

NEW OR LITTLE-KNOWN TIPULIDÆ FROM THE
PHILIPPINES (DIPTERA), VIII *

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THREE PLATES

All species of crane flies discussed in the present paper are from central and northern Luzon, where they were collected in Mountain and Rizal Provinces, by Duyag; in Laguna Province, by McGregor; and in Cagayan, Mountain, and Pampanga Provinces, by Rivera. As before, I am greatly indebted to Mr. McGregor and his coworkers for their continued interest in collecting and saving these fragile flies from many parts of the Philippines. I am again indebted to Mr. McGregor for the privilege of retaining the material herein considered.

Our knowledge of the Philippine crane flies is now such that it seems advisable to give a list of the generic and subgeneric groups so far discovered in the Islands. All of the groups listed below have been taken in Luzon, where especial attention has been devoted to the Tipulidæ. Names marked with an asterisk (*) indicate groups that have been taken in Luzon but not in Formosa. Groups marked with an obelisk (†) have not been recorded hitherto from the Philippines.

*Generic and subgeneric groups of Tipulidæ known to occur in the
Philippine Islands.*

Tipulinæ.

Tipulini.

Pselliophora O. S.

Ctenacroscelis End.

Tipula.

Tipula Linn.

Acutipula Alex.

Nephrotoma Meig.

Tipulodina End.

* *Macgregoromyia* Alex.

* *Scamboneura* O. S.

Dolichopeza.

Nesopeza Alex.

* *Megistocera* Wied.

* Contribution from the Entomological Laboratory, Massachusetts
Agricultural College.

Cylindrotominæ.

* *Stibadocera* Brun.

Limoniinæ.

Limoniini.

Limonia.*Limonia* Meig.*Libnotes* Westw.† *Discobola* O. S.*Dicranomyia* Steph.*Geranomyia* Hal.† *Rhipidia* Meig.*† *Doaneomyia* Alex.*Thrypticomys* Skuse.*Pseudoglochina* Alex.*Goniodineura* v. d. W.*Alexandriaria* Garr.*Euglochina* Alex.*Helius*.*Helius* St. Farg.*Eurhamphidia* Alex.*Antocha*.* *Orimargula* Mik.*Orimarga* O. S.

Lechriini.

* *Lechria* Skuse.

Hexatomini.

Epiphragma O. S.*Pseudolimnophila* Alex.† *Pilaria* Sint.*Limnophila*.*Limnophila* Macq.† *Ephelia* Schin.† *Dicranophragma* O. S.† *Adelphomyia* Bergr.*Eriocera* Macq.*Elephantomyia*.*Elephantomyodes* Alex.

Eriopterini.

Conosia v. d. W.*Trentepohlia*.* *Paramongoma* Brun.*Mongoma* Westw.*Trentepohlia* Big.*Toxorhina*.*Ceratocheilus* Wesché.*Toxorhina* Lw.*Gonomyia*.*Ptilostena* Bergr.*Lipophleps* Bergr.

Limoniinæ—Continued.

Eriopterini—Continued.

Gnophomyia O. S.*Teucholabis*.*Teucholabis* O. S.*Gymnastes* Brun.*Cryptolabis*.*Baeoura* Alex.*Erioptera*.*Erioptera* Meig.*Molophilus* Curt.*Styringomyia* Lw.

TIPULINÆ

TIPULODINA PAMPANGENSIS sp. nov.

General coloration obscure yellow, marked with black; pleura yellow, with small dark spots; legs black, ringed with white; all basitarsi black, the tips conspicuously snowy white; wings light yellow, with a brown pattern; no dark area in cell M; Rs very short, less than R_{2+3} ; R_3 long and extended.

Female.—Length, about 26 millimeters; wing, 18.5.

Frontal prolongation of head ochereous above, brownish black laterally; palpi brownish yellow. Antennæ with the scapal segments ochereous; flagellum broken. Head brownish gray, the frons yellow.

Pronotum brownish black above, yellow laterally. Mesonotal præscutum obscure yellow, almost covered by four blackish stripes that are narrowly margined with dull black; lateral margins of sclerite more pruinose; posterior sclerites of mesonotum dull black, the sides of the postnotum paler. Pleura yellow, with small blackish spots, including one on the otherwise yellow dorsopleural membrane, an area above the fore coxa, another above the meron, and an elongate band on the pleurotergite. Halteres black. Legs with the coxæ yellow, the posterior coxæ more grayish behind; trochanters yellow, marked with darker; fore femora brown, with a broad whitish subterminal ring; fore tibiæ black, with a broad white subterminal ring that is a little greater than the blackened tip; middle femora brown, the tips brownish black; middle tibiæ about as on forelegs; posterior femora brown, the tips blackened; posterior tibiæ black, with two white rings; all basitarsi black, the apical fourth or fifth snowy white; segments two to four white, the terminal segment blackened; setæ of the white rings very small and delicate, snowy white. Wings (fig. 1) with the ground color light yellow, the

brown pattern about as in allied forms; no darkening in cell M. Venation: Rs very short, less than R_{2+3} ; R_3 long and extended.

Abdominal tergites reddish brown, blackened medially; on the outer segments the areas widened out so as to restrict the ground color to basolateral triangles, the caudal margins narrowly pale; sternites paler.

LUZON, Pampanga Province, Mount Arayat, October, 1929 (*Rivera*); holotype, female.

Tipulodina pampangensis is distinct from the other described Philippine species in the yellow-tinted wings, without darkening in cell M and with the venational details quite different from *T. luzonica* Alexander. The latter species usually has the tips of the basitarsi similarly pale, but I have seen specimens that were apparently conspecific in which the basitarsi were entirely blackened.

Genus SCAMBONEURA Osten Sacken

Scamboneura OSTEN SACKEN, Berlin. Entomol. Zeitschr. 26, Heft 1 (1882) 95.

At this time I am describing as new three species of this genus and am further describing and illustrating the details of the male hypopygium of *Scamboneura unicolor* Bezzi and *S. plumbea* Alexander. The number of species now known from the Philippines is eleven and a new key to these forms is provided, to supersede the earlier one.¹

Key to the Philippine species of *Scamboneura* Osten Sacken.

1. Anterior cord transverse or subtransverse, Rs in approximate alignment with the remaining elements of the cord..... 2.
Anterior cord strongly bowed, Rs lying distad of the remaining elements of the cord 4.
2. Anterior cord subtransverse, cell R_5 lying proximad of cell R_3 ; median præscutal stripe divided by a paler line.
S. subtransversa sp. nov.
Anterior cord transverse, cell R_5 lying proximad of cell R_3 ; when the præscutum is striped, the median vitta is entire 3.
3. Mesonotal præscutum and scutal lobes with plumbeous markings that are narrowly bordered by black..... *S. primaeva* Alexander.
Mesonotal præscutum yellowish, immaculate.... *S. primogenia* sp. nov.
4. Thoracic dorsum strongly pruinose, never polished, the gray coloration forming a discal shield 5.
Thoracic dorsum not pruinose, either polished or opaque, the præscutal disk with separate stripes (except in *unicolor*)..... 7.

¹ Philip. Journ. Sci. 33 (1927) 293-294.

5. Thoracic dorsum and pleura uniformly plumbeous.
S. plumbea Alexander.
 Thorax not uniformly plumbeous, at least the pleura variegated with pale and dark areas 6.
6. Pleura conspicuously striped with darker....*S. psarophanes* Alexander.
 Pleura, especially the sternopleurite, not conspicuously striped with darker *S. banahaoensis* sp. nov.
7. Mesonotal præscutum with three stripes that are polished brown, slightly metallic, bordered by opaque black; pleura pale, distinctly variegated with darker *S. dotata* Osten Sacken.
 Mesonotal præscutum without stripes of this nature; pleura uniformly pale 8.
8. General coloration of head and thorax yellow, immaculate.
S. unicolor Bezzi.
 Either the præscutum or the head, or both, marked with darker.... 9.
9. Præscutal stripes polished; head unmarked except for an occipital area.
S. faceta Alexander.
 Præscutal stripes opaque; occipital area sending a narrow dark vitta cephalad onto the vertex 10.
10. Præscutal stripes ill-defined to subobsolete; male hypopygium not conspicuously enlarged, the eighth sternite without long conspicuous setæ *S. vittivertex* Alexander.
 Præscutal stripes distinct; male hypopygium enlarged, the eighth sternite with abundant long reddish setæ.
S. hirtisternata Alexander.

The three species first named, having the anterior cord of the wings transverse or nearly so, have all been discovered since the preparation of the former key (1927).

SCAMBONEURA SUBTRANSVERSA sp. nov.

General coloration yellow, the præscutum with three brown stripes, the median one divided by a brownish yellow vitta; vertex of head with a black median vitta; wings with the elements of the anterior cord in nearly transverse alignment, the inner end of cell R_5 lying slightly proximad of that of cell R_3 ; abdominal tergites yellow, each with a metallic area at near mid-length.

Male.—Length, about 11 millimeters; wing, 9.5.

Female.—Length, about 16 millimeters; wing, 11.5.

Frontal prolongation of head yellow, narrowly dark brown above; mouth parts, with the exception of the infuscated outer segments of the maxillary palpi, pale. Antennal scape yellow, the flagellum nearly uniformly blackened in male, only the outer end of the basal segment being pale; in the female the basal segment is chiefly yellow and the outer ends of the succeeding five or six segments are yellowish; antennæ of male more elon-

gate than that of female, the verticils much shorter than the segments in both sexes. Head with the posterior vertex, occiput, and postgenæ grayish brown, the anterior part of the head orange, with a conspicuous black median vitta extending virtually to the summit of the vertical tubercle.

Pronotum infuscated on cephalic portion, the narrow posterior median portion obscure yellow. Mesonotal præscutum pale yellow, with three shiny brown stripes, the short lateral stripes slightly more bronzy, entire or narrowly bordered by velvety brownish black; the larger wedge-shaped median area conspicuously divided by a brownish-yellow center that does not attain the suture behind; scutal lobes almost covered by extensive dark areas that are quite similar in color to the lateral præscutal stripes; scutellum more or less infuscated; postnotal mediotergite pale whitish yellow, with a \perp -shaped brown pruinose marking. Pleura pale testaceous yellow, unmarked, somewhat more pruinose dorsally, clearer yellow ventrally. Halteres infuscated, the base of the stem narrowly pale. Legs with the coxæ and trochanters pale; femora yellow; tibiæ and tarsi passing into brown. Wings (fig. 2) tinged with yellow, the prearcular and costal regions deeper yellow; stigma very small, brown; veins black, C, Sc, R, and Cu more yellowish brown. Venation: Anterior cord almost transverse, the proximal end of cell R_5 lying slightly proximad of cell R_3 ; R_s in approximate alignment with the remainder of cord.

