

NEW OR LITTLE-KNOWN TIPULIDÆ FROM THE
PHILIPPINES (DIPTERA), XV¹

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THREE PLATES

The Tipulidæ collected in Davao district, Mindanao, in 1930 and 1931, by Mr. Charles F. Clagg, are further discussed at this time. All types are preserved in my collection.

TIPULINÆ

PSELLIOPHORA INVENUSTIPES sp. nov. Plate 1, fig. 1.

General coloration yellow, conspicuously variegated with black, including the occipital region of head and three clearly defined stripes on the mesonotal præscutum; legs black, unvariegated; wings dimidiate, the basal two-thirds yellow, the apical third, together with cells C, Sc, and Cu₁, dark brown; abdominal tergites yellow, trivittate with black.

Male.—Length, about 14 millimeters; wing, 14.5.

Frontal prolongation of head obscure yellow, dark brown laterally; nasus a little darker, tufted with yellow setæ; palpi pale yellow, the extreme tip of the terminal segment dark brown. Antennæ with the scape obscure yellow; remaining segments, including the pedicel, black. Head orange, the occipital area black and very extensive.

Pronotum yellow medially, blackened laterally. Mesonotal præscutum yellow, with three very distinct brownish black stripes, the median one not quite attaining the suture; lateral stripes crossing the suture onto the scutal lobes which are largely covered by these areas; remainder of mesonotum yellow, the scutellum with a median infuscation; postnotal mediotergite with paired brown spots on caudal half. Pleura chiefly yellow, the ventral sternopleurite and meral region infuscated. Halteres brownish black, the basal fourth of stem yellow. Legs with

¹ Contribution from the entomological laboratory, Massachusetts State College.

the coxæ yellow, narrowly margined with brown at base; trochanters obscure brownish yellow; remainder of legs entirely black. Wings (Plate 1, fig. 1) dimidiate, cells C, Sc, and Cu₁, together with the stigma, dark brown; basal two-thirds of remainder of wing yellow, with vague dusky streaks in centers of major cells; distal third of wing, including all cells beyond cord, uniformly dark brown, paler than the costal darkening. Venation: Cell M₁ sessile.

Abdominal tergites yellow, trivittate with black; median areas of segments two to four broadly interrupted by yellow at caudal margins; on succeeding tergites the black median areas become more extensive; lateral dark stripes beginning on outer half of tergite two, on succeeding three segments narrowly interrupted by yellow on basal portion of each tergite, on outer segments more continuous; sternites yellow, clearer on caudal margin; sternites four and five with a small darkened basal triangle; hypopygium chiefly yellow, the tergal portions and styli black. Male hypopygium with the eighth sternite produced medially into a conspicuous dusky lobe that bears abundant golden setæ.

MINDANAO, Davao district, Calian, Sibulan Barrio, flying in field of abacá at foot of Mount Apo, altitude 2,000 feet, October 8, 1930 (*Clagg*); holotype, male.

Pselliophora invenustipes is quite distinct from all other regional species in the uniformly blackened legs, in conjunction with the pattern of the body and wings. By Edwards's key to the Philippine species of *Pselliophora*² the fly runs to couplet 3, agreeing most closely with *P. perdecora* Alexander, which has an entirely different wing pattern.

DOLICHOPEZA (NESOPEZA) PERDITA sp. nov. Plate 1, fig. 2; Plate 2, fig. 21.

Most closely allied to *abdita*; mesonotal præscutum pale brown, unmarked; posterior sclerites of mesonotum dark brown; pleura pale; femora and tibiæ dark, the posterior tarsi entirely white; wings narrow, long-petiolate basally; Rs long; male hypopygium with the caudal margin of tergite bearing two large blackened teeth; inner dististyle unusually narrow, boomerang-shaped.

Male.—Length, about 9 to 10 millimeters; wing, 11 to 11.5.

Frontal prolongation of head brownish yellow; palpi dark brown. Antennal scape and pedicel obscure yellow; flagellum black; antennæ about as long as the combined head and thorax; flagellar segments with verticils that are much shorter than

² *Notulæ Entomologicæ* 6 (1926) 41.

the segments. Head pale brown, with a large, darker brown spot on either side of posterior vertex, extending from eye to occiput.

Mesonotal præscutum pale brown, without evident markings; posterior sclerites of mesonotum dark brown, including the pleurotergite. Pleura yellow. Halteres dusky, the knobs dark brown. Legs with the coxæ yellow; trochanters testaceous yellow; femora dark brown, the bases restrictedly pale; tibiæ black, the posterior tarsi entirely snowy white; mid-tarsi with almost all of basitarsi black, the tips and remainder of tarsi white; forelegs broken. Wings (Plate 1, fig. 2) with a brown tinge, the oval stigma darker brown; oblitative areas before and beyond the stigma and across the fork of M poorly defined; veins dark brown. Wings much narrower than in *abdita*, conspicuously petiolate at base. Venation: Rs elongate, more than one-third longer than R_{2+3} ; cells beyond cord narrower than in *abdita*; cell 2d A narrow.

Abdominal tergites brownish black; basal sternites obscure yellow; hypopygium dark. Male hypopygium (Plate 2, fig. 21) with the ninth tergite, 9t, produced on either side into a powerful blackened tooth, the median region very feebly produced; ventral extensions of tergal lobes slender, the tips bidentate, but without other serrulations. Eighth sternite, 8s, pale, narrowed outwardly, the caudal margin medially very gently emarginate, on either side of midline with a denser grouping of weak setæ. Inner dististyle, *id*, unusually narrow, boomerang-shaped, the base weakly setiferous, the apex truncated.

MINDANAO, Davao district, Calian, Mount Apo, Todaya Plateau, altitude 5,000 feet, November 11, 1930 (*Clagg*); holotype, male; paratype, male.

Dolichopeza (*Nesopeza*) *perdita* is allied to *D. (N.) abdita* Alexander (Mindanao) in the elongate Rs, unmarked wings, and general pattern of the legs. It is very different in the narrow, long-petiolate wings and the structure of the male hypopygium, especially the tothing of the tergite and the very narrow inner dististyle. In *abdita*, the inner dististyle is unusually broad and flattened.

DOLICHOPEZA (NESOPEZA) QUERIBUNDA sp. nov. Plate 1, fig. 3; Plate 2, fig. 22.

Belongs to the *gracilis* group; most nearly allied to *nigrofemorata*; general coloration of mesonotum yellowish brown, without distinct markings; tibiæ infuscated, paling to obscure

whitish before tips; wings with a brown tinge, the costal border dark brown, not abruptly brightened in outer end of cell R_2 ; male hypopygium with the lateral lobes of the ninth tergite very broad, truncated; eighth sternite with a row of long setæ on either lateral lobe, these becoming progressively shorter toward the midline.

Male.—Length, about 8 to 9 millimeters; wing, 9 to 10.5.

Frontal prolongation of head dark brown; palpi black. Antennæ with the scape, pedicel, and base of first flagellar segment yellow, the remainder of organ dark brown; flagellar segments cylindrical, with scanty, very short verticils that scarcely exceed in length the abundant white pubescence. Head light brown, the anterior vertex a trifle brighter.

Mesonotal præscutum and scutum yellowish brown, the former a little darker on cephalic third but not otherwise marked; scutellum and postnotal mediotergite a trifle darker. Pleura light brown, the dorsopleural region and pteropleurite more yellowish. Halteres yellow, the knobs dark brown. Legs with the coxæ and trochanters testaceous-yellow; femora brown, more yellow at base; tibiæ infuscated, passing to obscure whitish before the very narrow dark brown tips; proximal ends of basitarsi narrowly darkened; remainder of tarsi white. Wings (Plate 1, fig. 3) with a brownish tinge, the costal border dark brown; central portion of cell R_2 paler but without abruptly delimited white central areas, as in most species of the group; posterior extensions along origin of R_s and at cord narrower than in *nigrofemorata*. Venation: Cell 2d A narrow.

Abdominal tergites brownish black, the bases of the segments narrowly brightened, the outer segments uniformly blackened; sternites yellow on basal portion, the distal half or more brownish black; hypopygium brownish black. Male hypopygium (Plate 2, fig. 22) with the ninth tergite, *9t*, transverse, the lateral lobes very broad, truncated; median lobe low and obtuse. Apical lobe of inner dististyle, *id*, elongate. Eighth sternite, *8s*, transversely rectangular, the caudal margin gently emarginate; lateral lobes with a fringe of long black setæ, the outer ones longest, gradually decreasing in length toward the median line.

MINDANAO, Davao district, Mati, Mount Mayo, altitude 5,000 feet, January 27, 1931 (*Clagg*); holotype, male; paratypes, 2 males.

By my key to the Philippine species of *Dolichopeza*³ the present species runs to *D. (N.) nigrofemorata* Alexander (Mindanao) which is very distinct in the structure of the male hypopygium. The present fly is well differentiated by the very broad, truncated lobes of the tergite and the arrangement and nature of the setæ on the eighth sternite.

DOLICHOPEZA (NESOPEZA) LUDIBUNDA sp. nov. Plate 2, fig. 23.

Belongs to the *gracilis* group; most nearly related to *nigrofemorata* and *queribunda*; general coloration of mesonotum light brown, without distinct markings; wings with a dark costal pattern; cell R_2 variegated by a single pale area; male hypopygium with the lateral lobes of the tergite small, narrower than the median notch separating them; caudal margin of eighth sternite nearly transverse, with weak setæ that are not grouped into tufts or brushes.

Male.—Length, about 8 millimeters; wing, 8.2.

Frontal prolongation of head testaceous-yellow; palpi dark brown. Antennæ (male) elongate, if bent backward extending about to root of halteres; scape, pedicel, and basal segment of flagellum yellow, the remainder of organ passing to brown; flagellar segments cylindrical, clothed with an abundant white pubescence; verticils scarcely developed. Head pale yellowish brown.

Mesonotum light brown, the præscutum with scarcely apparent stripes; posterior sclerites of mesonotum more infuscated. Pleura almost uniformly brownish yellow, the anepisternum a trifle more darkened. Halteres with the stem pale brown, the knobs brownish black. Legs with the coxæ and trochanters pale yellow; remainder of legs broken. Wings of the general type of *nigrofemorata*, including a dark costal pattern that is almost continuous, being interrupted by a single pale area in cell R_2 . Venation: Forks of medial field deep.

Abdominal tergites brownish black medially, the individual segments variegated laterally with yellow on basal half; hypopygium dark. Male hypopygium (Plate 2, fig. 23) with the ninth tergite, *9t*, small, the lateral lobes glabrous, blackened, the median notch evenly rounded, wider than the diameter of either lateral lobe. Eighth sternite, *8s*, pale, the caudal margin nearly transverse and with few outstanding bristles, the most evident

³ Philip. Journ. Sci. 47 (1932) 169-171.

grouping being a linear arrangement of from six to eight shorter, more spinous setæ on either side of median line.

MINDANAO, Davao district, Mati, Mount Mayo, altitude 5,000 feet, January 28, 1931 (*Clagg*); holotype, male.

By my key to the Philippine species of *Dolichopeza* ⁴ the present fly runs to *nigrofemorata* Alexander, to which species and *D. (N.) queribunda* sp. nov. it is most nearly allied. The outline of the ninth tergite and the setal armature of the eighth sternite are distinctly different from the same features in these or any other described regional species.

DOLICHOPEZA (NESOPEZA) EVANIDA sp. nov. Plate 2, fig. 24.

Belongs to the *gracilis* group; general coloration of mesonotum pale, the præscutum with three dark brown stripes; pleura pale, conspicuously variegated with brown areas; male hypopygium with the median region of the eighth sternite produced caudad beyond the level of the lateral lobes, the latter with a row of stout spines.

Male.—Length, about 9 millimeters; wing, 8.5.

Frontal prolongation of head and the palpi dark brown. Antennæ with the three basal segments yellowish, the outer segments more infuscated; antennæ relatively long; flagellar segments long-cylindrical, with short verticils. Head light brown.

Mesonotal præscutum obscure whitish, with three dark brown stripes, the median one further divided by a capillary darker brown line; scutal lobes conspicuously marked with dark brown, the anterior darkened area circular in outline, sending a narrower darkening backward; posterior sclerites of mesonotum brown. Pleura pale, almost white, variegated by dark brown areas that include the ventral sternopleurite, meral region, anepisternum, cephalic edge of pteropleurite, pleurotergite, and the fore coxæ. Halteres elongate, pale, the knobs dark brown. Legs with the fore coxæ dark brown, the remaining coxæ and all trochanters yellow; femora yellow, the tips broadly dark brown; tibiæ chiefly yellow, the outer end more golden yellow, the basal portion weakly darkened; tarsi white. Wings subhyaline, with the usual dark brown costal pattern of the *gracilis* group, the dark color variegated by pale spots in outer ends of cells R_2 and R_3 ; veins dark. Venation: Medial forks deep.

Abdominal tergites dark brown, the basal segments variegated

⁴ Loc. cit.

with obscure yellow just before the caudal margins, the outer segments more uniformly darkened; sternites clearer yellow, the caudal margin and basal ring of the individual segments more darkened. Male hypopygium (Plate 2, fig. 24) with the median region of the tergite, 9t, produced into a low protuberance, the lateral lobes obliquely truncated, the ventral surface produced into spinose lobes. Eighth sternite, 8s, with the median area produced caudad beyond the level of the lateral lobes, unarmed except for delicate setulæ; lateral lobes low, lying close to the median area, each armed with a row of powerful spines.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,500 feet, December 31, 1930 (*Clagg*); holotype, male.

