON (Mount Maquiling), Baker collector, 12 specimens; (Ube Laguna), May 12, 1924, R. C. McGregor collector, 2 specimens; Tayabas (Malinao), Baker collector, 1 specimen.

Bezzi lists Los Baños and Mount Maquiling as localities, probably from part of the same material that is still in the Museum, but I saw no specimens from Los Baños, a town at the foot of Mount Maquiling; Frey lists (Mount) Banahao (Tayabas) and Surigao in Mindanao. The latter locality is the source of the type of *E. tessellata*, new species. Hennig did not see specimens.

The following characters will assist in distinguishing *E. hexapla* from the new species: Arista short plumose on barely the basal half; third antennal joint 2.5 times as long as broad, blackish except at base; fore legs yellow, except apical half of femur and apical joints of tarsi; middle and hind femora with brownish preapical band; one sternopleural bristle; one posterior notopleural bristle; one dorso-central bristle; wing fasciae all even and straight; pterostigma very small; apical wing spot as long as width of first posterior cell at base of spot; copulatory fork as figured (fig. 74, *e*).

## 14. EURYBATA NIGRITIBIA, new species

FIGURE 74, *f, g*

*Male*.—Length, 10 mm. Differs from *E. hexapla* in having yellowish brown antennae, the third joint only about 1.5 times as long as broad; the shining mesofrontal wedge extending as a narrow strip all the way to the anterior ocellus; fore femora colored similarly to

