

## NEW OR LITTLE-KNOWN NEOTROPICAL TIPULIDAE (DIPTERA). IV

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The undescribed species of crane-flies considered at this time were taken by the veteran entomologist and insect collector, Señor Luis E. Peña Guzman, chiefly in Ecuador between March and May, 1965 and again from August to October 1977, with fewer materials in Bolivia in January and February 1976. I express my sincere thanks to Señor Peña for his efforts in making known the vastly rich crane fly fauna of western South America. The types of the novelties are preserved in the Alexander Collection.

### LIMONIINAE

#### LIMONIINI

#### ***Limonia (Caenolimonia) angustiviria* sp.n.**

General coloration of mesonotum yellow, praescutum with a narrow brown central line; legs black, femora with a very narrow yellow ring at near four-fifths the length; wings light yellow, with a restricted brown pattern as described; abdomen yellow, posterior borders of the intermediate tergites very narrowly light brown; male hypopygium with rostral prolongation of the ventral dististyle slender, with two unusually small spines.

*Male*. — Length about 4.5 mm.; wing 5 mm. Rostrum and palpi black. Antennae with scape black, pedicel yellow; flagellum broken. Head brown, the narrow front white; vertex and occiput light brown.

Pronotum brownish black above, laterally broadly light yellow. Mesonotum grayish yellow, praescutum with four more intensely yellow stripes, intermediate pair separated by a very narrow brown central line; inner margins of scutal lobes and the mediotergite with very narrow brown lines. Pleura yellow. Halteres light yellow. Legs with coxae and trochanters yellow; femora black, bases restrictedly yellow, at near four-fifths the length with a very narrow yellow ring, the extreme tip similarly yellowed. Wings light yellow, prearcular and coastal regions more saturated yellow; a restricted brown pattern that includes a larger area at the vertical basal section of *Rs*; narrow lines at ends of *Sc*<sub>1</sub>, *R*<sub>1</sub> and *R*<sub>2</sub>; cord and outer end of cell

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<sup>1</sup>Contribution from the Entomological Laboratory, University of Massachusetts.

1st  $M_2$  and very small marginal seams at ends of all longitudinal veins, smallest at wing tip, most extensive on vein 2nd  $A$ . Venation:  $Sc_1$  ending shortly beyond origin of  $Rs$ ,  $Sc_2$  subequal;  $Rs$  rectangular at origin, in alignment with  $R_{2+3}$ ; free tip of  $Sc_2$  and  $R_1$  in alignment; no supernumerary crossvein in cell  $R_1$ ;  $m-cu$  shortly before fork of  $M$ ; cell 1st  $M_2$  longer than the cells beyond it.

Abdomen yellow, posterior borders of intermediate tergites very narrowly light brown. Male hypopygium (Fig. 1) with the tergite,  $t$ , slightly smaller in area than the basistyle,  $b$ , the latter with the ventromesal lobe broadly obtuse. Dorsal dististyle,  $dd$ , a long slender straight rod, the outer fourth slightly bent, at apex curved into a slender spine. Ventral dististyle,  $vd$ , about one-fourth larger than the basistyle; rostral prolongation slender, the apex gradually narrowed outwardly, before midlength with two unusually small spines. Gonapophysis,  $g$ , pale, outer blade gently curved to the nearly acute apex. Aedeagus,  $a$ , slender, apical lobes very small.

**Holotype.** —  $\sigma$ , Rio Huagrayacu, Ecuador, 900 meters, March 31, 1941 (Clarke-MacIntyre).

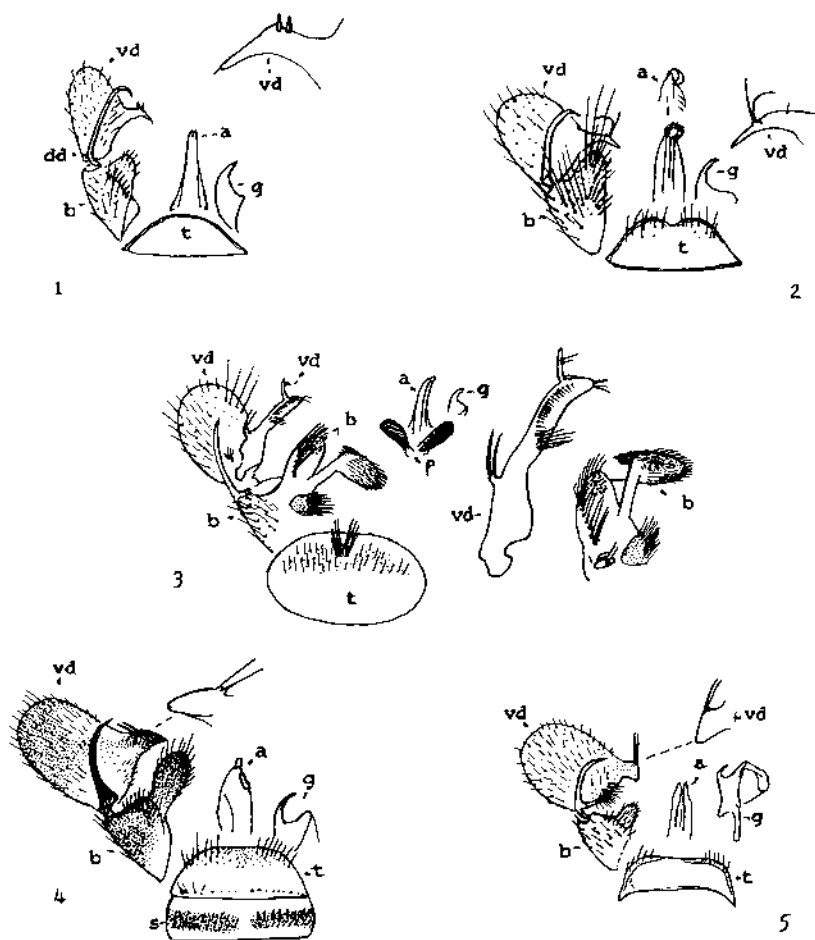
The most similar regional species is *Limonia* (*Caenolimonia*) *paprzyckii* Alexander, Peru, which differs most evidently in having a supernumerary crossvein in cell  $R_1$  of the wing, in transverse alignment with the upturned apex of vein  $R_{2+3}$ , this not present in the species under consideration.

