# Records and Descriptions of Tipulidae from Tropical America (Diptera). Part VI.

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(With 22 figures)

The preceding part under this title was published in the Revista de Entomologia, vol. 14, fasc. 3: 485-502; December 1943. Through a typographical error, this part was given in the title as Part IV instead of Part V which it actually is, and this mistake should be noted and corrected by interested parties.

In the present report I am recording rather numerous species from Ecuador and Peru, under the caption "Records of distribution", and further descriptions in the latter part of the paper. In this particular section I am taking the opportunity of figuring the wings or hypopygia of several additional species that have never before been illustrated, such figures being based on the type specimens of the forms concerned. Where not indicated to the contrary, the types of the novelties are preserved in my collection of these flies.

#### Records of distribution

Tipula (Eumicrotipula) innubens Alexander. — Carpapata, Tarma, Junin, Peru, altitude 2600 meters, May 4, 1940 (Woytkowski). Very similar to the type except that the appendage of the eighth sternite of the male hypopygium is much narrower on the distal portion.

Tipula (Microtipula) lenta Alexander. — Manabi, Ecuador: Playones, Palmar, altitude 150 meters, May 15, 1941; Rio Maizito, altitude 200 meters, May 5, 1941 (Laddey).

Tipula (Microtipula) prolixisterna Alexander. — Abitagua, Napo-Pastaza, Ecuador, altitude 1100 meters, April 13, 1940, (Macintyre).

Tipula (Microtipula) smilodon Alexander. — Palmar, Manabi, Ecuador, altitude 200 meters, May 21, 1941 (Laddey); Santo Domingo de los Colorados, Pichincha, Ecuador, altitude 500 meters, September 7, 1940; December 24, 1940; February 4, 1941 (Laddey).

Tipula (Microtipula) sternohirsuta Alexander. — Abitagua, Napo-Pastaza, Ecuador, altitude 1100 meters, March 29, 1940 (Macintyre).

Limonia (Limonia) lachesis Alexander. — Huacapistana, Tarma, Junin, Peru, altitude 3600-5400 feet, March 2, 1940 (Woytkowski). Formerly from Ecuador.

Limonia (Limonia) meridensis Alexander. — Huacapistana, Tarma, Junin, Peru, altitude 3600-5400 feet, February 14, 1940 (Woytkowski). Formerly from Venezuela.

Limonia (Limonia) optabilis (Alexander). — Zumbi, Rio Zamora, Santiago-Zamora, Ecuador, altitude 700 meters, October 30, 1941 (Laddey).

Limonia (Dicranomyia) invalida (Alexander). — Carpapata, Tarma, Junin, Peru, altitude 2600 meters, May 1, 1940 (Woytkowski).

Limonia (Dicranomyia) scimitar Alexander. — Riobamba, Chimborazo, Ecuador, altitude 2700 meters, April 20, 1939 (Brown).

Limonia (Rhipidia) flabelliformus Alexander. — Carpapata, Tarma, Junin, Peru, altitude 2600 meters; May 13, 1940 (Woytkowski).

Limonia (Rhipidia) turritella Alexander. — Satipo, Jauja, Junin, Peru, altitude 800-900 meters, December 6, 1940 (Paprzycki). Formerly from southern Ecuador.

Limonia (Rhipidia) vafra Alexander. — Banos, Tungurahua, Ecuador, altitude 1800 meters, May 11, 1937 (Macintyre).

Limonia (Geranomyia) curunculata Alexander. — Palmar, Manabi, Ecuador, altitude 200 meters, May 20, 1941 (Laddey). Formerly from northern Panama.

Limonia (Geranomyia) destricta Alexander. — Huacapistana, Tarma, Junin, Peru, altitude 3600-5400 feet, March 2, 1940 (Woytkowski).

Limonia (Geranomyia) fluxa Alexander. — Ayna, LaMar, Ayacucho, Peru, altitude 2400 meters, May 31, 1941 (Woytkowski).

Limonia (Geranomyia) umbricolor Alexander. — Huacapistana, Tarma, Junin, Peru, altitude 3600-5400 feet, February 11, 1940 (Woytkowski); Piedras Grandes, Huanuco, Peru, altitude 3000 meters, November 18, 1937 (Woytkowski).

Limonia (Peripheroptera) cynara Alexander. — Zamora, Santiago-Zamora, Ecuador, altitude 1000 meters (Laddey).

Polymera (Polymerodes) conjunctoides Alexander. — Rio Arajuno, Napo Watershed, Napo-Pastaza, Ecuador, altitude 1000 meters, April 23, 1941 (Macintyre).

Austrolimnophila (Austrolimnophila), persessilis Alexander. — Cunibunda, Abitagua, Napo-Pastaza, Ecuador, altitude 1100 meters, March 18-April 11, 1940 (Macintyre).

Gonomyia (Lipophleps) amazona Alexander. — Satipo, Jauja, Junin, Peru. altitude 800-900 meters, April 3, 1940 (Paprzycki).

Gonomyia (Lipophleps) bispinosa Alexander. — Satipo, Jauja, Junin, Peru, altitude 800-900 meters, March 1-6, 1941 (Paprzycki).

Gonomyia (Lipophleps) clavifera Alexander. — Satipo, Jauja, Junin, Peru, altitude 800-900 meters, December 25, 1940 (Paprzycki).

Gonomyia (Lipophleps) prolongata Alexander. — Zamora, Santiago-Zamora, Ecuador, altitude 1000 meters, October 19, 1941 (Laddey). Formerly from Venezuela.

Gonomyia (Gonomyia) crinita Alexander. — Tulumayo Valley, Tarma, Junin, Peru, altitude 4000-8000 feet, November 4-10, 1940 (Woytkowski); Ayna, LaMar, Ayacucho, Peru, altitude 2400 meters, May 31, 1941 (Woytkowski). Formerly from Ecuador.

Teucholabis (Teucholabis) anthracina Alexander. — Zumbi, Rio Zamora, Santiago-Zamora, Ecuador, altitude 700 meters, October 31, 1941 (Laddey).

Teucholabis (Teucholabis) jocosa Alexander. — Palmar, Manabi, Ecuador, altitude 200 meters, April 17, 1941 (Laddey); Santo Domingo de los Colorados, Pichincha, Ecuador, altitude 500 meters, January 26, 1941 (Laddey); Satipo, Jauja, Junin, Peru, altitude 800-900 meters, June 4-10, 1940 (Paprzycki).