Dolichopeza (*Nesopeza*) *evanida* is quite distinct from the allied *D. (N.) paucispinosa* Alexander (Mindanao) in the details of structure of the male hypopygium, especially of the eighth sternite. By my key to the Philippine species of the genus⁵ the fly runs directly to *paucispinosa*.

DOLICHOPEZA (NESOPEZA) PUDIBUNDA sp. nov. Plate 2, fig. 25.

Belongs to the *gracilis* group; general coloration of mesonotal præscutum obscure yellow, the usual stripes reddish brown and poorly delimited; pleura pale, conspicuously variegated with brown; wings with the usual dark costal pattern of the group, the outer ends of cells R₂ and R₃ variegated with pale spots; male hypopygium with the caudal margin of the eighth sternite gently emarginate, provided with four groups of setæ, the lateral groups slenderer and arranged in coarse pencils, the submedian groups distributed in a linear series, shorter and more spinous.

Male.—Length, about 9 millimeters; wing, 8.5.

Female.—Length, about 11 millimeters; wing, 9.

Frontal prolongation of head and palpi dark brown. Antennæ pale yellowish brown, in male relatively long, if bent backward extending about to base of abdomen; flagellar segments long-cylindrical, with short, inconspicuous verticils. Head brown.

Mesonotal præscutum obscure yellow, with scarcely differentiated reddish brown stripes; posterior sclerites of mesonotum light brown. Pleura pale, conspicuously variegated with brown on the ventral sternopleurite, meral region, anepisternum, and fore coxæ. Halteres long, pale yellow, the knobs dark brown. Legs with the fore coxæ dark, the remaining coxæ and all tro-

⁵ Loc. cit.

chanters yellow; femora yellow, the tips narrowly dark brown; tibiæ whitish, the tips very narrowly and weakly darkened; tarsi white. Wings as in the *gracilis* group, the outer ends of cells R_2 and R_3 variegated with large pale spots; veins pale brown.

Abdominal tergites dark brown, before their caudal margins with a median yellow area; sternites yellow, narrowly marked with dark brown at near midlength and again at caudal margin. Male hypopygium (Plate 2, fig. 25) with the median region of the tergite, $9t$, produced, the lateral lobes relatively small and inconspicuous. Eighth sternite, $8s$, only gently emarginate across its caudal margin, provided with four groups of setæ and weak spines, as follows: Outer lateral angles with pencils of more elongate setæ; on either side of median line, the caudal margin with a linear series of shorter and stouter, more spinous setæ; disk of sternite with two linear rows of punctures, converging behind.

MINDANAO, Davao district, Calian, Mount Apo, Baroring River, altitude 6,000 feet, November 10, 1930 (*Clagg*); holotype, male; allotype, female.

By my key to the Philippine species of *Dolichozeza*⁶ the present species runs to *D. (N.) paucispinosa* Alexander, to which species and to *D. (N.) evanida* sp. nov. it is most closely allied. All three species are readily told among themselves by the details of structure of the male hypopygium, especially the conformation of the eighth sternite and the arrangement of setæ and spines thereon.

LIMONIINÆ

LIMONIINI

LIMONIA (LIBNOTES) TENUICLAVA sp. nov. Plate 1, fig. 4; Plate 2, figs. 26, 27.

General coloration of mesonotum dark brown, the pleura brownish yellow with a dorsal black longitudinal stripe; antennæ (male) nodulose, the segments with long glabrous apical necks; halteres darkened; femora dark brown, the tips narrowly yellow; wings with a faint brown tinge, the costal region a little darker; m-cu just before midlength of cell 1st M_2 ; anal veins parallel at origin; male hypopygium with the basistyles elongate, the ventromesal lobe unusually slender; inner dististyle a low oval fleshy lobe, the outer margin extended into a

⁶ Loc. cit.

hornlike portion that bears about seven flattened teeth to form a comblike structure.

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

Rostrum and palpi brownish black. Antennæ (male) relatively elongate, nodulose (Plate 2, fig. 26); black throughout; individual flagellar segments enlarged, suboval, with abundant long erect delicate setæ and still longer, unilaterally arranged verticils on outer face; apical pedicels very long, on basal flagellar segments nearly equal in length to the enlargements, becoming shorter on the outer segments, on the penultimate about one-half the enlarged portion; terminal segment elongate, gradually narrowed to the apex. Head dark colored.

Mesonotum badly discolored, dark brown or brownish black medially, the præscutum extensively pale brown on sides. Pleura brownish yellow, the anepisternum and propleura blackened, producing a dark dorsolongitudinal area. Halteres brownish black, the base of stem narrowly pale. Legs with the fore coxæ blackened, the remaining coxæ and all trochanters yellow; femora dark brown, the tips narrowly and abruptly light yellow; tibiæ and tarsi pale brown to yellowish brown. Wings (Plate 1, fig. 4) with a faint brownish tinge, the costal region and a seam along vein Cu_1 somewhat darker; stigma very small, darker brown; veins and macrotrichia dark brown. Macrotrichia of veins very long; costal fringe of moderate length only. Venation: Sc of moderate length, Sc_1 ending beyond fork of Rs but before level of r-m, Sc_2 at its tip; Rs arcuated; free tip of Sc_2 lying a little proximad of R_2 ; m-cu just before mid-length of cell 1st M_2 ; anal veins parallel at origin.

Abdomen chiefly dark brown, the incisures somewhat paler; hypopygium dark. Male hypopygium (Plate 2, fig. 27) with the tergite, $9t$, gently emarginate, each lobe slightly rounded and provided with four or five setæ. Basistyle, b , long and narrow, its ventromesal lobe subbasal in position, unusually slender. Dorsal dististyle, dd , a slightly curved, sclerotized rod, the tip acute. Ventral dististyle, vd , of peculiar structure, appearing as a flattened, oval, fleshy lobe, the mesal portion produced into a rostrum; on outer margin of style a hornlike extension that bears a series of about seven flattened comblike darkened teeth, the outer ones broader. Gonapophyses, g , with the mesal lobe elongate, flattened, the tip obtuse.

MINDANAO, Davao district, Mati, Mount Mayo, altitude 5,000 feet, January 28, 1931 (*Clagg*); holotype, male.

By Edwards's key to the species of *Libnotes*⁷ the present species runs to couplet 61, disagreeing with all species beyond this point in coloration, and especially in the peculiar structure of the male hypopygium. The fly is amply distinct from other species of *Libnotes* known from the Philippines. The elongate, nodulose antennæ remind one of the condition found in the closely allied subgenus *Limonia* (as *multinodulosa* Alexander) but the present fly certainly belongs to *Libnotes*.

LIMONIA (LIMONIA) PATULA sp. nov. Plate 1, fig. 5; Plate 2, fig. 28.

General coloration of mesonotum light yellowish brown, the dorsal thoracic pleurites darkened; eyes contiguous above; halteres darkened; legs pale brown, the tips of the femora and tibiæ very narrowly darkened; wings subhyaline, the brown stigma nearly circular in outline; male hypopygium very complex in structure, especially the basistyle which is extended ventrally and bears numerous apical lobes.

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

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

Rostrum and palpi black. Antennæ brownish black; flagellar segments oval to short-cylindrical; terminal segment elongate, one-half longer than the penultimate, narrowed outwardly; verticils relatively short and inconspicuous. Eyes contiguous on vertex, separating the anterior vertex from the posterior sclerites of head; ommatidia relatively coarse. Head gray.

Mesonotum light yellowish brown. Pleura yellow, the dorsal sclerites more infuscated. Halteres dark brown, the base of stem narrowly yellow. Legs with the fore coxæ darkened, remaining coxæ and all trochanters yellow; remainder of legs very pale brown, the tips of the femora and tibiæ very narrowly and weakly darkened. Wings (Plate 1, fig. 5) subhyaline, the pale brown stigma nearly circular in outline; veins brown. Venation: Sc₁ ending about opposite two-thirds Rs, Sc₂ close to its tip; Rs long, gently arcuated, approximately four times the basal section of R₄₊₅; free tip of Sc₂ and R₂ nearly in transverse alignment; m-cu at fork of M; vein 2d A converging gently toward 1st A at base, thence gently sinuous to margin.

Abdominal tergites dark brown, the sternites yellow; in male, the caudal margins of the individual tergites narrowly pale; hypopygium dark. Male hypopygium (Plate 2, fig. 28) very complex in structure. Ninth tergite, 9t, with the caudal margin

⁷ Journ. Fed. Malay States Mus. (1928) 74-80.

convexly rounded, the median portion slightly emarginate; setæ of tergite relatively few in number. Basistyle, *b*, extensive, very complicated by lobes as shown (drawn from a dissected mount, to show relative position); in addition to the lobes, the basistyle bears a flattened sclerotized plate with about three or four long setæ near its base. Dorsal dististyle, *dd*, a straight rod, narrowed to the subacute tip, the surface of style with microscopic setulæ. Ventral dististyle, *vd*, an oval fleshy lobe, with an elongate rostral prolongation that is bent at near mid-length at a right angle. Gonapophyses, *g*, elongate, subtending the ædeagus, sinuous and angularly bent at near midlength, the tips obtusely rounded.

MINDANAO, Davao district, Calian, Mount Apo, Baroring River, altitude 6,000 feet, November 10, 1930 (*Clagg*); holotype, male; allotype, female.

In the remarkable development of lobes on the basistyle and the peculiar structure of the dististyles of the male hypopygium, the present species is approached by three allied regional species, *Limonia* (*Limonia*) *bilobulifera* Alexander (Luzon), *L. (L.) davaoensis* Alexander (Mindanao), and *L. (L.) pendleburyi* (Edwards) (Federated Malay States), differing from all in the much greater complexity of the male hypopygium, notably of the basistyles and dististyles.

LIMONIA (LIMONIA) DESIDERATA sp. nov. Plate 1, fig. 6.

General coloration light ochereous yellow; thoracic pleura with a brown longitudinal stripe; halteres dusky, the base of stem yellow; legs yellow; wings pale yellow, the stigma brown; Sc_1 ending about opposite one-third the length of Rs ; cell 1st M_2 open by the atrophy of the basal section of M_3 , cell 2d M_2 small; abdominal tergites bicolorous, dark brown, conspicuously ringed on caudal margins with light yellow.

Female.—Length, about 5 millimeters; wing, 4.

Rostrum and palpi brown. Antennæ dark throughout; flagellar segments oval, with verticils that slightly exceed the segments; terminal segments elongate. Head dark colored.

Mesonotum light ochereous yellow, the præscutum without distinct stripes; scutal lobes slightly darkened; scutellum testaceous yellow; postnotal mediotergite weakly darkened. Pleura obscure yellow, with a distinct brown longitudinal stripe extending from the propleura, passing beneath the root of the halteres to the abdomen; ventral sternopleurite darkened. Halteres dusky, the base of stem narrowly yellow. Legs with the coxæ

and trochanters yellowish testaceous; remainder of legs yellow, the terminal tarsal segments darkened. Wings (Plate 1, fig. 6) with a pale yellow tinge, the short-oval stigma brown; scarcely evident darker clouds at origin of Rs and along cord; veins brownish yellow. Macrotrichia of veins relatively numerous, quite lacking on Sc. Venation: Sc₁ ending about opposite one-third the length of Rs, Sc₂ some distance from its tip, lying just distad of origin of Rs; free tip of Sc₂ and R₂ in transverse alignment; cell 1st M₂ open by the atrophy of the basal section of M₃; cell 2d M₂ small, about three-fifths as long as its petiole; m-cu at fork of M, longer than the distal section of Cu₁; anal veins gently converging at bases, thence gradually diverging.

Abdominal tergites dark brown, conspicuously ringed on their caudal margins with light yellow, the color becoming narrower and more obscure on segments six and seven; genital segments yellow; sternites obscure yellow, the basal two-thirds of the individual segments more yellowish brown. Ovipositor with the tergal valves slender, gently upcurved.

MINDANAO, Davao district, Calian, Mount Apo, Galog River, altitude 6,000 feet, September 8, 1930 (*Clagg*); holotype, female.

Limonia (Limonia) desiderata is quite distinct from all other regional species of *Limonia*. The only other species of the subgenus having cell 1st M₂ open by the atrophy of the basal section of M₃ is *L. (L.) bagobo* Alexander, an otherwise very different fly. The possibility exists that the unique type may have an abnormal venation, but this is similar on the two wings and certainly appears to represent a normal condition. If the basal section of M₃ was abnormally lost in this type, cell 1st M₂ would necessarily be of a most unusual length in the present group of crane flies. The general appearance of the fly is quite distinct from that of any species of *Limonia* or *Dicranomyia* in Mindanao.

LIMONIA (DICRANOMYIA) PUNCTULATOIDES sp. nov. Plate 1, fig. 7; Plate 2, fig. 29.

Belongs to the *punctulata* group; male hypopygium with the rostral prolongation of the ventral dististyle with two long slender spines, arising close together from scarcely developed basal tubercles; gonapophyses with the mesal apical angles long and slender, the margins smooth.