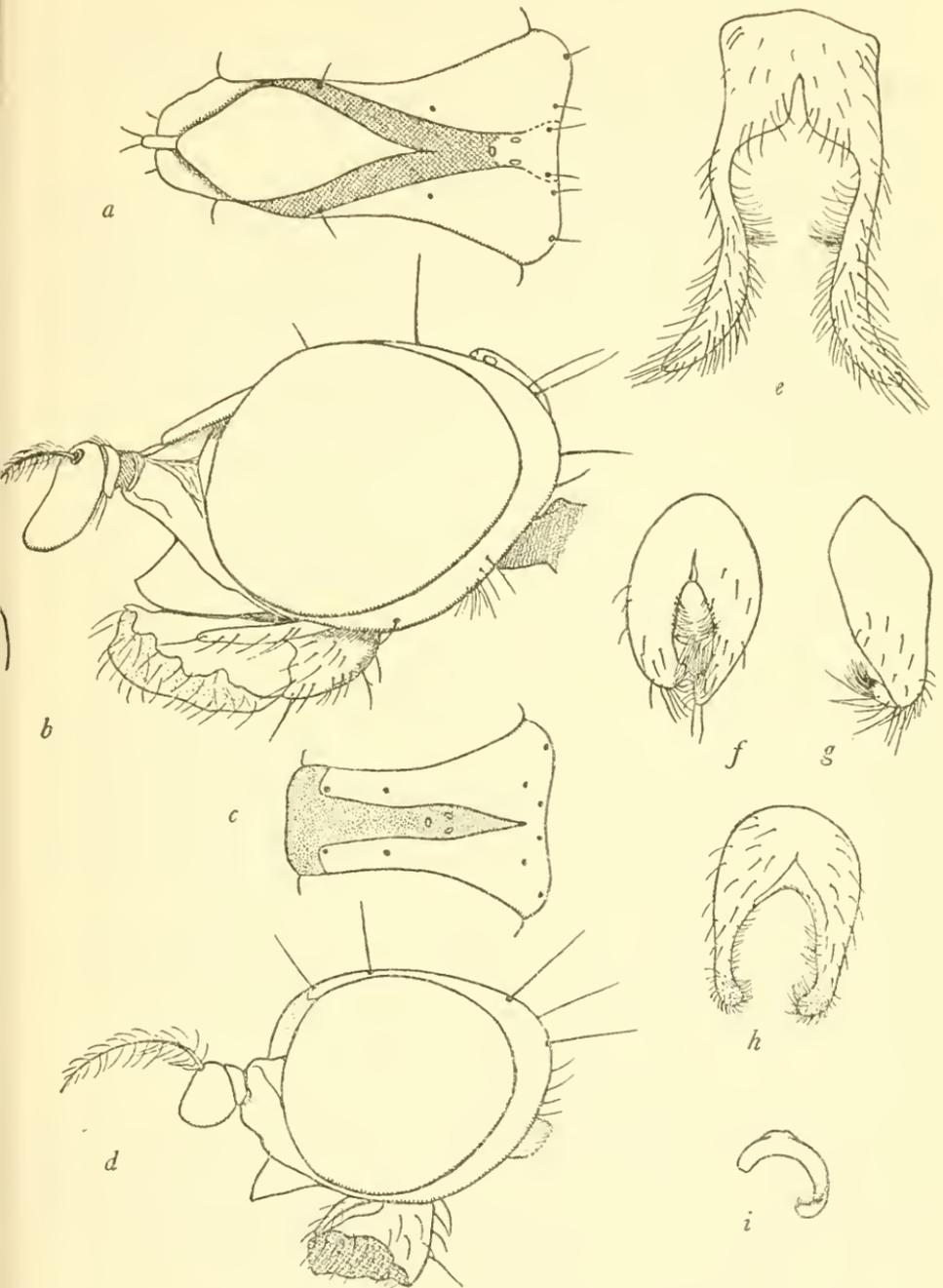


FIGURE 74.—*a, b, e, Eurybata hexapla* Osten-Sacken: *a*, Dorsal aspect of frons and vertex; *b*, lateral aspect of head; *e*, copulatory fork. *c, d, Crosa semilauta* (Osten-Sacken): *c*, Dorsal aspect of frons and vertex; *d*, lateral aspect of head. *f, g, Eurybata nigriritibia*, new species: *f*, Copulatory fork, ventral aspect; *g*, copulatory fork, lateral aspect. *h, Eurybata tessellata*, new species, copulatory fork. *i, Crosa yapensis*, new species, copulatory fork.

*E. hexapla*, but the tibiae are blackish except for a short distance at tip and the tarsi are brown from tip of basitarsi; all tarsi apically darkened; mesonotum with a heavily brown-pruinose roundish patch behind transverse suture, a band before scutellum, and one at mesal corner of notopleural area.

Wing fascia beyond *tp* (fifth from base of wing) extending basad between third and fourth veins, making the band twice as wide at this point; two sternopleurals; one strong posterior and one small anterior notopleural bristle; apical wing spot longer than width of first posterior cell at base of spot; copulatory fork as in figures 74, *f, g*.

*Type*.—Holotype, male, U.S.N.M. No. 58302, PHILIPPINE ISLANDS: Luzon (Ube Laguna), May 12, 1929, R. C. McGregor collector.

15. EURYBATA TESSELLATA, new species

FIGURE 74, *h*

*Male and female*.—Length, 10 mm. (exclusive of ovipositor in female). Antennae blackish except at base, twice as long as wide; the shining mesofrontal wedge very rapidly running out into a short point not more than halfway to ocellus; fore femora blackish except short distance at base; fore tibiae a little brownish apically; all tarsi light brown apically; mesonotum without distinctly set-off pruinose areas; wings with the transverse fasciae, especially in middle of wing, broken into a series of alternating squarish blotches; a hyaline spot anterior to *tp* lying directly posterior to a brown blotch in submarginal cell; marginal cell wholly brown; apical wing spot indistinct; two subequal notopleural bristles; two sternopleurals; copulatory fork of male as in figure 74, *h*.

*Types*.—Holotype, male, U.S.N.M. No. 58303, PHILIPPINE ISLANDS: Mindanao (Surigao), Baker collector; allotype, female, Island of Basilan, Baker collector.

CROSA, new genus

*Genotype*.—*Eurybata semilauta* Osten-Sacken.