Teucholabis (Teucholabis) sackeni Alexander. — Palmar, Manabi, Ecuador, altitude 200 meters, May 20, 1941 (Laddey); Pumahuasi, Huanuco, Peru, altitude 980 meters, December 9, 1939 (Woytkowski). In the latter material, the mesonotum is intensely black thus differing from the type, but from the structure of the male hypopygium I regard the identity as certain. Formerly from Central America.

Teucholabis (Teucholabis) spinigera (Schiner). — Leonpampa, Huanuco, Peru, altitude 800 meters, in jungle, December 14, 1939 (Woytkowski); Pumahuasi, Huanuco, Peru, altitude 980 meters, December 9, 1939 (Woytkowski). Formerly from Colombia and Venezuela.

#### Descriptions of new species

Holorusia (Holorusia) subfurcifer, sp. n.

Size relatively small (wing, male, 13.5 mm.); general coloration of mesonotum reddish brown, the praescutum with four concolorous stripes that are delimited by their darker brown borders; pleura testaceous yellow, unpatterned; legs obscure yellow, the tips of the femora and tibiae narrowly darker; wings relatively broad, tinged with brown, conspicuously patterned with still darker brown; a quadrate dark area at near midlength of cell M subtended by subhyaline markings; male hypopygium with tergite bearing a median tooth; lateral lobes low; outer dististyle bearing a lateral flange or branch; inner dististyle with two extensive groups of blackened peglike spines.

Male. — Length about 12 mm.; wing 13.5 mm.

Female. — Length about 15 mm.; wing 14 mm.

Frontal prolongation of head light brown, the elongate nasus dark brown; palpi with basal two segments black, the outer ones light brown. Antennae with scape and pedicel light brown; first segment of flagellum yellow, succeeding segments bicolored, darkened at base, the apex of each less extensively yellow, the amount of the latter decreasing on the outer segments; first flagellar segment long, the outer ones short-cylindrical. Head brown, narrowly gray on posterior orbits; anterior vertex about three times the diameter of scape.

Pronotum infuscated above, slightly paler on sides. Mesonotal praescutum reddish brown with four concolorous stripes that are delimited only by darker brown borders; scutum reddish brown, the lateral half of each lobe heavily patterned with darker brown, on the anterior portion forming a ring-like marking; scutellum brownish yellow, narrowly dark brown medially, parascutella brown; mediotergite testaceous yellow, trilineate with brown, the lateral dark borders wider than the median darkening; pleura and pleurotergite testaceous yellow, unpatterned except for the posterior third of the latter. Halteres infuscated, the base of stem and apex of knob more brightened. Legs with coxae and

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and tibial tips narrowly darker; outer tarsal segments undarkened. Wings relatively broad, with a strong brownish tinge, conspicuously patterned with darker brown and more whitish subhyaline areas; cells C and Sc infuscated, especially on their basal portions; the darker areas include a major post-arcular one in the bases of cells R and M; a small spot over origin of Rs; stigma and relatively narrow seams over the cord; a quadrate area at near midlength of cell M, this preceded and followed by a more subhyaline pattern; a further paling in cells just before cord; veins brown; obliterative areas extensive. Venation:  $Sc_2$  ending about opposite three-fourths the length of Rs, the latter about three times  $R_{2-3}$ ; a strong kink in distal section of vein  $R_{4-5}$  at near midlength, constricting cell  $R_3$ ; petiole of cell  $M_1$  varying from one and one-half to nearly two times m; cell 1st  $M_2$  irregularly hexagonal, the basal section of  $M_{1-2}$  the longest element; m-cu beyond midlength of  $M_{3-4}$ .

Basal abdominal tergites of male reddish brown, the outer segments more strongly darkened; sternites and hypopygium more yellowed. In the female, abdomen more uniformly dark brown; cerci flattened, with obtuse tips. Male hypopygium with the tergite transverse, strongly narrowed outwardly, the caudal margin broadly notched and provided with an obtuse median tooth; lateral lobes obliquely truncate, provided with numerous blackened setae, these lobes much lower than in furcifera. Outer dististyle elongate, relatively narrow, the tip acute or subacute; before midlength of inner margin bearing a long flange, at its outer end produced into a moderately long lobe; in furcifera, the style longer and narrower, particularly the lateral branch. Inner dististyle somewhat as in furcifera but of different conformation, the crest arising less abruptly from the beak and the more basal group of spines much more numerous.

Habitat: Honduras.

Holotype, male, Puerto Castilla, May 6, 1926 (R. H. Painter). Allotopotype, female.

The closest relative of the present fly appears to be *Holorusia* (Holorusia) furcifera Alexander, of southern Costa Rica. In its general appearance, particularly the longer antennae and narrower wings, the latter fly seems to be only distantly related but from the structure of the male hypopygia the two species are closely related. The hypopygial distinctions between the two flies have been indicated above.

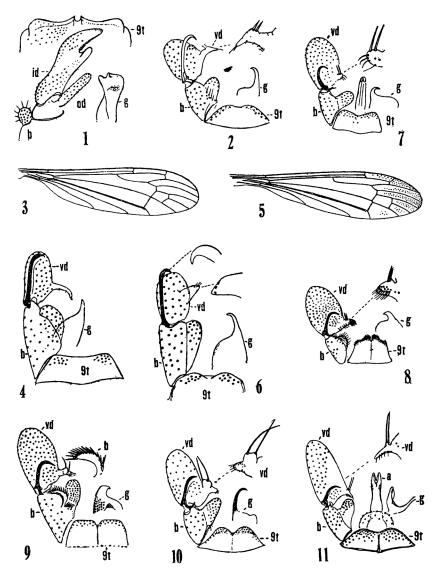


Fig. 1. Tipula (Eumicrotipula) chicana Alexander; male hypopygium. — Fig. 2. Limonia (Limonia) brachycantha Alexander; male hypopygium. — Fig. 3. Limonia (Limonia) curraniana Alexander; venation. — Fig. 4. Limonia (Limonia) curraniana Alexander; male hypopygium. — Fig. 5. Limonia (Limonia) mesotricha Alexander; male hypopygium. — Fig. 7. Limonia (Dicranomyia) claribasis Alexander; male hypopygium. — Fig. 7. Limonia (Dicranomyia) titicacana Alexander; male hypopygium. — Fig. 8. Limonia (Dicranomyia) titicacana Alexander; male hypopygium. — Fig. 10. Limonia (Geranomyia) amoenalis Alexander; male hypopygium. — Fig. 11. Limonia (Geranomyia) anthina Alexander; male hypopygium. — (Explanation of symbols: a, aedeagus; b, basistyle; g, gonapophysis; od, outer dististyle; vd, ventral dististyle).