Male.—Length, about 5 to 5.5 millimeters; wing, 6 to 6.5.

Female.—Length, about 5.5 to 6 millimeters; wing, 6 to 6.5.

Rostrum and palpi black. Antennæ with the scapal segments black, the flagellum somewhat paler; flagellar segments short-

oval, the outer segments a trifle more elongate; terminal segment large. Head brownish gray.

Mesonotum brownish gray, the præscutum with two intermediate darker brown stripes, the usual lateral stripes poorly indicated; scutal lobes brown; scutellum and postnotal mediotergite light gray. Pleura dark brownish gray. Halteres pale, the base of knobs weakly darkened. Legs with the coxæ dark brown; trochanters yellowish brown to brown; femora yellowish brown, a little darker outwardly; tibiæ and tarsi brownish yellow. Wings (Plate 1, fig. 7) as in *punctulata* and allies, whitish subhyaline, with a spotted and dotted brown and gray pattern; a series of six to eight dots in cell C; an oval spot at about one-third the length of vein M; the usual two spots on vein 2d A; a variable number of small washes in cell M adjoining vein Cu_1 ; other darkened dots along cord, outer end of cell 1st M_2 , along margin of wing at ends of longitudinal veins, and as variable clouds along R_{4+5} ; veins pale, darker in the clouded areas. Venation: Sc_1 ending opposite origin of Rs, Sc_2 near its tip; Rs straight; cell 1st M_2 long, about equal to vein M_{1+2} beyond it.

Abdomen dark brown. Male hypopygium (Plate 2, fig. 29) with the ninth tergite, *9t*, notched medially. Ventral dististyle, *vd*, large and fleshy, the rostral prolongation with two relatively long slender spines that arise close together at beyond mid-length of the prolongation from very small basal tubercles. Gonapophyses, *g*, with the mesal apical angle elongate, slender, the margins smooth.

MINDANAO, Davao district, Calian, Mount Apo (*Clagg*); holotype, male, altitude 6,000 feet, October 18, 1930; allotype, female, with the type; paratypes, 6 males and females, altitude 6,000 to 6,500 feet, September 14 to November 10, 1930.

Limonia (Dicranomyia) punctulatoides is most nearly allied to *L. (D.) subpunctulata* Alexander (Formosa) in the bispinous rostral prolongation of the male hypopygium and the untoothed lobes of the gonapophyses. It differs conspicuously in the long rostral spines and the very long, slender, mesal-apical lobes of the gonapophyses.

LIMONIA (DICRANOMYIA) MORONIS sp. nov. Plate 2, fig. 30.

Belongs to the *morio* group; most nearly allied to *benguetensis*; male hypopygium with the rostral prolongation of the ventral dististyle bearing a conspicuous pale spine; apex of dorsal dis-

tistyle obliquely truncated, entirely straight and unnotched; gonapophyses with the mesal-apical lobe very broad.

Male.—Length, about 5.5 to 6.5 millimeters; wing, 6 to 7.5.

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

Rostrum black dorsally, brownish yellow laterally; palpi black. Antennæ black throughout; flagellar segments oval, becoming more elongate outwardly, the verticils slightly exceeding the segments; terminal segment long, about one-third longer than the penultimate, constricted at near midlength. Front and the broad anterior vertex silvery white; posterior portions of head black, sparsely pruinose.

Mesonotum polished black, the humeral region of præscutum a little brightened; posterior margin of scutellum obscure yellow. Pleura black, with a heavy silvery pruinosity on propleura, dorsal anepisternum, ventral sternopleurite, and meral region. Halteres brownish black, the basal half or more of stem yellow. Legs with the fore coxæ blackened, the remaining coxæ and all trochanters yellow; remainder of legs black, the femoral bases restrictedly obscure yellow. Wings with a strong brown tinge, the oval stigma darker brown; veins brown. Venation: Sc_1 ending opposite or just before the origin of R_s , the latter long, in alignment with R_{2+3} ; m-cu at or before fork of M .

Abdominal segments conspicuously ringed with black and obscure yellow, the bases of the segments black, the caudal margins yellow, the amount of the latter decreasing on the outer segments; terminal segments, including the hypopygium, entirely black. Male hypopygium (Plate 2, fig. 30) with the structure of the tergite, $9t$, and basistyle, b , almost as in *benguetensis*. Ventral dististyle, vd , with a single conspicuous pale spine on rostral prolongation. Dorsal dististyle, dd , with the apex obliquely truncated, not notched. Gonapophyses, g , with the mesal-apical lobes very broad.

MINDANAO, Davao district, Calian, Mount Apo, Lake Lino and Kidapawan trail, altitude 7,000 to 8,000 feet (*Clagg*); holotype, male; allotype, female, September 19, 1930; paratypes, 5 of both sexes, September 19 and 20, 1930.

Limonia (Dicranomyia) moronis is close to *L. (D.) benguetensis* Alexander (Luzon), differing most conspicuously in the structure of the dorsal dististyle and gonapophyses of the male hypopygium.

LIMONIA (GERANOMYIA) IMMOBILIS sp. nov. Plate 1, fig. 8; Plate 2, fig. 31.

Mesonotal præscutum buffy yellow, with three narrow blackish stripes; rostrum and antennæ entirely black; head blackish, with a narrow median gray line extending from front to occiput; femora black, except at bases; wings with a heavy brown pattern, the areas at origin of Rs and tip of Sc separated; Sc long; m-cu some distance before fork of M; male hypopygium with the two rostral spines arising from a common base; gonapophyses with the mesal-apical lobe irregularly toothed along inner margin.

Male.—Length, excluding rostrum, about 5 millimeters; wing, 5.6 to 5.8; rostrum, about 1.7 to 1.8.

Female.—Length, excluding rostrum, about 5.5 millimeters; wing, 6; rostrum, about 2.

Rostrum black throughout, relatively short and powerful; palpi black. Antennæ black throughout; flagellar segments short-oval to subcylindrical, the verticils short and inconspicuous. Posterior vertex blackish, the front, anterior vertex, and a posterior extension of the latter to the occiput light gray; anterior vertex narrower than the diameter of the scape.

Pronotum ochreous yellow, with a narrow black median line; lateral margins narrowly darkened. Mesonotal præscutum buffy yellow, the lateral margins paling to light gray; three narrow blackish stripes, the median one a direct posterior extension of the pronotal median darkening, the stripe paling to gray before the suture; lateral stripes narrow but long, separated from the median line by interspaces of about equal width; scutal lobes brownish gray, each marked near mesal edge by a brown line; scutellum buffy, with a median black line that is continued cephalad onto the median region of the scutum; postnotal mediotergite brownish gray. Pleura with the sternopleurite light yellow, the remainder of pleura chiefly dark brown, sparsely pruinose. Halteres yellow, the knobs dark brown. Legs with the coxæ and trochanters yellow; femora black, the bases narrowly yellow; tibiæ brown, the tips weakly darkened; tarsi yellow, the tips of the basal segments narrowly darkened, the terminal segments brownish black. Wings (Plate 1, fig. 8) whitish subhyaline, the prearcular region light yellow; a heavy brown pattern, arranged as a series of about seven costal areas, the third at origin of Rs, fourth at tip of Sc₁, fifth, largest, at

stigma; additional dark areas at fork of Rs, on anterior cord, m-cu, outer end of cell 1st M_2 and a marginal series at outer ends of cells 2d M_2 and M_4 , and at ends of both anal veins; veins brown, costal and subcostal veins yellow, dark brown in the darkened areas. Costal fringe short. Venation: Sc long, Sc_1 ending opposite three-fifths to three-fourths the length of Rs, Sc_2 near its tip; cell 1st M_2 long, subequal to vein M_{1+2} beyond it; m-cu from two-thirds to three-fourths its own length before the fork of M; anal veins at origin nearly parallel.

Abdominal tergites dark brown, the sternites obscure yellow, darker on outer segments. Male hypopygium (Plate 2, fig. 31) with the caudal margin of the ninth tergite, $9t$, gently emarginate. Ventral dististyle, vd , large and fleshy, much larger than the basistyle, b ; rostral prolongation with two relatively long, gently curved spines from a common basal tubercle. Gonapophyses, g , with the mesal-apical lobe elongate, its inner margin conspicuously and irregularly toothed.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,500 feet, December 31, 1930 (*Clagg*); holotype, male; allotype, female; paratypes, 2 males.

Among the described regional species of the subgenus, *Limonia* (*Geranomyia*) *immobilis* seems to be most closely allied to *L. (G.) suensoniana* Alexander (eastern China), agreeing in the chief features of wing venation, as the long Sc and position of m-cu, differing in the distribution of the brown areas of the wing, especially along the posterior margin, and very conspicuously in the details of structure of the male hypopygium.

HEXATOMINI

ATARBA (ATARBODES) APOENSIS sp. nov. Plate 1, fig. 9; Plate 3, fig. 32.

General coloration of mesonotum yellowish brown; pleura yellow, the pteropleurite conspicuously blackened; antennal flagellum pale brown; legs yellow; wings yellow, the anterior branch of Rs subequal in length to Rs, diverging strongly from the posterior branch; male hypopygium with the lateral spines of the outer dististyle erect and strongly curved; ædeagus deeply trifold at apex.

Male.—Length, about 3.5 millimeters; wing, 4 to 4.2.

Rostrum and basal segments of palpi yellow, the outer palpal segments blackened. Antennæ with the scape and pedicel obscure yellow; flagellum pale brown; flagellar segments cylindrical, becoming more elongate outwardly; verticils of basal segments much exceeding the segments in length. Head brown.

Mesonotal præscutum yellowish brown, darker near the suture; posterior sclerites of mesonotum pale brown. Pleura yellow, with a conspicuous black spot on the pteropleurite. Halteres yellow. Legs with the coxæ and trochanters yellow; remainder of legs light yellow, only the terminal tarsal segments infuscated. Wings (Plate 1, fig. 9) light yellow, the costal region slightly more saturated; veins yellow. Macrotrichia of veins relatively sparse, there being none on either the first or second section of vein M_{1+2} and only one or two at extreme outer end of Rs. Venation: Sc_1 ending about opposite one-fourth the length of Rs; anterior branch of Rs short, diverging widely from the posterior branch, subequal in length to Rs; cell R_2 at margin about one-third as extensive as cell R_4 .

Abdomen, including hypopygium, yellow; lateral margins of segments infuscated; in male, a blackened ring on segments eight and nine. Male hypopygium (Plate 3, fig. 32) with the basistyle, *b*, unarmed with tubercles. Outer dististyle, *od*, entirely blackened, the outer margin with five or six powerful, erect, curved spines, the apex of style broadly flattened and produced into many acute teeth and spines of various sizes. Ædeagus, *a*, relatively short, deeply trifold, the ends of the three arms a little expanded and truncated.

MINDANAO, Davao, district, Calian, Mount Apo, Baroring River (*Clagg*); holotype, male, altitude 6,000 feet, November 10, 1930; paratypes, 2 males, altitude 7,000 feet, November 8 and 9, 1930.

Atarba (*Atarbodes*) *apoensis* is very distinct from all regional species of the genus. The group of Formosan and Japanese *Atarbodes* have the venation of the radial field entirely different, the branches of Rs extending generally parallel to one another to the margin, cells R_2 and R_4 at margin being subequal or with R_2 more extensive than cell R_4 . In venation, the present species is closer to *A. (A.) argentata* Edwards (Federated Malay States) which has a somewhat similar arrangement of wing veins in the radial field but a very different hypopygium. The deeply trifold ædeagus of *apoensis* is very different from the condition existing in the other regional species known to me. The condition is suggested in *A. (A.) fuscicornis* Edwards (Formosa), but in the present species the incisions are much deeper. In the single genus *Atarba*, species occur that have the ædeagus simple, profoundly bifurcate, and deeply trifurcate, an unusual range to occur within the limits of a single restricted group. The genus and subgenus are new to the Philippine fauna.

ERIOCERA (ERIOCERA) VITTULA sp. nov. Plate 1, fig. 10.

Allied to *vittipennis*; mesonotum light gray, the præscutum with four black stripes; antennal flagellum and legs chiefly obscure yellow; wings whitish, heavily streaked with brown, the latter color appearing as darkened seams to the veins.

Female.—Length, about 19 millimeters; wing, 14.

Rostrum black, gray pruinose; palpi brownish black. Antennæ with the scape light gray; pedicel and basal four segments of flagellum yellow, the outer four or five segments brown. Head light gray, with long coarse black setæ.

Pronotum dark gray. Mesonotum light gray, the præscutum with four conspicuous black stripes, the intermediate pair separated by a space more than one-half as wide as the stripe itself; lateral stripes nearly one-half as long as the intermediates, not crossing the suture; scutum gray, conspicuously marked with black; scutellum chiefly black, the caudal margin and a capillary median vitta more grayish; postnotum gray. Pleura gray, variegated with blackish. Halteres blackened. Legs with coxæ gray; trochanters brownish black; femora and tibiæ obscure yellow, very narrowly tipped with dark brown; all tarsal segments obscure yellow, the tips narrowly darkened; legs conspicuously hairy. Wings (Plate 1, fig. 10) with the ground color whitish, the veins conspicuously bordered with dark brown to produce a streaked appearance, almost as in *vittipennis*. Costal fringe abundant and conspicuous. Venation: Humeral cross-vein oblique; R_2 oblique, directed basad, subequal to or shorter than R_{2+3} ; basal section of R_5 about one-half R_s .