Abdominal tergites yellow, each with a metallic steel-gray or blue median area at near midlength of the segment, these becoming smaller behind and finally obsolete on the outer segments; extreme lateral margins of the segments darkened, interrupted at posterior margin of segment; sternites yellow; hypopygium yellow. Male hypopygium with the caudal margin of the ninth tergite (fig. 23) with a U-shaped notch, the ventral margins set with delicate setæ that pass into small blackened conical spines; sublateral arms on ventral surface terminating in four or five blackened teeth. Outer dististyle irregular in outline. Inner dististyle about as illustrated (fig. 24). Appendage of ninth sternite (fig. 25) narrow, liguliform, very gradually narrowed outwardly, the apex weakly bilobed, the surface of the appendage densely set with microscopic yellow spines that are longer and coarser at tips of lobes. Margins of ninth sternite adjoining the appendage with very long conspicuous yellow setæ. Caudal margin of eighth sternite (fig. 26) evenly rounded, at midwidth with a brush of short stiff black setæ.

LUZON, Rizal Province, Novaliches, June 27, 1929 (*Duyag*); holotype, male; allotype, female, June 28, 1929 (*Duyag*); Pampanga Province, Mount Arayat, October, 1929 (*Rivera*); paratypes, 20 males and females.

SCAMBONEURA PRIMOGENIA sp. nov.

General coloration brownish yellow, the mesonotum unmarked; antennæ of male relatively short, if bent backward extending about to the root of the halteres; wings with Rs in alignment with the other elements of the anterior cord; male hypopygium with the appendage of the ninth sternite a simple slender lobe.

Male.—Length, about 13 millimeters; wing, 13.

Female.—Length, about 14 millimeters; wing, 12.5.

Frontal prolongation of head yellow, the nasus long and conspicuous; palpi pale yellow. Antennæ (male) relatively short, only a little longer than the palpi, if bent backward extending about to the root of the halteres; scape yellow, flagellum black. Head of male yellow, unmarked, of female with indications of a median brown vitta.

Mesonotum brownish yellow, subnitidous, without markings. Pleura somewhat clearer yellow. Halteres dark brown. Legs with the coxæ and trochanters yellow; femora obscure yellow, the outer portions more darkened; tibiæ and tarsi dark brown. Wings (fig. 3) whitish subhyaline; stigma small, brown; veins black, C, Sc, R, and Cu paler. Venation: Rs in alignment with the other elements of the anterior cord; R_{1+2} represented by a spur that is subequal to R_2 alone; R_3 gently arcuate.

Abdomen (male) brownish yellow, the basal tergites and the sternites clearer yellow; in female, abdominal tergites almost entirely deep blue-black, the bases and extreme caudal margins of the segments restrictedly paler. Male hypopygium with the ninth tergite (fig. 27) entirely pale above, the caudal margin with a deep V-shaped notch, the lateral lobes broadly rounded; ventral surface of tergite with a few scattered blackened spicules. Dististyles about as illustrated (fig. 28), the apical beak of the inner style stout and only slightly blackened. Appendage of ninth sternite (fig. 29) a long, slender lobe, appearing as a simple rod-shaped structure, the apex obtuse, the organ fringed with delicate setulæ. Gonapophyses as illustrated (fig. 30).

LUZON, Cagayan Province, Mount Tabuan, May, 1929 (*Rivera*); holotype, male; allotype, female; paratype, female.

Scamboneura primogenia is most closely allied to *S. primaeva* Alexander, differing most evidently in the unvariegated mesonotum. The male sex of *S. primaeva* is still unknown.

SCAMBONEURA BANAHAOENSIS sp. nov.

Most closely allied to *S. psarophanes* Alexander, differing in the details of coloration and structure of the male hypopygium: pleura not conspicuously variegated with darker.

Male.—Length, about 12 millimeters; wing, 11.

Female.—Length, about 16 millimeters; wing, 13.

Antennæ with the flagellum of male blackened, of the female with the tips of the basal segments narrowly pale to produce a weakly bicolorous appearance. Occiput and posterior portion of vertex gray, sending a broad black median vitta almost to the summit of the vertical tubercle, the mark much broader and more distinct than in *psarophanes*.

Præscutal stripes four in number, blackened, separated from one another by yellowish gray to clear gray pruinose interspaces; humeral and lateral portions of the præscutum obscure yellow. Pleura chiefly pale yellow, weakly pruinose but not conspicuously marked with darker, as in *psarophanes*. Legs with the coxæ and trochanters yellow, the cephalic face of the fore coxæ darkened; femora yellowish brown, the tibiæ and tarsi darker. Wings (fig. 4) a little narrower, the anterior cord slightly more bowed; vein and cell 2d A slightly shorter; macrotrichia of veins slightly longer and more conspicuous.

Abdomen with the tergites yellow, conspicuously trivittate with shiny black, the median stripe shiny, interrupted on the anterior ring of the segments and more narrowed on the posterior margin; lateral stripes narrow but continuous; sternites yellow; hypopygium chiefly yellow. Male hypopygium with the caudal margin of the tergite (fig. 31) with a narrow V-shaped notch, that is further produced into a compressed blade. Outer dististyle (fig. 32) narrowed to a slender obtuse lobe. Inner dististyle as illustrated (fig. 33). Appendage of ninth sternite (fig. 34) depressed, the caudal end emarginate, the surface covered with abundant pale yellow setæ that are longer and more conspicuous on the lateral lobes, these latter with a single powerful black seta on outer margin before apex. Caudal margin of eighth sternite slightly emarginate and provided with groups of long conspicuous setæ on either side.

LUZON, Laguna Province, above Ube, altitude 1,625 feet, September 1, 1929 (*McGregor*); holotype, male; allotype, female, in copula. "Resting flat on upper surface of leaf of *Elatostema* (Urticaceæ)." —*McGregor*; 1 female, August, 1929 (*Rivera*); paratopotype.

SCAMBONEURA PLUMBEA Alexander.

Scamboneura plumbea ALEXANDER, Philip. Journ. Sci. 21 (1922) 379-380.

The type, a female, was from Pauai, received through Prof. C. F. Baker. A male and two additional females were taken at the type locality, altitude 8,000 feet, April 24-26, 1930, by Rivera. The male is herewith described as allotype.

Male.—Length, about 12.5 millimeters; wing, 12.5; antenna, about 4.2.

Antennæ black throughout, unusually short for this sex. Scutellum gray, concolorous with the remainder of mesonotum; præscutum with indications of four darker gray stripes. Abdominal tergites conspicuously dimidiate, the basal third orange yellow, the broad distal ring black to blue-black; sternites more uniformly yellow, the bases brighter and lighter yellow than the apices. Male hypopygium with the tergite (fig. 35) transverse, the base blackened and with abundant delicate setæ; apical lobes yellow, margined with coarse spinous setæ; a median liguliform pale yellow lobe beneath. Outer dististyle (fig. 36) very broad at base, narrowed to a slender obtuse point. Inner dististyle (fig. 37) shaped as in figure, the blackened apical beak slender; a small group of setigerous tubercles on the outer margin near base. Appendage of ninth sternite (fig. 38) conspicuously bilobed, the entire structure densely set with small stellate groups of setulæ, with longer and more conspicuous setæ at the apices of the lobes.

SCAMBONEURA UNICOLOR Bezzi.

Scamboneura dotata unicolor BEZZI, Philip. Journ. Sci. 12 § D (1917) 112.

Specimens from Ube, Laguna Province, Luzon, March 28 to May 31, 1929 (*Duyag; McGregor*); December, 1929 (*Rivera*).

The details of the male hypopygium have never been described and may here be briefly characterized.

Ninth tergite (fig. 39) not heavily chitinized; lateral lobes margined with very delicate setulæ; spines on mesal face of lobes small and weak, merging gradually into marginal setulæ; median lobule compressed. Outer dististyle (fig. 40) pale, flattened, narrowed to a blunt apical point, the outer margin conspicuously dilated. Inner dististyle (fig. 41) a pale blade with numerous retrorse setæ, the apex narrowed to a blunt blackened point. Appendage of ninth sternite (fig. 42) a depressed bilobed structure, the lobes densely set with setulæ.

DOLICHOPEZA (NESOPEZA) HAIGHTENSIS sp. nov.

General coloration testaceous; tibiæ and tarsi white, the tips of the former narrowly darkened; male hypopygium with the tergite small, the margin gently concave, the median portion slightly produced into a minute obtuse lobule.

Male.—Length, about 8 millimeters; wing, 9.5.

Antennæ (male) elongate, if bent backward extending about to one-third the length of the abdomen; flagellar segments elongate-cylindrical, with a dense white pubescence and a few scattered slightly longer black verticils; antennæ pale brownish yellow. Head obscure orange (probably teneral).

Mesonotum testaceous, the præscutum with three reddish stripes. Anterior mesopleura nearly white, the dorsopleural region infuscated. Halteres elongate, pale, the knobs darkened. Legs with the coxæ and trochanters pale; femora dirty white, the tips darkened; tibiæ whitish, the tips narrowly darkened; tarsi white. Wings subhyaline, the stigma darker; veins pale brown; veins beyond the cord with abundant macrotrichia. Venation: Forks of medial field moderately deep, the second and third sections of M_{1+2} subequal, each about two-thirds the length of cell M_1 .

Abdomen with the basal segments pale, the outer segments more darkened, especially the tergites. Male hypopygium (fig. 43) small and of simple construction. Ninth tergite small, the caudal margin gently concave, the median portion produced into a minute obtuse lobule; lateral lobes low, the lateral margins thickened beneath, blackened, and here provided with a few blackened spicules. Outer dististyle, *od*, small, slightly flattened.

LUZON, Mountain Province, Benguet, Pauai, altitude 8,000 feet, April 18, 1930 (*Rivera*); holotype, a teneral male.

Dolichozeza (Nesopeza) haightensis is very different from the other species described from Luzon and Formosa.

Genus MACGREGOROMYIA Alexander

Macgregoromyia ALEXANDER, Philip. Journ. Sci. 40 (1929) 251.

The accession of more material of the genotype, *M. benguetensis* Alexander, together with the discovery of a second species, *M. brevisector*, necessitates the recasting of the generic characters.

Antennæ 12-segmented, the terminal segment elongate, the apical third narrowed into a false thirteenth segment; flagellar segments cylindrical, with unilaterally arranged, inconspicuous

verticils. Maxillary palpi with the terminal segment long and slender (*benguetensis*) or shorter (*brevisector*). Male hypopygium of simple structure, the tergite not heavily chitinized, the caudal margin with a U-shaped median notch, the lobes obtusely rounded.

The two known species may be separated as follows:

1. Rs with the basal section long and arcuated, exceeding three times the second section; tibiæ uniformly darkened or with the tips insensibly or very narrowly pale..... *M. benguetensis* Alexander.
Rs with the basal section short, transverse or nearly so, subequal in length to the second section; tibiæ dark, the tips broadly pale yellow.
M. brevisector sp. nov.

MACGREGOROMYIA BENGUETENSIS Alexander.

Macgregoromyia benguetensis ALEXANDER, Philip. Journ. Sci. 40 (1929) 251-252, pl. 1, fig. 3.

A few additional specimens, representing both sexes, from the type locality, Pauai, Mountain Province, Luzon, altitude 8,000 feet, collected April 13 to 20, 1930, by Rivera.