Tipula (Eumicrotipula) chicana Alexander

The type was from Minza Chica, Mount Tungurahua, Tungurahua, Ecuador, altitude 3500 meters, April 4-13, 1939 (Brown). Male hypopygium (Fig. 1).

Limonia (Limonia) brachycantha Alexander

Type from Yanamonte, La Mar, Ayacucho, Peru, in fog forests, altitude 3000-4000 meters, August 29-October 2, 1941 (Woytkowski). Male hypopygium (Fig. 2).

Limonia (Limonia) curraniana Alexander

Type from Barro Colorado Island, Canal Zone, Panama, January 9, 1929 (Curran). Wing (Fig. 3); male hypopygium (Fig. 4).

Limonia (Limonia) mesotricha Alexander

Type from Barro Colorado Island, Canal Zone, Panama, December 21, 1928 (Curran). Wing (Fig. 5); male hypopygium (Fig. 6).

Limonia (Neolimnobia) translucida nigrotincta, subsp. n.

Differs from typical translucida (Alexander) in the details of coloration, especially of the legs. Antennal segments bicolorous, the basal portions darker colored than the apices; outer segments not conspicuously darkened. Head brownish gray. Pleura yellow with extensive dark areas on the propleura and pleurotergite. Legs with the femora black, the bases narrowly obscure yellow; a subterminal yellow ring placed nearly twice its own width before the blackened apex, the extreme femoral tip not paler; remainder of legs black, the apical half of fore tibia paling to brownish yellow; tarsi brownish yellow. Wings with Sc extending to some distance beyond origin of Rs,  $Sc_2$  at its tip, both  $Sc_1$ and  $Sc_2$  beyond this origin; Rs longer than in translucida. Male hypopygium with the rostral prolongation relatively long and conspicuous, the rostral spines subequal in length, directed outwardly, their tips acute. Gonapophyses with mesal-apical lobe long and slender.

Habitat: Panama.

Holotype, male, Barro Colorado Island, Canal Zone, December 22, 1928 (Curran); American Museum of Natural History. Paratopotypes, 2 males, December 13, 1928; January 11, 1929.

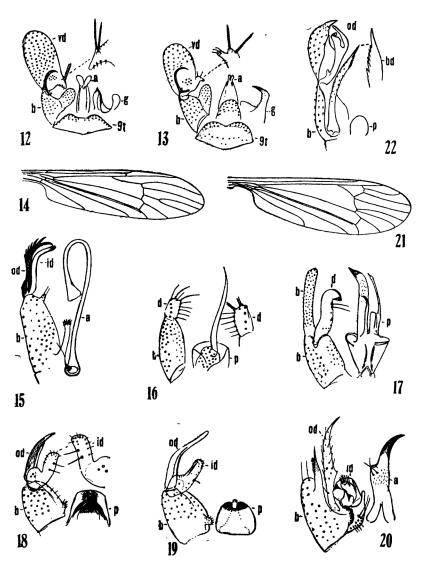


Fig. 12. Limonia (Geranomyia) beatrix Alexander; male hypopygium. — Fig. 13. Limonia (Geranomyia) satipoana Alexander; male hypopygium. — Fig. 14. Atarba (Atarba) aperta subaperta, subsp. n.; venation. — Fig. 15. Atarba (Atarba) aperta subaperta, subsp. n.; male hypopygium. — Fig. 16. Gonomyia (Lipophleps) arajuno Alexander; male hypopygium. — Fig. 17. Gonomyia (Lipophleps) batesi, sp. n.; male hypopygium. — Fig. 18. Gnophomyia (Gnophomyia) banksiana, sp. n.; male hypopygium. — Fig. 19. Gnophomyia (Gnophomyia) emarginata, sp. n.; male hypopygium. — Fig. 20. Teucholabis (Teucholabis) stadelmanni, sp. n.; male hypopygium. — Fig. 21. Cryptolabis (Cryptolabis) hilaris Alexander; venation. — Fig. 22. Molophilus (Molophilus) brownianus Alexander; male hypopygium. — (Explanation of symbols: a, aedeagus; b, basistyle; bd, basal dististyle; d, dististyle; g, gonapophysis; id, inner dististyle; od, outer dististyle; p, phallosome; t, tergite; vd, ventral dististyle).

Limonia (Dicranomyia) claribasis Alexander Type from Yanamonte, La Mar, Ayacucho, Peru, in fog forests, altitude 3000-4000 meters, September 3, 1941 (Woytkowski). Male hypopygium (Fig. 7).

Limonia (Dicranomyia) pennifera Alexander Type from Yanamonte, La Mar, Ayacucho, Peru, in fog forests, altitude 3000-400 meters, September 9, 1941 (Woytkowski). Male hypopygium (Fig. 9).

Limonia (Dicranomyia) titicaca na Alexander Type from Chucuito, near Lake Titicaca, Peru, altitude 12,500 feet, April 7, 1939 (Smyth). Male hypopygium (Fig. 8).

Limonia (Geranomyia) amoenalis Alexander Type from Yanamonte, La Mar, Ayacucho, Peru, in fog forests, altitude 3000-4000 meters, October 9, 1941 (Woytkowski). Male hypopygium (Fig. 10).

Limonia (Geranomyia) anthina Alexander
Type from Yanamonte, La Mar, Ayacucho, Peru, in fog
forests, altitude 3000-4000 meters, August 18, 1941
(Woytkowski). Male hypopygium (Fig. 11).

Limonia (Geranomyia) beatrix Alexander
Type from Abitagua, Napo-Pastaza, Ecuador, altitude 1200
meters, August 15, 1937 (Macintyre). Male hypopygium (Fig. 12).

Limonia (Geranomyia) satipoana Alexander Type from Satipo, Jauja, Junin, Peru, altitude 800-900 meters, June 22, 1939 (Paprzycki). Male hypopygium (Fig. 13).

Limonia (Peripheroptera) or dinaria, sp. n.

