

NEW OR LITTLE-KNOWN TIPULIDÆ FROM THE
PHILIPPINES (DIPTERA), X ¹

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THREE PLATES

The important series of Philippine crane flies discussed at this time were collected in Luzon by Messrs. McGregor, Duyag, and Rivera, and in Mindanao by Mr. Charles F. Clagg. I wish to thank the above-mentioned gentlemen for their continued interest in making known the tremendously rich tipulid fauna of the Philippines. All types are preserved in my collection.

TIPULINÆ

SCAMBONEURA NIGROTERGATA sp. nov. Plate 2, fig. 23.

General coloration obscure yellow; antennæ (male) elongate, the scapal segments yellow; mesonotal præscutum with three narrow, ill-delimited, reddish brown lines; postnotal mediotergite and pleura yellow, unmarked; wings subhyaline; anterior arculus bowed; abdominal tergites with a continuous black dorsomedian stripe from base to apex; sternites light yellow; male hypopygium with the tergite uniformly blackened; appendage of ninth sternite small, bilobed.

Male.—Length, about 13 millimeters; wing, 11.3; antenna, about 7.

Frontal prolongation of head obscure yellow; nasus black; palpi light brown, the outer segment passing into black. Antennæ (male) elongate, as shown by the measurements; scape obscure yellow; flagellum black, the segments elongate, their longest verticils about one-fourth to one-fifth the segment. Head obscure orange, with a brown median line on vertex; additional narrower and less-defined dark lines on vertex, delimiting the posterior vertex.

Pronotum obscure yellow. Mesonotal præscutum obscure yellow, with three narrow reddish brown stripes that are ill-de-

¹ Contribution from the entomological laboratory, Massachusetts Agricultural College.

limited; scutum yellowish testaceous, the cephalic half of the lobes blackened; scutellum testaceous; postnotal mediotergite yellow, unmarked. Pleura yellow. Halteres brownish black, the knobs black. Legs with the coxæ and trochanters yellow; femora brownish black, their bases broadly yellow; tibiæ and tarsi black. Wings subhyaline, iridescent, the stigmal region dark brown; veins black. Venation: Anterior cord strongly bowed; m-cu nearly half its length beyond the fork of M.

Abdomen with the tergites pale, with a continuous dull black median stripe the entire length, more extensive and somewhat paler on outer segments; a narrower continuous lateral black line; sternites clear light yellow; hypopygium yellow, the tergite entirely black. Male hypopygium (Plate 2, fig. 23) with the tergite, 9t, bearing two conspicuous earlike lobes, separated by a V-shaped median notch that further bears a tiny median tongue-like projection; mesal margin of lobes with delicate setulæ at apex, these replaced by coarse black setæ that merge gradually into short black spines on the face of the lobes. Outer dististyle, *od*, obliquely broadest beyond base, the outline irregular, the outer edge most protuberant just beyond base, the inner margin more strongly rounded at near midlength. Appendage of ninth sternite, 9s, small, conspicuously bilobed, the entire surface setiferous.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,500 feet, July 5, 1930 (*Clagg*); holotype, male.

This species and the next are very different from the other known species of *Scamboneura*, although closely allied to one another. The nearest ally in Luzon would seem to be *S. vittivertex* Alexander.

SCAMBONEURA CALIANENSIS sp. nov. Plate 2, figs. 24 and 25.

Male.—Length, about 15 millimeters; wing, 14.2; antenna, about 6.

Generally similar to *S. nigrotergata* sp. nov.; in the general coloration, differing as follows:

Size larger, but the antennæ (male) proportionately and actually shorter, as shown by the measurements, the flagellar segments being conspicuously shorter. Scutal lobes with the markings reddish brown and occupying the whole lobe. Pleura yellow, vaguely marked with more reddish yellow on the anepisternum and ventral sternopleurite. Abdomen with the dorso-median black stripe not quite continuous, being narrowly

interrupted at the caudal margins of the segments. Male hypopygium with the tergite (Plate 2, fig. 24, 9t) entirely blackened and shaped generally as in *nigrotergata* but the details quite different. Lateral ears conspicuous, with abundant long coarse setæ but no replacement spines on disk; median projection large and conspicuous. Outer dististyle (Plate 2, fig. 25) long and conspicuous, the apex produced into a slender point.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,500 feet, July 4, 1930 (*Clagg*); holotype, male.

LIMONIINÆ

LIMONIINI

LIMONIA (LIMONIA) CANDIDELLA sp. nov. Plate 1, fig. 1; Plate 2, fig. 26.

General coloration yellow, the præscutum with a brown median stripe; antennæ black, the flagellar segments cordate, with glabrous apical necks; legs black, all tarsi with intermediate portions white; wings with a strong blackish suffusion; male hypopygium with the basistyles elongate, the ventromesal lobe small, at extreme base.

Male.—Length, about 6 millimeters; wing, 6.8.

Rostrum and palpi black. Antennæ black throughout; intermediate flagellar segments cordate, with glabrous apical necks that are about one-third the length of the segment; outer segments more elongate; terminal segment long, about one-half longer than the penultimate; verticils shorter than the segments. Head black, the front silvery; anterior vertex relatively wide.

Pronotum dark medially, obscure yellow on sides. Mesonotal præscutum clear yellow, with a narrow median brown stripe, the usual lateral stripes ill-delimited, brownish yellow, the humeral region brightest; scutum yellow, the centers of the lobes vaguely darker; scutellum brown, obscurely brightened posteriorly; postnotum brownish yellow. Pleura light yellow, the dorsal sclerites a little more darkened. Halteres black. Legs with the coxæ and trochanters pale yellow, the fore coxæ a trifle more darkened; femora brownish black, the bases restrictedly brightened; tibiæ dark brown; tarsi dark brown, the intermediate portion of all tarsi snowy white, this involving the distal third or more of basitarsi, the entire second segment and all but the tip of the third segment; the amount of white greatest on the hind legs where the distal two-thirds of the basitarsus is included; claws small, with a single basal tooth. Wings (Plate 1, fig. 1) with a strong black suffusion, the small oval stigma

darker; extreme wing tip vaguely darkened; veins brownish black. Costal fringe of moderate length. Venation: Sc long, Sc₁ ending beyond the fork of Rs, Sc₂ a short distance from its tip; free tip of Sc₂ and R₂ in alignment; Rs less than twice the basal section of R₄₊₅; cell 1st M₂ closed, shorter than any of the veins beyond it; m-cu just beyond the fork of M; vein 2d A long, converging strongly toward 1st A.

Abdominal tergites black; basal sternites obscure yellow; outer sternites and hypopygium darker. Male hypopygium (Plate 2, fig. 26) much as in *L. multinodulosa* in the median extension of the tergite, elongate basistyles, *b*, with the ventromesal lobe small and situated at the extreme base, and the general conformation of the dististyles and gonapophyses. The dorsal dististyle, *dd*, is a more strongly curved hook.

LUZON, Laguna Province, above Ube, foot of Mount Banahao, altitude about 700 meters, on mossy cliff near river in cool forest, February 9, 1930 (*McGregor*); holotype, male.

Limonia (Limonia) candidella is most closely allied to *L. (L.) multinodulosa* Alexander (Luzon), differing in the much shorter antennæ of the male and the white intermediate tarsal segments of all the legs. The increased length of the antennæ in *multinodulosa* is produced by the longer glabrous apical necks of the segments.

LIMONIA (LIMONIA) LATIFLAVA sp. nov. Plate 1, fig. 2.

General coloration brownish yellow, the posterior sclerites of the mesonotum blackened; antennæ black; pleura yellow with a black longitudinal stripe; halteres black; legs black, the tarsi and broad tibial tips yellowish white; wings with a blackish tinge, the basal cells streaked with whitish; Sc long, Sc₂ at tip of Sc₁.

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

Rostrum black, relatively long and conspicuous, about one-half as long as the remainder of head; palpi black. Antennæ black throughout; flagellar segments oval. Head black, sparsely pruinose; anterior vertex narrow, lighter gray.

Pronotum black. Mesonotal præscutum obscure brownish yellow, paler laterally, more brownish medially; posterior sclerites of mesonotum more uniformly brownish black. Pleura with a conspicuous longitudinal black stripe extending from the pronotum to the abdomen, the dorsopleural region obscure yellow; ventral pleural region clear light yellow. Halteres black. Legs

with the coxæ and trochanters light yellow; femora black, their bases restrictedly pale; tibiæ black, the tips paling to yellowish white, this subequal in amount on all legs and including about the distal fourth or fifth; tarsi similarly yellowish white. Wings (Plate 1, fig. 2) with a strong blackish suffusion, the oval stigma darker; conspicuous whitish streaks in the proximal ends of cells R, M, Cu, and both anals; veins brownish black. Venation: Sc long, Sc₁ ending shortly before the fork of Rs, Sc₂ at its tip; Rs long, arcuated; free tip of Sc₂ and R₂ in transverse alignment; m-cu just beyond the fork of M; vein 2d A converging toward 1st A at base.

Abdominal tergites brownish black, the sternites yellow. Ovipositor with the tergal valves relatively small, strongly upcurved; sternal valves straight, their bases blackened.

LUZON, Laguna Province, above Ube, February, 1930 (*McGregor*); holotype, female.

Limonia (Limonia) latiflava is very different from other regional species of the subgenus, the most distinctive characters being the very extensive pale apices of all the legs, the coloration involving not only the entire tarsi but also the tips of the tibiæ.

LIMONIA (LIMONIA) FLAVOHUMERALIS sp. nov. Plate 1, fig. 3; Plate 2, fig. 27.

General coloration black, the humeral and lateral regions of the præscutum broadly and conspicuously light yellow; pleura with a broad black longitudinal stripe; wings dark gray, the margins still darker; Sc long, Sc₂ at tip of Sc₁; male hypopygium with the ventral dististyle small, the rostral prolongation long, without spines.

Male.—Length, about 3.5 millimeters; wing, 4.2.

Rostrum and palpi black. Antennæ black; flagellar segments oval, passing into more elongate-oval; terminal segment elongate, about one-half longer than the penultimate, the distal end pointed; verticils short. Head large, especially the eyes; dorsum dark gray, the anterior vertex reduced to a capillary strip.