### ***Limonia* (*Caenolimonia*) *curvispinosa* sp.n.**

Mesonotum light yellow, praescutum with a narrow brownish black central line; scutum and scutellum with two similar lines that converge behind to form a broad central area on the mediotergite, pleura yellow; halteres yellow; femora yellow, with a brown subterminal ring; wings hyaline, outer veins patterned with brown; male hypopygium with basistyle bearing very long setae; ventral dististyle with rostral prolongation long and slender, with two very long spines at near two-thirds the length.

**Male.** — Length about 7 mm.; wing 6.5 mm.; antenna about 1.2 mm. Rostrum black, nearly as long as remainder of head; palpi black. Antennae with scape and pedicel black; flagellum brownish yellow, outer segments tinged with green; proximal flagellar segments subglobular, becoming oval at near midlength, progressively longer outwardly. Anterior vertex very narrow, silvery; posterior parts of head yellowish brown.

Pronotum brownish black medially, light yellow on sides. Mesothoracic dorsum light yellow, praescutum with a narrow brownish black central line; scutum and scutellum yellow, with two brownish black lines that converge behind to form a single broad central area on the mediotergite. Pleura and lateral parts of notum light yellow. Halteres yellow. Legs with coxae and trochanters yellow, on posterior parts with greenish tints; femora light brown on proximal third, outerly yellow with a narrow darker brown subterminal ring; tibiae and tarsi yellow, outer



FIGURES 1-5. — 1. *Limonia (Caenolimonia) angustivirga* sp.n., male hypopygium; 2. *Limonia (Caenolimonia) curvispinosa* sp.n., male hypopygium; 3. *Limonia (Dicranomyia) insolita* sp.n., male hypopygium; 4. *Limonia (Dicranomyia) picticauda* sp.n., male hypopygium; 5. *Limonia (Dicranomyia) rostrotruncata* sp.n., male hypopygium. Male hypopygium: a, aedeagus; b, basistyle; dd, dorsal dististyle; g, gonapophysis; s, 8th sternite; t, 9th tergite; vd, ventral dististyle.

two or three segments brownish black. Wings hyaline, prearcular and costal fields more saturated pale yellow; narrow brown seams over base of *Rs* and tip of *Sc*, cord, outer end of cell *1st M*<sub>1</sub>, and the distal cubital veins; outer third of *2nd A* seamed with brown; veins yellow, dark in the patterned areas. Venation: *Sc*, ending shortly beyond origin of *Rs*, *Sc*<sub>2</sub> near its outer end; *Rs* rectangular at origin, bent slightly basad before the straight outer part; cell *1st M*, longer than the veins beyond it; *m-cu* shortly before the fork of *M*.

Abdomen yellow, proximal segments with light green tints; intermediate tergites with posterior borders narrowly brown. Male hypopygium (Fig. 2) with the tergite, *t*, shallowly emarginate apically. Basistyle, *b*, with ventromesal lobe large; certain major setae of the style darkened and of unusual length, the longest subequal in length to the dorsal dististyle (as shown). Dorsal dististyle, *dd*, yellow, the acute tip black. Ventral dististyle, *vd*, subequal in length to the basistyle, rostral prolongation distinctive, long and slender, gently curved, at near two-thirds the length with two approximated very long slender spines, one straight, the other directed strongly basad, as shown. Gonapophysis, *g*, with mesal-apical lobe nearly erect, long and narrow. Aedeagus, *a*, with terminal lobes broadly rounded.

*Holotype*. — ♂, Cuenca-Grl Plaza, Ecuador, 2200-2400 meters, October 18-19, 1977 (Peña).

The present fly is most readily distinguished by the vestiture of the basistyles and by the unusually long rostral spines of the ventral dististyle, as described and figured.

### ***Limonia (Dicranomyia) insolita* sp.n.**

General coloration of thoracic dorsum obscure orange yellow, posteriorly light brown; abdomen light brown; halteres long and slender; legs brownish yellow; wings uniformly pale brown, stigma scarcely indicated; male hypopygium distinctive; tergite oval; ventral dististyle with rostral prolongation a long flattened blade, the two spines at summit of a low tubercle, near outer end of blade with an erect straight rod; basistyle with ventromesal lobe complex in structure, as shown.

*Male*. — Length about 7-8 mm.; wing 7.2-8 mm.; antenna about 1.3-1.4 mm. Rostrum yellow; palpi brown, base of first segment yellowed, outer two segments subequal in length. Antennae with scape yellow, remainder dark brown; flagellar segments oval, progressively longer and more narrowed outwardly, terminal segment longest; segments slightly exceeding their longest verticils. Head brown.