General coloration heavily gray pruinose, the praescutum with three polished black stripes; legs with all coxae and trochanters black or brownish black, the former pruinose; remainder of legs brownish black, the femoral bases obscure yellow; wings brownish yellow, with a restricted brown pattern, including stigma, cord and outer end of cell *1st*  $M_2$ ; free tip of  $Sc_2$  and  $R_2$  almost in transverse alignment; Rs nearly straight.

Female. — Length about 6 mm.; wing 6.6 mm.

Rostrum and palpi black. Antennae black throughout; basal flagellar segments subglobular to short-oval, the outer ones

passing into oval; terminal segment a trifle longer than the penultimate. Head black, pruinose.

Pronotum black, the surface pruinose. Mesonotal praescutum black, in part heavily pruinose, leaving three black stripes. of which the median one is broader, gradually narrowed in front; posterior sclerites of notum black, pruinose, the posterior border of the scutellum a little more piceous. Pleura black, heavily gray pruinose, the ventral sternopleurite glabrous; dorsopleural membrane gray pruinose. Halteres with stem yellow, knob infuscated. Legs with coxae black, more or less pruinose; trochanters brownish black; femora brownish black, their bases obscure yellow, the tips more intensely darkened; tibiae brownish black, the tips, with the tarsi, black. Wings brownish yellow, the prearcular field clearer yellow; stigma oval, brown; narrow but conspicuous brown seams along cord and outer end of cell 1st  $M_2$ ; wing tip vaguely darkened, the pattern extending basad almost to the outer end of cell 1st  $M_2$ ; veins brown, a trifle darker in the clouded portions, more yellowed at wing base. Venation:  $Sc_1$  ending a short distance before origin of Rs, the latter a little exceeding  $R_{2-3}$ ; free tip of  $Sc_2$  and  $R_2$  almost in transverse alignment; basal section of  $R_{4-5}$  gently arcuated, nearly three-fourths as long as the nearly straight Rs, lying slightly more basad than the other elements of the cord; cell 1st  $M_2$  subequal in length to vein  $M_3$  beyond it; m-cu at fork of M, a little shorter than the distal section of  $Cu_1$ ; vein 2nd A relatively short, the cell constricted at base, opposite the arculus more widened, its greatest width being nearly three times the constricted portion.

Abdominal tergites black, sparsely pruinose; basal sternites piceous, the outer ones concolorous with the tergites; genital shield blackened, pruinose; cerci horn-yellow.

Habitat: Bolivia.

Holotype, female, Chapare, Cochabamba, November 1934 (Franz Steinbach).

The present fly is most similar to Limonia (Peripheroptera) trinigrina Alexander, from which it differs especially in the coloration of the legs and in the venation, particularly in the radial field.

## Hexatoma (Eriocera) rupununi, sp. n.

Size medium (wing, female, about 10 mm.); general coloration gray, the praescutum with four light brown, entire stripes; antennal scape and pedicel yellow; vertex with a capillary median vitta, the anterior vertex on either side of this elevated into small pale conical tubercles; femora yellow, the tips narrowly

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but conspicuously blackened; wings with a weak brownish tinge, the radial veins restrictedly seamed with pale brown; veins beyond cord, with the exception of  $R_5$ , glabrous; vein  $R_2$  before fork of  $R_{3-4}$ ; cell 1st  $M_2$  long, subequal to vein  $M_{1-2}$  beyond it; abdominal tergites dimidiate, brown, with the basal rings yellow; cerci very long.

Female. — Length about 15 mm.; wing 10.3 mm.

Rostrum brown; palpi still darker brown. Antennae with scape and pedicel yellow; flagellum broken. Head with the ground pale brownish yellow, overlain by a sparse gray pruinosity; vertex with a capillary median vitta that is slightly impressed and glabrous on its anterior portion, more opaque behind; on either side of this vitta, the anterior vertex is elevated into a small pale conical tubercle.

Prothorax gray, vaguely patterned with brown; pretergites before wing root more infuscated. Mesonotal praescutum gray, with four entire, light brown stripes, the intermediate pair separated from one another by a ground stripe, this narrowest at the cephalic end, widest beyond midlength; scutal lobes each with two similar light brown areas, the mesal one very large; pleurotergite gray, variegated with brown. Pleura dorsopleural membrane brownish yellow. Halteres with stem yellow, knob blackened. Legs with coxae pale, gray pruinose; trochanters obscure yellow; femora yellow, the tips narrowly but conspicuously blackened, the amount subequal on all legs; tibiae and basitarsi brownish yellow, the tips narrowly blackened; remainder of tarsi black. Wings with a weak brownish tinge, restrictedly patterned with darker brown, this appearing as vague seams along Rs and its branches and less evidently on other veins; stigma very feebly indicated; veins brown, more brownish yellow in the praercular and costal portions. A series of macrotrichia on both sections of vein  $R_5$ , the other veins beyond cord, with the exception of  $Sc_2+R_1$ , glabrous; outer medial veins paler and weaker. Venation:  $Sc_1$  ending about opposite the cephalic end of the oblique r-m, Sc<sub>2</sub> some distance from its tip,  $Sc_1$  alone subequal to  $R_2$ ; Rs long, angulated at origin;  $R_2$ shorter than  $R_{1-2}$ , about its own length before the fork of  $R_{3-4}$ ; veins  $R_3$  and  $R_4$  divergent; basal section of  $M_{1-2}$  with a strong spur jutting basad into cell R; cell 1st M2 slightly narrowed outwardly, m straight, about one-half the oblique basal section of  $M_3$ ; cell 1st  $M_2$  nearly as long as vein  $M_{1-2}$  beyond it; m-cu

about one-third its length beyond the fork of M, in almost a straight line with the shorter distal section of vein  $Cu_1$ .

Abdomen with first tergite gray pruinose on sides, the remainder dark brown; succeeding tergites bicolored, the basal rings yellow, the broader posterior portions dark brown, the lateral borders of the segments gray pruinose; subterminal segments dark brown, heavily pruinose; sternites obscure yellow or orange-yellow, the more proximal ones slightly infuscated. Ovipositor with the genital shield dark brown and pruinose on cephalic half, paling to brownish orange behind; cerci very long and slender, horn yellow, narrowly more darkened at bases.

Habitat: British Guiana.

Holotype, female, Pirara, Rupununi, July 5, 1933 (J. G. Myers); Collector's No. 3540.