This series of specimens shows a curious variation in venation of the medial field. A certain number of the specimens show m-cu connecting at the fork of M_{3+4} , as originally figured for the species. One specimen shows M_3 fused for a short distance at base with M_{1+2} , as in the genus *Nephrotoma*, m-cu in this instance connecting with M_4 a short distance beyond its origin. In some specimens, the free tip of Sc_2 and R_{1+2} are approximated or actually fused at the wing margin, closing or narrowing cell Sc_2 . The knobs of the halteres are only slightly darkened in almost all specimens.

MACGREGOROMYIA BREVESECTOR sp. nov.

General coloration yellow, the præscutum with three brown stripes; antennal scape yellow, the flagellum black; legs chiefly dark brown, the tips of the tibiæ broadly yellow; wings whitish, the cells beyond the cord chiefly infumed, variegated with areas of the ground color; basal section of Rs short and nearly transverse; tip of R_{1+2} atrophied; m-cu at near one-third the length of M_{3+4} ; cell 2d A narrow.

Male.—Length, about 10.5 millimeters; wing, 11.3.

Frontal prolongation of head obscure yellow above, darker beneath; nasus elongate; palpi with the basal three segments brownish black, the terminal segment yellow, shorter than the combined second and third segments. Antennæ with the scape yellow, the flagellum black. Head brown, very narrowly paler

on the orbits; antennal fossæ with a curved blackened line behind.

Mesonotal præscutum yellow, the interspaces more obscured, the disk with three dark brown stripes, the central portion of the median stripe somewhat paler; scutal lobes darkened, the median region yellow; scutellum and postnotal mediotergite testaceous brown. Pleura yellow, variegated with brown on the sternopleurite, anepisternum, and meron. Halteres very long, yellow, the knobs dark brown. Legs with the coxæ obscure yellow, the outer face of the hind coxæ darkened; trochanters yellow; femora dark brown, paler basally; tibiæ brownish black, the extreme base pale, the tips broadly and conspicuously light yellow, this including about the distal fifth or sixth of the segment; tarsi brownish black; tibial spurs very small. Wings (fig. 5) petiolate at base; ground color of basal cells whitish, those beyond the cord suffused with brown, with whitish areas in their proximal portions, including a prestigmal and a poststigmal area; bases of cells R_3 , R_5 , M_1 , 2d M_2 , M_3 , and M_4 , with smaller pale areas; entire central portion of cell 1st M_2 pale; cells C and Sc light brown; stigma and a conspicuous circular cloud on the anterior cord darker brown; veins Cu, 2d A, and m-cu narrowly seamed with brown; outer margin of cell 1st A dusky; veins black, those in the costal region paler. Venation: As in *benguetensis*, with the following exceptions: Basal section of Rs short and nearly transverse, weakly angulated at midlength, about equal in total length to the second section of Rs; tip of R_{1+} atrophied; cell 1st M_2 roughly elongate-oval in outline; basal section of M_{2+4} a trifle shorter than the second section; basal section of M_3 subequal to or shorter than m-cu; m short; cell 2d A very narrow.

Abdominal tergites black, the segments narrowly ringed with obscure yellow, before the narrowly darkened apices; sternites more uniformly obscure yellow; subterminal segments and hypopygium more uniformly darkened. Male hypopygium with the ninth tergite (fig. 44) pale, the caudal margin with a deep conspicuous U-shaped notch, the lateral lobes obtusely rounded, provided with an additional very small lateral lobule. Dististyles as illustrated (figs. 45 and 46).

LUZON, Mountain Province, Benguet, Pauai, altitude 8,000 feet, April 18, 1930 (*Rivera*); holotype, male; allotype, female, April 26, 1930; paratypes, 4 males, April 21 to 26, 1930; Bontoc Subprovince, Mount Data, April 29, 1930, resting on a leaf (*Rivera*), paratype, male.

Macgregoromyia brevisector is very distinct from the genotype, *M. benguetensis* Alexander; both species are known only from the highest mountains of northern Luzon.

LIMONIINÆ

LIMONIINI

LIMONIA (LIMONIA) LIGAYAI sp. nov.

General coloration reddish testaceous, the mesonotum variegated with brown; antennæ black; thoracic pleura with a longitudinal black stripe; legs and halteres darkened; wings tinged with blackish; Sc long, Sc₂ at the tip of Sc₁; male hypopygium with the ventral dististyle small, the rostral prolongation very long and slender; dorsal dististyle setiferous on basal three-quarters; gonapophyses appearing as blackened, weakly sinuous horns.

Male.—Length, about 4.2 to 4.4 millimeters; wing, 5.5 to 5.6.

Female.—Length, about 5 millimeters; wing, 5.3 to 5.5.

Rostrum and palpi black. Antennæ black throughout; flagellar segments short-cylindrical, with very short apical pedicels; segments covered with a short white pubescence and with relatively short unilaterally arranged verticils; terminal segment longer than the penultimate, pointed at apex. Head brownish gray.

Mesonotum light reddish testaceous, the præscutum with three ill-delimited brown stripes, the scutal lobes extensively darkened. Pleura clear yellow ventrally, the dorsal portions chiefly occupied by a narrow longitudinal black stripe; dorsopleural region darkened. Halteres brownish black, the base of the stem narrowly yellow. Legs with the coxæ and trochanters light yellow; femora light yellow basally, the tips broadly brownish black, broadest on the forelegs where it includes more than the outer three-fourths, narrowest on the posterior legs where approximately the outer fifth is darkened; tibiæ pale brown, the tips a little darkened; tarsi brown, the posterior tarsi a trifle paler. Wings (fig. 6) with a strong blackish tinge, the small oval stigma darker brown; veins brownish black. Costal fringe of both sexes relatively long and conspicuous. Venation: Sc long, Sc₁ ending beyond midlength of Rs, Sc₂ at its tip; Rs arcuated to weakly angulated and short-spurred at origin; free tip of Sc₂ nearly its own length before R₂; cell 1st M₂ closed; m-cu close to fork of M; vein 2d A long.

Entire abdomen dark brown. Male hypopygium (fig. 47) with the tergite, 9t, unusually long, narrowed outwardly, the

caudal end very gently emarginate. Basistyle, *b*, with the ventromesal lobe basal in position, stout. Ventral dististyle, *vd*, small, appearing as an oval fleshy lobe provided with long coarse setæ; rostral prolongation very long and slender, gently curved; spines pale, two in number, basal in position. Dorsal dististyle long and slender, the long acute apex decurved; basal three-fourths of style with abundant appressed setæ. Gonapophyses, *g*, appearing as blackened, weakly sinuous horns, the tips subacute. *Ædeagus*, *a*, stout, bifid at tip.

LUZON, Mountain Province, Benguet, Pauai, altitude, 8,000 feet, April 15 to 26, 1930 (*Rivera*); holotype, male; allotype, female; paratypes, 7 males and females; Laguna Province, above Ube, altitude 1,500 feet, February 3 to 9, 1930 (*Rivera*); paratypes, 2 males.

Limonia (Limonia) ligayai is named in honor of Mr. Macario Ligaya, artist of the Philippine Bureau of Science, to whom I express my indebtedness for his coöperation in preparing the plates of figures accompanying this series of papers. The species is clearly defined by the combination of characters diagnosed above.

LIMONIA (LIBNOTES) NEOFAMILIARIS sp. nov.

General coloration ochereous, the mesonotal præscutum darkened in front; head black; wings whitish subhyaline, cells C and Sc more yellowish brown; stigma dark brown; abdominal tergites dark brown, the sternites and hypopygium yellow.

Male.—Length, about 8 millimeters; wing, 10.4.

Rostrum and palpi black. Antennæ black throughout; flagellar segments becoming more slender and elongate outwardly; longest verticils unilaterally arranged and much exceeding the segments; terminal segment longer than the penultimate. Head black, sparsely pruinose; anterior vertex reduced to a narrow strip.

Pronotum darkened medially, paling to yellow on sides. Mesonotum ochereous, the præscutum vaguely darker medially, especially on anterior half. Pleura ochereous, vaguely marked with more reddish ochereous on the sternopleurite. Halteres dirty white, the knobs darkened. Legs with the coxæ and trochanters yellow; remainder of legs light brown. Wings (fig. 7) whitish subhyaline, cells C and Sc more yellowish brown; stigma relatively small, trigonal, dark brown; veins black, the prearcular and costal veins paler. Venation: Sc₁ ending beyond r-m, Sc₂ some distance from its tip; Rs long, gently sinuous, in alignment with the basal section of R₄₊₅ and approximately four times

as long; free tip of Sc_2 and R_2 in transverse alignment; cell 1st M_2 small, m-cu at midlength; anal veins divergent.

Abdominal tergites dark brown, the sternites yellow; hypopygium pale. Male hypopygium (fig. 48) with the tergite, $9t$, transverse, the caudal margin with a low V-shaped emargination, the lateral lobes with long conspicuous setæ. Basistyle, b , much smaller than the ventral dististyle, vd ; rostral prolongation of latter stout, slightly blackened, the two spines unequal in diameter, the outermost a little shorter and stouter. Dorsal dististyle a powerful sickle. Gonapophyses, g , with the outer margin toothed.

LUZON, Mountain Province, Benguet, Mount Santo Tomas, above Baguio, altitude over 5,000 feet, October 9, 1929 (*Duyag*); holotype, male.

According to Edwards, *Limonia (Libnotes) familiaris* (Osten Sacken) has the male hypopygium with elongate basistyles and small ventral dististyles, thus differing from the two species described herein as *subfamiliaris* sp. nov. and *neofamiliaris* sp. nov., both of which have short basistyles and a large fleshy ventral dististyle. The present species differs from *subfamiliaris* by the size, coloration, and details of venation.

LIMONIA (LIBNOTES) SUBFAMILIARIS sp. nov.

General coloration fulvous yellow, the thorax unmarked; head blackish gray; wings yellowish subhyaline, the base and costal region more yellowish; stigma small, dark brown; R_2 and free tip of Sc_2 in transverse alignment; male hypopygium with the spines of the rostral prolongation of the ventral dististyle very unequal, the innermost reduced to a slender seta.

Male.—Length, about 6.5 millimeters; wing, 9.

Rostrum dark brown; palpi black. Antennæ brownish yellow, the incisures clearer yellow; verticils of segments very long, arranged chiefly unilaterally; terminal segment elongate. Head blackish gray, the orbits narrowly light gray; anterior vertex very narrow.

Thorax light fulvous yellow, entirely unmarked. Halteres pale. Legs with the coxæ and trochanters fulvous yellow; femora brownish yellow, gradually darkened outwardly, the extreme tips vaguely paler; tibiæ and tarsi dark brown. Wings (fig. 8) yellowish subhyaline, the prearcular and costal regions more yellowish; stigma small, dark brown, subcircular; veins dark brown, paler in the flavous areas. Venation: Sc long; Rs nearly straight, in alignment with the basal section of R_{4+5}

and approximately twice as long; free tip of Sc_2 and R_2 in transverse alignment; cell 1st M_2 relatively small; m-cu at from near one-third to two-fifths the length of the cell.

Abdomen fulvous, the hypopygium pale. Male hypopygium with the tergite transverse, its caudal margin with a shallow V-shaped emargination, the lobes densely set with conspicuous setæ, the outer ones larger and coarser. Rostral prolongation of ventral dististyle stout, the two spines very unequal in size, the outer stout, the inner nearly as long but reduced to a mere seta. Gonapophyses with the outer margin before apex microscopically toothed.