Pronotum light brown. Mesonotal praescutum and scutum orange yellow, scutellum clear yellow; postnotal mediotergite light brown, pleurotergites and the pleura uniformly yellow. Halteres long and slender, brownish black, base of stem yellowed. Legs with coxae and trochanters yellow, remainder of legs more brownish yellow, outer segments slightly darker; claw small, base of inner face slightly expanded, the outer angle produced into a strong spinoid point, more basally with small darkened spinoid setae. Wings almost uniformly pale brown; stigmal area small, scarcely more darkened; veins light brown. Longitudinal veins beyond

general level of origin of *Rs* with abundant relatively short trichia, virtually lacking on Anal veins, *2nd A* with about five scattered trichia. Venation: *Sc*<sub>1</sub> ending opposite origin of *Rs*, *Sc*<sub>2</sub> far retracted, *Sc*<sub>3</sub> elongate; *Rs* nearly straight, in direct alignment with *R*<sub>1+2</sub>; *m-cu* at fork of *M*; cell *2nd A* narrow.

Abdomen light brown. Male hypopygium (Fig. 3) distinctive, as shown. Ninth tergite, *t*, large, exceeding the ventral dististyle in area, oval in outline, without angles; posterior two-thirds with numerous long delicate setae, on midline near posterior margin with a small oval area on either side, with two rows of four whitened punctures, all with very long setae. Basistyle, *b*, with body relatively small, mesal lobes large and complex in structure, as shown. Dorsal dististyle relatively small and slender, pale and inconspicuous. Ventral style, *vd*, oval, larger than the body of the basistyle; rostral prolongation distinctive, appearing as a long flattened blade, on basal half of upper margin with two long spines directed outwardly, at summit of a conspicuous tubercle; outer blade shortly before apex with a single stout erect rod, not spinoid as common in the subgenus; vestiture of blade as shown in the subfigure. Phallosome with the aedeagus, *a*, and gonapophyses, *g*, unusually small and simple in structure. One of the paratype specimens has the details of the hypopygium slightly different from the type but is considered as belonging to this species.

*Holotype*. — ♂, Unduavi-Corioco, Yungas La Paz, Cochabamba, Bolivia, 3000 meters, January 1-3, 1976 (Peña). Paratypes, 2 ♂♂, Siberia, Cochabamba, Bolivia, 2900 meters, February 18-19, 1976 (Peña).

Among the regional members of the subgenus *Dicranomyia* that have the male hypopygium modified in various manners, the present fly is distinct, especially in the tergite, basistyle, and ventral dististyle, as described and figured. Other species in this category include *Limonia* (*Dicranomyia*) *andinalta* Alexander, Peru; *L. (D.) apposita* Alexander, Peru; *L. (D.) boliviana* Alexander, Bolivia, Peru; *L. (D.) filicauda* Alexander, Mexico; *L. (D.) humerosa* Alexander, Peru; *L. (D.) imitabilis* Alexander, Peru; *L. (D.) muliercula* Alexander, Peru; *L. (D.) simillima* Alexander, Mexico to Venezuela, and some others, all well distinguished especially by hypopygial characters.

### ***Limonia* (*Dicranomyia*) *picticauda* sp.n.**

General coloration of head light gray; thorax yellow, the pronotum and praescutum conspicuously patterned with brown; legs brownish yellow; wings subhyaline, stigma scarcely indicated, veins light yellow; *Sc*<sub>1</sub> ending shortly before origin of *Rs*, *Sc*<sub>2</sub> nearly as long as *Rs*, *m-cu* at fork of *M*; abdominal tergites dark brown, subterminal segments and parts of the hypopygium conspicuously patterned

with dark brown, as described and figured.

*Male*. — Length about 6-7 mm.; wing 6-6.5 mm. *Female*. — Length about 6.5-7 mm.; wing 6.5-7 mm. Rostrum black, labrum paler; palpi black. Antennae with scape and pedicel brownish black, flagellum dark brown to black; flagellar segments long-oval, exceeding their verticils in length, with shorter dense white setulae. Head light gray; anterior vertex broad, exceeding twice the diameter of the scape.

Cervical region and mid area of pronotum brownish black, sides of the latter light yellow. Mesonotal praescutum yellowed, with a central darkened median line, broader and more intense anteriorly, lateral stripes scarcely indicated; posterior sclerites of notum dull orange yellow. Pleura yellow. Halteres with stem light yellow, knob vaguely more darkened. Legs with coxae and trochanters yellow; remainder of legs brownish yellow, outer tarsal segments brownish black. Wings subhyaline, stigma scarcely indicated, pale yellow to light brown; prearcular field, including the veins, light yellow, remaining veins brown. Venation:  $Sc_1$  ending shortly before origin of  $Rs$ ,  $Sc_1$  retracted,  $Sc_1$  nearly as long as  $Rs$ , the latter subequal to or slightly longer than basal section of  $R_{4+5}$ ; cell  $1st\ M_2$  subequal in length to cell  $2nd\ M_2$ ;  $m-cu$  at fork of  $M$ .

Abdominal tergites brown, basal sternites more yellowed; subterminal segments and the hypopygium more conspicuously variegated with dark brown, including the basistyle and its ventromesal lobe, rostral prolongation of the ventral dististyle, and paired areas on the ninth sternite, dististyle and eighth segment less darkened (Fig. 4). Male hypopygium with ninth tergite,  $t$ , having the posterior border gently rounded, cephalic border straight. Basistyle,  $b$ , relatively small, the ventromesal lobe large. Dorsal dististyle slender, curved gently to the acute tip; ventral style,  $vd$ , large and fleshy; rostral prolongation with two strong straight spines that are directed basad.