Pronotum black, the posterior notum yellow. Mesonotal præscutum light yellow, including the very broad humeral and lateral portions; a triangular brownish black median shield on posterior half, this sending a scarcely apparent vitta cephalad to the margin; scutal lobes blackened, the median area testaceous, the lateral margins yellow; scutellum brownish black; postnotal mediotergite testaceous brown. Pleura with the dorsal

portion occupied by a broad black longitudinal stripe that extends from the pronotum to the abdomen, encircling the root of the halteres; sternopleurite and meral region pale yellow; dorsopleural region adjoining the wing root obscure yellow. Halteres infuscated. Legs with the fore coxæ darkened, the other coxæ and all trochanters yellow; femora dark brown, the bases narrowly obscure yellow; remainder of legs brownish black, the tarsi very insensibly paler; claws nearly simple. Wings (Plate 1, fig. 3) with the disk dark gray, the margins more infuscated; stigma subcircular, darker brown; conspicuous dusky seams along vein Cu in cell M, along Rs and the cord; veins brownish black. Costal fringe short; macrotrichia of veins long and conspicuous. Venation: Sc long, Sc₁ ending about opposite two-thirds the length of Rs, Sc₂ at its tip; cell 1st M₂ closed, relatively short; m-cu close to fork of M; cell 2d A narrow, the veins gently converging near origin.

Abdomen brownish black; hypopygium dark. Male hypopygium (Plate 2, fig. 27) with the tergite, 9t, transverse, the caudal margin convexly rounded, with a deep and narrow median incision. Basistyle, b, relatively large, especially the large, obtuse, ventromesal lobe. Dorsal dististyle a short, stout, flattened blade, the apex suddenly narrowed to an acute point. Ventral dististyle small, oval, much smaller than the basistyle, the body of the style with long coarse setæ; rostral prolongation long and slender, without rostral spines. Gonapophyses, g, with the mesal-apical angle a stout lobe.

LUZON, Laguna Province, above Ube, at foot of Mount Bana-hao, altitude about 700 meters, in cool forest, February 9, 1930 (McGregor); holotype male.

Limonia (Limonia) flavohumeralis is most similar in general coloration to *L. (L.) retrusa* Alexander (Luzon), differing very notably in all details of coloration and structure of the male hypopygium.

LIMONIA (LIMONIA) CANIS sp. nov. Plate 1, fig. 4; Plate 2, fig. 28.

Allied to *L. cynotis*; general coloration dark brown; wings with a strong blackish tinge, without stigmal darkening; free tip of Sc₂ far before R₂; male hypopygium with the ventromesal lobe of basistyle long and slender; dististyle single, shaped more or less like a dog's ear, the mesal face on apical half with spinous setæ.

Male.—Length, about 4 millimeters; wing, 4.6.

Rostrum and palpi dark brown. Antennæ black throughout; basal flagellar segments subglobular, passing to oval outwardly; terminal segment scarcely longer than the penultimate; segments densely clothed with microscopic black setulæ and a few stout verticils of moderate length. Head dull black.

Mesonotum chiefly brownish black, the pleura paler, more obscure testaceous. Halteres infuscated. Legs with the coxæ and trochanters testaceous yellow; remainder of legs dark brown. Wings (Plate 1, fig. 4) with a strong blackish suffusion, without a stigmal darkening; veins darker brown. Venation: Sc long, Sc₁ ending at about two-thirds to three-fourths the length of the nearly straight Rs, Sc₂ at its tip; free tip of Sc₂ far before level of R₂; m-cu close to fork of M; anal veins nearly parallel to very weakly convergent at origin.

Abdomen brownish black. Male hypopygium (Plate 2, fig. 28) generally as in *L. cynotis* in the conformation of the styli, differing conspicuously in details. Tergite, 9*t*, large, narrowed outwardly, the caudal margin with a broad U-shaped emargination. Basistyle, *b*, with the ventromesal lobe very long and slender, only a little shorter than the dististyle, narrowed outwardly. Dististyle, *d*, single, shaped more or less like a dog's ear, the spinous setæ on mesal face restricted to distal half. Gonapophyses, *g*, pale, the mesal-apical lobe slender, the tip produced slightly laterad into a point.

LUZON, Laguna Province, above Ube, at foot of Mount Banahao, altitude about 700 meters, near river in cool forest, February 9, 1930 (*McGregor*); holotype, male.

Limonia (*Limonia*) *canis* is allied to *L.* (*L.*) *cynotis* Alexander (Mindanao), differing most evidently in the structure of the male hypopygium, especially the long ventromesal lobe of the basistyle and the vestiture of the dististyle.

LIMONIA (RHIPIDIA) MORIONELLA (Edwards).

Rhipidia (*Rhipidia*) *morionella* EDWARDS, Journ. Fed. Malay States Mus. 14 (1928) 70.

LUZON, Mountain Province, Benguet, Mount Santo Tomas, altitude over 5,000 feet, March 21 to 24, 1930 (*Rivera*); Tayabas Province, Candelaria, June 25, 1930 (*McGregor and Rivera*).

These agree exactly with the types from the Federated Malay States except that the second tarsal segment is darkened.

LIMONIA (RHIPIDIA) LUTEIPLEURALIS sp. nov. Plate 1, fig. 5.

Belongs to the *rostrifera* group; closely allied to *L. morionella*; general coloration black, the thoracic pleura yellow, only the ventral sternopleurite darkened; wings unmarked except for stigma; terminal tarsal segments whitish.

Male.—Length, about 3.5 to 3.8 millimeters; wing, 4 to 4.4.

Female.—Length, about 4 millimeters; wing, 3.8 to 4.

Closely allied to *L. morionella*; differing especially in the yellowish thoracic pleura.

Rostrum longer than the remainder of head, black. Antennæ black, the apices of the axial portions of the segments paler; antennæ of male long-bipectinate; of female, simple. Head black.

Mesonotum brownish black, the pleura obscure yellow, only the ventral sternopleurite darkened. Halteres dusky, the base of stem restrictedly pale. Legs with the coxæ and trochanters yellow; remainder of legs black, the femoral bases restrictedly brightened; subterminal tarsal segments restrictedly whitish, more extensive and clearer white on posterior legs where from one-fourth to one-third of the tarsus is this color. Wings (Plate 1, fig. 5) whitish hyaline, unmarked except for the conspicuous short-oval brown stigma; veins brownish black. Venation: Sc_1 ending about opposite one-third the length of Rs , Sc_2 far from its tip, Sc_1 alone being one-half longer than Rs ; cell M_2 open by the atrophy of m ; cell 2d A wide.

Abdominal tergites dark brown, the sternites more yellow. Male hypopygium dark brown. Ovipositor with the genital shield blackened, the valves paling to horn-color.

LUZON, Mountain Province, Benguet, Mount Santo Tomas, altitude over 5,000 feet, March 21 to 25, 1930 (*Rivera*); holotype, male; allotype, female; paratypes, numerous males and females.

Although closely allied to *L. (R.) morionella* (Edwards), I must consider the present fly to be distinct by reason of the yellow thoracic pleura. The amount of white on the tarsi is more restricted and obscured in the present species. It should be observed that following the inclusion of *Rhipidia* as a subgenus of *Limonia* (*Limnobia*), *morionella* Edwards (1928) becomes preoccupied by *morionella* Schiner (1868) and should be renamed. The members of the *rostrifera* group do not seem to be strictly consubgeneric with *Rhipidia* but rather to represent a distinct off-shoot of the genus.

LIMONIA (GERANOMYIA) PHENOSOMA sp. nov. Plate 1, fig. 6; Plate 2, fig. 29.

General coloration reddish; head blackish gray with a silvery median vitta; postnotal mediotergite dark brown; knobs of halteres blackened; wings with a faint brown tinge, sparsely marked with small brown clouds that are distributed in the costal field; male hypopygium with the cephalic margin of the rostral prolongation of ventral dististyle with sclerotized bracing areas; rostral spines very elongate; gonapophyses with apices of mesal-apical lobes bifid.

Male.—Length, excluding rostrum, about 5.5 millimeters; wing, 5.6; rostrum, about 2.2 to 2.3.

Female.—Length, excluding rostrum, about 5.5 to 7 millimeters; wing, 5.5 to 6.3; rostrum, about 2.4 to 2.8.

Rostrum and palpi black, the former of moderate length only, slightly longer in the female. Antennæ black throughout; flagellar segments oval to subcylindrical, the verticils short and inconspicuous. Front and anterior vertex silvery; remainder of head blackish gray, with a silvery median vitta to the occiput; anterior vertex narrow.

Mesonotum shiny reddish yellow, the disk of the præscutum and the scutal lobes darker, more chestnut-red, the lateral portions more yellowish; scutellum obscure yellow, darker basally; postnotal mediotergite conspicuously dark brown, the lateral portions yellow. Pleura reddish yellow. Halteres pale, the knobs infuscated. Legs with the coxæ and trochanters yellow; femora obscure yellow, more brownish on distal half; tibiæ and tarsi brownish yellow, the terminal segments darkened; claws with a powerful basal tooth, with an additional microscopic denticle more proximad. Wings (Plate 1, fig. 6) with a faint brown tinge, sparsely patterned with brown, including the stigma and small spots at origin of Rs, fork of Sc, along anterior cord, and as a marginal seam in the radial field; narrow and less conspicuous seams to the supernumerary crossvein in cell Sc, along posterior cord, and on outer end of cell 1st M_2 ; veins brownish black. Costal fringe short. Venation: Sc long, Sc_1 ending at near four-fifths the length of Rs, Sc_2 at its tip; a supernumerary crossvein in cell Sc at about two-thirds the length of vein R; Rs weakly angulated at origin; cell 1st M_2 closed; m-cu at or before the fork of M; cell 2d A narrow, the anal veins at base generally parallel.