LUZON, Pampanga Province, Mount Arayat, October, 1929 (*Rivera*); holotype, male.

LIMONIA (LIBNOTES) PERPARVULA sp. nov.

Size very small (wing, male, less than 4.5 millimeters); general coloration yellow, the præscutum variegated with brown; knobs of halteres blackened; legs brown, the tips of the femora narrowly yellow; wings grayish, the stigma a little darker than the ground color; male hypopygium with the ventral dististyle entirely without rostral spines.

Male.—Length, about 3.5 millimeters; wing, 4.3.

Rostrum and palpi black. Antennæ black throughout; flagellar segments with stout glabrous apical necks that are concolorous with the remainder of the segment; segments with long, unilaterally arranged verticils. Head dark, the anterior vertex and orbits gray; anterior vertex very narrow.

Mesonotal præscutum yellow, with a median dark brown stripe; lateral margins of the sclerite behind the pseudosutural foveæ slightly darkened; posterior sclerites of mesonotum more testaceous yellow. Pleura yellow. Halteres yellow, the knobs blackened. Legs with the coxæ and trochanters yellow; femora dark brown, the tips narrowly and abruptly yellow; tibiæ and tarsi light brown, the terminal segments of the latter darkened; claws long and slender, each with a long basal spine. Wings (fig. 9) grayish, prearcular region and cells C and Sc yellow; stigma oval, very slightly darker than the ground color; veins brown, C, Sc, and R more yellowish. Venation: Sc_1 ending about opposite midlength of the basal section of R_{4+5} , Sc_2 at its tip; Rs relatively short and straight; distal end of R_1 curving strongly toward R_{2+3} but the free tip of Sc_2 in approximate alignment with R_2 ; m-cu at or just beyond midlength of cell 1st M_2 ; vein 2d A converging slightly towards 1st A¹ at origin.

Abdominal segments dark brown, the caudal margins narrowly yellow; hypopygium chiefly pale. Male hypopygium (fig. 49) with the caudal margin of the tergite, *9t*, transverse. Basistyle, *b*, long, the ventromesal lobe very low and obtuse. Dorsal dististyle a nearly straight rod. Ventral dististyle fleshy, the oval body set with long coarse setæ, the stout rostral prolongation without evident spines; on face of style near base of prolongation with a corrugated plate. Gonapophyses, *g*, with the mesal apical lobes very long and slender.

LUZON, Pampanga Province, Mount Arayat, October, 1929 (*Rivera*); holotype, male.

Limonia (Libnotes) perparvula is very distinct from all regional species of the subgenus.

LIMONIA (LIBNOTES) ELATA sp. nov.

General coloration fulvous; hypopygium black; femora yellow, tipped with black; wings relatively narrow; veins beyond cell 1st M_2 elongate; cell 2d A narrow; male hypopygium with the dorsal dististyle a yellow cultriform blade.

Male.—Length, about 11 millimeters; wing, 14.5.

Rostrum and palpi black, the former of moderate length only. Antennæ brown; flagellar segments oval, more slender and attenuate outwardly, each with a seta of unusual length, unilaterally arranged. Head reddish brown, the front and anterior vertex more infuscated; anterior vertex (male) reduced to a linear strip.

Thorax opaque fulvous, without evident markings. Halteres fulvous, the knobs brownish black. Legs with the coxæ and trochanters fulvous; femora yellow, the tips conspicuously blackened; tibiæ and basitarsi yellow, narrowly darkened at tips; remainder of tarsi dark brown. Wings (fig. 10) much narrower than in *termitina*, all cells correspondingly narrowed and more elongate; membrane with a conspicuous brown suffusion, quite as in *termitina*; stigma (male) large, elongate, brown, the costal margin being paler than the stigma; extreme wing tip dark brown; veins dark brown. Venation: R_2 joining R_1 at a more abrupt angle than in *termitina*; outer radial veins deflected strongly caudad at tips; cell 1st M_2 long and narrow, the veins beyond it unusually elongate, the cell being about one-half of vein M_3 beyond it; m-cu just before midlength of the cell; cell 2d A narrow, at near midlength very closely approaching vein 1st A.

Abdomen fulvous, the hypopygium blackened. Male hypopygium (fig. 50) with the caudal margin of the tergite, 9*t*, nearly straight or very slightly emarginate. Basistyles, *b*, large, especially the ventromesal lobe. Ventral dististyle, *vd*, small, oval, with very long coarse setæ; rostral prolongation elongate, yellow, at base with two approximated spines of nearly equal length, a little exceeding one-half the length of the prolongation; on face of style near base of prolongation with a tubercle that bears two very long slender spinous setæ. Dorsal dististyle, *dd*, stout, yellow, the apex subcultriform.

LUZON, Pampanga Province, Mount Arayat, altitude 3,100 feet, October, 1929 (*Rivera*); holotype, male.

Limonia (Libnotes) elata is most similar to *L. (L.) termitina* (*Osten Sacken*), differing in the narrow wings and details of venation.

LIMONIA (DISCOBOLA), probably ARGUS (Say).

Limnobia argus SAY, Long's Exped., Append. (1824) 358.

A female specimen, taken at Pauai, Mountain Province, altitude 8,000 feet, April 11, 1930, by *Rivera*, probably belongs to this widely distributed crane fly.

LIMONIA (DICRANOMYIA) BENGUETENSIS sp. nov.

Belongs to the *morio* group; abdominal segments black, their caudal margins yellow; male hypopygium with the caudal margin of tergite bearing two slender lobes; basistyle with the ventromesal lobe stout, dark-colored; outer dististyle bifid at apex; rostral spine of ventral dististyle apparently lacking.

Male.—Length, about 4.8 millimeters; wing, 5.8.

Rostrum, palpi, and antennæ black; flagellar segments oval, becoming more slender and elongate outwardly. Head black, the anterior vertex silvery.

Mesonotum polished black, the median region of the scutum more pollinose. Pleura black, chiefly covered with a conspicuous silvery pruinosity, the ventral sternopleurite and ventral anepisternum polished black. Halteres yellow, the knobs brownish black. Legs with the fore coxæ darkened, the other coxæ and all trochanters obscure yellow; femora obscure yellow, passing into brownish black at tips; tibiæ and tarsi black. Wings (fig. 11) with a strong brown tinge, the oval stigma darker brown; veins dark brown. Venation: Sc_1 very long, ending just before the origin of R_s ; *m-cu* at fork of *M*; cell 2*d* A wide.

Abdomen black, the segments broadly ringed caudally with yellow; terminal segments, including the hypopygium, more uni-

formly blackened. Male hypopygium (fig. 51) with the tergite, *9t*, transverse, the caudal margin produced into two slender lobes that are separated by a rounded notch. Ventromesal lobe of basistyle, *b*, relatively stout, darkened, provided with three powerful fasciculate setæ, two at apex; basistyle without other armature of tubercles and setiferous groups, as in *nesomorio*. Dorsal dististyle slender, expanded and bifid at apex. Ventral dististyle, *vd*, oval, with long coarse setæ, gradually narrowed to the elongate rostral prolongation; rostral spine lacking or reduced to a tiny tubercle (possibly longer and broken in the unique type). Gonapophyses, *g*, darkened, the mesal apical lobe short. Ædeagus broad, the lateral margins fringed with delicate curved setæ.

LUZON, Mountain Province, Benguet, Mount Santo Tomas, above Baguio, over 5,000 feet, October 9, 1929 (*Duyag*); holotype, male.

Limonia (*Dicranomyia*) *benguetensis* is quite distinct from the Formosan *L. (D.) nesomorio* (Alexander), which seems to be its closest relative.

LIMONIA (GERANOMYIA) BIFIDARIA sp. nov.

General coloration yellow, variegated with brown; body stout; rostrum black, relatively short; femora and tibiæ dark brown; wings grayish yellow, with a sparse brown pattern; Sc long; cell 1st M_2 closed; male hypopygium with the ventral dististyle large and fleshy, the rostral prolongation small, with two closely approximated spines; gonapophyses with the mesal apical lobe conspicuously bidentate.

Male.—Length, excluding rostrum, about 7 millimeters; wing, 8; rostrum, about 2.7.

Rostrum relatively short and stout, black, including the palpi. Antennæ short, black throughout, the flagellar segments oval, with inconspicuous verticils. Head blackish, the anterior vertex with a narrow silvery median line.

Pronotum brown medially above, more yellowish laterally. Mesonotal præscutum yellow, brightest laterally, with three brown stripes, the median stripe becoming obsolete before the suture, the laterals crossing the suture onto the scutal lobes; median region of scutum and the scutellum more yellowish; postnotal mediotergite more plumbeous, paler medially in front and more narrowly so on lateral margins. Pleura greenish testaceous, the anepisternum and dorsopleural membrane extensively infuscated. Halteres pale, strongly tinged with

green. Legs with the coxæ and trochanters greenish yellow; femora dark brown, the bases yellowish; tibiæ black; tarsi paling to yellowish brown, the outer segments darker. Wings (fig. 12) relatively narrow, with a strong grayish yellow ground color, very sparsely patterned with darker, including three small subcostal areas before the larger stigma; very narrow and indistinct seams along cord and outer end of cell 1st M_2 , and at end of vein R_3 ; veins pale, darker in the clouded areas. Venation: Sc long, Sc_1 ending at near two-thirds the length of Rs, Sc_2 close to its tip; a supernumerary crossvein in cell Sc; cell 1st M_2 long and relatively narrow; m-cu at fork of M.

Abdomen brownish yellow, the tergites darker. Male hypopygium (fig. 52) with the tergite transverse, the lobes low and obtuse, with conspicuous marginal setæ. Basistyle, *b*, small, the ventromesal lobe large. Ventral dististyle, *vd*, very large and fleshy, the rostral prolongation small, the two spines arising very close together from small basal tubercles; spines slightly unequal, the inner a trifle longer, gently curved. Dorsal dististyle strongly curved, the narrowed acute tip slightly upcurved. Gonapophyses, *g*, appearing as conspicuous flattened plates, the mesal apical lobe conspicuously bidentate.

LUZON, Mountain Province, Benguet, Pauai, altitude 8,000 feet, April 18, 1930 (*Rivera*); holotype, male; paratypes, 3 males and females, April 21 to 26, 1930 (*Rivera*).

Limonia (Geranomyia) bifidaria is readily told by the structure of the male hypopygium, especially the gonapophyses.

LIMONIA (GERANOMYIA) PLEUROPALLORIS sp. nov.

General coloration of mesonotum polished black, the lateral margins of the præscutum yellow; an opaque blackish pruinose area before the suture; pleura yellow, only sparsely pruinose; male hypopygium with the gonapophyses broad, the setæ restricted to the outer half, very delicate.

Male.—Length, excluding rostrum, about 5.5 to 5.8 millimeters; wing, 5.5 to 6; rostrum, 2.8 to 3.

Female.—Length, excluding rostrum, about 6 to 7 millimeters; wing, 6.2 to 7; rostrum, 2.9 to 3.