Abdominal tergites blackened medially, the basal lateral portions of the individual segments heavily light gray pruinose; rufous-orange areas on sides of segments two and three before the caudal margin; basal sternites yellow, the outer segments gray, margined caudally with dark brown; ovipositor with the genital shield deep orange, the elongate valves orange-horn colored.

MINDANAO, Davao district, Calian, Mount Apo, Galog River trail, altitude 5,000 to 6,000 feet, November 13, 1930 (*Clagg*); holotype, female.

Although this fly is closely allied to *Eriocera vittipennis* Alexander (Mindanao), I must regard it as being distinct, differing in the larger size, the more-extensive yellow coloration of the antennal flagellum, the obscure yellow femora and tibiæ, and the details of venation, especially the position of R_2 and the greater

depth of the radial cells. The venation of *vittipennis* is shown (Plate 1, fig. 11) for comparison.

ERIOCERA (ERIOCERA) DIGNITOSA sp. nov. Plate 1, fig. 12.

Male.—Length, about 22 millimeters; wing, 23.5.

Very closely allied to *E. mindanaoensis* Alexander (Mindanao, Bukidnon Subprovince), differing especially in the larger size and details of venation.

Legs black. Wings (Plate 1, fig. 12) strongly suffused with dark brown, more intense than in *mindanaoensis*, especially in the costal region. Costal fringe very short but dense. Venation: Humeral crossvein transverse; R_{2+3+4} long, exceeding one-half of Rs. *Eriocera mindanaoensis* has R_{2+3+4} about two-fifths the length of Rs (Plate 1, fig. 13).

MINDANAO, Davao district, Calian, Sibulan Barrio, altitude 2,000 feet, October 8, 1930 (*Clagg*) holotype, male.

Genus GONOMYIA Meigen

Gonomyia MEIGEN, Syst. Beschreib. Europ. Dipt. 1 (1818) 146.

Goniomyia OSTEN SACKEN, Mon. Dipt. North America 4 (1869) 177.

The rather numerous species of *Gonomyia* now known from the Philippines fall in five subgenera, the largest being *Lipophleps*. The following key to these species is based essentially on male characters.

Key to the Philippine species of *Gonomyia* Meigen.

1. Cell R_3 of wings lacking..... 2.
Cell R_3 of wings present 14.
2. Cell 1st M_2 open by atrophy of basal section of M_3 , cell 2d M_2 very small; antennal verticils (male) short. (Subgenus *Ptilostenodes* Alexander.) (Luzon.) *ptilostenella* Alexander.
Cell 1st M_2 closed; antennal verticils (male) long and conspicuous. (Subgenus *Lipophleps* Bergroth, partim.)..... 3.
3. Wings with Sc long, Sc_1 ending opposite from one-third to two-fifths the length of Rs (*skusei* group)..... 4.
Wings with Sc short, Sc_1 ending opposite or before the origin of Rs. 7.
4. Male hypopygium with two dististyles, the outer a very long, slender, chitinized rod. (Mindanao.)..... *sagittifera* Alexander.
Male hypopygium with a single, entirely fleshy dististyle..... 5.
5. Male hypopygium with the ædeagus dilated and bearing a comblike row of small chitinized spines. (Mindanao.)
acanthophallus Alexander.
- Male hypopygium without such armature of the ædeagus..... 6.
6. Male hypopygium with the dististyle and outer lobe of basistyle relatively short and stout, less than one-half the length of the remainder of basistyle; phallosome terminating in five free points. (Luzon.)
longiradialis Alexander.

- Male hypopygium with the dististyle and outer lobe of basistyle long and slender, subequal in length to the remainder of basistyle; phallosome compact, without free blackened points. (Mindanao.)
macilenta sp. nov.
7. Wings unmarked, except for the stigmal area when this is present.... 8.
Wings spotted or clouded with darker areas, in addition to the stigmal spot 11.
8. Legs uniformly dark brown; male hypopygium with a single, subterminal dististyle 9.
Legs pale, the femora with a conspicuous black terminal or subterminal ring; male hypopygium with three dististyles that are terminal in position, or nearly so 10.
9. Male hypopygium with the dististyle heavily sclerotized and blackened, unequally bispinous. (Luzon; British India to Japan.)
incompleta Brunetti.
Male hypopygium with the outer dististyle small, simple, entirely fleshy. (Luzon.) *maquilingia* Alexander.
10. Male hypopygium with the outer dististyle simple; innermost dististyle produced into three acute blackened points. (Mindanao and Luzon.)
alboannulata Alexander.
Male hypopygium with the outer dististyle unequally bifid; innermost dististyle simple, entirely pale. (Mindanao.)..... *discreta* sp. nov.
11. Wings with three major dark costal areas, placed at origin of Rs, at stigma, and at tip of R_{1+2} ; male hypopygium with three dististyles, all simple, the innermost shortest and entirely pale. (Mindanao.) *tristigmata* sp. nov.
Wings not patterned as above; male hypopygium with two dististyles; or when with three (*bicolorata*), the outermost style branched on basal half, the innermost nearly as long, at apex drawn out into a long straight spine 12.
12. Wings heavily and almost uniformly clouded with brown, the costal region conspicuously pale; Sc very short, Sc₁ ending nearly its own length before the origin of Rs; male hypopygium with three dististyles. (Luzon.) *bicolorata* Alexander.
Wings not so patterned, the darkened areas appearing as spots or seams along cord; Sc₁ ending only a short distance before origin of Rs; male hypopygium with two dististyles..... 13.
13. Wings with a conspicuous dark pattern, including a major area at near midlength of cell R, in addition to the usual clouding along the cord, the dark pattern about as deep and intense as the stigmal area; male hypopygium with the outer dististyle a powerful blackened rod, bifid at extreme tip, inner dististyle entirely pale. (Luzon.) *secreta* Alexander.
Wing pattern very diffuse, appearing as scarcely indicated darkenings along cord and elsewhere on wing disk, this pattern much paler than the stigmal area; male hypopygium with the outer dististyle slender, bearing an acute spine on basal third; apex of inner dististyle an erect to slightly recurved black spine. (Mindanao.)
luteimarginata Alexander.

14. Cell R_1 of wings very small, vein R_3 nearly perpendicular; cell R_2 at margin fully as wide as cell R_3 . (Subgenus *Lipophleps* Bergroth, partim.) (Luzon.) *pallidisignata* Alexander.
Cell R_3 very extensive, at wing margin fully three or four times as wide as cell R_2 15.
15. Cell 1st M_2 closed. (Subgenus *Gonomyia* Meigen.) (Mindanao.)
nebulicola sp. nov.
Cell 1st M_2 open by atrophy of basal section of M_3 16.
16. Wings with m-cu at or beyond the fork of M. (Subgenus *Progonomyia* Alexander.) (Mindanao.) *terebrella* Alexander.
Wings with m-cu more than its own length before the fork of M. (Subgenus *Ptilostena* Bergroth.)..... 17.
17. Wings unmarked, except for the stigmal area; Sc short, Sc_1 ending opposite origin of R_3 ; cell R_3 small, on margin shorter than cell R_4 and only a little more extensive than cell R_2 . (Negros and Java.)
metatarsata de Meijere.
Wings spotted with brown, including areas at origin of R_3 , tip of vein R_4 , and along cord; Sc longer, Sc_1 ending about opposite one-third the length of R_3 ; cell R_3 on margin very extensive, much exceeding cell R_4 ; cell R_2 almost closed on margin by approximation of veins R_{1+2} and R_3 . (Mindanao, Buru, and North Borneo.)
punctipennis Edwards.

The various references given herewith in conjunction with the different species of *Gonomyia* (and also of the genera *Erioptera* and *Molophilus*, later in this same report) pertain to exact distributional records for the Philippines rather than to the original descriptions of the various species.

PHILIPPINE SPECIES OF THE SUBGENUS PTILOSTENODES

Ptilostenodes Alexander.⁸ One Philippine species.

Gonomyia (Ptilostenodes) ptilostenella Alexander; ALEXANDER, Philippines, IX, Philip. Journ. Sci. 45 (1931) 441-442.

The various species of *Ptilostenodes* are all Oriental, ranging from Formosa to Java.

PHILIPPINE SPECIES OF THE SUBGENUS LIPOPHLEPS

Lipophleps Bergroth. The numerous species of this subgenus in the Philippines are not safely to be determined except by a careful study of the male genitalic characters, which here offer unusually strong characters for the separation of otherwise similar species.

Gonomyia (Lipophleps) acanthophallus Alexander; ALEXANDER, Philippines, IX, Philip. Journ. Sci. 45 (1931) 442-443.

⁸ Arch. für Hydrobiol., Suppl. Bd. 9 (1931) 182.

- Gonomyia (Lipophleps) alboannulata* Alexander; ALEXANDER, Philippines, X, Philip. Journ. Sci. 46 (1931) 31-32.
- Gonomyia (Lipophleps) bicolorata* Alexander; ALEXANDER, Philippines, VII, Philip. Journ. Sci. 43 (1930) 295-297.
- Gonomyia (Lipophleps) discreta* sp. nov.; this report.
- Gonomyia (Lipophleps) incompleta* Brunetti; ALEXANDER, Philippines, X, Philip. Journ. Sci. 46 (1931) 29-30.
- Gonomyia (Lipophleps) longiradialis* Alexander; ALEXANDER, Philippines, VI, Philip. Journ. Sci. 41 (1930) 307-308.
- Gonomyia (Lipophleps) luteimarginata* Alexander; ALEXANDER, Philippines, X, Philip. Journ. Sci. 46 (1931) 32-33.
- Gonomyia (Lipophleps) macilenta* sp. nov.; this report.
- Gonomyia (Lipophleps) maquilingia* Alexander; ALEXANDER, Philippines, X, Philip. Journ. Sci. 46 (1931) 28-29.
- Gonomyia (Lipophleps) pallidisignata* Alexander; ALEXANDER, Philippines, X, Philip. Journ. Sci. 46 (1931) 30-31.
- Gonomyia (Lipophleps) sagittifera* Alexander; ALEXANDER, Philippines, XIV, Philip. Journ. Sci. 48 (1932) 40-41.
- Gonomyia (Lipophleps) secreta* Alexander; ALEXANDER, Philippines, X, Philip. Journ. Sci. 46 (1931) 33-34.
- Gonomyia (Lipophleps) tristigmata* sp. nov.; this report.

Species of *Lipophleps* abound in most of the faunal areas of the world, excepting the western Palæarctic, being very characteristic of the Oriental and Neotropical Regions, and of the remote islands of the Pacific Ocean.

PHILIPPINE SPECIES OF THE SUBGENUS GONOMYIA

Gonomyia Meigen, s. s. A single species of this widely distributed subgenus has been taken in the Philippines but others will certainly be found to occur there.

Gonomyia (Gonomyia) nebulicola sp. nov.; this report.

The subgenus is the dominant one in the entire Holarctic Region, with relatively fewer species in the Neotropical, Ethiopian, and Oriental Regions.

PHILIPPINE SPECIES OF THE SUBGENUS PROGONOMYIA

Progonomyia Alexander. As is the case with the last group, a single species has been described from the Philippines but others must exist in this diversified region.

Gonomyia (Progonomyia) terebrella Alexander; ALEXANDER, Philippines, XI, Philip. Journ. Sci. 46 (1931) 285-286.

The majority of the species of this subgenus occur in the Neotropical and southern Ethiopian Regions, with a few species in the Oriental Region and southern parts of the eastern Palæarctic Region.

PHILIPPINE SPECIES OF THE SUBGENUS PTILOSTENA

Ptilostena Bergroth. Two widely-distributed lowland species have been discovered in the Philippines.

Gonomyia (Ptilostena) metatarsata de Meijere; EDWARDS, *Notulae Entomologicae* 6 (1926) 37.

Gonomyia (Ptilostena) punctipennis Edwards; ALEXANDER, *Philippines*, X, *Philip. Journ. Sci.* 46 (1931) 35.

The subgenus is very characteristic of the Holarctic Region, with a few scattered species in the Ethiopian, Oriental, and Australasian Regions.

GONOMYIA (LIPOPHLEPS) MACILENTA sp. nov. Plate 1, fig. 14; Plate 3, fig. 33.

Belongs to the *skusei* group; general coloration of mesonotum dark brown, the scutellum and cephalic-lateral portions of the postnotal mediotergite yellow; pleura dark brown, with a conspicuous whitish longitudinal stripe; apices of knobs of halteres yellow; legs brownish black; wings with a brownish tinge, the stigma a little darker; Sc_1 ending about opposite two-fifths the length of R_s ; male hypopygium with a single dististyle, this subequal in length to the outer lobe of basistyle.

Male.—Length, about 3.3 to 3.5 millimeters; wings, 3.8 to 4.

Rostrum obscure yellow; palpi black. Antennæ black throughout; flagellar segments elongate, with an abundant elongate white pubescence. Head black, gray pruinose, the central portion of the posterior vertex light yellow.