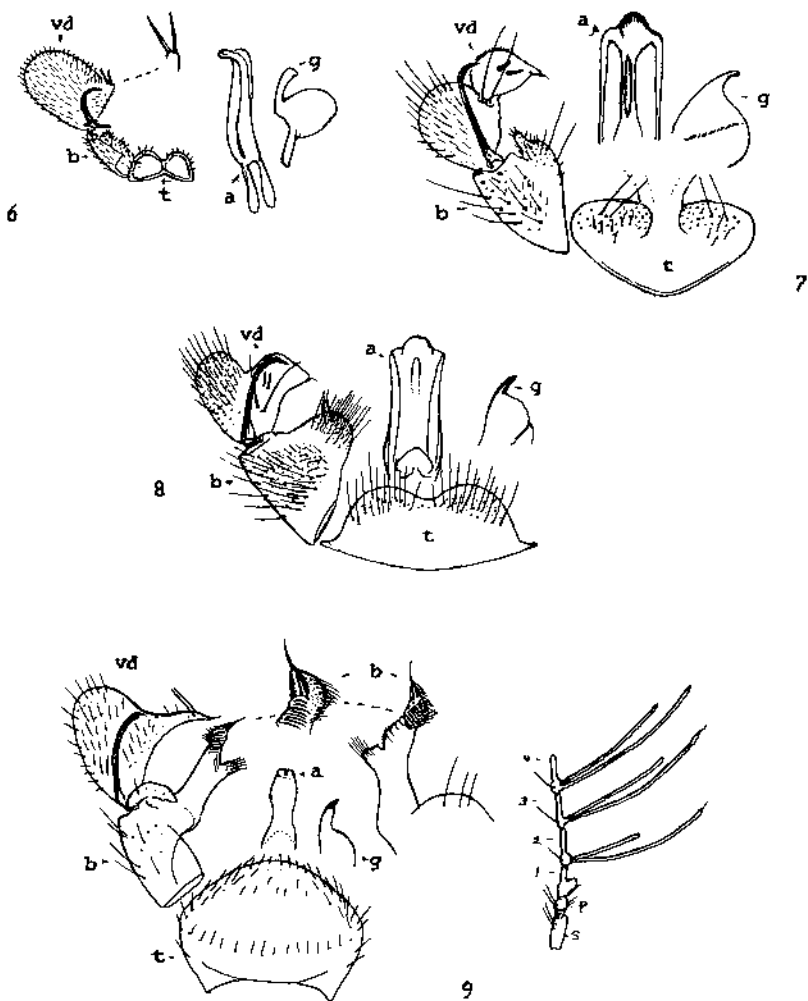
*Holotype*. —  $\sigma$ , Celica, Ecuador, 2000 meters, August 17, 1977 (Peña). Allotype,  $\varphi$ , pinned with type. Paratopotypes, 5  $\sigma$   $\varphi$ , with the types.

The present fly is well distinguished by coloration and hypopygial structure, including the posterior segments, suggesting the specific name for the species.

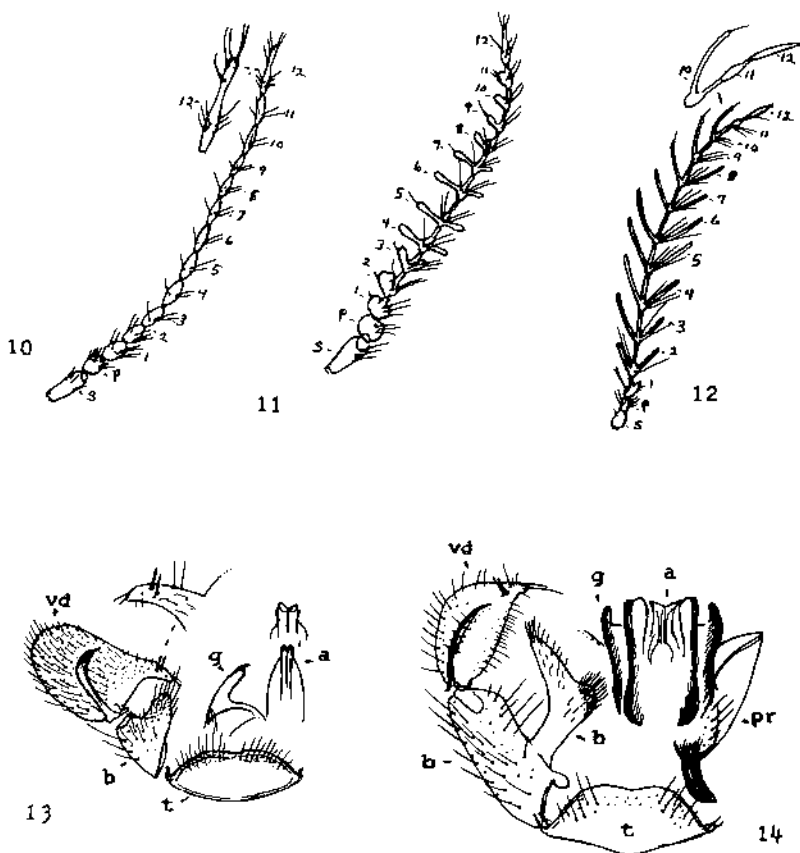
### ***Limonia (Dicranomyia) rostrotruncata* sp.n.**

Head light gray; praescutum gray with three light brown stripes, pleura chiefly light yellow; legs light brown; wings whitened, stigma pale brown;  $Sc$  short,  $Sc_1$  before origin of  $Rs$ ,  $Sc_1$  far retracted; male hypopygium with rostral prolongation of ventral dististyle a high compressed yellow blade, apex obliquely truncated, the two long black rostral spines at upper angle; gonapophysis with mesal-apical lobe a very small strongly curved spine.