Rostrum black. Antennæ black. Anterior vertex silvery, the remainder of head dorsally gray.

Mesonotal præscutum with the disk polished black, with an opaque blackish pruinose area on the lateral margin, the remainder of the lateral portions, including the humeral and a presutural area, yellow; scutal lobes black; median region of scutum

and the scutellum chiefly yellow, the latter margined with dusky; postnotal mediotergite black, pruinose, the pleurotergite with a conspicuous blackish area. Pleura pale yellow, with a sparse whitish bloom, the anepisternum and sternopleurite deeper yellow. Halteres greenish yellow. Legs with the coxæ and trochanters yellow; remainder of legs brownish yellow, the terminal tarsal segments blackened. Wings (fig. 13) grayish, the small stigma slightly darker, ill-defined; veins brown. Venation: A supernumerary crossvein in cell Sc at near two-thirds the length; cell 1st M_2 closed; m-cu about one-half its length beyond the fork of M.

Abdominal tergites obscure brownish yellow, clearer yellow laterally; sternites clear yellow, the incisures narrowly dark brown; hypopygium yellow. Male hypopygium with the gonapophyses much broader than in either *argentifera* or *nigronotata*, the setulæ very delicate and restricted to the outer half or less.

LUZON, Laguna Province, Calamba, April 6, 1930 (*McGregor*); holotype, male; allotype, female; paratypes, 4 males and females. "Resting on upper surface of leaf of a small *Ficus* shrub, which overhung a small stream."—*McGregor*.

Limonia (*Geranomyia*) *pleuropalloris* is related to *L. (G.) argentifera* (de Meijere) and *L. (G.) nigronotata* (Brunetti), differing most evidently in the præscutal pattern, the clearer yellow mesopleura, and the details of structure of the male hypopygium, as the broader gonapophyses with the setulæ very small and delicate, restricted to the distal half.

LIMONIA (DOANEOMYIA) PAMPANGENSIS sp. nov.

General coloration light brown; legs black, the tibiæ with the base and apex broadly and subequally white; tarsi snowy white; wings with a dusky tinge; stigma small; Sc long, ending shortly before the origin of Rs.

Male.—Length, about 5 millimeters; wing, 5.4 to 5.5.

Female.—Length, about 5.3 millimeters; wing, 5.5.

Rostrum reddish brown; palpi black. Antennæ relatively elongate, black; flagellar segments oval, with long apical pedicels. Head light brown, the center of the vertex darker.

Mesonotum light brown, subnitidous, without distinct markings, except that in cases the præscutum is more darkened medially. Pleura more testaceous yellow, the ventral sternopleurite a little darker. Halteres elongate, dark brown. Legs with the coxæ and trochanters ochreous; femora black; tibiæ black, the base and apex rather broadly white, the amount subequal

at either end; tarsi white, the outer segments more yellowish. Wings (fig. 14) with a dusky tinge; stigma very small, sub-circular; veins dark brown. Venation: Sc long, Sc₁ ending shortly before origin of Rs, Sc₂ far from the tip of Sc₁, the latter subequal to or longer than Rs; cell 2d M₂ deep; m-cu at or beyond the fork of M, nearly transverse or oblique, longer to much longer than the distal section of Cu₁; cell 1st A relatively long and narrow; no vestige of either Cu₂ or 2d A.

Abdomen dark brown, including the hypopygium. Male hypopygium with the rostral spines much longer and more conspicuous than in *tahitiensis* (Alexander).

LUZON, Pampanga Province, Mount Arayat, October, 1929 (*Rivera*); holotype, male; allotype, female; paratypes, 2 males.

The discovery of members of the otherwise strictly Australasian group *Doaneomyia* in the Philippine Islands is a matter of great interest. *Limonia* (*Doaneomyia*) *pampangensis* is closest to *L. (D.) albitarsis* (Edwards), of New Hebrides, differing especially in the details of venation and coloration.

LIMONIA (DOANEOMYIA) PAMPANGENSIS MAQUILINGIA subsp. nov.

A slightly different race having the white pattern at base of all tibiae in both sexes much narrower, approximately one-half as wide as the white apex.

LUZON, Laguna Province, Mount Maquiling, September 14, 1929 (*Rivera*); holotype, male; allotype, female; paratype, female.

LIMONIA (THRYPTICOMYIA) OCTOSETOSA sp. nov.

Size small (wing not exceeding 5 millimeters); proximal ends of basitarsi darkened; male hypopygium with the ninth tergite deeply emarginate, each lateral lobe with about four powerful marginal setae; ventromesal lobe of basistyle without a modified apical seta; mesal apical lobe of each gonapophysis relatively slender, darkened.

Male.—Length, about 4.5 to 5 millimeters; wing, 4 to 5.

Female.—Length, about 4 to 4.3 millimeters; wing, 4 to 4.5.

General appearance much as in *apicalis* (Wiedemann). Antennae relatively elongate, in male, if bent backward extending to beyond base of abdomen. Mesonotum light yellowish brown, the median region of præscutum and the scutal lobes darker. Proximal ends of basitarsi darkened, this somewhat narrower on the forelegs. Wings (fig. 15) with the apex only slightly darkened. Venation: Sc₁ ending opposite or shortly before origin of Rs; Sc₂ variable in position, in some cases far from tip,

in others much nearer tip; m-cu beyond midlength of cell 1st M_2 , the inner end of the latter arcuated.

Male hypopygium (fig. 53) differing in all details from allied regional species. Ninth tergite, 9t, deeply notched, the lateral lobes each with about four powerful marginal setæ, the most lateral largest, in cases with an additional median seta. Mesal lobe of basistyle, *b*, relatively stout, without a conspicuous elongate apical seta (as in *microstigma* Alexander and *unisetosa* Alexander). Spines of the rostral prolongation of the ventral dististyle, *vd*, small, the basal enlargements very small to virtually lacking; setæ of apex of rostral prolongation small and relatively insignificant, on the outer margin confined to the extreme end. Gonapophyses, *g*, with the mesal apical lobe long and slender, darkened.

LUZON, Pampanga Province, Mount Arayat, October, 1929 (*Rivera*); holotype, male; allotype, female; paratypes, several of both sexes.

Limonia (Thrypticomylia) octosetosa is most readily told by the structure of the male hypopygium.

HELIUS (EURHAMPHIDIA) DIACANTHUS sp. nov.

General coloration yellow, the mesonotal præscutum with a median brown stripe; femoral tips and tibial bases broadly snowy white, the amount subequal; wings with a faint dusky tinge, cells C and Sc darker; vein 2d A relatively short; outer dististyle and lateral ends of tergite both bispinous.

Male.—Length, about 5 millimeters; wing, 5.5 to 5.7.

Rostrum a little longer than the head, brownish black; palpi black. Antennæ with the scapal segments pale yellow, the flagellum brownish black; antennæ of moderate length, the flagellar segments long-oval, the outer ones becoming more slender and attenuate. Head gray.

Mesonotum yellow, the præscutum with a median dark brown stripe; remainder of notum yellow, the scutal lobes conspicuously darkened; scutellum infuscated, narrowly paler apically; postnotal mediotergite dark brown, narrowly paler laterally. Pleura yellow. Halteres brown, the base of the stem narrowly pale yellow. Legs with the coxæ and trochanters pale yellow; femora brown, paler at base, deepening outwardly, the tips broadly snowy white; tibiæ black, the base broadly white, a trifle narrower than the femoral tip, the apex broadly white, about three times as extensive as the pale base; tarsi snowy white, the terminal two segments darkened. Wings (fig. 16) with a faint dusky tinge, cells C, Sc, and extreme base of Cu more darkened;

stigma oval, dark brown; veins brownish black. Venation: As in *perelegans*, with the following differences: Sc longer, both Sc₁ and Sc₂ ending about opposite one-fourth the length of the distal section of Rs; basal section of Rs longer; vein 2d A shorter.

Abdominal tergites brown, the subterminal segments darker brown; hypopygium brighter. Male hypopygium (fig. 54) with the lateral arms of the tergite, 9t, conspicuously bispinous, the small lateral arm slender and strongly curved. Outer dististyle, od, a curved chitinized rod, bidentate at tip.

LUZON, Mountain Province, Benguet, Pauai, altitude 8,000 feet (*Rivera*); holotype, male, April 24, 1930; paratype, male, April 11, 1930; paratypes, 4 males and females, April 22 to 27, 1930 (*Rivera*).

There are several species of *Eurhamphidia* in the Austro-Oriental fauna which have the genua broadly white. The present species differs from *Helius* (*Eurhamphidia*) *abnormalis* (Brunetti) in the details of structure of the male hypopygium, especially of the lateral arms of the tergite, 9t, and the outer dististyle, od (fig. 55). It seems to be more closely allied to *H.* (*E.*) *perelegans* Alexander (Formosa) which is still known only in the female sex, differing most evidently in the coloration of the body, wings, and legs, as the darkened costal region of the wings and the unusual amount of white on the bases of the tibiæ.

HEXATOMINI

ADELPHOMYIA LUZONENSIS sp. nov.

General coloration obscure yellow, the præscutum with dark brown lateral stripes, the median stripe obsolete or nearly so; dorsal thoracic pleurites darkened; legs yellow, the tips of the femora and tibiæ dark brown; wings yellowish gray, with a conspicuous brown pattern, including spots beyond arculus, origin of Rs, along cord and outer end of cell 1st M₂ and on Sc₂; R₂ at fork of R₃₊₄.

Female.—Length, about 5 millimeters; wing, 5.

Rostrum and palpi dark brown. Antennæ with the scapal segments dark brown, the flagellum much paler; flagellar segments short-oval, becoming more elongate outwardly, with conspicuous verticils that exceed the segments in length. Head obscure yellow, the central portion of the vertex extensively blackened.

Pronotum testaceous above, blackened laterally. Mesonotal præscutum obscure yellow, with dark brown lateral stripes, the

median stripe obsolete or nearly so; scutal lobes dark brown; median region of scutum and extreme base of scutellum obscure yellow; remainder of scutellum and postnotal mediotergite brownish black. Pleura with the dorsal portion dark brown, including the fore coxæ, the remaining coxæ and ventral pleurites yellow. Halteres pale yellow, the knobs infuscated. Legs with the trochanters yellow; femora yellow, the tips narrowly but conspicuously blackened; tibiæ yellow, the tips narrowly brownish black; basitarsi yellow, the tips and remainder of tarsi dark brown. Wings (fig. 17) yellowish gray, the prearcular and costal regions light yellow; a conspicuous brown pattern, distributed as follows: Stigma, bases of cells R and M, Sc₂, along cord and outer end of cell 1st M₂; veins pale, darker in the infuscated areas. Macrotrichia in cells R₃ to M₄, inclusive. Venation: Rs angulated and conspicuously spurred at origin; R₂ at fork of R₃₊₄; cell M₁ present; m-cu at near midlength of cell 1st M₂.

Abdominal tergites dark brown, the sternites obscure yellow, the subterminal sternite darkened. Ovipositor with the tergal valves horn-yellow, upcurved.

LUZON, Mountain Province, Benguet, La Trinidad, below Baguio, altitude 4,800 feet, in open parklike area, March, 1930 (*Rivera*); holotype, female.