Pronotum and anterior lateral pretergites light yellow. Mesonotum dark brown, the median region of scutum a trifle paler; scutellum chiefly testaceous-yellow; cephalic-lateral angles of postnotal mediotergite yellow. Pleura dark brown, with a conspicuous whitish longitudinal stripe crossing the ventral sclerites. Halteres dusky, the base of stem and apex of knob light yellow. Legs with the fore coxæ pale, the remaining coxæ and all trochanters darkened; remainder of legs brownish black. Wings (Plate 1, fig. 14) with a brownish tinge, the stigmal region darker brown; veins pale brown. Macrotrichia on more than distal half of vein 1st A and on distal fifth of 2d A. Venation: Sc_1 ending about opposite two-fifths the length of R_s , Sc_2 about halfway between origin of R_s and tip of Sc_1 ; basal section of R_5 short, r-m correspondingly lengthened, gently arcuated; m-cu shortly before fork of M.

Abdominal tergites dark brown, the sternites paler. Male hypopygium (Plate 3, fig. 33) with the outer angle of basistyle,

b, prolonged into a slender lobe. A single dististyle, *d*, that is about as long as the lobe of the basistyle, a little dilated on outer half, terminating in a powerful fasciculate seta, with several smaller setæ on distal half, including one of unusual length on outer face at near three-fourths the length of style. Phallosome, *p*, compact, without free blackened points, as is the case in *longiradialis*, or without a series of acute spines, as in *acanthophallus*; apex of longest lobe ending in a short acute point, provided with several microscopic setulæ.

MINDANAO, Davao district, Mati, Mount Mayo, altitude 5,000 feet, January 29, 1931 (*Clagg*); holotype, male; paratype, male.

Gonomyia (Lipophleps) macilenta is most nearly allied to *G. (L.) acanthophallus* Alexander (Mindanao) in its general appearance and venation, differing conspicuously in the structure of the male hypopygium, more especially of the phallosome.

GONOMYIA (LIPOPHLEPS) DISCRETA sp. nov. Plate 1, fig. 15; Plate 3, fig. 34.

General coloration dark brown; thoracic pleura striped longitudinally with dark brown and silvery white; halteres with the knobs dark, the outer third obscure yellow; femora with a dark subterminal ring; wings nearly hyaline, unmarked; male hypopygium with three dististyles, the outer stout, blackened, forked at beyond midlength; middle dististyle a pale tail-like setiferous lobe.

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

Female.—Length, about 4 millimeters; wings, 4.

Rostrum and palpi black. Antennæ with the basal segments light brown, the succeeding three or four segments pale, the outer ones passing to black; flagellar verticils very long. Head badly flexed, apparently uniformly dark gray.

Mesonotum dark brown, the anterior lateral pretergites light yellow; posterior sclerites of mesonotum concealed by mounting medium, the pleurotergite obscure yellow. Pleura chiefly obscure yellow, with a conspicuous longitudinal silvery stripe across the ventral sclerites, this area bordered dorsally and less evidently on ventral edge by brown lines, the more dorsal extending from the propleura to the base of abdomen, passing beneath the halteres; ventral sternopleurite dark brown, pruinose. Halteres yellow, the basal two-thirds of the knob infuscated, the apex restrictedly yellow in male, entirely dark in female. Legs with the fore coxæ narrowly darkened; remaining coxæ and all trochanters pale yellow; femora pale brown, with a darker brown subterminal ring that is preceded and followed by clear

yellow annuli; tibiæ and tarsi pale, the tips of basitarsi and remaining tarsal segments dark brown. Wings (Plate 1, fig. 15) nearly hyaline, the stigma not or scarcely evident; veins pale brown. Costal fringe relatively long and conspicuous; macrotrichia on outer ends of both anal veins. Venation: Sc of moderate length, Sc₁ ending just before origin of Rs, Sc₂ not evident; anterior branch of Rs gently sinuous; m-cu before fork of M; vein 2d A nearly straight to gently convex.

Abdomen chiefly dark brown, the pleural region broadly silvery white; hypopygium dark. In female, caudal margins of tergites narrowly pale yellow. Male hypopygium (Plate 3, fig. 34) with the outer dististyle, *od*, a powerful blackened rod, at just beyond midlength bifid, the outer arm a slender, gently curved spine that narrows to an acute point; inner arm a blunt structure, densely set with obtuse teeth to produce a macelike appearance; besides these small, compact denticles, there is a single outstanding spine. Middle dististyle, *md*, an elongate pale rod, a little expanded on outer half, thence narrowed to a slender apical point, the margin with numerous setæ. Inner dististyle, *id*, shortest, exceeding one-half the middle style, with numerous setæ, including a fasciculate seta near apex.

MINDANAO, Davao district, Libby, December 9, 1930 (*Clagg*); holotype, male; allotype, female; paratype, female.

Gonomyia (*Lipophleps*) *discreta* is very different from other regional species in the structure of the male hypopygium, especially of the outer and middle dististyles. By Edwards's key to the Oriental species of *Lipophleps*⁹ the present fly runs out at couplet 4, disagreeing with both included species in the coloration of the body. The structure of the male hypopygium of *G. (L.) diffusa* (de Meijere) has not been described and is not known to me.

GONOMYIA (LIPOPHLEPS) TRISTIGMATA sp. nov. Plate 1, fig. 16; Plate 3, fig. 35.

General coloration brownish gray; scutellum obscure yellow; pleura chiefly brown, with a conspicuous silvery longitudinal stripe; halteres yellow, the basal half of knob brown; legs chiefly dark brown; wings weakly darkened, the costal region broadly pale, variegated by three large brown spots; male hypopygium with three dististyles.

Male.—Length, about 2.6 to 2.7 millimeters; wing, 3 to 3.2.

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

⁹ Journ. Federated Malay States Mus. 14 (1928) 104-105.

Rostrum and palpi black. Antennæ with the scape yellow above, infuscated on lower face; pedicel yellow; flagellum dark brown. Head chiefly yellow above, darker in the male.

Mesonotum brownish gray, the anterior lateral pretergites very pale yellow; pseudosutural foveæ black; posterior sclerites of mesonotum dark, the scutellum obscure yellow. Pleura with the dorsal region pale brown, the ventral portion chiefly occupied by a conspicuous longitudinal silvery stripe that is bordered both dorsally and ventrally by dark brown. Halteres pale yellow, the basal half of knob brown. Legs with the fore coxæ silvery white, the remaining coxæ and all trochanters brownish testaceous to brown; remainder of legs dark brown, in cases with the extreme tip of femur slightly paler. Wings (Plate 1, fig. 16) with the ground color weakly infuscated, the costal region broadly pale yellow, variegated by three large brown spots, the first placed at tip of Sc and origin of Rs; the second, stigmal, at end of R₁; the last at outer end of anterior branch of Rs; a further paler brown wash in the arcular region; remainder of ground color more or less variegated by slightly darker seams along cord and outer end of cell 1st M₂. Costal fringe (male) long and conspicuous; vein 1st A without macrotrichia; vein 2d A with only one or two near outer end. Venation: Sc₁ ending about opposite or just beyond origin of Rs; basal section of R₅ long, exceeding m; m-cu just before fork of M; vein 2d A gently sinuous.

Abdominal tergites brown, variegated at caudal-lateral angles by obscure yellow, the caudal margins more narrowly pale; sternites brown, the caudal margins pale; hypopygium chiefly dark colored. Male hypopygium (Plate 3, fig. 35) with three dististyles, the outer, *od*, longest, a slender blackened rod that is narrowed to a nearly acute tip, at near midlength on inner face, with an expanded darkened flange. Second style, *md*, a simple rod that is about two-thirds the length of the first, narrowed to an acute point, the distal half blackened. Inner style, *id*, a slender fingerlike pale lobe, the outer half with several punctures, at apex with two fasciculate setæ. Phallosome, *p*, consisting of two slender, gently diverging rods, the tips acute. Ædeagus at apex curved into a crook.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,500 feet (*Clagg*); holotype, male, January 1, 1931; allotype, female, December 29, 1930; paratypes, 5 males and females, December 29, 1930 to January 1, 1931.

Gonomyia (*Lipophleps*) *tristigmata* is readily distinguished by the conspicuous wing pattern and the structure of the male hypopygium. By Edwards's key to the Oriental species of the subgenus¹⁰ the present fly runs to *G. (L.) hackeri* Edwards, which has a very different male hypopygium.

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

General coloration of mesonotum brownish gray, the scutellum yellow; rostrum obscure yellow, antennæ black throughout; pleura yellow, variegated with brown; knobs of halteres slightly brightened; legs black; wings nearly hyaline, the stigma a trifle darker; Sc_1 ending shortly beyond origin of R_s ; R_{2+3+4} strongly arcuated; basal section of R_5 short; male hypopygium with the inner dististyle trifid; phallosome asymmetrical.

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

Female.—Length, about 5 millimeters; wing, 4.7 to 4.8.

Rostrum obscure yellow; palpi black. Antennæ black throughout; flagellar segments long-oval, decreasing in size outwardly. Head light gray.

Pronotum and anterior lateral pretergites yellow. Mesonotum brownish gray, the humeral region of præscutum restrictedly obscure yellow; pseudosutural fovæ black; median region of scutum and the broad scutellum obscure yellow. Pleura obscure yellow, variegated on anepisternum with dark brown, on the ventral sternopleurite with reddish brown. Halteres dusky, the base of stem and apex of knobs a little brighter. Legs with the fore coxæ weakly darkened, the remaining coxæ more yellow; trochanters brownish yellow; remainder of legs black. Wings (Plate 1, fig. 17) nearly hyaline, the oval stigma a little darker than the ground color; veins brownish black. Costal fringe relatively long and conspicuous. Venation: Sc_1 ending shortly beyond origin of R_s , in cases to opposite one-fifth the length of the latter vein; Sc_2 not far from tip of Sc_1 ; R_{2+3+4} strongly arcuated; basal section of R_5 short, r-m correspondingly lengthened; m-cu at or very close to fork of M.

Abdominal tergites dark brown, the sternites more yellowish brown; hypopygium dark. Male hypopygium (Plate 3, fig. 36) with the basistyle, *b*, relatively long and slender, with a short apical lobe. Outer dististyle, *od*, fleshy, setiferous. Inner dististyle, *id*, trifid, its outermost arm a strongly curved spine, the central portion a more nearly straight spine; outer portion of

¹⁰ Loc. cit.

inner dististyle with conspicuous setæ. Phallosome, *p*, asymmetrical, the ædeagus being subtended by one long black sinuous spine.

MINDANAO, Davao district, Calian, Mount Apo, Galog River, altitude 6,000 feet, October 16, 1930 (*Clagg*); holotype, male; allotype, female, October 18, 1930; paratypes, several of both sexes, chiefly females, altitude 6,000 feet, September 13, October 10, 12, 16, and 25, November 3 and 4, 1930; 1 male, 1 female, La Lun Mountains, altitude 5,500 feet, December 31, 1930, and January 1, 1931; 1 male, Mount Mayo, altitude 4,000 feet, January 26, 1931.

Gonomyia (*Gonomyia*) *nebulicola* is the first species of the subgenus to be recorded from the Philippines. It is distinguished from *G. (G.) affinis* Brunetti (British India) and *G. (G.) bryanti* Alexander (Java) by the strongly arcuate R_{2+3+4} . It is further distinguished from *bryanti* by the structure of the inner dististyle of the male hypopygium, and from the Bornean *G. (G.) symmetrica* Edwards, by the very different male hypopygium.

Genus ERIOPTERA Meigen

Erioptera MEIGEN, Illiger's Magaz. 2 (1803) 262.

The various Philippine species of *Erioptera* may be separated by means of the following key, which is based in part on male characters.

Key to the Philippine species of *Erioptera* Meigen.

1. Cell R_3 relatively shallow, vein R_2 lying far before its inner end, vein R_{3+4} thus being present as a distinct element. (Subgenus *Empeda* Osten Sacken.) 2.
- Cell R_3 deep, vein R_2 connecting with R_{2+3} beyond the inner end of cell R_3 , vein R_{2+3} thus being present as a distinct element..... 4.
2. Femora uniformly darkened on distal half or more; general coloration of mesonotum light brown, paling to gray on sides. (Mindanao.) *lunensis* Alexander.
- Femora yellow, narrowly and abruptly tipped with black; general coloration of thorax black 3.
3. Humeral region of præscutum with a conspicuous yellow triangular area; R_{3+4} longer than R_4 ; male hypopygium with the outer dististyle blackened, the arms slender. (Mindanao.)..... *rata* sp. nov.
- Mesonotal præscutum uniformly blackened; R_{3+4} shorter than R_4 ; male hypopygium with the outer dististyle entirely pale, the arms expanded at outer ends. (Mindanao.)..... *perrata* sp. nov.
4. Cell 1st M_2 closed. (Subgenus *Ilisia* Rondani.)..... 5.
- Cell 1st M_2 open by the atrophy of m 6.