Abdominal tergites brownish black, the basal segments a little brightened laterally at the incisures; sternites yellow; outer segments of abdomen paler in both sexes. Male hypopygium (Plate 2, fig. 29) with the tergite, *9t*, transverse, the caudal margin convexly rounded, divided by a small median notch into two halves that are provided with abundant setæ. Basistyle, *b*, relatively small, the ventromesal lobe large, conspicuously setiferous. Dorsal dististyle a very strongly curved chitinized sickle, the acute tip blackened. Ventral dististyle, *vd*, fleshy, oblique, the conspicuous rostral prolongation protected along its cephalic margin by sclerotized areas; two very long, curved, rostral spines, arising from a common basal tubercle, placed near apex of the prolongation. Gonapophyses, *g*, with the mesal-apical lobes conspicuously bifid at apex.

LUZON, Laguna Province, above Ube, February 6 to 12, 1930 (*McGregor and Rivera*); holotype, male; allotype, female; paratype, female; Tayabas Province, Candelaria, June 25, 1930 (*McGregor and Rivera*); paratype, female.

Limonia (*Geranomyia*) *phaenosoma* is readily told by the peculiar structure of the male hypopygium.

LIMONIA (GERANOMYIA) LONGIFIMBRIATA sp. nov. Plate 1, fig. 7; Plate 2, fig. 30.

General coloration yellow; mesonotal præscutum with three gray stripes that are separated by two narrow blackish lines; halteres dusky; wings with a faint brownish tinge, very sparsely patterned with brown; costal fringe (male) very long and conspicuous; cell M_2 open by the atrophy of *m*; male hypopygium with the ventral dististyle large and fleshy; spines of the rostral prolongation from long basal tubercles that are widely separated; mesal-apical lobe of gonapophyses very long and slender.

Male.—Length, excluding rostrum, about 6 millimeters; wing, 6 to 6.2; rostrum, about 2.5.

Female.—Length, excluding rostrum, about 5 millimeters; wing, 6.2; rostrum, about 2.

Rostrum and palpi black. Antennæ black throughout; flagellar segments cylindrical with short inconspicuous verticils. Head blackish gray; a narrow silvery line from the front to the occiput.

Pronotum blackish gray. Mesonotal præscutum with three gray stripes, the interspaces dull black, the humeral and lateral regions obscure yellow; scutum obscure yellow, the lobes extensively blackish gray; scutellum testaceous; postnotal medioter-

gite dark brown, especially on the posterior half. Pleura obscure yellow, the pleurotergite a trifle darkened. Halteres dusky. Legs with the coxæ and trochanters pale greenish yellow; remainder of legs dark brown, the femoral bases restrictedly brightened; basal tarsal segments paling to brownish yellow. Wings (Plate 1, fig. 7) with a faint brown tinge; stigma oval, dark brown; a vague gray clouding along cord; wing apex in radial field narrowly bordered by brown; veins dark brown. Costal fringe (male) very long and conspicuous. Venation: Sc long, Sc₁ ending about opposite or beyond midlength of Rs, Sc₂ at its tip; a supernumerary crossvein in cell Sc; cell M₂ open by the atrophy of m; m-cu at or close to the fork of M.

Abdominal tergites dark brown, the sternites greenish yellow. Male hypopygium (Plate 2, fig. 30) with the caudal margin of tergite gently emarginate, with two low lobes. Basistyle, *b*, relatively small, the ventromesal lobe moderately large. Ventral dististyle, *vd*, a very large fleshy lobe, the rostral prolongation large, complex in structure, the two spines arising from widely separated pale tubercles, the inner spine shorter. Dorsal dististyle a strongly curved pale sickle, the tips slightly up-curved. Gonapophyses, *g*, with the mesal-apical lobe very long and slender, gently curved.

LUZON, Laguna Province, Mount Maquiling, May 23 to 30, 1930 (*Duyag*); holotype, male; paratype, male; above Ube, altitude 400 meters, January 27, 1930 (*McGregor*), paratype, male; Pampanga Province, Mount Arayat, October, 1929 (*Rivera*); allotype, female.

Limonia (*Geranomyia*) *longifimbriata* is very distinct from regional species in the unusually long costal fringe in the male and the open cell M₂.

LIMONIA (GERANOMYIA) PARAMANCA sp. nov. Plate 1, fig. 8.

Belongs to the *argentifera* group; allied to *L. manca* in the open cell M₂; wings with a strong dusky tinge, the stigma and a broad marginal seam in cell R₂ darker brown.

Female.—Length, excluding rostrum, about 4.8 millimeters; wing, 4.5; rostrum, about 2.5.

Rostrum long, black; palpi black. Antennæ black throughout, the verticils short. Head gray, the front and anterior vertex silvery; central portion of posterior vertex extensively blackened.

Mesonotum polished black, the præscutum with a silvery area on sides behind pseudosutural foveæ, with a smaller similar

sublateral area at suture; scutellum and postnotum more pruinose. Pleura heavily silvery pruinose, the sternal region paler. Halteres yellow. Legs with the coxæ and trochanters yellow; femora obscure yellow, slightly darker beyond base; remainder of legs brown. Wings (Plate 1, fig. 8) with a strong dusky tinge, the stigma and a broad marginal seam in cell R_2 darker brown; veins brownish black. Costal fringe relatively long and conspicuous for the female sex. Venation: Sc_1 ending beyond midlength of R_s ; an unusually wide supernumerary crossvein in cell Sc at near two-thirds the length of vein R ; cell M_2 open by the atrophy of m ; $m-cu$ about one-half its length beyond the fork of M , the distal section of Cu_1 very short; cell $2d A$ narrow.

Abdominal tergites black, the sternites paler, more brownish; genital segment brownish yellow. Ovipositor with the tergal valves very slender, gently upcurved, reddish horn color.

LUZON, Tayabas Province, Candelaria, June 25, 1930 (*McGregor and Rivera*); holotype, female.

Limonia (*Geranomyia*) *paramanca* is readily distinguished from the other members of the *argentifera* group by the darkened wings, in conjunction with the small size and open cell M_2 . The other members of the group, with the exception of *manca* Alexander (North Queensland) have cell 1st M_2 closed (*argentifera* de Meijere, *nigronotata* Brunetti, *nigronitida* Alexander, and *pleuropalloris* Alexander). As I have indicated in another paper, a study of the type specimen of *sorbillans* (Wiedemann) shows that it, too, belongs to this group and is very probably identical with *argentifera*. The type is a female, in relatively poor condition, and the synonymy cannot be readily affirmed.

LIMONIA (PSEUDOGLOCHINA) ANGUSTAPICALIS sp. nov. Plate 1, fig. 9; Plate 2, fig. 31.

General coloration dark brown, the pronotum and broad pleural region yellow; fore femora white, the tips narrowly blackened; posterior femora dark brown; remainder of legs snowy white, all tibiæ with a single narrow black ring at midlength; wings whitish, the large stigma and narrow apex blackened; abdominal sternites distinctly bicolored; male hypopygium with a single stout rostral spine.

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

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

Rostrum pale yellow; palpi black. Antennæ black throughout, relatively elongate, the long-oval segments with short apical pedicels. Head yellow, more dusky on the orbits.

Pronotum light yellow. Mesonotum dark brown, with a more or less distinct paler median line from the posterior portion of the præscutum to the postnotal mediotergite where it becomes more pruinose. Pleura chiefly occupied by a broad yellow longitudinal stripe, more pruinose on its ventral portion; dorsal pleurotergite and ventral sternopleurite dark brown. Halteres pale, the knobs infuscated. Legs with the coxæ and trochanters brownish yellow; fore femora white, the tips narrowly blackened; posterior femora dark brown, the tips narrowly blackened; all tibiæ snowy white with a single narrow black ring at midlength; tarsi snowy white. Wings (Plate 1, fig. 9) whitish, the apex in outer radial cells darkened; stigma large, dark brown; veins black, the prearcular veins R whitish. Venation: Sc₁ ending just beyond the fork of the short oblique Rs; cell 2d M₂ deep; m-cu at fork of M; cell 2d A small, as in *L. uncinctipes*.

Abdominal tergites dark brown, the intermediate segments with a paler brown subterminal area; subterminal segments blackened; sternites bicolored, the bases broadly black, the tips about equally yellowish white; ventral dististyle pale yellow. Male hypopygium (Plate 2, fig. 31) with the ventral dististyle, *vd*, large and fleshy, the rostral prolongation small, with a single short powerful spine. Gonapophyses broad-based, the mesal-apical angle small.

LUZON, Laguna Province, Mount Maquiling (*Duyag*); holotype, male; allotype, female, January 28, 1930; paratype, male, May 23 to 30, 1930 (*Duyag*).

Limonia (Pseudoglochina) angustapicalis is most closely allied to *L. (P). uncinctipes* Alexander, differing most conspicuously in the large stigmal area, distinctly darkened apex of the wings, and the dimidiate abdominal sternites.

LIMONIA (ALEXANDRIARIA) SOLLICITA sp. nov. Plate 1, fig. 10.

General coloration gray; antennæ black throughout; knobs of halteres dark brown; legs yellow, the terminal three tarsal segments dark brown; wings gray, sparsely patterned with brown; Sc short, Sc₁ very long; a marginal spur of vein M₃ persisting.

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

Rostrum black, the labial palpi brown, the maxillary palpi black. Antennæ black throughout; flagellar segments oval, more elongate outwardly, the terminal segment a little longer than the penultimate. Head gray; anterior vertex narrow.

Pronotum and mesonotum brown, the three præscutal stripes darker brown but almost concealed by yellowish pollen; scutal

lobes brownish black, the median area paler; scutellum brownish gray; postnotum dark gray. Pleura gray. Halteres short, obscure yellow, the knobs dark brown. Legs with the coxæ brownish yellow, the fore coxæ somewhat darker; trochanters yellow; remainder of legs yellow, the three terminal tarsal segments infuscated; third and fourth tarsal segments on flexor surface with rows of evenly spaced pale spines on the entire length of the segment; claws small, with a single well-developed tooth. Wings (Plate 1, fig. 10) gray, sparsely patterned with brown; stigma oval, brown; restricted grayish brown clouds at Sc_2 , origin of R_s , and along cord; veins dark brown. Venation: Sc short, Sc_1 ending opposite the origin of R_s , very long, Sc_2 being at near midlength of R ; a marginal spur of M_3 back from wing edge; m-cu close to fork of M ; cell 2d A wide.