Adelphomyia luzonensis is most nearly allied to *A. issikina* Alexander (Formosa), differing especially in the smaller size and details of coloration and venation. The dusky color of the posterior cells of the wing is much less intense than in *issikina* and there is a darkened seam on Sc₂.

EPIPHRAGMA SUBCRENULATA sp. nov.

General coloration brown, the pleura more yellowish beneath; head light ashen gray; halteres brown; legs yellow; wings light brown, the costal region more yellowish, the crossveins and deflections narrowly seamed with brown; axillary region of wing only feebly incised; a series of supernumerary crossveins in cell C but no such element in cell Cu; m-cu more than its own length beyond the fork of M.

Female.—Length, about 8.5 millimeters; wing, 7.3.

Rostrum and palpi black. Antennæ with the scape pale, pruinose, the fusion segment obscure yellow, remainder of flagellum black. Head light ashen gray above, passing into brown on the sides and beneath.

Mesonotal præscutum depressed, light testaceous brown to slightly pruinose, a little paler than the chestnut-brown lateral

portions; scutellum and postnotum slightly pruinose, the latter darkened behind. Pleura infuscated above, the ventral sclerites more yellowish. Halteres elongate, brown. Legs with the coxæ and trochanters yellow; remainder of legs yellow, the femora a very little darker. Wings (fig. 18) light brown, the prearcular and costal regions more yellowish, the coloration continued to beyond the wing tip as large marginal spots at ends of the cells; a restricted brown pattern, appearing as narrow seams at origin of R_s , along cord and outer end of cell 1st M_2 , on the supernumerary crossveins and spurs in cell C, and as marginal clouds at ends of all longitudinal veins, those at R_3 , R_4 , and 2d A most extensive. Axillary region of wing only slightly incised. Venation: A series of about eight supernumerary crossveins and spurs in cell C; cell R_3 relatively deep, the inclosing veins parallel or nearly so; m-cu more than its own length beyond the fork of M; no supernumerary crossvein in cell Cu.

Abdominal segments brownish yellow, narrowly darkened laterally.

LUZON, Mountain Province, Benguet, Mount Santo Tomas, above Baguio, altitude over 5,000 feet, October 9, 1929 (*Duyag*); holotype, female.

Epiphragma subcrenulata requires comparison only with *E. crenulata* Alexander and *E. cinereinota* sp. nov., likewise from the mountains of northern Luzon. From *crenulata* it differs most evidently in the feeble incision of the wing axilla and the details of venation. It differs from *cinereinota* in the body coloration and the nature of the axillary incision.

EPIPHRAGMA CINEREINOTA sp. nov.

General coloration of dorsum of head and thorax light ashen gray, the remainder brown and yellow; antennæ (female) 15-segmented, the fusion segment with only two segments; wings light yellow, with a restricted brown pattern; supernumerary crossveins and spurs in cell C relatively few in number; m-cu at or close to the fork of M; axillary crenulation moderately conspicuous.

Female.—Length, about 10 millimeters; wing, 9.5.

Rostrum and palpi small, black. Antennæ with the scape and fusion segment of flagellum light yellow, the remainder black; antennæ 15-segmented, there being only two segments involved in the basal fusion, the second of these darkened at apex; in *crenulata* there are three segments distinctly involved in the

fusion, all pale in color. Head above light ashy, more infuscated behind and on the sides.

Mesonotum chiefly light ashy, the præscutum in front and on sides abruptly brownish yellow. Pleura yellow, darker behind. Halteres long, brownish yellow, the knobs infuscated. Legs with the coxæ and trochanters pale yellow; remainder of legs obscure yellow, the terminal tarsal segments darkened. Wings (fig. 19) light yellow, the radial field beyond the cord more brownish; a restricted but conspicuous dark brown dotted and spotted pattern, including small marginal spots on all the veins, largest on the anal veins; larger areas at origin of Rs, along cord and outer end of cell 1st M_2 , and at fork of M_{1+2} ; outer ends of radial cells with conspicuous pale yellow areas; veins yellowish, brown in the infuscated areas. Axillary crenulation larger and more conspicuous than in *subcrenulata*, but shallower and more elongate than in *crenulata*. Venation: Supernumerary crossveins and spurs in cell C relatively few, not exceeding seven; Rs longer; cell R_3 deeper; m-cu at or very close to the fork of M.

Abdominal tergites yellowish brown, caudal margins narrowly darker, the outer segments more uniform brown; sternites obscure yellow.

LUZON, Mountain Province, Benguet, Pauai, altitude about 8,000 feet, April 11, 1930 (*Rivera*); holotype, female.

Of the numerous allied species of *Epiphragma* in Luzon, *E. cinereinota* is closest to *E. crenulata* Alexander, differing most conspicuously in the larger size, structure of the antennæ, and the less-developed axillary crenulation of the wing.

LIMNOPHILA (LIMNOPHILA) BENGUETANA sp. nov.

General coloration brown; antennæ short; femora and tibiæ brown; wings cream-colored, heavily patterned with brown, including a series of about six major costal areas; R_2 very faint to subobsolete; m-cu at midlength of cell 1st M_2 ; male hypopygium with the outer dististyle terminating in a simple acute spine.

Male.—Length, about 5 millimeters; wing, 6.2.

Rostrum and palpi black. Antennæ brownish black throughout, short, if bent backward not extending far beyond the pronotum. Head brownish gray.

Mesonotal præscutum with the interspaces sparsely brownish yellow pollinose, the usual three stripes darker brown, the lat-

eral stripes crossing the suture and including the scutal lobes; median region of scutum and the scutellum more yellowish testaceous; postnotum grayish brown. Pleura with the dorsal sclerites darkened, the sternopleurite and meron more yellowish. Halteres yellow. Legs with the coxæ brownish yellow; trochanters obscure yellow; femora and tibiæ light brown, the tips of the latter slightly darkened; tarsi brownish black; legs with relatively conspicuous setæ. Wings (fig. 20) with the ground color cream-colored, heavily but rather restrictedly patterned with brown, the areas arranged much as in species of *Ephelia*, there being a heavier costal pattern of about six areas, the first at arculus, the third and fourth confluent into a U-shaped figure that encircles a pale spot beyond vein Sc; paler brownish gray areas at ends of longitudinal veins and as clouds in cells M, Cu, R₅, and the anal cells; veins pale, a very little darker in the clouded areas. Macrotrichia of veins small, restricted to veins beyond cord, except on R₁. Venation: Sc₂ near tip of Sc₁; Rs long, arcuated at origin, in alignment with R₂₊₃₊₄; R₂ very faint to subobsolete, its apparent location as figured; veins R₃ and R₄ divergent; cell M₁ present but small; m-cu at mid-length of cell 1st M₂; anterior arculus poorly indicated or lacking.

Abdomen more or less bicolored, especially the sternites, the segments obscure yellow, margined caudally by dark brown; hypopygium chiefly dark-colored. Male hypopygium (fig. 56) with the outer dististyle, *od*, simple, curved to the simple acute tip, the basal portion with conspicuous setæ. Inner dististyle, *id*, with the tip obtusely rounded. Interbasal process blackened, the apex expanded into a head. Gonapophyses, *g*, appearing as simple chitinized blades. *Ædeagus*, *a*, short.

LUZON, Mountain Province, Benguet, Pauai, altitude about 8,000 feet, April 20, 1930 (*Rivera*); holotype, male.

Limnophila benguetana is most closely allied to *L. guttularis* Edwards (Borneo), differing in the darkened legs and details of wing pattern and venation. The species has a wing pattern that is virtually the same as that of many Holarctic and Oriental species of the subgenus *Ephelia*. The apparent loss of the anterior arculus and the structure of the male hypopygium are characters strongly suggestive of *Pseudolimnophila*, but the venation is quite typical of *Limnophila*. Edwards has considered that his *guttularis* is a member of the typical subgenus

of *Limnophila* (*Poecilostola* Schiner, syn.) despite the very different general appearance of the species from the genotype of *Limnophila* (*pictipennis* Westwood).

LIMNOPHILA (DICRANOPHRAGMA) PARDALOTA sp. nov.

General coloration of mesonotum yellowish brown; knobs of halteres infuscated; legs yellow; wings relatively narrow, cream-colored, with an abundant dotted and spotted pattern, the areas more elongate and generally parallel in cells M and Cu.

Female.—Length, about 7.5 millimeters; wing, 6.5.

Rostrum and palpi black. Antennæ with the scapal segments black, the flagellum reddish brown, the outer segments darker. Head yellowish brown.

Mesonotal præscutum yellowish brown, the median region a little darker; posterior sclerites of mesonotum a little more pruinose. Pleura dark brownish gray. Halteres pale yellow, the apices of the knobs infuscated. Legs with the fore coxæ dark brown, the remaining coxæ and trochanters yellow; remainder of legs yellow, the terminal tarsal segments dark brown. Wings (fig. 21) relatively narrow, cream-colored, with a very abundant dotted and spotted brown pattern, the major groups lying above the origin of R_s and in the stigmal region; the dots are grouped in all the cells, in cells M and Cu becoming more transversely lengthened and regularly spaced to appear as parallel bands at the ends of the medial, cubital, and anal veins, the areas grouping to form more or less distinct circles; veins yellow, a little darker in the infuscated areas. Venation: Supernumerary crossvein in cell R_3 at near two-thirds the length of the cell; cell M_1 small; m-cu at near one-third the length of the small cell 1st M_2 .

Abdominal tergites dark brown, the sternites more reddish brown, the caudal margins of the segments dark brown. Ovipositor with the shields reddish brown, the elongate valves brownish horn color.

LUZON, Mountain Province, Benguet, Mount Santo Tomas, above Baguio, altitude over 5,000 feet, October 9, 1929 (*Duyag*); holotype, female.

Limnophila pardalota is distinct from all of the numerous species of *Dicranophragma* now known from eastern Asia. The narrow wings with an unusually abundant dotting gives to the fly a conspicuous appearance.

ERIOPTERINI

TOXORHINA (TOXORHINA) MONTINA sp. nov.

General coloration brownish gray; head and posterior sclerites of mesonotum light gray; præscutum with three dark brown stripes; pleura pale, darker dorsally; wings grayish; abdominal tergites darkened; hypopygium black, the tergite deeply emarginate medially, forming long glabrous earlike lobes.

Male.—Length, excluding rostrum, about 4.5 to 5 millimeters; wing, 5.5 to 5.6; rostrum, about 5.

Female.—Length, excluding rostrum, about 7 to 7.5 millimeters; wing, 6 to 6.2; rostrum, about 5.5.

Rostrum elongate, black. Antennæ with the scapal segments yellow, especially the second segment; flagellum black. Head light gray.

Mesonotal præscutum reddish brown, with three dark brown stripes that become confluent posteriorly, or nearly so; humeral region more or less yellowish gray pruinose; scutal lobes dark brown; scutellum and postnotum gray. Pleura chiefly pale, the anepisternum darkened. Halteres dark brown, the base of stem narrowly yellow. Legs with the coxæ and trochanters yellow, the fore coxæ more infuscated; remainder of legs black, the bases of femora restrictedly pale. Wings with a grayish tinge, iridescent; veins black, those of basal half sometimes pale. Venation: Sc₁ ending opposite the origin of Rs, Sc₂ some distance from its tip; m-cu close to fork of M.