5. General coloration of thorax gray, variegated with velvety black, especially on lateral portions; femora chiefly darkened, ringed with yellow, the extreme tip pale; wings pale, with an ocellate dark pattern, the numerous marginal areas paler medially, bordered with brown; vein Sc_2 just before the fork of Rs. (Oriental Region; Mindanao.) *fenestrata* (re Meijere).
 General coloration of thorax reddish yellow, the posterior sclerites of mesonotum and a dorsal stripe on pleura dark brown; legs yellow, the tips of femora narrowly to insensibly darkened; wings pale, with a more-restricted, solidly darkened pattern; Sc_2 just beyond origin of Rs. (Mindanao.) *perpictula* Alexander.
6. Apical cells of wing very deep, the cord lying at or before midlength of wing; vein 2d A only slightly sinuous. (Subgenus *Teleneura* Alexander.) 7.
 Apical cells of wing shallower, the cord lying at from three-fifths to two-thirds the length of wing; vein 2d A very strongly sinuous, with nearly the distal half extending parallel to caudal margin of wing. (Subgenus *Erioptera* Meigen.) 9.
7. Wings with a heavy, pale brown pattern; femora with about the basal half darkened, the apical portion broadly light yellow. (Oriental Region; Mindanao.) *nigrbasis* Edwards.
 Wings uniformly suffused with darker, immaculate; legs uniformly darkened 8.
8. General coloration of præscutum dark brown to black, the thoracic pleura concolorous. (Oriental Region; Mindanao.) *fusca* de Meijere.
 General coloration of præscutum light brown, paling to yellow on margins; thoracic pleura with a conspicuous, brownish black, longitudinal stripe. (Mindanao and Luzon.) *melanotænia* Alexander.
9. Wings with a saturated grayish yellow suffusion, the costal cell whitish; no darkened seam along cord; some of veins narrowly bordered with yellow. (Luzon.) *rubripes* Alexander.
 Wings pale, with a faint infusate cloud along cord, darkening the veins and adjoining membrane; no brightening of membrane adjoining the veins 10.
10. Male hypopygium with the outer dististyle bifid, its outer arm an acute spine, the inner arm a rounded capitate head. (Philippines.) *luzonica* Alexander.
 Male hypopygium with the outer dististyle a simple, blackened rod. 11.
11. Male hypopygium with the inner dististyle a flattened, oval blade bearing an acute spine on outer margin; gonapophyses obtuse and weakly bifid at tips. (Mindanao.) *lunicola* sp. nov.
 Male hypopygium with the inner dististyle a slender rod, without spines, at apex dilated into a weak head; gonapophyses appearing as acute spines. (Mindanao.) *alta* sp. nov.

PHILIPPINE SPECIES OF THE SUBGENUS EMPEDA

Empeda Osten Sacken. Besides the two species described herewith, a single species had been recorded from the Philip-

pinus. Species of this subgenus will surely be found to occur in the mountains of Luzon.

Erioptera (Empeda) lunensis Alexander; ALEXANDER, Philippines, XI, Philip. Journ. Sci. 46 (1931) 288-289.

Most of the species of *Empeda* occur in the Holarctic and northern Neotropical and Oriental Regions. A very few others are found in the Ethiopian and Australasian Regions.

PHILIPPINE SPECIES OF THE SUBGENUS ILISIA

Ilisia Rondani. I am very doubtful as to whether *perpictula* can be correctly referred to this subgenus, since the male hypopygium is very different from that of the typical form. *Erioptera fenestrata* is a perfectly typical member of *Ilisia*.

Erioptera (Ilisia) fenestrata (de Meijere); this report.

Erioptera (Ilisia) perpictula Alexander; ALEXANDER, Philippines, IX, Philip. Journ. Sci. 45 (1931) 443-444.

The species of *Ilisia* are all Holarctic, with the exception of a few species occurring in Formosa and the Malayan islands.

PHILIPPINE SPECIES OF THE SUBGENUS TELENEURA

Teleneura Alexander. Three species are now known from the Islands.

Erioptera (Teleneura) nigribasis Edwards; this report.

Erioptera (Teleneura) fusca de Meijere; ALEXANDER, Philippines, XI, Philip. Journ. Sci. 46 (1931) 287.

Erioptera (Teleneura) melanotaenia Alexander; ALEXANDER, Philippines, XI, Philip. Journ. Sci. 46 (1931) 287-288.

All known species of the subgenus are Oriental.

PHILIPPINE SPECIES OF THE SUBGENUS ERIOPTERA

Erioptera Meigen, s. s. To the four species recorded herewith, numerous additions will probably be made as further collections are taken in the mountains of the major islands of the group.

Erioptera (Erioptera) alta sp. nov.; this report.

Erioptera (Erioptera) lunicola sp. nov.; this report.

Erioptera (Erioptera) luzonica Alexander; this report.

Erioptera (Erioptera) rubripes Alexander; ALEXANDER, Philippines, VIII, Philip. Journ. Sci. 45 (1931) 287-288.

Species of the typical subgenus *Erioptera* are found in all major regions of the World.

ERIOPTERA (EMPEDA) RATA sp. nov. Plate 3, fig. 38.

Mesonotal præscutum almost covered by three confluent black stripes, leaving the humeral region obscure yellow; tips of femora narrowly blackened; wings grayish subhyaline, the stigma distinct; male hypopygium with the outer dististyle heavily blackened, the arms slender.

Male.—Length, about 3 millimeters; wing, 4.

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

Rostrum dark; palpi chiefly yellowish brown. Antennæ with the scape and pedicel black; flagellar segments pale brown, the outer segments darker; flagellar segments subglobular to short-oval, the outer segments more elongate-oval; verticils of moderate length only. Head light gray.

Pronotum and anterior lateral pretergites yellow. Mesonotal præscutum almost covered by three, confluent, shiny, black stripes, only the humeral triangles reddish yellow; scutum black, a trifle pruinose; scutellum grayish black basally, the margin obscure reddish; postnotal mediotergite black, sparsely pruinose. Pleura yellow, conspicuously variegated with dark gray, the latter areas including the anepisternum, ventral sternopleurite, and most of the pleurotergite; dorsopleural region and ventral sternopleurite of the ground color. Halteres yellow. Legs with the fore coxæ brownish black; remaining coxæ and trochanters yellow; femora, tibiæ, and basitarsi yellow, the tips narrowly but conspicuously blackened; remainder of tarsi black. Wings grayish subhyaline, the prearcular region and costal margin a trifle more yellowish; stigma pale brown but distinct; veins pale brown, paler in costal region. Venation: Sc_1 ending about opposite one-fifth the length of Rs ; R_{3+4} longer than R_4 .

Abdominal tergites dark brown; sternites yellow; hypopygium chiefly reddish brown. In female, the abdominal tergites, especially the outer ones, narrowly ringed caudally with obscure yellow. Male hypopygium (Plate 3, fig. 38) with the outer dististyle, *od*, entirely blackened, both arms slender, subequal to or a trifle longer than the stem. Inner dististyle, *id*, dilated at outer end into a spatula that is provided with rather numerous setulæ.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,500 feet, December 29, 1930 (*Clagg*); holotype, male; allotype, female.

Most nearly allied to *Erioptera (Empeda) nigroapicalis* Alexander (Formosa) in the large size, pattern of legs, and heavily

blackened dististyles of the male hypopygium, differing in the confluent black pattern of the mesonotal præscutum, the heavily darkened pleura, and details of the wing venation and pattern, especially the shorter apical forks and the distinct stigmal area. In its blackened thoracic pattern, the present fly is similar to *E. (E.) perrata* sp. nov., differing in the heavily blackened outer dististyle of the male hypopygium.

ERIOPTERA (EMPEDA) PERRATA sp. nov. Plate 1, fig. 18; Plate 3, fig. 39.

Male.—Length, about 2.3 millimeters; wing, 3.

Closely allied to *E. (E.) rata* sp. nov., differing especially in the small size, uniformly darkened thorax, and pale styli of the male hypopygium.

Palpi entirely black. Mesonotal præscutum entirely black, without brightening at the humeri; remainder of mesonotum black, sparsely pruinose, the caudal margin of scutellum a trifle brightened. Pleura brownish black, the dorsal sternopleurite somewhat more intense; dorsopleural region yellow. Wings (Plate 1, fig. 18) without an evident stigmal area. Venation: R_{3+4} longer than R_3 but shorter than R_4 . Abdominal tergites dark brown, the sternites and hypopygium more yellowish. Male hypopygium (Plate 3, fig. 39) with the dististyles entirely pale, the outer, *od*, deeply divided, its inner arm a broadly flattened spatula. Inner dististyle, *id*, a flattened blade, gradually widened distally, the apex obtusely rounded, provided with a few microscopic setulæ.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,500 feet, January 1, 1931 (*Clagg*); holotype, male; paratype, 1 broken specimen, sex uncertain; 1 male, Mount Apo, Galog River, altitude 6,000 feet, October 16, 1930 (*Clagg*).

The present fly is very similar to the Japanese and Formosan *Erioptera (Empeda) minuscula* Alexander, in the pale dististyles of the male hypopygium, in conjunction with the small size and leg pattern, differing most evidently in the uniformly blackened mesonotum.

ERIOPTERA (ILISIA) FENESTRATA (de Meijere). Plate 3, fig. 37.

Acyphona fenestrata DE MEIJERE, Tijds. voor Entomol. 56 (1913) 352–353, pl. 17, fig. 19 (wing).

Described from Java, later recorded by Edwards from the Malay Peninsula and Borneo. MINDANAO, Davao district, Calian, Mount Apo, altitude 6,000 feet, October 16 to November 3, 1930 (*Clagg*); several of both sexes.

The distinctive male hypopygium (Plate 3, fig. 37) has not been described hitherto. Outer dististyle, *od*, unusually slender. Ædeagus short, subtended by the blackened horns of the gonapophyses, *g*.

ERIOPTERA (TELENEURA) NIGRIBASIS Edwards.

Erioptera nigribasis EDWARDS, Journ. Federated Malay States Mus. 14 (1928) 99-100, pl. 1, fig. 8 (wing).

Known hitherto only from Pahang and Borneo. MINDANAO, Davao district, Calian, Mount Apo, Sibulan River, altitude 5,000 to 6,000 feet, August 29 and October 18 to 20, 1930; Mainit River, altitude 6,000 feet, September 9, 1930 (*Clagg*).

ERIOPTERA (ERIOPTERA) LUZONICA Alexander.

Erioptera (Erioptera) luzonica ALEXANDER, Insec. Inscit. Menst. 5 (1917) 7-8.

Described from Luzon. Since taken at Badajoz, Tablas, August 28, 1928 (*Rivera and Duyag*). The fly is very closely allied to *E. (E.) notata* de Meijere,¹¹ differing especially in slight details of structure of the male hypopygium, notably of the outer dististyle and the gonapophyses.

ERIOPTERA (ERIOPTERA) ALTA sp. nov. Plate 1, fig. 19; Plate 3, fig. 40.

General coloration pale yellow, including the thoracic pleura; knobs of halteres weakly darkened; wings yellow, the veins of the cord darker; male hypopygium with the outer dististyle a little dilated on inner margin at near midlength; inner dististyle at apex expanded into a disklike head; gonapophyses appearing as blackened horns.

Male.—Length, about 3.5 to 4.5 millimeters; wing, 4 to 5.

Female.—Length, about 5 to 5.3 millimeters; wing, 6 to 6.2.

Rostrum pale brown, the palpi dusky. Antennæ with the scape and pedicel brown, the basal three or four segments of the flagellum light yellow; remaining flagellar segments brown, long-oval. Head yellow, the anterior vertex more whitish.

Anterior lateral pretergites whitish. Mesonotum yellow, the pseudosutural foveæ and tuberculate pits pale. Pleura pale yellow. Halteres yellow, the knobs weakly infuscated. Legs with the coxæ and trochanters pale yellow; remainder of legs yellow, the outer tarsal segments darkened. Wings (Plate 1, fig. 19) yellow, including the veins; cord pale brown; macro-

¹¹ Tijds. voor Entomol. 54 (1911) 46.

trichia of veins long and pale. Costal fringe long. Venation: Vein 2d A very strongly sinuous.

Abdominal tergites light brown; sternites similar, the margins of the segments restrictedly yellow; hypopygium yellow. Male hypopygium (Plate 3, fig. 40) with the outer dististyle, *od*, slightly dilated on inner margin at near midlength, the tip blackened and gently curved. Inner dististyle, *id*, shorter, more capitate at apex. Gonapophyses, *g*, appearing as simple, gently curved, blackened horns.

MINDANAO, Davao district, Calian, Mount Apo, Lino Lake, altitude 8,000 feet, September 19, 1930 (*Clagg*); holotype, male; allotype, female; paratypes, 5 of both sexes.

Erioptera (*Erioptera*) *alta* is most nearly allied to *E. (E.) lunicola* sp. nov., differing conspicuously in the structure of the male hypopygium.

ERIOPTERA (ERIOPTERA) LUNICOLA sp. nov. Plate 3, fig. 41.

General coloration testaceous yellow, including the pleura; knobs of halteres dark brown; legs yellow; wings tinged with pale yellow, with a small darkened cloud on anterior cord; male hypopygium with the outer dististyle a simple blackened paddle-like blade; inner dististyle with an acute spine on outer margin near base; gonapophyses blunt and irregularly toothed at tips.

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

Rostrum pale; palpi darkened. Antennæ with the basal segments pale yellow, the flagellum brown; flagellar segments oval, with a dense white pubescence and slightly longer verticils. Head yellow.