The most similar described species include Hexatoma (Eriocera) breviuscula Alexander and H. (E.) tholopa Alexander, both of which similarly have vein  $R_2$  placed before the fork of  $R_{3-4}$ . The present fly differs in the coloration of the body, legs and wings, and in the details of venation.

Atarba (Atarba) aperta subaperta, subsp. n.

Male. — Length about 5 mm.; wing 5.4 mm.; antenna about 6 mm.

Female. — Length about 5.5 mm.; wing 5 mm.

Rostrum brownish yellow; palpi dark brown. Antennae (male) longer than either the body or wing; yellow, the outer segments passing into brown; flagellar segments elongate-cylindrical, clothed with very long outspreading delicate setae. Head obscure yellow, the center of vertex darkened.

Mesonotum light castaneous, the pronotum more testaceous; in male, the median and humeral regions of praescutum more darkened, this condition possibly abnormal. Pleura darkened dorsally, paling to light yellow beneath. Halteres pale, the knobs dusky. Legs with the coxae and trochanters yellowish testaceous; femora yellow, the tips narrowly infuscated; tibiae and tarsi obscure yellow, the outer tarsal segments broken. Wings (Fig. 14) brownish yellow, the base and costal region clearer yellow; veins light brown. Venation: Almost as in typical aperta; m-cu closer to the fork of M, approximately opposite midlength of the petiole of cell 2nd  $M_2$ .

Abdominal tergites (male) bicolored, the basal portion brown, about the distal two-thirds yellow; a subterminal dark ring; hypopygium yellow. Male hypopygium (Fig. 15) with the outer

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dististyle, od, bearing about six subappressed spines, additional to the curved apical point, these spines gradually increasing in length from the more basal ones outwardly; a series of microscopic spinulae on outer face of style near base. Gonapophyses, g, appearing as elongate rods, the tip of each mace-like, being densely set with spines. Aedeagus, a, very long and slender, more than twice the length of the basistyle, its apex dilated.

Habitat: Panama.

Holotype, male, Barro Colorado Island, Canal Zone, December 21, 1928 (Curran); American Museum of Natural History. Allotopotype, female, in copula with type.

Close to the typical subspecies, of Mexico, differing chiefly in the venation of the medial field, especially the position of m-cu in relation to the petiole of cell  $2nd\ M_2$ . The male sex of typical aperta Alexander is still unknown. The antennae in the present form are longer than in any other regional species of the genus.

### Elephantomyia (Elephantomyia) arcuaria, sp. n.

Allied to humilis; general coloration of thorax uniform pale yellow, unpatterned; anterior vertex and posterior orbits silvery gray; halteres and legs yellow to brownish yellow; wings pale yellow, the prearcular and costal portions clearer yellow; stigma pale brown; cell Ist  $M_2$  short-subrectangular, with m-cu at near midlength, the latter nearly twice as long as the outer section of  $Cu_1$ ; male hypopygium with the glabrous outer dististyle short and broad, strongly arcuated, its apex bispinous.

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

Rostrum nearly as long as body, dark brown. Antennae brown, the scape more yellowish brown; fusion-segment with short verticils, those of the outer segments very long. Head with front, anterior vertex and posterior orbits light silvery gray, the posterior portions of head more yellowish gray; anterior vertex narrow, about two-thirds as wide as the diameter of the scape.

Thorax uniformly pale yellow, unpatterned. Halteres yellow. Legs with the coxae and trochanters pale yellow; remainder of legs brownish yellow to pale brown; tibial spurs lacking. Wings with a pale yellow tinge, the prearcular and costal fields clear light yellow; stigma long-oval, pale brown, relatively small; veins brownish yellow. Venation:  $Sc_2$  ending about opposite two-thirds the length of Rs, longer than  $Sc_1$ ; branches of Rs diverging very gradually, at margin cell  $R_3$  a trifle less extensive than cell  $R_2$ ; cell  $Ist\ M_2$  short-rectangular, about equal in length to vein  $M_4$ ;

m-cu close to midlength of lower face of cell 1st  $M_2$ , somewhat less than twice the distal section of  $Cu_1$ .

Abdomen pale yellowish brown, the subterminal segments slightly darker; hypopygium yellow. Male hypopygium with the glabrous outer dististyle unusually short and broad, strongly arcuated, bifid at tip, the axial spine much stouter and a little longer than the subterminal one. Inner dististyle longer, nearly straight, with less than the outer half narrowed. Gonapophyses broad basally, angularly bent. Aedeagus a long, strongly coiled penefilum.

Habitat: Panama.

Holotype, male, Potrerillos, Chiriqui, altitude 3000 feet, June 2, 1935 (J. W. MacSwain).

The present fly is readily told from all other small-sized members of the westwoodi group in the uniform pale yellow coloration of the entire thorax, and in the structure of the male hypopygium, especially the broad, arcuated outer dististyle. Among such species it is perhaps closest to Elephantomyia (Elephantomyia) humilis Alexander, yet entirely distinct.

### Elephantomyia (Elephantomyia) chiriquiana, sp. n.

Allied to humilis; size small (wing, male, about 4.5 mm.); general coloration of thorax medium brown, without pattern; knobs of halteres infuscated; legs brownish yellow, the tarsi paling to yellowish white; no tibial spurs; wings narrow, with a strong brownish tinge, stigma medium brown; male hypopygium with the outer dististyle glabrous, bidentate at tip, the axial spine bent at a right angle; inner dististyle straight.

Male. — Length, excluding rostrum, about 4 mm.; wing 4.5-4.6 mm.; rostrum about 3.6-3.7 mm.

Rostrum brown, a little shorter than the body. Antennae dark brown, 14-segmented; verticils of outer flagellar segments unusually elongate. Head with front and anterior vertex light gray, the posterior portions of head darker; anterior vertex narrow, only about one-third the diameter of scape or less.

Thorax almost uniformly medium brown, without distinct pattern. Halteres with stem obscure yellow, knob infuscated. Legs with coxae and trochanters obscure yellow; femora brownish yellow, clearer yellow basally, the tips more darkened; tibiae brownish yellow, tarsi passing into yellowish white; tibial spurs lacking. Wings narrow, with a strong brownish tinge, the prearcular and costal fields a trifle more yellowish; stigma oval, medium brown; veins brown. Venation:  $Sc_2$  subequal to or longer

than  $Sc_1$ , ending shortly before the level of fork of Rs; branches of the latter very gradually diverging, cell  $R_3$  at margin about three-fourths as extensive as cell  $R_2$ ; cell 1st  $M_2$  subrectangular, subparallel or slightly narrowed outwardly, m varying in length from about one-half r-m to fully three times this length; m-cu varying from about one-third to almost midlength of cell 1st  $M_2$  and about one-third to one-fourth longer than the distal section of  $Cu_1$ ; cell 2nd A narrow.