Abdominal tergites dark reddish brown, the margins blackened; sternites paler, especially of the basal segments; hypopygium black. Male hypopygium much as in *duyagi*, differing especially in the structure of the tergite, the latter with the caudal margin deeply emarginate, the conspicuous earlike lateral lobes entirely glabrous. In *duyagi*, the median region of the tergite is only slightly notched, the entire margin set with dense short setæ.

LUZON, Mountain Province, Benguet, Mount Santo Tomas, above Baguio, altitude over 5,000 feet, October 9, 1929 (*Duyag*); holotype, male; allotype, female; paratypes, 4 males and females.

Toxorhina montina is very like *T. duyagi* Alexander, but the structure of the ninth tergite of the male hypopygium is amply distinct.

TOXORHINA (TOXORHINA) BICEPS sp. nov.

General coloration yellow, the mesonotum variegated with brown; pleura yellow, unmarked; rostrum longer than the body; wings tinged with dusky; cell 1st M₂ open by the atrophy of m; male hypopygium with the outer dististyle bifid at apex.

Male.—Length, excluding rostrum, about 5.5 millimeters; wing, 6; rostrum, about 6.5.

Rostrum black, longer than the body. Antennæ with the basal segment brown; second segment light yellow; flagellum black. Head gray, the center of the vertex darkened; no corniculus.

Mesonotal præscutum yellow, with three brown stripes, the median stripe becoming obsolete at near midlength of the sclerite, on its anterior portion becoming more or less confluent with the lateral stripes; scutal lobes brownish black; scutellum black; postnotal mediotergite gray. Pleura clear light yellow. Halteres dark brown, the stem somewhat paler, its extreme base yellow. Legs with the coxæ pale yellow; trochanters more whitish; remainder of legs black, only the femoral bases very restrictedly brightened. Wings (fig. 22) with a strong dusky tinge, somewhat more intense in cell M adjoining vein Cu; prearcular and costal regions slightly more yellowish; veins black, somewhat paler at the wing base. Macrotrichia on entire length of Rs and on all branches of M and Cu beyond the cord. Venation: Sc₁ ending just beyond origin of Rs; cell 1st M₂ open by the atrophy of m; m-cu a short distance before the fork of M.

Abdominal tergites dark brown, the sternites light yellow; ninth segment light yellow, the basistyles again dark brown. Male hypopygium (fig. 57) with the outer dististyle, *od*, small, at apex with two slender blunt arms that form about a straight angle. Inner dististyle, *id*, longer, arcuate, at near midlength on outer margin with a small pale flange. Arms of ædeagus, *a*, short and stout.

LUZON, Mountain Province, Benguet, Mount Santo Tomas, above Baguio, altitude over 5,000 feet, March 21, 1930 (*Rivera*); holotype, male.

Toxorhina biceps is very different from *T. duyagi* Alexander and *T. montina* sp. nov. in the structure of the male hypopygium, notably of the outer dististyle.

ERIOPTERA (ERIOPTERA) RUBRIPES sp. nov.

General coloration yellowish brown, the præscutum with three brown stripes; head black, the broad orbits light gray; pleura obscure yellow, variegated with darker; knobs of halteres brownish black; legs reddish yellow, only the terminal tarsal segments darkened; wings with a strong grayish yellow suffusion, the costal cell whitish, the prearcular and remainder of costal region yellowish.

Female.—Length, about 5.5 to 6 millimeters; wing, 6 to 6.2.

Rostrum and basal segments of palpi obscure yellow, the terminal segments of the latter blackened. Antennæ brown, of rather unusual length for the female sex; flagellar segments long-oval to subcylindrical. Head black, the front and broad orbits light gray.

Mesonotal præscutum and scutum yellowish brown, the former with the three usual stripes darker, the scutal lobes similarly infumed; pseudosutural foveæ pale; scutellum brown, broadly margined behind with obscure yellow; postnotal mediotergite light brown, the cephalic portion darker with a more or less distinct yellow spot on sides. Pleura obscure yellow, the fore coxæ and a spot on dorsal portion of anepisternum dark brown; hypopleura and pleurotergite variegated paler brown and yellow, with a distinct bluish cast; sternum and meron clear light yellow. Halteres pale, the knobs brownish black. Legs with the coxæ yellow, more or less pruinose and darkened, especially the fore coxæ, as described; trochanters yellow; remainder of legs reddish yellow, the terminal tarsal segments darkened. Wings with a strong grayish yellow suffusion, the prearcular and costal regions clearer yellow; cell C almost white; certain of the veins, as R_5 and Cu_1 narrowly bordered by light yellow; veins pale to yellow, the long macrotrichia brown or black. Venation: R_{2+3+4} a little longer than the basal section of R_5 ; M_4 and Cu_1 deflected strongly cephalad at outer ends; vein 2d A strongly sinuous, as in the subgenus.

Abdominal tergites dark brown, the caudal margins of the outer segments narrowly yellow, on the genital segment including the entire sclerite; sternites dark, the outer segments margined caudally and more restrictedly laterally with yellow. Ovipositor with the slender smooth valves horn-yellow.

LUZON, Mountain Province, Benguet, Mount Santo Tomas, above Baguio, altitude over 5,000 feet, March 21, 1930 (*Rivera*); holotype, female; La Trinidad, below Baguio, in open parklike area, altitude about 4,800 feet, April 20, 1930 (*Rivera*); paratype, female; Laguna Province, near Ube, in boggy area, March 4, 1930 (*McGregor*); paratype, female.

Erioptera (Erioptera) rubripes is amply distinct from similar large regional species in the combination of wing coloration, blackened knobs of halteres, and unvariegated legs.

ILLUSTRATIONS

[Legend: *a*, aedeagus; *b*, basistyle; *dd*, dorsal dististyle; *g*, gonapophysis; *id*, inner dististyle; *od*, outer dististyle; *t*, tergite; *vd*, ventral dististyle.]

PLATE 1

- FIG. 1. *Tipulodina pampangensis* sp. nov., wing.
2. *Scamboneura subtransversa* sp. nov., wing.
3. *Scamboneura primogenia* sp. nov., wing.
4. *Scamboneura banahaoensis* sp. nov., wing.
5. *Macgregoromyia brevisector* sp. nov., wing.
6. *Limonia (Limonia) ligayai* sp. nov., wing.
7. *Limonia (Libnotes) neofamiliaris* sp. nov., wing.
8. *Limonia (Libnotes) subfamiliaris* sp. nov., wing.
9. *Limonia (Libnotes) perparvula* sp. nov., wing.
10. *Limonia (Libnotes) elata* sp. nov., wing.
11. *Limonia (Dicranomyia) benguetensis* sp. nov., wing.
12. *Limonia (Geranomyia) bifidaria* sp. nov., wing.
13. *Limonia (Geranomyia) pleuropalloris* sp. nov., wing.
14. *Limonia (Doaneomyia) pampangensis* sp. nov., wing.
15. *Limonia (Thrypticomys) octosetosa* sp. nov., wing.
16. *Helius (Eurhamphidia) diacanthus* sp. nov., wing.
17. *Adelphomyia luzonensis* sp. nov., wing.
18. *Epiphragma subcrenulata* sp. nov., wing.
19. *Epiphragma cinereinota* sp. nov., wing.
20. *Limnophila (Limnophila) benguetana* sp. nov., wing.
21. *Limnophila (Dicranophragma) pardalota* sp. nov., wing.
22. *Toxorhina (Toxorhina) biceps* sp. nov., wing.

PLATE 2

- FIG. 23. *Scamboneura subtransversa* sp. nov., male hypopygium, ninth tergite.
24. *Scamboneura subtransversa* sp. nov., male hypopygium, inner dististyle.
25. *Scamboneura subtransversa* sp. nov., male hypopygium, appendage of ninth sternite.
26. *Scamboneura subtransversa* sp. nov., male hypopygium, margin of eighth sternite.
27. *Scamboneura primogenia* sp. nov., male hypopygium, ninth tergite.
28. *Scamboneura primogenia* sp. nov., male hypopygium, dististyles.
29. *Scamboneura primogenia* sp. nov., male hypopygium, appendage of ninth sternite.
30. *Scamboneura primogenia* sp. nov., male hypopygium, gonapophysis.
31. *Scamboneura banahaoensis* sp. nov., male hypopygium, ninth tergite.

- FIG. 32. *Scamboneura banahaoensis* sp. nov., male hypopygium, outer dististyle.
33. *Scamboneura banahaoensis* sp. nov., male hypopygium, inner dististyle.
34. *Scamboneura banahaoensis* sp. nov., male hypopygium, appendage of ninth sternite.
35. *Scamboneura plumbea* Alexander, male hypopygium, ninth tergite.
36. *Scamboneura plumbea* Alexander, male hypopygium, outer dististyle.
37. *Scamboneura plumbea* Alexander, male hypopygium, inner dististyle.
38. *Scamboneura plumbea* Alexander, male hypopygium, appendage of ninth sternite.
39. *Scamboneura unicolor* Bezzi, male hypopygium, ninth tergite.
40. *Scamboneura unicolor* Bezzi, male hypopygium, outer dististyle.
41. *Scamboneura unicolor* Bezzi, male hypopygium, inner dististyle.
42. *Scamboneura unicolor* Bezzi, male hypopygium, appendage of ninth sternite.

PLATE 3

- FIG. 43. *Dolichopeza (Nesopeza) haightensis* sp. nov., male hypopygium.
44. *Macgregoromyia brevisector* sp. nov., male hypopygium, ninth tergite.
45. *Macgregoromyia brevisector* sp. nov., male hypopygium, outer dististyle.
46. *Macgregoromyia brevisector* sp. nov., male hypopygium, inner dististyle.
47. *Limonia (Limonia) ligayai* sp. nov., male hypopygium.
48. *Limonia (Libnotes) neofamiliaris* sp. nov., male hypopygium.
49. *Limonia (Libnotes) perparvula* sp. nov., male hypopygium.
50. *Limonia (Libnotes) elata* sp. nov., male hypopygium.
51. *Limonia (Dicranomyia) benguetensis* sp. nov., male hypopygium.
52. *Limonia (Geranomyia) bifidaria* sp. nov., male hypopygium.
53. *Limonia (Thrypticomys) octosetosa* sp. nov., male hypopygium.
54. *Helius (Eurhamphidia) diacanthus* sp. nov., male hypopygium.
55. *Helius (Eurhamphidia) abnormalis* (Brunetti), male hypopygium, apex of outer dististyle and gonapophysis.
56. *Limnophila (Limnophila) benguetana* sp. nov., male hypopygium.
57. *Toxorhina (Toxorhina) biceps* sp. nov., male hypopygium.