Mesonotum almost uniformly testaceous-yellow, the lateral margins of the præscutum paler; pseudosutural foveæ and tuberculate pits more reddish. Pleura pale brownish yellow to testaceous-yellow. Halteres pale yellow, the knobs dark brown. Legs with the coxæ and trochanters yellow; remainder of legs yellow, only the terminal two tarsal segments infuscated. Wings with a pale yellow tinge, the base and costal region clearer yellow; a restricted dark cloud on anterior cord, this coloring involving the veins; veins pale yellow. Venation as in the subgenus; vein 2d A very strongly sinuate on nearly the distal half.

Abdomen pale brownish yellow. Male hypopygium (Plate 3, fig. 41) with the mesal-apical angle of basistyle, *b*, produced into a stout hairy lobe. Outer dististyle, *od*, a simple, flattened,

paddlelike, blackened blade. Inner dististyle, *id*, appearing as a flattened, mittenlike lobe, bearing an acute black spine on outer margin near base. Gonapophyses, *g*, blunt and weakly toothed at tips. *Æ*deagus paired.

MINDANAO, Davao district, Calian, La Lun Mountains, altitude 5,500 feet, December 31, 1930 (*Clagg*); holotype, male; paratype, male; Mati, Mount Mayo, altitude 5,000 feet, January 30, 1931 (*Clagg*); paratype, male.

Erioptera (*Erioptera*) *lunicola* is readily told from allied species of the subgenus that have darkened knobs to the halteres and a faint darkened cloud on anterior cord of wings, by the structure of the male hypopygium. Among the regional species, the closest ally appears to be *E. (E.) alta* sp. nov.

Genus MOLOPHILUS Curtis

Molophilus CURTIS, British Entomology (1833) 444.

All of the known Philippine species of the genus, as indeed, all those known from the Palæarctic Region, belong to the so-called *gracilis* group, as defined by the present writer.¹² The correct definition of the many species can be made only on a critical study of the male hypopygium. The present key will suffice to separate the few species at present known from the Philippines, the characters used being those of the male sex only.

Key to the Philippine species of Molophilus Curtis.

1. Wings with vein 2d A long, ending opposite or beyond midlength of m-cu; wings with a darkened seam along vein Cu and less distinctly on the anterior and posterior cords. (Philippines.)
sirius Alexander.
- Wings with vein 2d A short, ending before the level of m-cu; wings subhyaline or infumed, but uniform in color..... 2.
2. Antennæ (male) elongate, if bent backward extending to beyond midlength of abdomen; flagellar segments fusiform, with numerous very long erect setæ at near midlength..... 3.
- Antennæ (male) short, if bent backward not or scarcely attaining the wing root; flagellar segments suboval, with sparse scattered verticils and short, inconspicuous setæ..... 5.
3. Male hypopygium with inner dististyle a strongly curved black hook, provided with numerous short setæ on lower face, to produce a roughened appearance. (Mindanao.)..... *hispidulus* sp. nov.
- Male hypopygium with both dististyles slender and entirely smooth.... 4.

¹² Proc. Linn. Soc. New South Wales 54 (1929) 137-144, pl. 5.

4. Male hypopygium with the outer lobe of basistyle terminating in a gently curved elongate blade; inner dististyle about a fifth longer than the outer, heavily blackened on distal fourth. (Mindanao.)
procericornis Alexander.
Male hypopygium with the outer lobe of basistyle terminating in a circular flattened disk; inner dististyle about as long as the outer, not blackened. (Luzon.) *banahaoensis* Alexander.
5. General coloration of thoracic notum black, the scutellum reddish yellow; male hypopygium with the inner dististyle bearing an erect lateral spine beyond midlength. (Mindanao.) *remulsus* sp. nov.
General coloration of notum brownish gray or grayish brown, the scutellum more testaceous; male hypopygium with the dististyle simple 6.
6. Wings with costal margin concolorous with remainder of disk or nearly so; legs chiefly dark brown, the posterior tibiae light yellow, the tips narrowly darkened; male hypopygium with a small blackened hook on inner margin of outer lobe of basistyle. (Mindanao.)
mendicus Alexander.
Wings with the costal margin clear light yellow, contrasting with remainder of disk; legs brown; male hypopygium without a blackened hook on basistyle. (Luzon.) *tawagensis* Alexander.

PHILIPPINE SPECIES OF THE GENUS MOLOPHILUS

- Molophilus banahaoensis* Alexander; ALEXANDER, Philippines, XI, Philip. Journ. Sci. 46 (1931) 289-290.
Molophilus hispidulus sp. nov.; this report.
Molophilus mendicus Alexander; this report.
Molophilus procericornis Alexander; ALEXANDER, Philippines, XI, Philip. Journ. Sci. 46 (1931) 290-292.
Molophilus remulsus sp. nov.; this report.
Molophilus sirius Alexander; this report.
Molophilus tawagensis Alexander; ALEXANDER, Philippines, XI, Philip. Journ. Sci. 46 (1931) 293-294.

MOLOPHILUS SIRIUS Alexander.

Molophilus sirius ALEXANDER, Canadian Ent. 47 (1915) 82-83.

Described from one male and one female, labelled only "Philippine Islands, July. F. Casey. Thru Miss Ludlow." No other specimens have been taken in the Islands.

MOLOPHILUS MENDICUS Alexander.

Molophilus mendicus ALEXANDER, Philip. Journ. Sci. 46 (1931) 292-293.

Described from the La Lun Mountains, Mindanao, taken July 3, 1930. An additional male, Davao district, Mati, Mount Mayo, altitude 5,000 feet, January 30, 1931 (*Clagg*), is much better preserved and supplementary notes are here given. The leg pattern is very distinctive.

Fore and middle legs black. Posterior legs with the femora black, only the bases a little paler; tibiæ abruptly light yellow, the tips narrowly darkened; tarsi black. The male hypopygium has the ædeagus long and slender, nearly twice as long as the longest dististyle.

MOLOPHILUS HISPIDULUS sp. nov. Plate 3, fig. 42.

Belongs to the *gracilis* group and subgroup; general coloration light brown, the dorsal thoracic pleura with a conspicuous, dark brown, longitudinal stripe; antennæ (male) elongate; wings with vein 2d A short; male hypopygium with the dorsal lobe of basistyle narrowed to a pale curved point; inner dististyle a blackened curved rod, the lower face with abundant coarse setæ.

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

Female.—Length, about 4.5 millimeters; wing, 5.

Rostrum brown; palpi black. Antennæ (male) elongate, if bent backward extending about to one-third the length of abdomen; scape and pedicel light brown, the flagellum black, with the extreme tips of the individual segments a trifle paler; flagellar segments fusiform, the central portion of each provided with very long, conspicuous, erect setæ. Antennæ (female) short. Head yellowish brown.

Mesonotum light brown, the humeral region of præscutum yellow; pseudosutural foveæ darkened; scutellum testaceous; postnotal mediotergite darker brown. Pleura pale yellow, the dorsal pleurites occupied by a broad, dark brown, longitudinal stripe that becomes paler and more diffuse on the ventral pleurotergite. Halteres yellow, the knobs dark brown. Legs with the fore coxæ darkened, the remaining coxæ and all trochanters yellow; remainder of legs brownish yellow, the terminal tarsal segments darkened. Wings with a pale grayish tinge, the base and costal region more yellowish; veins pale brown. Venation: R_2 in approximate alignment with r-m; vein 2d A relatively short, ending just before level of m-cu.

Abdomen brown, the caudal margins of sternites a little paler; hypopygium brownish yellow. Male hypopygium (Plate 3, fig. 42) with the basistyle, *b*, terminating in three distinct lobes, the dorsolateral lobe, *db*, longest, relatively slender, densely setiferous on outer face, at apex narrowed into a pale, glabrous, curved hook; ventral lobe, *vb*, terminating in long retrorse setæ; mesal lobe smallest, pale, at apex with a group of about six

setæ. Two dististyles, the outer, *od*, a slender, sinuous rod, gradually narrowed to an acute point, the apical third blackened. Inner style, *id*, a powerful, blackened rod, arising from an expanded base, strongly curved at midlength, the lower or concave margin densely set with coarse setulæ from enlarged bases.

MINDANAO, Davao district, Mati, Mount Mayo, altitude 5,000 feet, January 28 to 30, 1931 (*Clagg*); holotype, male, allotype, female; paratypes, 1 male, 1 female.

Molophilus hispidulus is most nearly allied to *M. procericornis* Alexander (Mindanao), differing most decisively in the structure of the male hypopygium, notably the hispid inner dististyle.

MOLOPHILUS REMULSUS sp. nov. Plate 1, fig. 20; Plate 3, fig. 43.

Belongs to the *gracilis* group and subgroup; general coloration black, the scutellum reddish yellow; antennæ (male) short; wings strongly tinged with dusky; wings with vein 2d A short; male hypopygium with all lobes of basistyle short and obtuse at tips; two dististyles, the inner one more elongate, narrowed to an acute spinous point, beyond midlength bearing a small erect spine.

Male.—Length, about 3 to 3.8 millimeters; wing, 3.5 to 4.5.

Rostrum and palpi black. Antennæ (male) short, if bent backward not or scarcely attaining the wing root, black throughout; flagellar segments subcylindrical, with coarse verticils that exceed the segments in length. Head black, sparsely pruinose, especially on anterior vertex.

Mesonotum black, the scutellum abruptly reddish yellow. Pleura black, pruinose. Halteres dusky, with golden setæ. Legs with the coxæ black; trochanters brownish black; femora obscure yellow basally, passing to brown on outer half; tibiæ brown to light brown, the tips darker; tarsi dark brown. Wings (Plate 1, fig. 20) with a strong dusky tinge, the base and prearcular region a trifle brighter; veins and macrotrichia darker brown. Venation: R_2 lying a little proximad of level of r-m; vein 2d A short, ending before level of m-cu.

Abdomen, including hypopygium, brownish black. Male hypopygium (Plate 3, fig. 43) with the basistyle, *b*, terminating in three broadly flattened lobes, the mesal one further produced into a small apical tubercle. Outer dististyle, *od*, shorter, a powerful arm that is extended at about a right angle into a more heavily sclerotized, flattened, beaklike portion. Inner

dististyle, *id.*, more elongate, stoutest at base, gradually narrowed and curved to the acute tip; just beyond midlength on outer face with a powerful erect black spine; on outer margin, just before apex of style, with two or three microscopic appressed teeth.

MINDANAO, Davao district, Mati, Mount Mayo, altitude 5,000 feet, January 29, 1931 (*Clagg*); holotype, male; Calian, Mount Apo, Sibulan River, altitude 6,000 feet, August 29, 1930 (*Clagg*); paratype, male.

Molophilus remulsus is very different from all described Oriental species of the group in its black coloration, in conjunction with the structure of the male hypopygium.

ILLUSTRATIONS

[Legend: *a*, Aedeagus; *b*, basistyle; *d*, dististyles; *db*, dorsal lobe of basistyle; *dd*, dorsal dististyle; *g*, gonapophysis; *id*, inner dististyle; *md*, middle or second dististyle; *od*, outer dististyle; *p*, phallosome; *s*, sternite; *t*, tergite; *vb*, ventral lobe of basistyle; *vd*, ventral dististyle.]

PLATE 1

- FIG. 1. *Pselliophora invenustipes* sp. nov., wing.
2. *Dolichozeza* (*Nesopeza*) *perdita* sp. nov., wing.
3. *Dolichozeza* (*Nesopeza*) *queribunda* sp. nov., wing.
4. *Limonia* (*Libnotes*) *tenuiclava* sp. nov., wing.
5. *Limonia* (*Limonia*) *patula* sp. nov., wing.
6. *Limonia* (*Limonia*) *desiderata* sp. nov., wing.
7. *Limonia* (*Dicranomyia*) *punctulatooides* sp. nov., wing.
8. *Limonia* (*Geranomyia*) *immobilis* sp. nov., wing.
9. *Atarba* (*Atarbodes*) *apoensis* sp. nov., wing.
10. *Eriocera* (*Eriocera*) *vittula* sp. nov., wing.
11. *Eriocera* (*Eriocera*) *vittipennis* Alexander, wing.
12. *Eriocera* (*Eriocera*) *dignitosa* sp. nov., wing.
13. *Eriocera* (*Eriocera*) *mindanaoensis* Alexander, wing.
14. *Gonomyia* (*Lipophleps*) *macilenta* sp. nov., wing.
15. *Gonomyia* (*Lipophleps*) *discreta* sp. nov., wing.
16. *Gonomyia* (*Lipophleps*) *tristigmata* sp. nov., wing.
17. *Gonomyia* (*Gonomyia*) *nebulicola* sp. nov., wing.
18. *Erioptera* (*Empeda*) *perrata* sp. nov., wing.
19. *Erioptera* (*Erioptera*) *alta* sp. nov., wing.
20. *Molophilus remulsus* sp. nov., wing.