*Male*. — Length about 5.5 mm.; wing 5.6 mm. Rostrum light brown; palpi black, terminal segment with long black setae. Antennae black; flagellar segments elongate, longest verticils pale. Head light gray.



FIGURES 6-9. — 6. *Limonia (Neolimnobia) latiorflava* sp.n., male hypopygium. 7. *Limonia (Neolimnobia) precipua* sp.n., male hypopygium. 8. *Limonia (Neolimnobia) sublastralis* sp.n., male hypopygium. 9. *Limonia (Rhipidia) atopolobos* sp.n., male antenna, hypopygium. Male hypopygium: a, aedeagus; b, basistyle; g, gonapophysis; t, 9th tergite; vd, ventral dististyle. Antenna: s, scape; p, pedicel; flagellar segments 1-4.



FIGURES 10-14. — 10. *Limonia (Neolimonia) sublustralis* sp.n., male antenna. 11. *Limonia (Rhipidia) curtiramosa* sp.n., male antenna. 12. *Limonia (Rhipidia) cymula* sp.n., male antenna. 13. *Limonia (Rhipidia) curtiramosa* sp.n., male hypopygium. 14. *Limonia (Rhipidia) cymula* sp.n., male hypopygium: Male hypopygium: a, aedeagus; b, basistyle; g, gonapophysis; pr, proctiger; t, 9th tergite; vd, ventral dististyle. Antenna: s, scape; p, pedicel; flagellar segments 1-12.



Pronotum pale brownish yellow, sparsely pruinose. Mesonotum light gray with three pale brown stripes that become obsolete before the suture, humeral and lateral borders more yellowed; scutum yellow, the lobes light brown, a continuation of the lateral praescutal areas; scutellum pale brownish yellow, parascutella yellow; postnotal mediotergite brown, pleurotergites yellow. Pleura chiefly light yellow, anepisternum weakly darker, dorsopleural membrane yellow. Halteres with stem yellow, knob weakly darkened. Legs with fore coxae light brown, remaining coxae and the trochanters yellow; femora light brown, bases yellowed; remainder of legs light brown. Wings whitened, especially the prearcular region; stigma short-oval, pale brown; veins light brown, slightly paler in the prearcular and costal fields. Longitudinal veins beyond general level of cord with trichia, basal veins posterior to *R* glabrous. Venation: *Sc* short, *Sc*<sub>1</sub> ending some distance before origin of *Rs*, *Sc*<sub>2</sub> far retracted; *Rs* and basal section of *R*<sub>4+5</sub> gently arcuated, the latter slightly longer; *m-cu* a short distance before fork of *M*.

Abdominal tergites brown, sternites yellowed, hypopygium chiefly brownish yellow, basistyles darker. Male hypopygium (Fig. 5) with the tergite, *t*, narrow, transversely lengthened, anterior and posterior borders nearly parallel, outer thickenings broad. Basistyle, *b*, dark brown, ventromesal lobe yellow. Dorsal dististyle, a gently curved rod, tip a long slender spine. Ventral dististyle, *vd*, about three times the area of the basistyle, setae relatively short and sparse; rostral prolongation a high compressed yellow blade, apex obliquely truncated, the two closely approximated long black rostral spines at the upper angle, as shown. Gonapophysis, *g*, broad-based, the mesal-apical lobe very small, strongly curved, as shown.

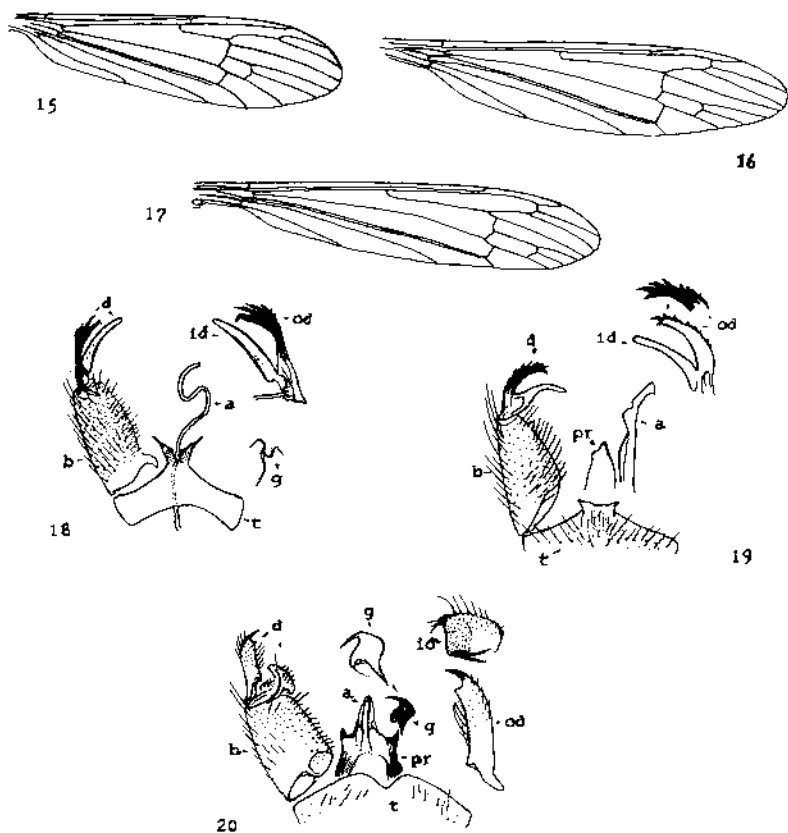
*Holotype*. — ♂, El Chaco, East Ecuador, 1700 meters, September 22-23, 1977 (Peña).