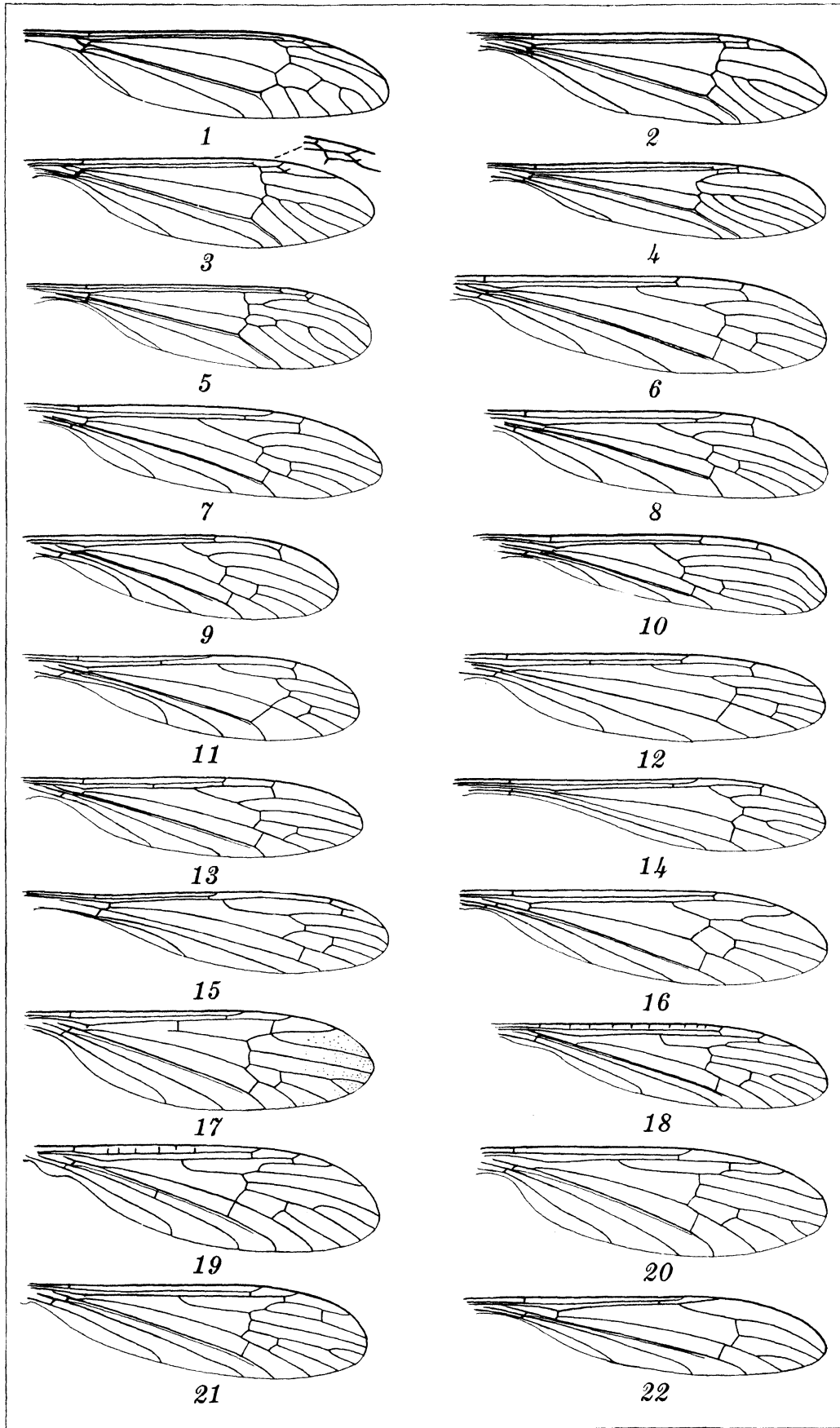


PLATE 1.



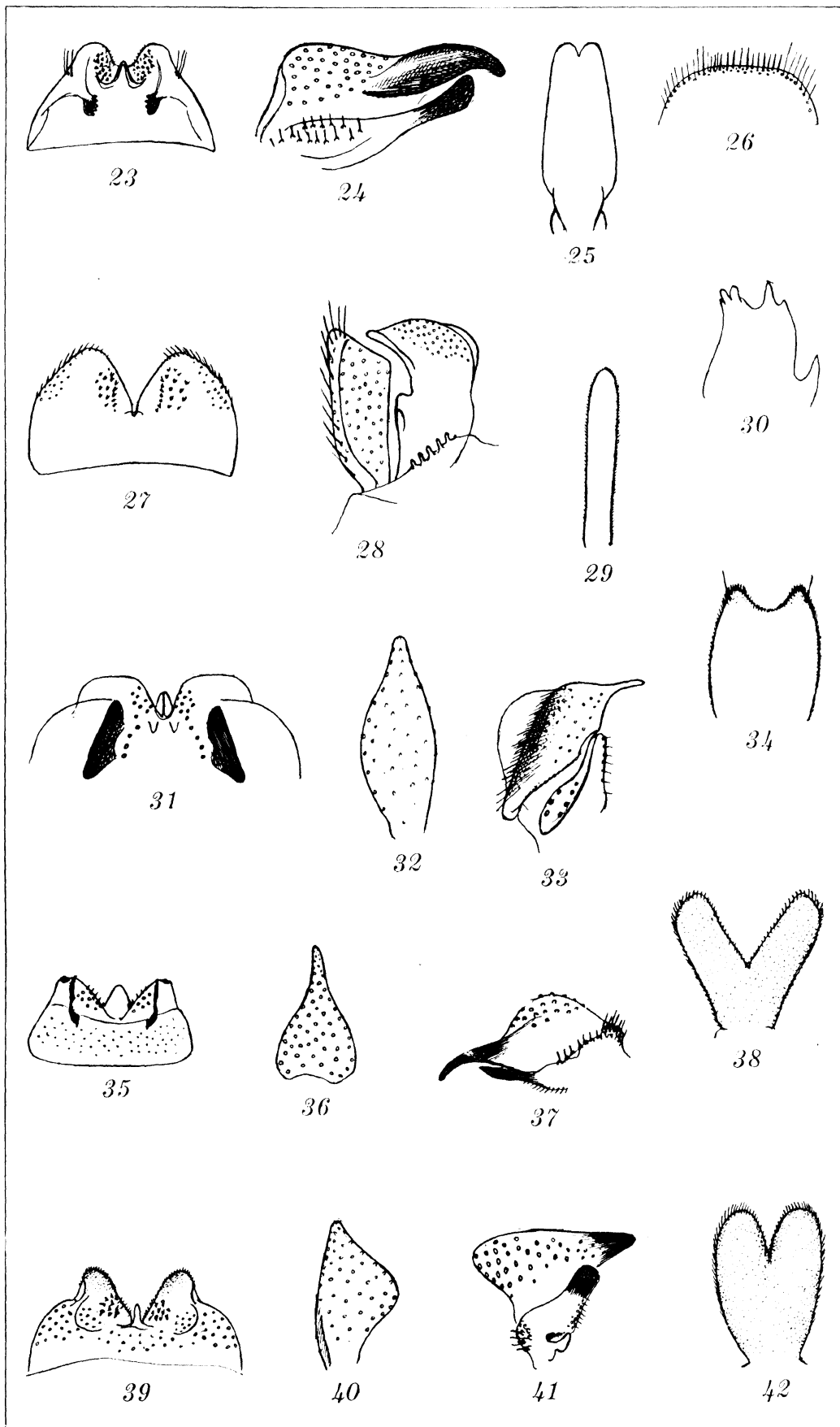


PLATE 2.

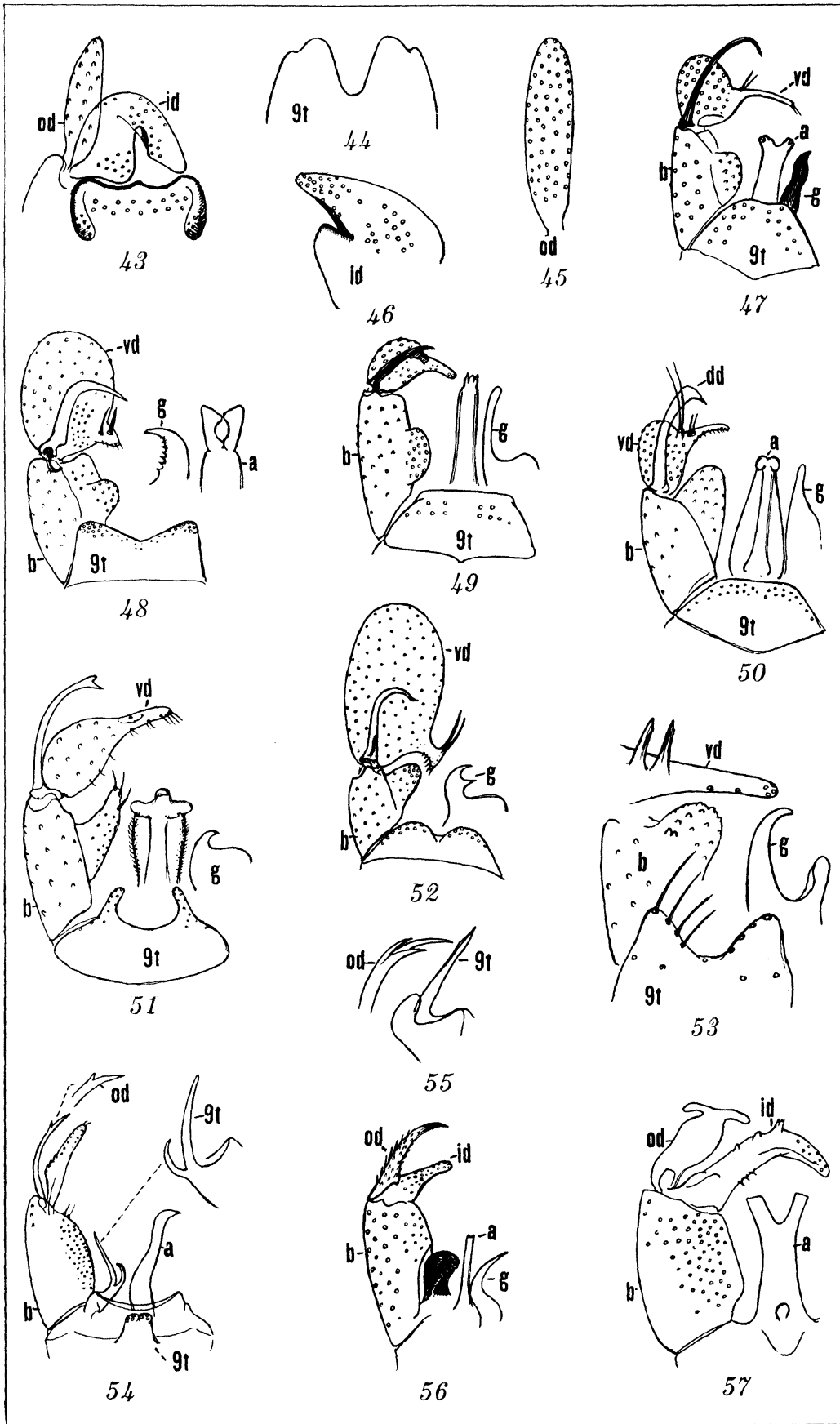


PLATE 3.