Abdomen almost uniformly dark brown throughout. Male hypopygium with the outer dististyle glabrous, slender, bidentate at apex, the stouter or axial spine bent ventrad at a right angle, the slender lateral spine placed at the point of angulation; style not greatly widened at base, as is the case in humilis. Inner dististyle about one-fourth longer than the outer one, straight, gradually narrowed to the blunt tip; distal third of style paler than the base.

Habitat: Panama.

Holotype, male, Potrerillos, Chiriqui, altitude 3000 feet, May 7, 1935 (J. W. MacSwain). Paratopotype, male.

Elephantomyia (Elephantomyia) chiriquiana is most similar to E. (E.) humilis Alexander, from which it differs most evidently in the structure of the male hypopygium, particularly of both dististyles.

## Gonomyia (Lipophleps) arajuno Alexander

Type from the Rio Arajuno, Napo Watershed, Napo-Pastaza, Ecuador, altitude 1000 meters, April 22, 1941 (Macintyre). Male hypopygium (Fig. 16).

# Gonomyia (Lipophleps) batesi, sp. n.

Belongs to the manca group; size small (wing, male, 3 mm.); thoracic pleura yellow, unstriped; knobs of halteres weakly infuscated; wings with a strong brownish tinge,  $Sc_1$  ending just beyond origin of Rs; male hypopygium with the outer lobe of basistyle very long, exceeding in length the style itself or the dististyle; dististyle a long flattened yellowish blade, terminating in a stout blackened point, the two fasciculate setae on the inner margin back from the apical point; phallosome asymmetrical, with three points or individual elements arising from a bell-shaped base, all three elements pointed at their tips.

Male. — Length about 2.8 mm.; wing 3 mm.

Rostrum yellow; palpi dark brown. Antennae black; flagellar segments with the usual very long setae of the male sex. Head

above dark brownish gray, becoming more yellowed in front and on anterior vertex.

Pronotum and pretergites light yellow. Mesonotum dark brown, the sides of the praescutum more yellowed; median region of scutum and the broad posterior border of scutellum yellow; mediotergite light brown, its sides, with the pleurotergite, yellow. Pleura yellow, the posterior sclerites paler; no pleural stripe. Halteres with stem dirty white, knob weakly infuscated. Legs with the coxae and trochanters obscure yellow; femora light brown, the remainder of legs darker brown. Wings with a strong brownish tinge, the prearcular and costal cells pale yellow; stigma scarcely indicated; veins pale brown. Venation:  $Sc_1$  ending opposite or just beyond the origin of Rs,  $Sc_2$  a short distance before this origin;  $Sc_1$  alone about one-fifth the length of Rs; cell  $Ist M_2$  shorter than vein  $M_4$ ; m-cu close to the fork of M.

Abdominal tergites brown; sternites paler; hypopygium brownish yellow. Male hypopygium (Fig. 17) with the outer lobe of basistyle, b, very long, entirely fleshy, its length exceeding the remainder of the basistyle. Dististyle, d, distinctive of the species, appearing as a flattened yellow blade that is only a little shorter than the lobe of the basistyle and slightly wider; on apical third bent strongly mesad, terminating in an obtuse blackened point; the usual two fasciculate setae occupy the inner margin of the style just beyond midlength, or back from the curved apical point. Phallosome, p, with the base more or less triangular or bell-shaped, narrowest at point of attachment, expanded outwardly, thence produced into three points, as follows: Longest element a flattened straight blade, parallel-sided for about one-fifth the length, thence bent slightly laterad and narrowed into an acute blackened point; surface of blade at and beyond midlength with microscopic setulae; second element a slender simple rod, about three-fourths the length of the first, its tip similarly blackened and bent laterad into a point; lower face of outer half with numerous microscopic setulae; third phallosomic element a long slender rod that is presumed to represent the aedeagus, only a little shorter than the first or longest blade, arising from a flattened plate; very slender, its tip abruptly paler, slightly bulbous, terminating in a slender pale point.

Habitat: Panama.

Holotype, male, Barro Colorado Island, Canal Zone, November 26 (M. Bates); Museum of Comparative Zoölogy.

Gonomyia (Lipophleps) batesi is named for the collector, Mr. Marston Bates. In the structure of the male hypopygium, the fly is entirely distinct from the other numerous regional members of the group. The elongate lobe of the basistyle is somewhat as in G. (L.) producta Alexander but the structure of the dististyle and phallosome is quite different from all other species made known to this date.

Gnophomyia (Gnophomyia) banksiana, sp. n.

Allied to vilis; general coloration of mesonotum dark brown, sparsely pruinose, the lateral praescutal borders and adjoining areas light yellow; eyes (male) large, anterior vertex narrow; legs obscure yellow; wings with a weak brownish tinge; male hypopygium with the basistyle stout, its mesal face near cephalic end with a low setiferous tubercle; outer dististyle blackened, gradually narrowed to the subacute tip; inner dististyle with its apex very obtuse but not produced into a tooth; lower surface of style at near midlength with two strong setae; apex of phallosomic plate very gently convex, entire.

Male. — Length about 6 mm.; wing  $5.3 \times 1.45$  mm.; antenna about 1.6 mm.

Female. — Length about 7 mm.; wing 7 mm.

Rostrum brownish gray; palpi dark brown. Antennae dark brown; flagellar segments subcylindrical, the longest verticils exceeding the segments in length. Head (male) above light gray, eyes large, reducing the anterior vertex to a relatively narrow strip that is about one-half wider than the diameter of the scape; eyes contiguous beneath.