Abdominal tergites dark brown, the sternites brownish yellow. Ovipositor with the tergal valves very slender, the sternal valves correspondingly stout and deep.

LUZON, Laguna Province, Ube, December, 1929 (*Rivera*); holotype, female.

Limonia (Alexandriaria) sollicita is very different from the other regional species of the subgenus. The wing pattern is almost as in *L. (Dicranomyia) sordida* (Brunetti) and similar species. It is uncertain as to how constant the presence of the marginal vein M_2 will prove to be.

ORIMARGA (ORIMARGA) RUBRICOLOR sp. nov. Plate 1, fig. 11.

General coloration red; antennæ black throughout; wings milky gray, the veins pale; macrotrichia of veins relatively sparse, there being only about four on the distal half of R_3 .

Male.—Length, about 3.2 millimeters; wing, 3.8.

Female.—Length, about 3.6 millimeters; wing, 3.8.

Rostrum and palpi black. Antennæ black throughout; flagellar segments subglobular, passing into oval outwardly. Head gray.

Thoracic dorsum reddish brown, the pleura clearer red. Halteres pale. Legs with the coxæ reddish; trochanters testaceous; remainder of legs pale brown, long and slender. Wings (Plate 1, fig. 11) milky gray, the prearcular and costal regions light yellow; veins pale. Costal fringe relatively long and conspicuous. Macrotrichia of veins relatively sparse, there being four on distal half of R_3 , widely separated; a series of about twenty to twenty-five the entire length of the distal section of R_{4+5} , more crowded toward outer end; additional trichia on outer half

of each of veins M_{1+2} and M_3 . Venation: Sc_1 ending about opposite three-fifths the length of R_s , Sc_2 not far from its tip; R_2 a trifle shorter than R_{2+3} ; basal section of R_{4+5} about twice R_{2+3} ; m-cu opposite the proximal third of R_s .

Abdomen entirely red in male, the subterminal segments of female blackened.

LUZON, Tayabas Province, Candelaria, June 25, 1930 (*McGregor and Rivera*); holotype, male; allotype, female. "This red fly is found on damp mossy rocks at streamside."—*McGregor*.

Orimarga rubricolor is readily told by the conspicuous red coloration of the body.

HELIUS (RHAMPHOLIMNOBIA) RETICULARIS (Alexander).

Rhampholimnobia reticularis ALEXANDER, Proc. U. S. Nat. Mus. 49 (1915) 169-170.

One male, Pakawan, Ifugao Subprovince, Mountain Province, Luzon, April 7, 1930 (*Rivera*). The species and the subgenus are new to Luzon and the Philippines, having previously been recorded only from Java (type locality) and Borneo.

HEXATOMINI

EPIPHRAGMA (POLYPHRAGMA) BAKERI Alexander. Plate 1, fig. 12; Plate 2, fig. 32.

Epiphragma bakeri ALEXANDER, Philip. Journ. Sci. 21 (1922) 373-374.

A male from Pauai, Mountain Province, Luzon, altitude 8,000 feet, April 11, 1930 (*Rivera*), is generally similar to the holotype male except in the more-restricted brown wing pattern. The venation (Plate 1, fig. 12) has never been shown. The male hypopygium (Plate 2, fig. 32) is very different from that of the other Luzon species of the subgenus so far described. Region of the tergite, $9t$, produced medially into a shield-shaped area, the caudal margin of which is deeply notched. Basistyle, b , with a small fleshy lobe on mesal face at base. Interbasal process, i , expanded on basal half, the apex unequally bidentate. Outer dististyle, od , a small bottle-shaped structure, the apex bent at a right angle into two subequal teeth. Inner dististyle, id , larger, flattened. \mathcal{A} edeagus large, with an irregular elevated crest.

EPIPHRAGMA (POLYPHRAGMA) PARVILOBA sp. nov. Plate 1, fig. 13; Plate 2, fig. 33.

Male.—Length, about 6.5 to 7 millimeters; wing, 7.5 to 8.

Generally similar to *E. (P.) ochrinota* Alexander in the general coloration of the body, differs most conspicuously in the dark

antennæ, narrow anterior vertex, wing pattern, and details of the male hypopygium.

Antennal scape black, the fusion segment infuscated, in cases a little brightened beneath. Head brownish gray, the anterior vertex very narrow, the eyes unusually large.

Mesonotum fulvous, contrasting markedly with the black pleura. Femora yellow, the subterminal darkening relatively pale and ill-defined. Wings (Plate 1, fig. 13) grayish, the costal region light yellow; a diffuse brown pattern, darker and more clearly delimited along the costal margin, the markings of the disk not bordered by yellow, as is the case in *E. ochrinota*.

Male hypopygium (Plate 2, fig. 33) with the median tergal lobes, *9t*, very small, separated by a broad U-shaped notch. Basistyles very long and slender. Outer dististyle, *od*, dilated at midlength, setiferous, thence narrowed to an acute curved point, with a small lateral tubercle before apex. Interbasal process, *i*, a long simple spine, more slender than in *ochrinota*. Phallosome, *p*, with the ædeagus set in a deep notch in the quadrate plate.

LUZON, Laguna Province, above Ube, foot of Mount Banahao, altitude 400 to 700 meters, February 3 to 9, 1930 (*McGregor and Rivera*); holotype, male; paratypes, 3 males. The holotype was taken at 700 meters, in flight near river in cool forest.

LIMNOPHILA (EPHELIA) IGOROTA sp. nov. Plate 1, fig. 14; Plate 3, fig. 34.

Antennal scape black, the flagellum chiefly pale; mesonotal præscutum yellow, with abundant dark markings; knobs of halteres blackened; femora yellow, the tips more yellowish brown, with a very narrow black subterminal ring; wings broad in male, the dark pattern compact; seam on m-cu narrow, disconnected with the major area on the anterior cord.

Male.—Length, about 5.5 millimeters; wing, 6.5

Female.—Length, about 7 millimeters; wing, 7.5

Antennæ with the scapal segments dark brown, the first segment pruinose; flagellum with the basal six to eight segments light yellow. Head yellow, mottled with blackish.

Mesonotal præscutum with the ground color yellow, the usual stripes much dissected; lateral stripes entire, connected at anterior ends with the pseudosutural foveæ and confluent laterally with the broad dark brown lateral margins of the sclerite; median præscutal stripe blackened behind the level of the pseudosutural foveæ, the anterior portion wider, more grayish yellow, mottled with darker dots and with a capillary black vitta; in-

terspaces behind the pseudosutural foveæ with four or five dots that are in part confluent. Pleura gray, with numerous conspicuous brown spots that scarcely assume the form of a stripe. Halteres with the knobs black. Legs with the femora yellow, the tips light yellowish brown, the proximal end of this darkened ring narrowly blackened, as in *L. granulata*. Wings (Plate 1, fig. 14) of male broader than in female; dark pattern more restricted to the costal half, especially of the area along the cord, which forms an almost solid mass that extends back to the fork of M, the clear area in cell C greatly restricted, not reaching any of the veins of Rs; the very narrow seam along m-cu is not connected with the mark along the anterior cord, the Y-shaped figure in *granulata* thus appearing more V-shaped; seam on m-cu not in alignment with the anterior cord, being at or beyond midlength of cell 1st M₂; dark seam on the supernumerary crossvein in cell M a little distad of the general level of the dark areas that form the first crossband; dark spot beyond the prearcular area very small and inconspicuous.

Male hypopygium with the apical notch of the outer dististyle, *od* (Plate 3, fig. 34), broad and shallow, the margin irregular, the outer apical angle a decurved spine, preceded by a group of from five to seven smaller appressed spines; on lateral margin of style at near midlength with a conspicuous appressed spinous lobe.

LUZON, Mountain Province, Benguet, La Trinidad, below Baguio, altitude 4,800 feet, in open parklike area, March 26, 1930 (*Rivera*); holotype, male; allotype, female; Mount Santo Tomas, above Baguio, altitude over 5,000 feet, March 21, 1930 (*Rivera*); paratype, female; Pauai, April 21, 1930 (*Rivera*); paratype, 1 male; Laguna Province, above Ube, altitude 1,500 feet, February 11, 1930 (*Rivera*); paratypes, 2 males.

Limnophila (Ephelia) igorota is closely allied to the Bornean *L. (E.) granulata* Edwards, differing especially in the details of wing pattern and venation, the black knobs of the halteres, and other details.

PILARIA PHÆNOSOMA sp. nov. Plate 1, fig. 15; Plate 3, fig. 35.

General color red; antennæ short in both sexes; halteres black; wings with a strong brown tinge; vein R₃ very short, not exceeding one-third the length of the long R₄, cell R₃ at margin thus being very wide; cell M₁ lacking.

Male.—Length, about 7.5 to 8.5 millimeters; wing, 7 to 8.5.

Female.—Length, about 10 millimeters; wing, 7.5.

Rostrum and palpi black. Antennæ short in both sexes; scapal segments reddish brown; flagellum black; flagellar segments short and crowded, the outer segments passing into cylindrical; all segments with long conspicuous verticils that exceed the segments. Head fiery orange; vertex broad.

Thoracic dorsum fiery reddish orange, the præscutum without distinct stripes except a vague median capillary darkening; pseudosutural foveæ extensive but pale reddish and so inconspicuous; tuberculate pits at cephalic margin of sclerite reddish; scutellum brownish testaceous. Pleura reddish, vaguely marked with darker on the anepisternum and sternopleurite, the posterior sclerites more testaceous. Halteres black, the extreme base of stem brightened. Legs with the coxæ and trochanters obscure yellow; femora obscure brownish yellow, the tips narrowly blackened; tibiæ and tarsi black. Wings (Plate 1, fig. 15) with a strong brownish tinge, the small oval stigma darker brown; prearcular and costal regions a little brighter, especially before and beyond the stigma; conspicuous longitudinal hyaline obliterative streaks in cells R, R₃, M, 1st M₂, M₃, and M₄; veins dark brown. Venation: Sc relatively long, Sc₁ ending opposite the fork of Rs, Sc₂ some distance from its tip, Sc₁ alone exceeding R₂₊₃₊₄; R₅ very short, not exceeding one-third the length of the long R₄, cell R₃ at margin, thus being very wide; cell M₁ lacking; m-cu about one-third to one-half its length beyond the fork of M; anterior arculus preserved.