Distinguished from related genera as in the foregoing key, as well as by the following characters: Mesofrons (fig. 74, *c*) wholly dull, vertical in front, not projecting, parafrontals ending bluntly; ocelli well forward; one dorsocentral bristle; pterostigma very small; abdomen wholly pruinose; male fore femora with many long loose hairs on basal ventral side.

It is possible that with the exception of the preceding three species all those heretofore included in *Eurybata* should find their place here.

*Crosa* is dedicated to that master dipterologist, Carl Robert von Osten-Sacken, and the name is formed from the initial letters of his name.

16. *CROSA SEMILAUTA* (Osten-Sacken), new combination

FIGURE 74, c, d

*Eurybata semilauta* OSTEN-SACKEN, Berliner Ent. Zeitschr., vol. 26, p. 207, 1882.—FREY, Not. Ent., vol. 7, p. 76, 1927.—HENNIG, Konowia, vol. 14, p. 302, 1935.

PHILIPPINE ISLANDS: LUZON (Los Baños; Mount Maquiling); Mindanao (Zamboanga); Tayabas (Lucban); Samar (Osmeña).

Previously recorded from localities in Luzon, Mindanao, and Samar.

17. *CROSA TETRAS* (Steyskal), new combination

*Eurybata tetras* STEYSKAL, Occas. Pap. Mus. Zool. Univ. Michigan, No. 502, p. 2, 1947.

The type material, from the Solomon Islands, is evidently congeneric with *C. semilauta*.

18. *CROSA YAPENSIS*, new species

FIGURE 74, i

*Male*.—Length of body, 6.5 mm.; length of wings, 4.5 mm. Color yellow, except extreme tip of femora and tibiae, dorsum of abdomen and anterior part of parafrontal stripes, which parts are brown. There is a faint preapical band of brown on fore femora and the apical tarsal joints are a little darkened. Mesofrons golden brown, becoming blackish in ocellar region.

The entire insect is shining or subshining except mesofrons, frontal orbits anterior to parafrontal stripes, antennae, and a heavily tomentose pleural stripe. Anterior frontal orbits narrowly golden tomentose. Pleural stripe bright white when viewed very obliquely, but otherwise dull lead colored; it covers the narrow lower margin of propleura and continues across mesopleura as a stripe as wide as fore tibiae. The stripe, were it to continue across the sternopleura, would run into the uppermost two posterior sternopleural setae. Parafrontal stripes with a bluish reflection.

Head very similar to that of *C. semilauta* (fig. 74, c, d), but arisal hairs only half as long as in that species.

Wings clear hyaline with brownish-yellow veins. Third and fourth veins converge to within a distance equal to length of *ta*. Pterostigma obsolete.

Fore femora furnished below with loose yellowish hairs, at base of femora twice as long as width of femur, but rapidly becoming shorter until they give out at mid-femur.

Copulatory fork in figure 74, *i*, the right arm apparently broken off.

*Type*.—Holotype, male, U. S. N. M. No. 58984, CAROLINE ISLANDS: Yap Island, near Yaptown, July 14, 1946 (H. K. Townes No. 1239).

*Remarks*.—This species is apparently near *Eurybata cuneifrons* De Meijere and *E. petasibarba* Enderlein, as keyed in Hennig (1935, p. 301), but the "wedge-shaped spot on the hind margin of the mesopleura" is here a slender stripe. The pale general color and the wholly hyaline wings are distinctive.

### Genus GONGYLOCEPHALA Czerny

#### 19. GONGYLOCEPHALA PALLIDA LUZONICA, new subspecies

*Gongylocephala pallida* STEYSKAL, Occas. Pap. Mus. Zool. Univ. Michigan, No. 502, p. 4, 1947.

*Male and female*.—Subspecies agrees with *G. pallida* (Guadalcanal, Solomon Islands), except that base of fore tibiae is not brownish, but tibiae are uniformly yellow; middle tibiae are uniformly dark brown, not grading to yellow basally; fore femora are a little darker than tibiae in well-preserved specimens and hind tibiae are a little darkened basally; whitish fascia of wing is quite straight; male copulatory fork as in *G. pallida*.