Pronotum above, the pretergites, dorsopleural membrane and the lateral border of praescutum back to the wing-root conspicuously light yellow. Praescutum, except as described, dark brown, sparsely pruinose; remainder of mesonotum dark brown, the median region of scutum vaguely brightened; posterior callosities of scutal lobes conspicuously obscure yellow. Pleura dark brown above, more reddish brown on ventral sternopleurite, the two areas separated by an obscure yellow longitudinal stripe, clearer behind. Halteres with stem obscure yellow, knob weakly infuscated. Legs with the coxae and trochanters yellow; remainder of legs obscure yellow, the outer tarsal segments infuscated. Wings relatively narrow, weakly tinged with brown, the extreme base more yellowed; stigma scarcely indicated; veins brown. Venation:  $Sc_1$  ending about opposite the very faint  $R_2$ , the latter subequal to  $R_{2-3}$ ;  $R_5$  in longitudinal alignment with  $R_5$ , r-mat its fork; m-cu about its own length beyond the fork of M;

cell 1st  $M_2$  subequal to vein  $M_4$ . In the female,  $R_2$  is at the fork of  $R_{2-3-4}$ , or immediately beyond.

Abdominal tergites dark brown, sternites paler, obscure yellow; hypopygium obscure yellow, the styli blackened. Male hypopygium (Fig. 18) with the basistyle, b, stout, its mesal face near cephalic end with a setiferous swelling or very low tubercle. Outer dististyle, od, blackened, gradually narrowed to the subacute tip, the outer margin at base with a low flange. Inner dististyle, id, with its base strongly expanded, the free portion black, nearly square at apex, the lower apical margin somewhat produced but not toothed; lower surface of style at near midlength with two strong setae, additional to the numerous smaller ones. Phallosome, p, of moderate width, much narrower than in vilis, the caudal border very gently convex, entire.

Habitat: Panama.

Holotype, male, Barro Colorado Island, Canal Zone, August 1, 1924 (N. Banks); Museum of Comparative Zoology. Allotype, female, Frijoles, July 10, 1924 (N. Banks); author's collection.

I take great pleasure in dedicating this species to Dr. Nathan Banks, to whom I express my deep debt of gratitude for many favors in the past thirty years. The structure of the male hypopygium allies this fly with species such as Gnophomyia (Gnophomyia) tuber Alexander, G.(G.) vilis Alexander, and others. The setiferous tubercle on the mesal face of basistyle is unusually low and obtuse, not strongly produced as in the other forms. The phallosomic plate is noticeably narrower than in vilis.

# Gnophomyia (Gnophomyia) emarginata, sp. n.

Allied to *tuber*; general coloration brown, the thoracic pleura more or less distinctly striped with yellow; femora obscure yellow, the tips weakly darkened; wings brownish yellow, stigma restricted to a narrow seam along vein  $R_1$ ; male hypopygium with the mesal face of basistyle produced into a setiferous tubercle; outer dististyle obtuse at tip; inner dististyle not toothed at apex; posterior border of phallosomic plate conspicuously emarginate.

Male. — Length about 7 mm.; wing  $5.5 \times 1.65$  mm.; antenna about 1.3 mm.

Rostrum obscure brownish yellow; palpi brown, the outer segments black. Antennae moderately long; scape dark brown, pedicel paler brown, flagellum brownish testaceous, the outer segments darker; flagellar segments subcylindrical, the verticils a little exceeding the segments; terminal segment nearly as long as the penultimate, pointed at tip. Head above gray; eyes large, contiguous beneath; anterior vertex relatively narrow.

Pronotum light brown; pretergites pale yellow. Mesonotum brown, the disk of praescutum and the scutal lobes darker brown, sparsely pruinose; humeral and lateral portions of praescutum yellow; suture between the mediotergite and pleurotergite yellow. Pleura vaguely patterned, the dorsal sclerites darker brown, the ventral sternopleurite more reddish brown, the intervening area, including the dorsal sternopleurite, ventral pteropleurite, meron and metapleura obscure yellow, the color becoming clearer behind. Halteres with stem yellow, knob infuscated. Legs with coxae and trochanters yellow; femora obscure yellow, the tips weakly darkened; tibiae and basitarsi obscure yellow, the tips very narrowly infuscated; outer tarsal segments brownish black. Wings brownish yellow, the more cephalic and outer cells somewhat clearer yellow; stigma very long and narrow, restricted to a scarcely evident seam along vein  $R_1$ ; veins brown, more brownish yellow in the basal portion. Venation:  $Sc_1$  ending nearly opposite the fork of  $R_{2-3-4}$ , the latter about twice  $R_{2-3}$  and a little longer than  $R_{1-2}$ ; r-m just beyond fork of Rs; cell 1st  $M_2$  strongly widened outwardly, with m-cu at near midlength.

Abdominal tergites pale brownish yellow, very narrowly more darkened on lateral edges; sternites slightly clearer yellow; hypopygium brownish yellow. Male hypopygium (Fig. 19) with the basistyle on mesal face produced into a conspicuous fleshy tubercle, as is the case in tuber, vilis and allies. Outer dististyle, od, a curved flattened glabrous blade, gradually narrowed to the obtuse tip. Inner dististyle, id, moderately dilated at base, the outer portion almost parallel-sided, the tip obtuse, not at all produced into a tooth as in apicularis and others; numerous setae, particularly along upper edge and near apex, including one major bristle on mesal or lower margin at near midlength of style; surface of style near upper margin with a long low ridge or flange. Phallosomic plate, p, depressed-flattened, narrowed outwardly, the more sclerotized apex with a conspicuous subquadrate notch or emargination.

Habitat: Panama.

Holotype, male, Barro Colorado Island, Canal Zone, October 6 (M. Bates); Museum of Comparative Zoology.

The most similar described species is *Gnophomyia (Gnophomyia)* tuber Alexander, which agrees in possessing the conspicuous tubercle on the basistyle of the male hypopygium, in conjunction with the untoothed inner dististyle. This latter differs from the present fly in all details of structure of the hypopygium, particularly the dististyles and the phallosomic plate.

Gnophomyia (Gnophomyia) magica, sp. n.

Allied to maestitia; general coloration black, the extreme lateral angles of the pronotal scutellum yellow; halteres and legs black; wings bicolored, the ground color pale brown, still clearer before the cord; prearcular field and a broad band at cord darker brown; outer branches of Rs unusually long, the anterior cord lying at near midlength of the wing; m-cu near middle of the long-rectangular cell 1st  $M_2$ .

Female. — Length about 6.5 mm.; wing 5.6 mm.

Rostrum and palpi black. Antennae black throughout; flagellar segments relatively long, subcylindrical to a little dilated at near midlength, the longest verticils a little exceeding the segments. Head black, sparsely gray pruinose in front; anterior vertex a little more than three times the diameter of the scape.