Abdomen reddish, the caudal margins of the tergites narrowly but conspicuously blackened; hypopygium orange-yellow. Male hypopygium (Plate 3, fig. 35) with the tergite, 9t, conspicuous, the median portion of the caudal margin produced into a broad lobe that is further produced into two submedian glabrous plates, their tips obtuse, these plates separated by a deep notch. Basistyles, *b*, short and stout. Dististyles, *id*, *od*, as figured, the inner style very broad.

LUZON, Laguna Province, Ube, February 11 to May 9, 1930 (*McGregor and Rivera*); holotype, male; allotype, female; paratopotypes, 15 of both sexes.

Pilaria phænosoma is very different from all described members of the genus, in some respects more resembling a small *Eriocera*. The following notes on the occurrence of this species are of much interest: "The water supply for Majayjay comes from a large spring near Ube. The overflow runs off in a small stream and is used for irrigation. Just below the spring is

a small bog (area approximately one hectare). Some of this is open, with growth of ferns, sedges, and small shrubs. A large part is covered with a bamboo and pandan thicket. Many of the mountain streams are dry this month (March), but this spring seems to have the same overflow as in the rainy months. In ferns and other low vegetation along this stream and in plants on this boggy area, many large and small tipulids occurred."—McGregor. Associated with the *Pilaria* in this habitat on March 4, 1930, were the following Tipulidæ: *Limonia* (*Geranomyia*) *argentifera* (de Meijere), *L.* (*Goniodineura*) *nigriceps* (van der Wulp), *L.* (*Thrypticomysia*) *apicalis* (Wiedemann), *Conosia irrorata* (Wiedemann), *Trentepohlia* (*Trentepohlia*) *trentepohlii* (Wiedemann), *Gonomyia* (*Lipophleps*) *bicolorata* Alexander, and *Erioptera* (*Erioptera*) *rubripes* Alexander.

PILARIA CARBONIPES sp. nov. Plate 1, fig. 16.

General coloration of mesonotum polished black, the thoracic pleura abruptly yellow; antennæ (male) elongate; halteres and legs black; wings with a blackish tinge; R_2 shorter than R_{2+3} ; cell M_1 present; hypopygium black.

Male.—Length, about 4 to 4.2 millimeters; wing, 4.3 to 5; antennæ, 2.3 to 2.6.

Female.—Length, about 5 millimeters; wing, 4.6 to 5.

Antennæ (male) elongate, much exceeding one-half the length of the body, black throughout; flagellar segments cylindrical to elongate-fusiform, with dense erect black setæ and slightly longer verticils. In the female the antennæ are shorter, about equal to the combined head and thorax, the setæ lacking or inconspicuous, the verticils very long and evident. Head polished black.

Mesonotum polished black, the humeral region of præscutum very restrictedly pale. Pleura, including the pleurotergite, yellow. Halteres blackened. Legs with the coxæ and trochanters obscure yellow; remainder of legs black, only the femoral bases restrictedly obscure yellow. Wings (Plate 1, fig. 16) with a strong blackish tinge, the oval stigma slightly darker brown; veins brownish black. Venation: Sc_1 ending about opposite four-fifths the length of Rs , Sc_2 at its tip; R_{2+3} present, a little longer than R_2 alone; R_3 long, straight or weakly sinuous; inner ends of cells R_4 , R_5 , and 1st M_2 in oblique alignment, the last most basad; cell M_1 slightly longer than its petiole; m-cu beyond midlength of cell 1st M_2 .

Abdominal tergites and hypopygium black, the sternites abruptly light yellow.

LUZON, Laguna Province, above Ube, February 11 to April 14, 1930 (*McGregor and Rivera*); holotype, male; allotype, female; paratypes, 6 of both sexes; Mount Maquiling, January 28, 1930 (*Duyag*); paratype, female.

Pilaria carbonipes is somewhat similar to the Japanese *P. melanota* Alexander, differing in the more-blackened notum, the black legs, and strongly infumed wings, with the venational details quite distinct, notably the position of R_2 and the course of R_3 .

PILARIA CARBONIPES HOLOMELANIA subsp. nov.

As in the typical form, but the pleura and pleurotergite polished black. The legs, especially the tarsi, paler, the tarsi fading to yellowish white.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,800 feet, July 3, 1930 (*Clagg*); holotype, male; allotype, female; paratypes, 1 male, 1 female.

PILARIA ALBOPOSTICATA sp. nov.

Male.—Length, about 5 to 5.2 millimeters; wing, 6; antennæ, 2.8 to 3.

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

Characters much as in *P. carbonipes* sp. nov., differing as follows: Legs black, the femoral bases obscure yellow, especially the posterior femora; tarsi black, the posterior tarsi conspicuously whitish yellow, the two terminal segments darkened.

LUZON, Laguna Province, above Ube, February, 1930 (*Rivera*); holotype, male; paratypes, 3 males; Mountain Province, Benguet, La Trinidad, below Baguio, altitude 4,800 feet, March 26 to 28, 1930 (*Rivera*); allotype, female; paratypes, 3 of both sexes.

The conspicuous pale coloration of the posterior tarsi is distinctive of the species.

ERIOPTERINI

GONOMYIA (LIPOPHLEPS) MAQUILINGIA sp. nov. Plate 1, fig. 17; Plate 3, fig. 36.

General coloration brownish gray; rostrum orange; antennæ black throughout; thoracic pleura indistinctly variegated yellowish testaceous and pale brown; legs brownish black; wings tinged with brownish gray, the stigma only vaguely darker; Sc short; male hypopygium with a single small subterminal dis-

tistyle; phallosomic structure terminating in a median organ shaped like a tuning fork.

Male.—Length, about 3 millimeters; wing, 3.

Rostrum orange; palpi black. Antennæ black throughout. Head chiefly gray.

Mesonotum brownish gray, the median region of the scutum slightly paler; posterior callosities of scutal lobes and the scutellum obscure yellow, the median region of the latter at base darkened; postnotal mediotergite pruinose. Pleura vaguely patterned with yellowish testaceous and pale brown, the pale coloration including the posterior sclerites; dorsal pleurites and ventral sternopleurite darkened. Halteres dusky, the base of stem restrictedly brightened. Legs with the coxæ and trochanters testaceous-brown; remainder of legs brownish black. Wings (Plate 1, fig. 17) tinged with brownish gray, the stigma slightly and vaguely darkened; veins brown. Venation: Sc short, Sc₁ ending a short distance before origin of Rs, this distance greater than the length of the latter; Rs less than two-thirds the anterior branch of the same; cell 1st M₂ closed; m-cu before fork of M.

Abdominal tergites brown, paler laterally, the sternites more uniformly pale. Male hypopygium (Plate 3, fig. 36) with the apical lobe of basistyle, *b*, slender. Dististyle, *d*, single, pale, much shorter and more slender than the lobe of the basistyle, provided with about six setæ. Phallosomic structure, *p*, consisting of a pale fan-shaped plate, its caudal margin with four low crenulate lobes; a further median extension is shaped like a tuning fork.

LUZON, Laguna Province, Mount Maquiling, May 23 to 30, 1930 (*Duyag*); holotype, male.

Gonomyia (Lipophleps) maquilingia is generally similar to *G. (L). incompleta* Brunetti, differing decisively in the very different male hypopygium.

GONOMYIA (LIPOPHLEPS) INCOMPLETA Brunetti.

Gonomyia incompleta BRUNETTI, Fauna British India, Dipt. Nematocera (1912) 471-472.

Gonomyia (Leiponeura) insulensis ALEXANDER, Can. Ent. 45 (1913) 286-287.

LUZON, Laguna Province, Ube, February 6, 1930 (*Rivera*); Tayabas Province, Candelaria, June 25, 1930 (*McGregor and*

Rivera). This fly has a very extensive range in eastern Asia, from British India to Japan.

GONOMYIA (LIPOPHLEPS) PALLIDISIGNATA sp. nov. Plate 1, fig. 18; Plate 3, fig. 37.

General coloration brown to grayish brown; basal segments of flagellum yellow, the outer segments blackened; pleura with a whitish longitudinal stripe; legs with the femora pale brown, the tips whitish, inclosing a very broad black subterminal ring; tibiæ pale brown, the tips narrowly pale yellow; wings white, clouded with pale brown; Rs from one-third to one-half longer than the petiole of cell R_3 ; male hypopygium with three dististyles.

Male.—Length, about 2.8 millimeters; wing, 3.

Female.—Length, about 3.5 millimeters; wing, 3.5.

Rostrum and palpi black. Antennæ with the scape above and basal two segments of flagellum yellow, the remainder of the organ blackened. Head white, the center of the vertex extensively blackened.

Pronotum and anterior lateral pretergites white. Mesonotum brown, varying from reddish brown to dark grayish brown, the scutal lobes darker; scutellum obscure white, the median area darkened at base; postnotum dark. Pleura brown to brownish black, usually blue-gray pruinose, with a narrow, conspicuous, longitudinal white stripe extending from and including the fore coxæ, passing beneath the halteres, this stripe sometimes obscured or lost. Halteres yellow, the base of the club darkened. Legs with the fore coxæ white, the mid-coxæ dark brown, the posterior coxæ dark brown on basal half, white on distal half; trochanters whitish; femora beyond base pale brown, with a very broad and conspicuous black subterminal ring, preceded and followed by narrow white annuli that are less than one-third the area of the blackened annulus; tibiæ pale brown, the tips narrowly pale yellow; tarsi brown. Wings (Plate 1, fig. 18) with the ground color white, this including the prearcular, costal, and apical portions; remainder of disk clouded with pale brown, reducing the ground color to areas in both ends of cells R and M, a more or less distinct crossband beyond the cord, and the outer ends of cells Cu and 1st A; restricted darker brown areas at origin of Rs and tip of Sc, stigma, ends of veins R_3 and R_4 , and along the cord; veins brown, pale in the ground areas. Venation: Sc_1 ending opposite or shortly beyond origin of Rs, the latter unusually long for this subgenus, being about one-third

to one-half longer than the straight petiole of cell R_3 ; R_3 short and transverse, R_4 strongly arcuated; m-cu before the fork of M.