The present fly is most readily told by hypopygial structure, especially the rostral prolongation of the ventral dististyle, as described and figured.

### ***Limonia (Neolimnobia) latiorflava* sp.n.**

General coloration of thoracic dorsum yellowish brown, darker posteriorly; pleura yellowed, with a conspicuous dark brown vertical stripe, involving the pteropleura and meron; halteres yellow; legs with femora yellow with two narrow brown rings that are separated by a broader ground area; wings light yellow with a conspicuous pale brown pattern as described; supernumerary crossvein in cell *R*<sub>1</sub> pale, inconspicuous; abdomen yellow to brownish yellow, hypopygium darker brown; male hypopygium with tergite unusually small; ventral dististyle large, the two strong spines placed on the style without a developed rostral prolongation; gonapophysis with mesal-apical lobe stout, apex obtuse.

*Male*. — Length about 8-9 mm.; wing 9-12 mm. *Female*. — Length about 9-11 mm.; wing 10-12 mm. Rostrum and palpi dark brown. Antennae with scape brownish black, pedicel and flagellum chiefly yellowed to pale brown. Head dark brown.



FIGURES 15-20. — 15. *Atarba (Ischnothrix) subaequalis* sp.n., venation. 16. *Hexatoma (Eriocera) candidipes* Alexander, venation. 17. *Hexatoma (Eriocera) subcandidipes* sp.n., venation. 18. *Atarba (Ischnothrix) subaequalis* sp.n., male hypopygium. 19. *Atarba (Atarba) margarita* sp.n., male hypopygium. 20. *Limnophila micromera* sp.n., male hypopygium. Male hypopygium: *a*, aedeagus; *b*, basistyle; *g*, gonapophysis; *id*, inner dististyle; *od*, outer dististyle; *pr*, proctiger; *t*, 9th tergite.

Pronotum and praescutum yellowish brown; scutum and scutellum brown laterally, with a continuous whitened central line; postnotal mediotergite dark brown, the sides and the pleurotergite paler brownish yellow, the latter on sides restrictedly dark brown. Pleura yellowed, with a conspicuous dark brown vertical stripe extending from the border of praescutum across the pteropleurite and meron; posterior sclerites and base of the halteres with a light greenish tinge. Halteres yellow. Legs with coxae yellow, in cases the posterior pair tinged with green; trochanters yellow; femora yellow with two narrow brown rings on outer third, the darkenings narrower than the separating yellow area, apex broadly yellow; tibiae and tarsi yellow, outer tarsal segments dark brown. Wings chiefly light yellow with a conspicuous pale brown pattern, the areas chiefly narrow transverse bands, especially in the outer and both anal cells; cells *R*, *M* and the outer radial field with the darkened pattern smaller, less extensive than the pale ground; veins yellow, only slightly darker in the infuscated areas. Venation: Supernumerary crossvein in cell *R*, pale and delicate, inconspicuous, placed at near two-thirds the length of cell; cell *1st M*, subequal in length to outer section of vein *M*<sub>1+2</sub>.

Abdomen obscure yellow to brownish yellow, hypopygium darker brown, with greenish tinges. Male hypopygium (Fig. 6) with the tergite, *t*, small, its area about one-fifth that of the ventral dististyle, as shown; posterior border deeply emarginate, margins more thickened, provided with sparse medium length setae. Dorsal dististyle a strongly curved sickle, the outer fourth narrowed into a long spine. Ventral dististyle, *vd*, large and fleshy, with long scattered delicate setae, those of the inner face above the rostral prolongation shorter and stouter, erect; rostral prolongation virtually lacking, the two long spines arising from small basal tubercles on the face of the style. Aedeagus, *a*, long, apex slightly bent. Gonapophysis, *g*, broadly flattened, mesal-apical lobe stout, the obtuse apex slightly dilated.

*Holotype*. — ♂, Chuspipata, Yungas La Paz, Cochabamba, Bolivia, 3000 meters, January 5, 1976 (Peña). Allotopotype, ♀, pinned with type. Paratopotypes, 25 ♂ ♀, with the types, January 1-5, 1976. Paratypes, 20 ♂ ♀, 3100 meters, January 20, 1976 (Peña); ♂ ♀, 50 km west of Quito, Santo Domingo Road, Ecuador, 2400 meters, February 24-25, 1965 (Peña).

This attractive fly is most readily distinguished from the other regional members of the subgenus by the colorational pattern of the legs, especially the two widely separated darkened rings on the femora. The details of hypopygial structure, especially the ninth tergite and the ventral dististyle, provide further characters. Other such regional allies include *Limonia* (*Neolimnobia*) *excelsior* Alexander, Peru; *L. (N.) muscosa* (Enderlein), Ecuador, and *L. (N.) pugilis* Alexander, Ecuador.

***Limonia (Neolimonia) precipua* sp.n.**

General coloration of thoracic dorsum polished light brown, pleura obscure yellow; femora yellow, tibiae black, tarsi yellowish brown; wings light brown with a restricted darker brown and yellow pattern; male hypopygium with the ninth tergite distinctive, as described.