Thorax almost uniformly black, very sparsely pruinose, the extreme lateral portions of the pronotal scutellum with a pale yellow spot. Halteres black, the extreme base of stem obscure yellow. Legs black. Wings bicolored, the ground color pale brown, clearer before the cord; a broad and conspicuous darker brown band at cord, extending from C to Cu, lying chiefly beyond the cord, filling all of cells  $R_1$  and Ist  $M_2$ , the broad bases of cells  $R_3$  to  $R_5$ , inclusive, and the apices of cells R and M; prearcular field darkened, scarcely passing the level of the arculus; a seam along vein Cu to m-cu, occupying cell  $Cu_1$  and almost an equal area in cell M adjoining vein  $Cu_1$ ; veins brown. Venation: Rs oblique;  $R_{2-3-4}$  elevated at extreme base, the outer portion in longitudinal alignment with  $R_{2-3}$ , the latter about twice  $R_2$ ; outer radial veins unusually long, r-m lying at near midlength of wing; cell Ist  $M_2$  long-rectangular, with m-cu at near midlength.

Abdomen black, including the genital shield. Ovipositor with the cerci elongate, strongly upcurved to the acute tips, the surface polished.

Habitat: British Guiana.

Holotype, female, near the headwaters of the Mazaruni River, Pakaraima Mts., 1932 (J. G. Myers); Myers No. 3150.

Gnophomyia (Gnophomyia) magica is quite distinct from the other members of the maestitia group, differing especially in the unusually broad and conspicuous brown crossband at near midlength of the wings. In the details of venation it is closest to species such as G. (G.) podacantha Alexander but differs conspicuously in the coloration of the wings.

Teucholabis (Teucholabis) stadelmanni, sp. n.

General coloration polished yellow and black, including major black areas on sides of praescutum before the suture and over most of the mesepisternum; head and rostrum blackened; halteres infuscated, knob pale yellow; femora yellow, the tips conspicuously but rather narrowly blackened; all tibiae yellow with narrowly blackened tips; posterior tibiae (male) at beyond three-fourths the length with a small setuliferous flange; posterior basitarsi dilated at proximal ends; wings pale yellow, with three dark crossbands, the second at cord; cell  $M_2$  open by the atrophy of the basal section of vein  $M_3$ ; male hypopygium with the lobe of basistyle terminating in an unusually long straight spine; inner dististyle provided with eight or nine strong, peglike spines; aedeagus with two setae before the stout black apical spine.

Male. — Length about 5 mm.; wing 4.8 mm.

Rostrum and palpi black. Antennae black throughout; flagellar segments oval to long-oval; verticils conspicuous. Head brownish black.

Prothorax light yellow. Mesonotal praescutum polished reddish yellow, conspicuously patterned with black, including major areas on either side before the suture, reaching the lateral margin; median black praescutal stripe narrower, not reaching the suture behind, more or less split by a capillary pale vitta; posterior sclerites of notum extensively obscure yellow, including the scutellum and much of the scutum, the lobes of the latter more or less infuscated; postnotum chiefly black, the cephalic margin yellowish. Pleura yellow, with a single, very extensive oval black area occupying most of the mesepisternum. Halteres infuscated, the apex of knob pale yellow. Legs with all coxae and trochanters pale yellow; femora yellow, the tips rather narrowly blackened, a little more extensive on fore legs where about the distal fifth is included; tibiae yellow, the tips narrowly blackened, the amount subequal on all legs; tarsi chiefly obscure yellow, the outer segments blackened; posterior tibia at beyond three-fourths the length on outer margin with an elevated flange, its crest with abundant setigerous punctures; posterior basitarsus at proximal end slightly dilated and with a conspicuous setuliferous pocket. Wings pale yellow, clearest at base, with a conspicuous brown pattern, including three bands, the first more or less diamond-shaped, extending from the origin of Rs to the tip of vein 2nd A, more or less interrupted; second band narrow but continuous, extending from the stigma to the posterior border

in outer end of cell Cu; outer band apical in position, extending basad almost to the fork of vein  $M_{1-2}$ ; veins brownish yellow, darker in the clouded portions. Venation: Sc long,  $Sc_1$  ending about opposite midlength of Rs; cell  $M_2$  open by the atrophy of basal section of  $M_3$ ; m-cu about one-third to one-fourth its own length beyond the fork of M.

Abdominal tergites chiefly dark brown, the sternites more bicolored, black, with the incisures light yellow; on outer segments the posterior borders broadly yellow; segment eight and apex of seven yellow; hypopygium uniformly black. hypopygium (Fig. 20) with the apical lobe of basistyle, b, stout at base, at apex narrowed into an unusually long straight spine; outer margin of lobe with coarse setae that become very numerous at the base of the spine; mesal face of style with a blackened flange, its margin coarsely crenate. Outer dististyle, od, a long, gently curved rod, narrow at base, more dilated before midlength, on mesal edge produced into a small blackened spinous point; beyond the dilation the style narrows gradually to a long straight apical spine. Inner dististyle, id, with the two spinous points subequal, separated by a very shallow emargination; an additional black lobe on style, this bearing about eight or nine strong peglike spines that are directed outwardly. Aedeagus, a, produced at apex into a powerful black spine, gently curved to its acute tip; surface of aedeagus with numerous microscopic setulae and two longer and more powerful bristles.

Habitat: Honduras.

Holotype, male, Lancetilla, August (H. Stadelmann); Museum of Comparative Zoology.

The species is named for the collector. Teucholabis (Teucholabis) stadelmanni is very different from all other known species of the subgenus that have an open cell  $M_2$ , especially in the nature of the wing pattern and in the structure of the male hypopygium. The flange on the posterior tibia of the male is noteworthy. In most regards the fly is like T. (T.) sackeni Alexander but, besides the open cell  $M_2$ , it differs in all details of coloration of the body and legs, and in the structure of the male hypopygium.

Cryptolabis (Cryptolabis) hilaris Alexander Type from Satipo, Jauja, Junin, Peru, altitude 800-900 meters, March 6, 1941 (Paprzycki). Venation (Fig. 21).

Molophilus (Molophilus) brownianus Alexander

Type from Minza Chica, Mount Tungurahua, Tungurahua, Ecuador, altitude 3500 meters, April 7, 1939 (Brown). Male hypopygium (Fig. 22).