Abdomen brownish black, including the hypopygium; caudal margins of abdominal segments narrowly and indistinctly paler. Male hypopygium (Plate 3, fig. 37) with three dististyles, the outer a long, gently curved, blackened rod; intermediate style very small, appearing as a pale spine; innermost style long-oval, terminating in two long setæ.

LUZON, Laguna Province, Ube and above, altitude 400 to 700 meters, February 6 to April 14, 1930 (*McGregor and Rivera*); holotype, male; allotype, female; numerous paratypes of both sexes.

Although closely allied to *G. (L.) nubeculosa* de Meijere, I must regard the present fly as being distinct, differing especially in the coloration of the legs and wings and the longer Rs. I do not have a male of *nubeculosa* for comparison. The African species, *G. (L.) liberiensis* Alexander, *G. (L.) noctabunda* Alexander, and *G. (L.) sobrina* Alexander, are also allied though separable on venation and structure of the male hypopygium. Edwards is entirely correct and justified in referring this group of flies with cell R_3 preserved to *Lipophleps* rather than to the typical subgenus where they had been placed by other workers.

GONOMYIA (LIPOPHLEPS) ALBOANNULATA sp. nov. Plate 1, fig. 19; Plate 3, fig. 38.

Closely related to *G. diffusa*; rostrum and palpi black; basal segments of antennal flagellum pale; thoracic pleura with a narrow white line; halteres with darkened knobs; femora brownish yellow, with a brown subterminal ring, preceded and followed by clear yellow; wings unmarked except for a vague pale brown stigmal area; anterior branch of Rs gently sinuous; male hypopygium with three dististyles, the intermediate one spinous at apex, the inner style split into three acute spines.

Male.—Length, about 2.6 millimeters; wing, 3.3.

Female.—Length, about 3 millimeters; wing, 3.2.

Rostrum relatively elongate, about one-half the remainder of head, black; palpi black. Antennæ with the scape dark brown, the basal flagellar segments pale, the outer segments passing into dark brown. Head pale, the center of the vertex restrictedly darkened.

Anterior pronotum whitish, with a darkened median spot; anterior lateral pretergites whitish. Mesonotum grayish brown, the pseudosutural foveæ dark brown; median region of scutum

and narrow posterior margin of scutellum obscure testaceous; postnotal mediotergite brownish gray, the anterior lateral angles broadly yellow. Pleura brownish black on ventral half, this inclosing a conspicuous white longitudinal stripe, bordered on either side by blackish; dorsopleural region buffy, more blackened in front. Halteres pale, the knobs brown. Legs with the fore and hind coxæ pale, the mid-coxæ dark brown; trochanters yellow; femora brown to yellowish brown, with a broad brown subterminal ring, preceded and followed by a narrow clearer yellow ring; tibiæ white, the tips narrowly blackened; tarsi white, the tips dark brown. Wings (Plate 1, fig. 19) grayish, unmarked except for a vague pale brown stigmal area; prearcular and costal regions more yellowish; veins pale brown. Venation: Sc_1 ending opposite the origin of the strongly arcuated Rs; anterior branch of Rs gently sinuous.

Abdomen of male dark brown, including the hypopygium; caudal margins of segments conspicuously ringed with pale; pleural membrane conspicuously whitened. In female, the segments are uniformly darkened, as in *diffusa*. Male hypopygium (Plate 3, fig. 38) with three dististyles, the outermost a simple blackened blade, gradually narrowed to the obtuse tip; intermediate style a little shorter, appearing as a straight rod, the distal third slightly expanded into a spinous head; innermost style, *id.*, trifid, all arms acute, the laterals straight and provided with two or three setæ, the central arm curved, glabrous.

LUZON, Tayabas Province, Candelaria, along margin of stream, June 25, 1930 (*McGregor and Rivera*); holotype, male. MINDANAO, Davao district, Calian, Lawa, at trap lantern, April 24, 1930 (*Clagg*); allotype, female; paratype, female.

Gonomyia (Lipophleps) alboannulata is most closely allied to *G. (L.) diffusa* (de Meijere), differing especially in the darkened knobs of the halteres, the details of venation, as the strongly sinuous anterior branch of Rs, and the pattern of the legs and wings. I do not know the male sex of *diffusa*.

GONOMYIA (LIPOPHLEPS) LUTEIMARGINATA sp. nov. Plate 3, fig. 39.

Male.—Length, about 2.6 millimeters; wing, 3.3.

Characters as in *G. flavomarginata* (Brunetti), differing in details of coloration of the wings and legs.

Thoracic pleura plumbeous-brown, with a single narrow whitish longitudinal stripe. Legs with the femora brownish yellow, with a narrow and ill-delimited brown ring just before

the tip; tibiæ and tarsi dark brown. Wings gray, with a vague brownish gray pattern, the clearer areas lying chiefly before and beyond the cord, which is broadly and distinctly seamed with brownish gray; prearcular and costal regions pale yellowish white; whitish areas before and beyond stigma; veins very pale brown, the costal and subcostal veins pale yellow, the cord darkened. Venation: Sc_1 ending a short distance before the origin of R_s , this distance about equal to the basal section of R_5 ; anterior branch of R_s straight or very gently sinuous.

Male hypopygium (Plate 3, fig. 39) with the outer dististyle, *od*, a gently curved blackened rod, the apex obtuse, near base on mesal edge produced into a curved black spine, the margin with conspicuous appressed spines. Inner dististyle, *id*, a straight yellow rod, the tip produced into a small blackened recurved spine. Phallosome, *p*, terminating in two blackened points, each produced cephalad into a long black spine.

MINDANAO, Davao district, Calian, Lawa, April 24, 1930, at trap lantern (*Clagg*); holotype, male.

This species agrees very closely with *flavomarginata* (Brunetti) except in the details indicated. Edwards,² who examined paratypes of this species, states that all the veins of the wings are brownish. The Japanese *G. (L.) flavocostalis* Alexander is likewise generally similar but differs in all details of the male hypopygium. The outer dististyle is only weakly spinous along margin; the inner dististyle is triangular in outline, the outer end of the triangle being a long pale spine; phallosome not blackened at tips.

GONOMYIA (LIPOPHLEPS) SECRETA sp. nov. Plate 1, fig. 20; Plate 3, fig. 40.

General coloration brown; basal segments of antennæ reddish orange; pleura dark, with a longitudinal, light yellow stripe; knobs of halteres yellow; legs yellowish brown, without femoral rings; wings cream-yellow, with conspicuous pale brown clouds and washes; Sc_1 ending a short distance before the origin of R_s ; male hypopygium with two dististyles, the outer a powerful chitinized rod, its tip bifid.

Male.—Length, about 2.5 millimeters; wing, 2.5.

Female.—Length, about 4 millimeters; wing, 3.5.

Rostrum and palpi black. Antennæ with the basal segments reddish orange, the flagellum black. Head pale yellow, the center of the vertex darkened.

² Rec. Indian Mus. 26 (1924) 301.

Pronotum and anterior lateral pretergites light yellow. Mesonotal præscutum brown with a faint grayish bloom; humeral region restrictedly obscure yellow, the pseudosutural foveæ reddish brown; females with a capillary darker brown median line on præscutum; scutal lobes dark brown, the median area and restricted caudal-lateral angles of the lobes yellow; scutellum yellow with a conspicuous brown median spot; postnotal mediotergite brown, the cephalic-lateral portions more yellowish. Pleura dark brown, with a longitudinal, light yellow stripe that is bordered both above and below by scarcely apparent blackish darkenings. Halteres dusky, the knobs yellow. Legs with the fore coxæ light yellow, the remaining coxæ brownish testaceous, trochanters obscure yellow; remainder of legs pale yellowish brown, unvariegated, the outer tarsal segments darker brown. Wings (Plate 1, fig. 20) cream-yellow, with conspicuous pale brown clouds and washes, including a major area in cell R before Rs; the cord and outer end of cell 1st M_2 ; conspicuous longitudinal seams along veins Cu as far as m-cu, cell Cu at base and along vein 1st A for more than one-half the length; axilla infumed; stigmal region scarcely darkened; veins pale yellow, very indistinct, more darkened in the clouded areas. Venation: Sc_1 ending shortly before the origin of Rs, Sc_2 near its tip; Rs strongly arcuated; anterior branch of Rs nearly straight; cell 1st M_2 closed; m-cu a short distance before the fork of M.

Abdominal tergites light brown, the anterior-lateral margins light yellow, the more extensive posterior-lateral margins velvety black; sternites more uniformly darkened; hypopygium brownish yellow. In female, the tergites blackened, with a restricted yellow area at each cephalic-lateral angle. Male hypopygium (Plate 3, fig. 40) with only two dististyles, the outer, *od*, a powerful chitinized rod, the stem straight, the head more enlarged and bifid, the more slender arm fingerlike, the other arm flattened, terminating in a comb of microscopic teeth; inner margin of stem with a row of powerful fasciculate setæ. Inner dististyle a small pale blade, the tip obtuse. Phallosome, *p*, complex.

LUZON, Laguna Province, Ube, February 11 to March 3, 1930 (*McGregor and Rivera*); holotype, male; allotype, female; paratypes, 2 females.

Gonomyia (Lipophleps) secreta by Edward's key to the species of the subgenus ³ runs to *G. (L.) robinsoni* Edwards (Malay States), a very different fly.

³ Journ. Fed. Malay St. Mus. 14 (1928) 104-105.

GONOMYIA (PTILOSTENA) PUNCTIPENNIS Edwards.

Gonomyia (Ptilostena) punctipennis EDWARDS, *Treubia* 7 (1926)
140-141.

A few of both sexes, Lawa, Davao district, Mindanao, taken at trap lantern, May 5, 1930, by Charles F. Clagg. The species was described from Buru and will probably be found to be a widely distributed species in the Malayan and Moluccan islands.