PLATE 2

- FIG. 21. *Dolichozeza* (*Nesopeza*) *perdita* sp. nov., male hypopygium details.
22. *Dolichozeza* (*Nesopeza*) *queribunda* sp. nov., male hypopygium details.
23. *Dolichozeza* (*Nesopeza*) *ludibunda* sp. nov., male hypopygium details.
24. *Dolichozeza* (*Nesopeza*) *evanida* sp. nov., male hypopygium details.
25. *Dolichozeza* (*Nesopeza*) *pudibunda* sp. nov., male hypopygium details.
26. *Limonia* (*Libnotes*) *tenuiclava* sp. nov., antenna, flagellar segments 1 to 4, 11, and 12.
27. *Limonia* (*Libnotes*) *tenuiclava* sp. nov., male hypopygium.
28. *Limonia* (*Limonia*) *patula* sp. nov., male hypopygium.
29. *Limonia* (*Dicranomyia*) *punctulatooides* sp. nov., male hypopygium.
30. *Limonia* (*Dicranomyia*) *moronis* sp. nov., male hypopygium.
31. *Limonia* (*Geranomyia*) *immobilis* sp. nov., male hypopygium.

PLATE 3

- FIG. 32. *Atarba* (*Atarbodes*) *apoensis* sp. nov., male hypopygium.
33. *Gonomyia* (*Lipophleps*) *macilenta* sp. nov., male hypopygium.
34. *Gonomyia* (*Lipophleps*) *discreta* sp. nov., male hypopygium.
35. *Gonomyia* (*Lipophleps*) *tristigmata* sp. nov., male hypopygium.
36. *Gonomyia* (*Gonomyia*) *nebulicola* sp. nov., male hypopygium.
37. *Erioptera* (*Ilisia*) *fenestrata* (de Meijere), male hypopygium.
38. *Erioptera* (*Empeda*) *rata* sp. nov., male hypopygium.
39. *Erioptera* (*Empeda*) *perrata* sp. nov., male hypopygium.
40. *Erioptera* (*Erioptera*) *alta* sp. nov., male hypopygium.
41. *Erioptera* (*Erioptera*) *lunicola* sp. nov., male hypopygium.
42. *Molophilus* *hispidulus* sp. nov., male hypopygium.
43. *Molophilus* *remulsus* sp. nov., male hypopygium.

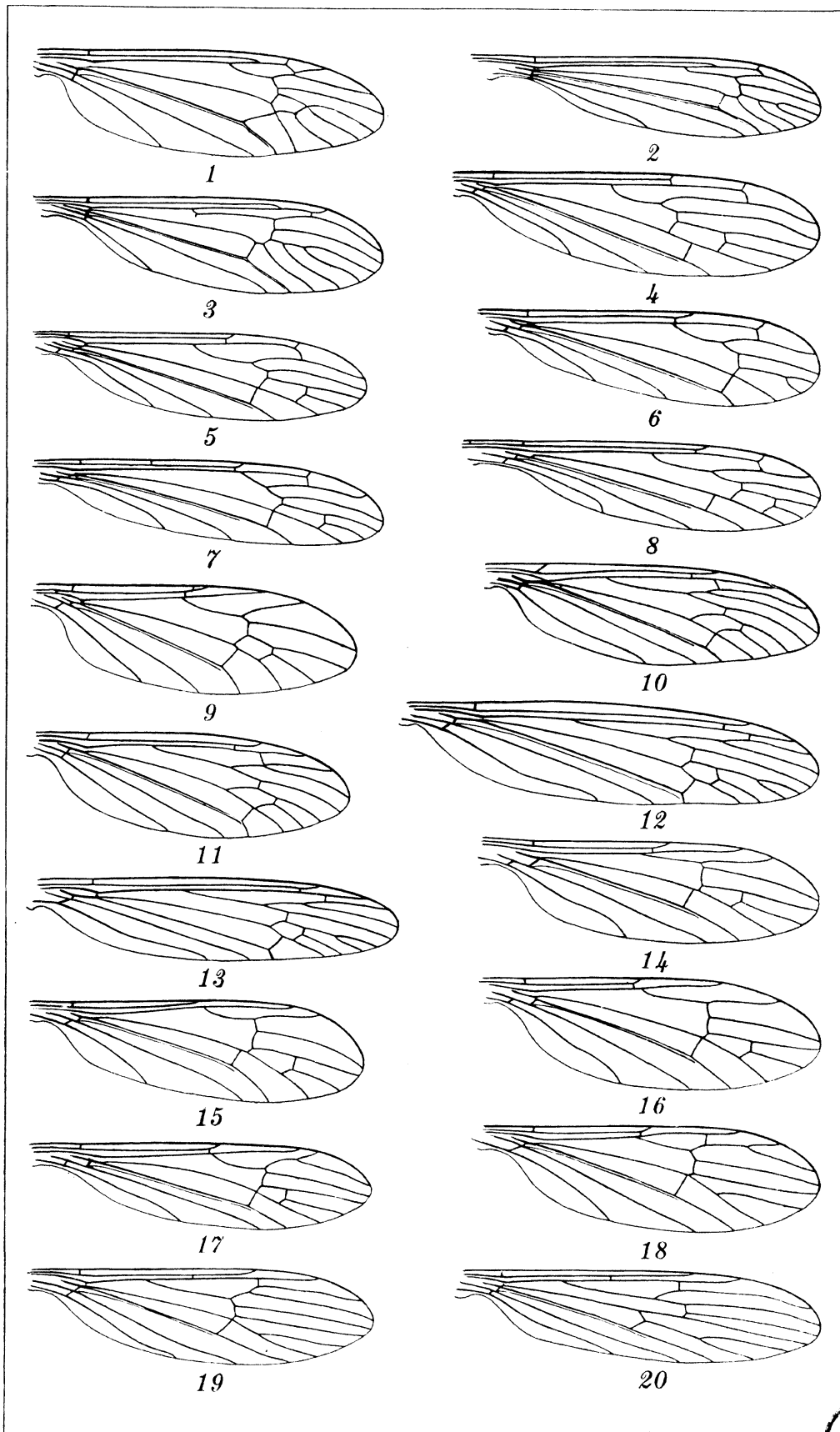


PLATE 1.



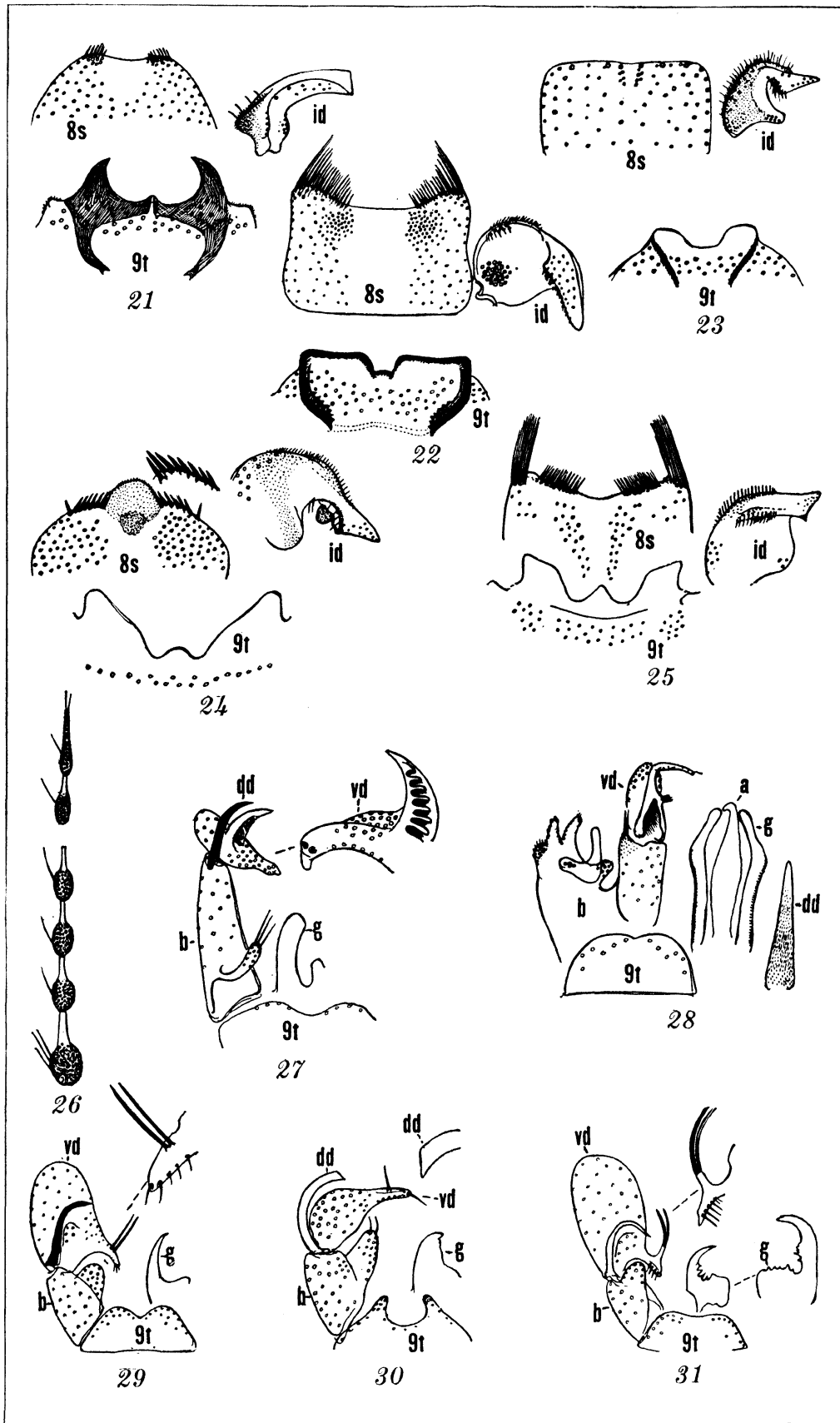


PLATE 2.



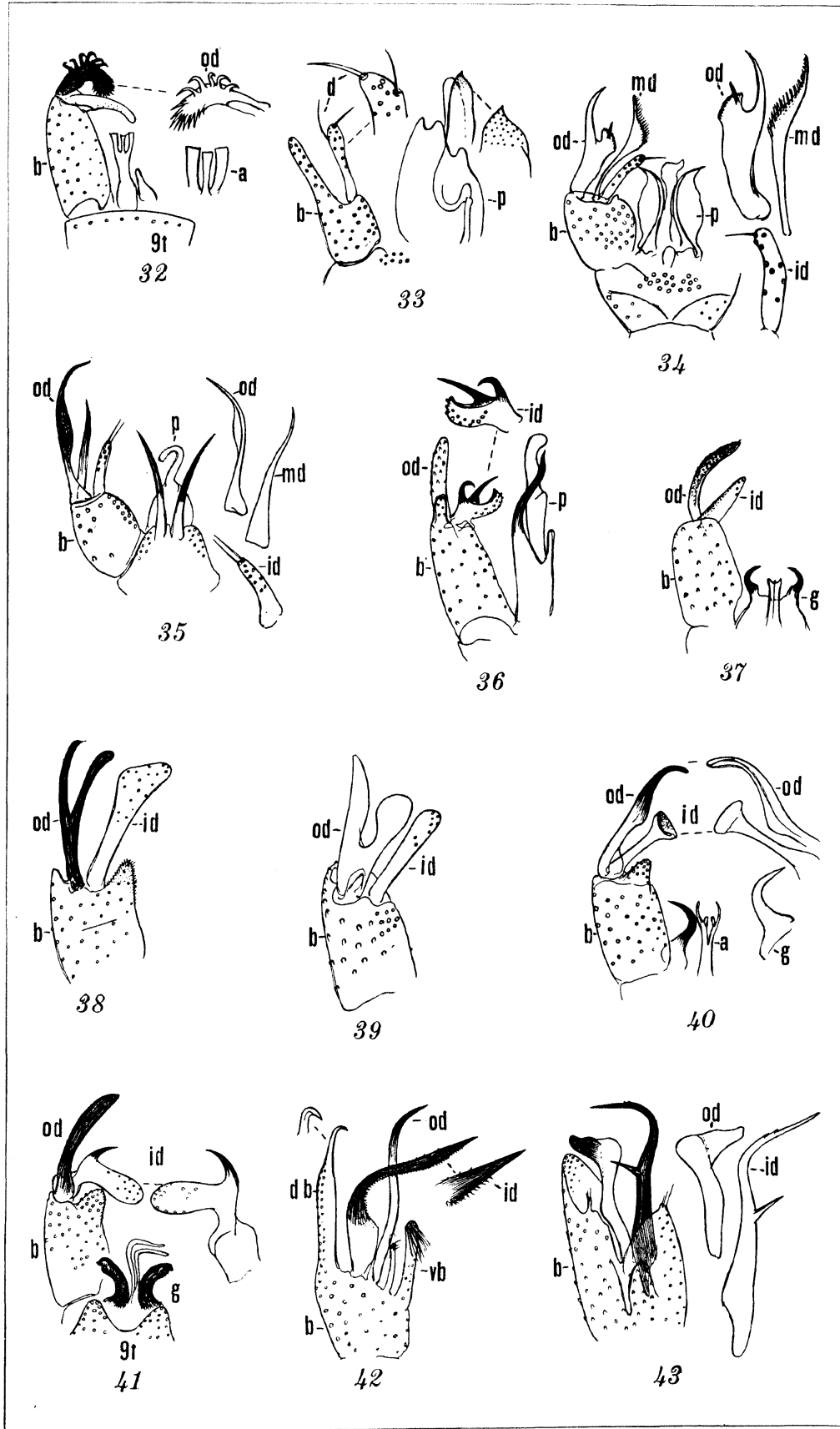


PLATE 3.