*Types*.—Holotype male, allotype, female, and four male and two female paratypes, U.S.N.M. No. 58306, PHILIPPINE ISLANDS: LUZON (Mount Maquiling), Baker collector.

### Genus NESTIMA Osten-Sacken

#### 20. NESTIMA POLITA Osten-Sacken

*Nestima polita* OSTEN-SACKEN, Ann. Mus. Genova, vol. 16, p. 458, 1880.—HENNIG, Konowia, vol. 14, p. 308, 1935.

NEW GUINEA: Nadzab (Markham River Valley), May 4, 1944 (K. V. Krombein), one female.

Although the two known species of *Nestima*, *N. polita* Osten-Sacken, and *N. prolixa* (Walker), are both inadequately described, I believe that the above specimen agrees well enough with Osten-Sacken's description to make the determination. There must remain some doubt as to the identity of the following forms, described as new, but I feel certain that they are specifically distinct.

21. *NESTIMA PLEURALIS*, new species

*Female*.—Length 10 mm., exclusive of ovipositor. Similar to Osten-Sacken's description of *N. polita*, although the thorax is not "uniformly dark brown, shining," but moderately pruinose on dorsum with a pitchy brown, largely polished band of equal width extending all around thorax, including entire pteropleura, crossing notopleural suture, and including neck, humeri, and anterior face of anterior hump of mesonotum. Below this band on pleura of each side is a heavy stripe of appressed white hair, very narrow above fore coxae and gradually widening to include entire hypopleura from middle coxal to pteropleural sutures. There are several whitish sternopleural bristles and 1+2 notopleurals. Lower part of thorax is yellow.

Fore trochanters are black; fore femora yellow at base and at tip for a distance equal to three times the width, preceded by a blackish band of approximately same length; fore tibiae blackish except at extreme base; and fore tarsi whitish except two brown apical joints. Middle and hind legs have tips of tibiae and entire tarsi black. Halteres with brown stem and yellow knob.

*Type*.—Holotype, female, U.S.N.M. No. 58308, NEW GUINEA: Nadzab (Markham River Valley), May 14, 1944 (K. V. Krombein).

22. *NESTIMA VIRIDINSULA*, new species

*Female*.—Length 10 mm., exclusive of ovipositor. Very similar to *N. polita* and *N. pleuralis*. Thorax dark brown, moderately pruinose on dorsum, blackish in a humeral stripe on each side of anterior hump. Mesopleura with pitchy, shining stripe in upper part, tapering and becoming evanescent forward. No trace of pruinosity or hair on pleura anterior to hyposternopleural suture. Several whitish sternopleural bristles and 1+2 notopleurals.

Fore legs yellow; tibiae light brown on most of length, yellow basally and whitish apically; tarsi whitish, but brownish on apical two or three joints; middle and hind legs yellow, except black tips of tibiae and entire tarsi.

Halteres with brown stem and yellow knob.

*Type*.—Holotype, female, U.S.N.M. No. 58307, BISMARCK ISLANDS: Green Island, 1944 (W. G. Downs).

Genus *TREPIDARIOIDES* Frey23. *TREPIDARIOIDES TERRITA* (Osten-Sacken)

*Calobata territa* OSTEN-SACKEN, Berliner Ent. Zeitschr., vol. 26, p. 203, 1882.

*Trepidarioides territa* (Osten-Sacken) FREY, Not. Ent., vol. 7, p. 76, 1927.—

HENNIG, Konowia, vol. 14, p. 307, 1935.

PHILIPPINE ISLANDS: Mindanao (Surigao); Luzon (Mount Maquiling; Laguna).

The copulatory fork of the male of this species, type of the genus *Trepidarioides* Frey, is a simple U-shaped organ, as narrow at base as the arms are wide, unadorned, and quite different from the organ figured by Hennig (1935, p. 306) for *T. cyanea* (Hendel).

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