TEUCHOLABIS (TEUCHOLABIS) MAJUSCULA sp. nov. Plate 1, fig. 21; Plate 3, fig. 41.

General coloration yellow and black; præscutal stripes confluent; pleura black, striped longitudinally with yellow; knobs of halteres obscure orange; legs entirely black; wings yellow, the outer radial cells slightly infumed; male hypopygium with the outer dististyle a macelike capitate structure.

Male.—Length, about 9 millimeters; wing, 8.

Rostrum nearly as long as remainder of head, black; palpi black. Antennæ black throughout; basal flagellar segments short-oval, becoming smaller and more elongate outwardly. Head black, the front and wide anterior vertex sparsely dusted with gray.

Pronotum very large, yellow. Mesonotal præscutum chiefly occupied by three confluent polished black stripes, leaving yellow areas at the humeri, a transverse median area at the suture and a tiny spot at each posterior-lateral angle; scutum yellow, each lobe chiefly covered by polished black centers; scutellum deep yellow; postnotal mediotergite yellow on cephalic third, the remainder black. Pleura black, with a conspicuous yellow longitudinal stripe that extends from behind the fore coxæ, passing beneath the halteres to the abdomen; dorsopleural region yellow. Halteres dusky, the knobs obscure orange. Legs with the fore coxæ reddish, the remaining coxæ and all trochanters black; remainder of legs entirely black. Wings (Plate 1, fig. 21) with a strong yellow tinge, the outer radial cells slightly more infumed; anterior prearcular cells infuscated; veins black. Venation: Sc long, Sc₁ ending about opposite four-fifths the length of Rs, Sc₂ at near midlength of this vein; R₁ in alignment with R₁₊₂; cell 1st M₂ elongate, parallel-sided; m-cu more than its own length beyond the fork of M.

Abdomen bicolorous, black, the incisures more narrowly orange, on the tergites this color wider on the caudal margins than on the bases of the segments. Male hypopygium (Plate 3, fig. 41) with the tergal region narrowly emarginate medially; sternite, 9s, convexly rounded, with abundant setæ, especially on

sides. Basistyle, *b*, with the dorsal-apical angle produced into a black spine; the ventromesal angle with irregular blackened teeth. Outer dististyle, *od*, a mace-shaped structure, as figured. Inner dististyle, *id* longer, the basal half wider, the distal half gradually narrower and angularly bent, with three setæ at the angulations, the apex an acute black spine. Phallosome, *p*, with a wider dorsal and a narrow ventral plate, both tipped with long conspicuous setæ.

MINDANAO, Davao district, Lawa, April 18, 1930, at trap lantern (*Clagg*); holotype, male.

Teucholabis (*Teucholabis*) *majuscula* is one of the largest species of the genus, though exceeded in size by the allied *T.* (*T.*) *nigerrima* Edwards (Formosa). Both of these species have R_1 in alignment with R_{1+2} , the veins not dipping slightly caudad at the point of union with R_2 as is the case in virtually all other species of this extensive genus.

TEUCHOLABIS (TEUCHOLABIS) CONFLUENTOIDES sp. nov. Plate 1, fig. 22; Plate 3, figs. 42 and 43.

Male.—Length, about 6.5 to 7 millimeters; wing, 6 to 6.5. Generally similar to *T.* (*T.*) *confluente* Alexander (Luzon), differing especially in the structure of the male hypopygium and the details of venation.

Pronotum extensively pale yellow. Mesonotal præscutum black, the humeral triangles extensively and conspicuously light yellow; scutal lobes blackened, the median region broadly yellow, crossing the suture onto the præscutum. Dorsopleural region clearer yellow. Wings (Plate 1, fig. 22) with the pattern banded, much as in *confluente*. Venation: Cell 2d M_2 much deeper, exceeding its petiole. Male hypopygium (Plate 3, fig. 42) with the spine of the basistyle, *b*, simple. Outer dististyle, *od*, with two, or in cases, a minute third, spine, in addition to the long curved apex. Inner dististyle, *id*, with a bisetose lobe at base and on obtuse lobule in addition to the long spinous point.

In *confluente* (Plate 3, fig. 43) the spine of the basistyle, *b*, is forked. Outer dististyle, *od*, a long sinuous rod, with a single small spine at near midlength. Inner dististyle, *id*, a simple black rod.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,500 to 5,800 feet, July 2 to 3, 1930 (*Clagg*); holotype, male; paratypes, 4 males. "Dancing above ferns in semitwilight of dense mossy forest."—*Clagg*.

ILLUSTRATIONS

[Legend: *a*, ædeagus; *b*, basistyle; *d*, dististyle; *dd*, dorsal dististyle; *g*, gonapophysis; *i*, interbasal process; *id*, inner dististyle; *od*, outer dististyle; *p*, phallosome; *s*, 9th sternite; *t*, 9th tergite; *vd*, ventral dististyle.]

PLATE 1

- FIG. 1. *Limonia* (*Limonia*) *candidella* sp. nov., wing.
2. *Limonia* (*Limonia*) *latiflava* sp. nov., wing.
3. *Limonia* (*Limonia*) *flavohumeralis* sp. nov., wing.
4. *Limonia* (*Limonia*) *canis* sp. nov., wing.
5. *Limonia* (*Rhipidia*) *luteipleuralis* sp. nov., wing.
6. *Limonia* (*Geranomyia*) *phænosoma* sp. nov., wing.
7. *Limonia* (*Geranomyia*) *longifimbriata* sp. nov., wing.
8. *Limonia* (*Geranomyia*) *paramanca* sp. nov., wing.
9. *Limonia* (*Pseudoglochina*) *angustapicalis* sp. nov., wing.
10. *Limonia* (*Alexandriaria*) *sollicita* sp. nov., wing.
11. *Orimarga* (*Orimarga*) *rubricolor* sp. nov., wing.
12. *Epiphragma* (*Polyphragma*) *bakeri* Alexander, wing.
13. *Epiphragma* (*Polyphragma*) *parviloba* sp. nov., wing.
14. *Limnophila* (*Ephelia*) *igorota* sp. nov., wing.
15. *Pilaria* *phænosoma* sp. nov., wing.
16. *Pilaria* *carbonipes* sp. nov., wing.
17. *Gonomyia* (*Lipophleps*) *maquilingia* sp. nov., wing.
18. *Gonomyia* (*Lipophleps*) *pallidisignata* sp. nov., wing.
19. *Gonomyia* (*Lipophleps*) *alboannulata* sp. nov., wing.
20. *Gonomyia* (*Lipophleps*) *secretata* sp. nov., wing.
21. *Teucholabis* (*Teucholabis*) *majuscula* sp. nov., wing.
22. *Teucholabis* (*Teucholabis*) *confluentoides* sp. nov., wing.

PLATE 2

- FIG. 23. *Scamboneura nigrotergata* sp. nov., male hypopygium, details.
24. *Scamboneura calianensis* sp. nov., male hypopygium, ninth tergite.
25. *Scamboneura calianensis* sp. nov., male hypopygium, outer dististyle.
26. *Limonia* (*Limonia*) *candidella* sp. nov., male hypopygium.
27. *Limonia* (*Limonia*) *flavohumeralis* sp. nov., male hypopygium.
28. *Limonia* (*Limonia*) *canis* sp. nov., male hypopygium.
29. *Limonia* (*Geranomyia*) *phænosoma* sp. nov., male hypopygium.
30. *Limonia* (*Geranomyia*) *longifimbriata* sp. nov., male hypopygium.
31. *Limonia* (*Pseudoglochina*) *angustapicalis* sp. nov., male hypopygium.
32. *Epiphragma* (*Polyphragma*) *bakeri* Alexander, male hypopygium.
33. *Epiphragma* (*Polyphragma*) *parviloba* sp. nov., male hypopygium.

PLATE 3

- FIG. 34. *Limnophila (Ephelia) igorota* sp. nov., male hypopygium, outer dististyle.
35. *Pilaria phænosoma* sp. nov., male hypopygium.
36. *Gonomyia (Lipophleps) maquilungia* sp. nov., male hypopygium.
37. *Gonomyia (Lipophleps) pallidisignata* sp. nov., male hypopygium.
38. *Gonomyia (Lipophleps) alboannulata* sp. nov., male hypopygium.
39. *Gonomyia (Lipophleps) luteimarginata* sp. nov., male hypopygium.
40. *Gonomyia (Lipophleps) secreta* sp. nov., male hypopygium.
41. *Teucholabis (Teucholabis) majuscula* sp. nov., male hypopygium.
42. *Teucholabis (Teucholabis) confluentoides* sp. nov., male hypopygium.
43. *Teucholabis (Teucholabis) confluenta* Alexander, male hypopygium.