*Male*. — Length about 10 mm.; wing 10 mm. Head broken. Pronotum and praescutum almost uniformly polished light brown, without pattern; posterior sclerites of notum brown, dusted with a light pruinosity. Pleura obscure yellow, weakly more darkened dorsally. Halteres with stem yellow, knob brownish black. Legs with coxae and trochanters yellow; femora obscure yellow, with dense small black setae to slightly darken the ground color, tips narrowly more darkened; tibiae black; tarsi paler yellowish brown, comb of the tarsal claw conspicuous, the outer spine long and slender. Wings light brown, with conspicuous dark brown areas at origin of *Rs*, tip of *Sc*, fork of *Rs* and the stigma, with further narrow dark seams on cord, outer end of cell *1st M*<sub>2</sub>, and as small spots at ends of veins *R*<sub>1</sub>, *R*<sub>4+5</sub>, and medial branches; paler brown areas include cells *R*<sub>2</sub> and *R*<sub>3</sub>, with small darker spots at ends of the outer branches; conspicuous light yellow areas in the outer costal region, especially before the origin of *Rs*; anterior costal and the radial cells before the stigma and at the outer end of the stigma; more obscure yellow areas in cells *R*<sub>1</sub>, *1st M*<sub>2</sub> and in the base of *2nd M*<sub>2</sub>; veins brown, paler in the light colored areas. Stigma and the longitudinal veins beyond cord with conspicuous trichia; more sparse trichia in the outer sixth of vein *2nd A*. Venation as in the subgenus.

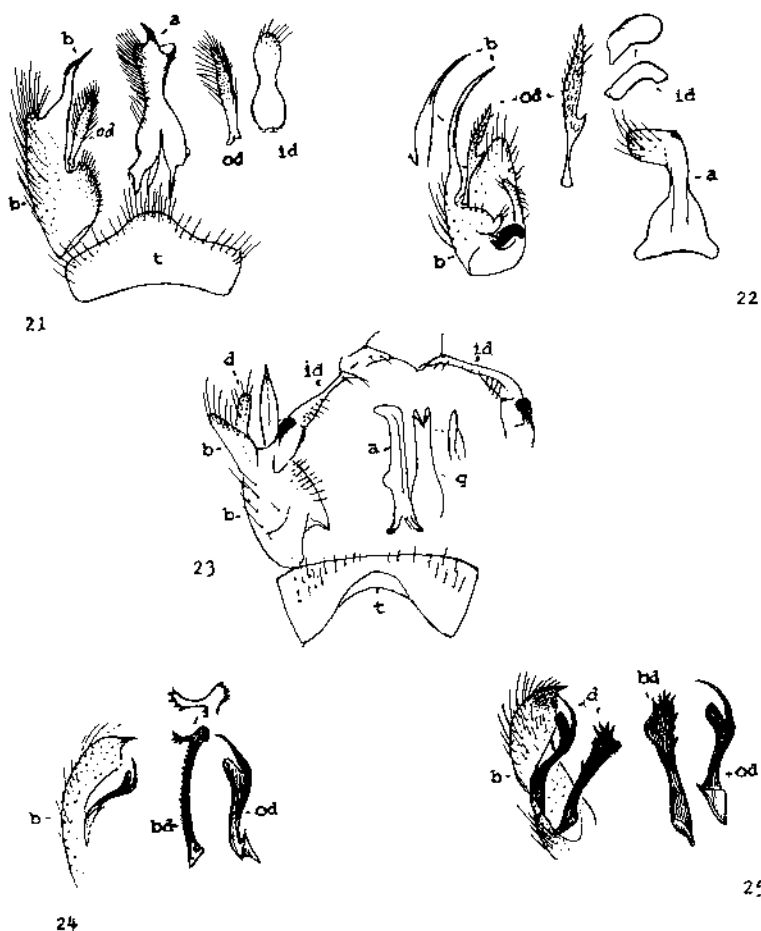
Abdominal tergites dark brown; basal sternites bicolored, light yellow, with the bases narrowly dark brown; outer segments more uniformly darkened. Male hypopygium (Fig. 7) with the tergite, *t*, distinctive, as shown; anterior border strongly convex, lobes of posterior portion conspicuous, broadly obtuse. Ventral dististyle, *vd*, distinctive; small, conspicuously divided into two portions, the outer lobe slightly larger than the subcircular flattened rostral part, the latter with the two spines near the center of the disk. Aedeagus, *a*, large and powerful, appearing as a flattened, parallel-sided rod, the apex rounded, slightly darkened, the internal tubes distinctive.

*Holotype*. — ♂, Otavelo-Apuela, Ecuador, 2200 meters, September 8-9, 1977 (Peña).

The most similar species are *Limonia (Neolimonia) dicax* Alexander, Peru, *L. (N.) hesione* Alexander, Peru, and *L. (N.) lawlori* Alexander, Ecuador, especially the last. All of these species are most readily told by the body and wing coloration and in the details of hypopygial structure, where this is known.

***Limonia (Neolimonia) sublustralis* sp.n.**

Mesonotum brownish yellow, postnotum and pleura yellow; antennae with terminal segment long, constricted beyond midlength; wings brownish yellow, clearer



FIGURES 21-25. — 21. *Teucholabis (Teucholabis) holomelania* sp.n., male hypopygium. 22. *Teucholabis (Teucholabis) insolita* sp.n., male hypopygium. 23. *Gonomyia (Lipophleps) complicata* sp.n., male hypopygium. 24. *Molophilus (Molophilus) inusitatus* sp.n., male hypopygium; 25. *Molophilus (Molophilus) parviclavus* sp.n., male hypopygium. Male hypopygium: a, aedeagus; b, basistyle; bd, basal dististyle; d, dististyle; g, gonapophysis; id, inner dististyle; od, outer dististyle; t, 9th tergite.

yellow before and beyond the stigma and at origin of *Rs*, patterned with dark brown at stigma, cord and outer end of cell *1st M*<sub>2</sub>; male hypopygium with basistyle about one-half larger than the ventral dististyle; aedeagus stout, apex trilobed.