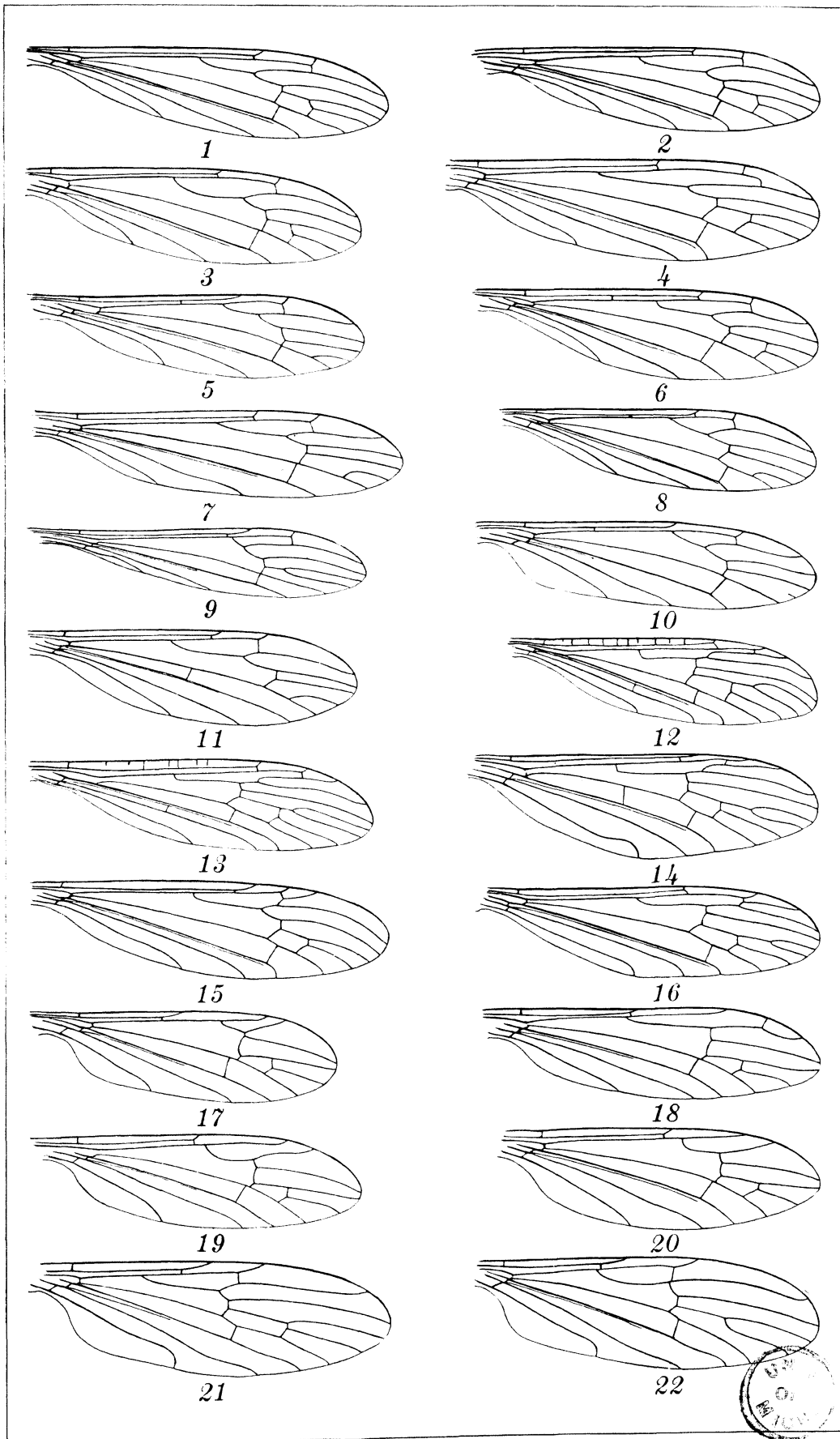


PLATE 1.

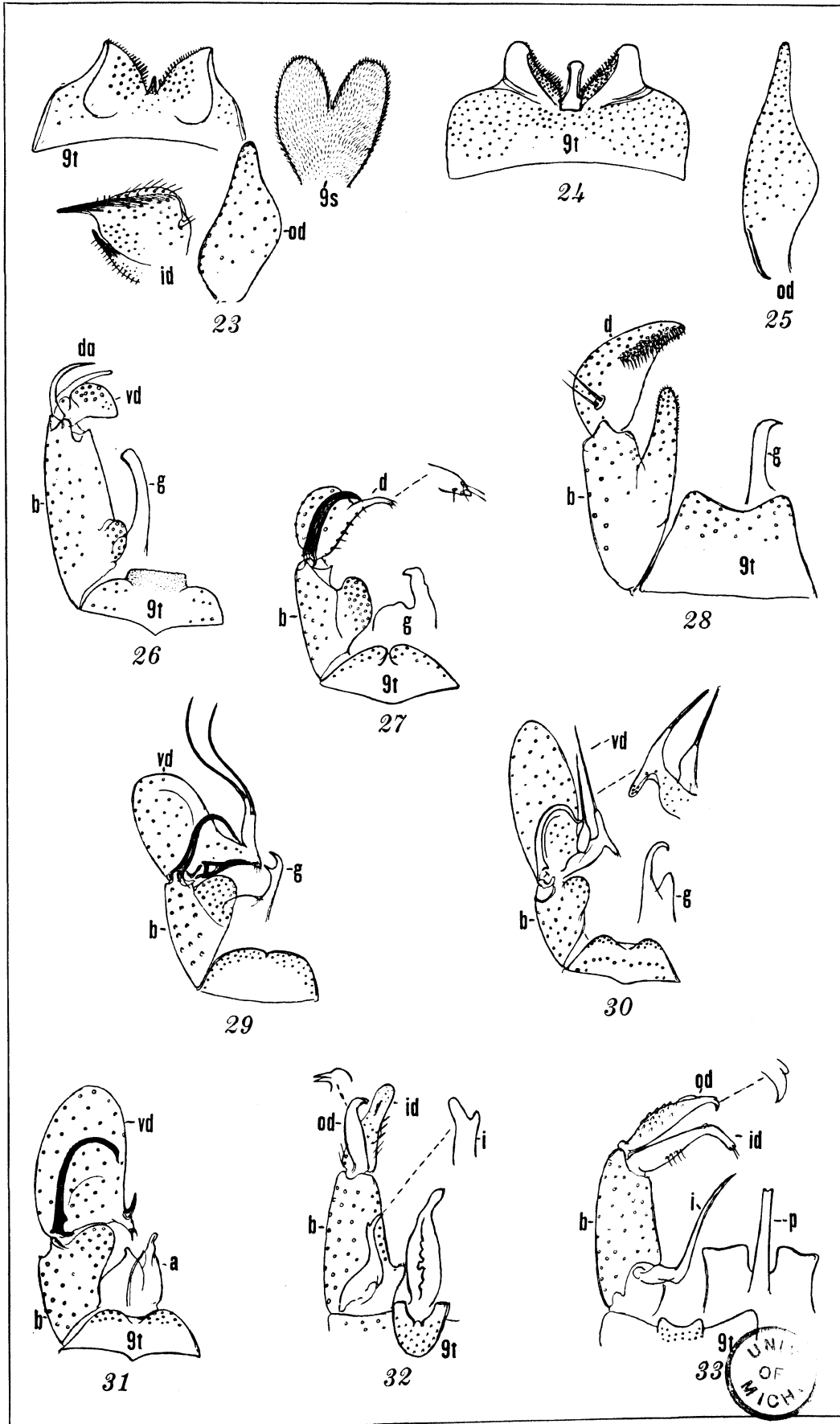


PLATE 2.

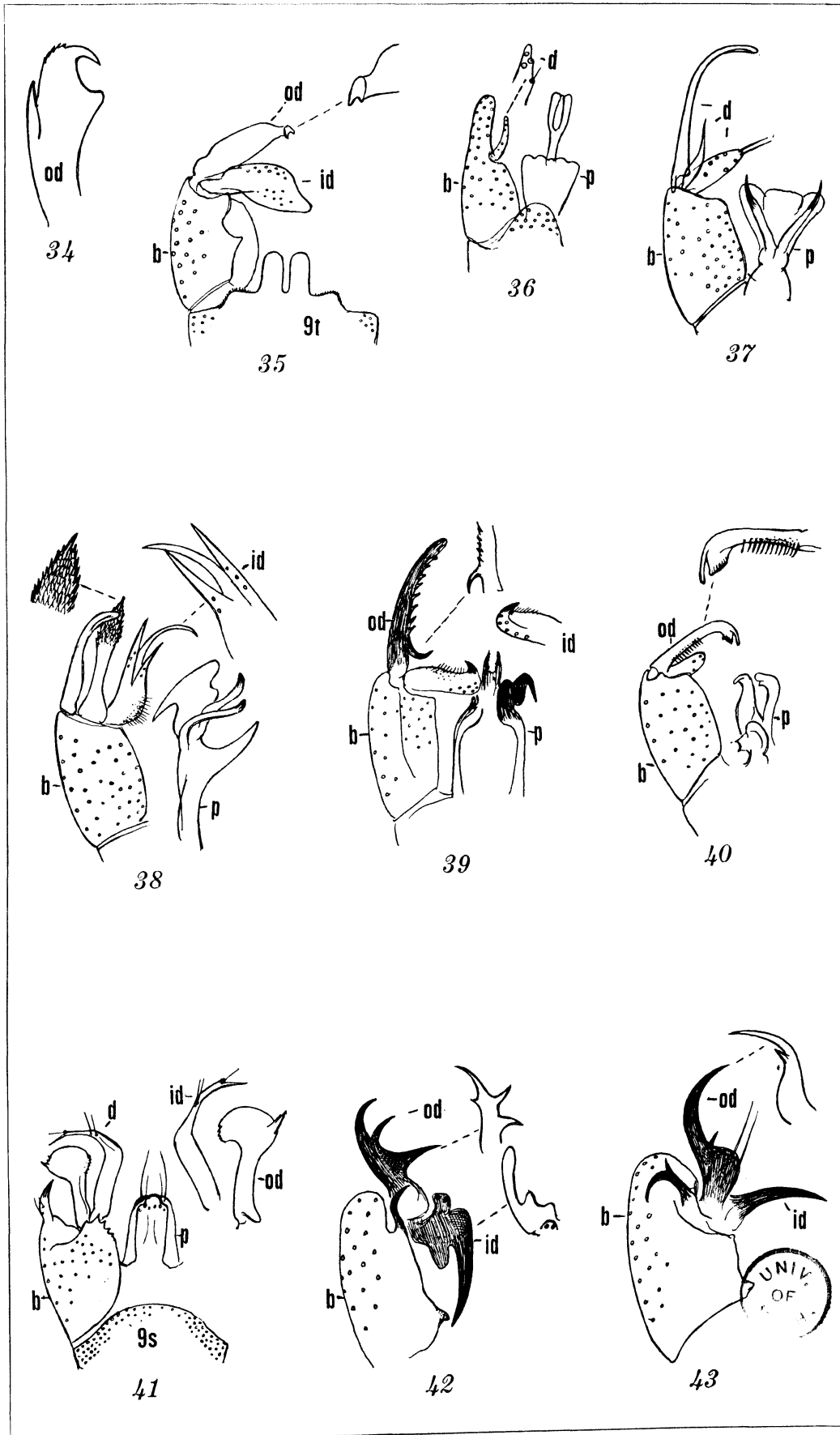


PLATE 3.