*Male*. — Length about 9 mm.; wing 10.6 mm.; antenna about 2 mm. Rostrum and palpi dark brown. Antenna (Fig. 10) with scape and pedicel dark brown, flagellum paler brown; proximal flagellar segments oval, progressively more elongate outwardly; terminal segment long, nearly equal in length to the two preceding segments combined, constricted beyond midlength (subfigure 12). Head dark brown.

Pronotum brown, more yellowed laterally. Mesonotal praescutum polished brownish yellow, scutum and scutellum slightly darker, postnotum yellowed, pleurotergite slightly darker. Pleura yellow, metapleural region darkened. Halteres brownish black, base of stem narrowly yellow. Legs with coxae and trochanters light yellow; femora light brown, narrowly yellowed basally, subterminally more darkened to form an indistinct ring; tibiae and tarsi dark brown; claw long and slender, nearly straight, at near midlength with a long subappressed spine, with several progressively smaller more basal ones. Wings brownish yellow, clearer yellow before and beyond the stigma and at origin of *Rs*; prearcular and costal regions very slightly more saturated; darker brown spots include the stigma with smaller areas at origin of *Rs*, fork of *Sc*, cord and outer end of cell *1st M*<sub>2</sub>; outer radial cells slightly infuscated; very indistinct darkened marginal spots on veins beyond the cord; veins light brown, darker in the patterned areas. Venation: *Sc*<sub>1</sub> opposite two-thirds the length of *Rs*, *Sc*<sub>2</sub> near its end; *Rs* long, more than three times *R*<sub>1+2</sub>; *m* short and straight, less than one-third the basal section of *M*<sub>1</sub>; *m-cu* about one-fifth its length before the fork of *M*.

Basal abdominal tergites brownish yellow, the sides brownish black, succeeding tergites brownish black with narrowly yellowed bases; basal sternites yellowed, their sides and posterior borders darkened; hypopygium with basistyle dark brown, the remainder yellowed. Male hypopygium (Fig. 8) with the tergite, *t*, transverse, posterior border with the lobes low, with relatively sparse long setae. Basistyle, *b*, in area subequal to or slightly exceeding the tergite or about one-half larger than the ventral dististyle, ventromesal lobe large, with a small subterminal lobule. Dorsal dististyle, with outer third gently curved, terminating in an acute point; ventral dististyle, *vd*, about three-fourths the size of the basistyle, with two small spines; lower inner face of style with two unusually strong setae, as is common in this subgenus.

*Holotype*. — ♂, South Cuenca, Cordillera Tinajillas, Azuay, Ecuador, 3100 meters, March 18-19, 1965 (Peña).

Other generally similar regional species include *Limonia* (*Neolimonia*) *arrogantia* Alexander, *L. (N.) dicax* Alexander, *L. (N.) hesione* Alexander, and *L. (N.) lustralis* Alexander, all from Peru, *L. (N.) pastazicola* Alexander, Ecuador, and *L. (N.) sanctae martae* Alexander, Colombia, all differing among themselves in details of body and wing coloration and in hypopygial structure.

***Limonia (Peripheroptera) fuscoanalis* sp.n.**

Head polished black; mesonotal praescutum reddish with three more extensive confluent polished black stripes, dorsal segments posterior to the suture reddish, scutal lobes narrowly blackened anteriorly; pleura reddish, more blackened dorsally and on ventral sternopleurite; halteres black; legs with femora light brown, tips narrowly more blackened; wings light yellow, including the disk and costal margin, patterned with dark brown at cord, outer end of cell *1st M*<sub>2</sub> and the bases of cells *R* and *M*, wing apex more weakly darkened; outer end of cell *2nd A* and the adjoining *1st A* conspicuously darkened; cell *2nd A* broad, wider than cell *1st A* at this point; abdomen uniformly black.

*Female*. — Length about 8 mm.; wing 8.5 mm. Rostrum and palpi black. Antennae black; flagellar segments subglobular, the outer ones very slightly more oval; terminal segment longer, about one-half more than the penultimate. Head polished black.

Pronotum black. Mesonotal praescutum with the polished ground reddish, with three more extensive confluent polished black stripes; dorsal segments posterior to the suture reddish; scutal lobes narrowly blackened anteriorly. Pleura chiefly reddish, ventral sternopleurite and the dorsopleural membrane more blackened. Halteres short, darkened, knob black. Legs with coxae and trochanters black; femora light brown, tips narrowly more blackened; tibiae brown, tips narrowly blackened; tarsi black. Wings with ground color extensively light yellow, including the disk and costal areas, distal half of outer cells pale brown; darker brown areas at arculus, outer end of cell *1st M*<sub>2</sub> and along the cord, the last narrowed posteriorly, central area of the stigma paler; cell *2nd A* and adjoining part of *1st A* conspicuously darkened on more than the outer half; veins yellow, slightly darker in the more infuscated areas. Venation: *Sc* short, the long *Sc*<sub>1</sub> ending opposite the origin of the short *Rs*, the latter about one-half longer than the basal section of *R*<sub>4+5</sub>; cell *2nd A* unusually broad for a member of the subgenus, wider than cell *1st A* at this point.

Abdomen uniformly black.

*Holotype*. — ♀, Sebundoi, Ecuador, 2600 meters, September 11-15, 1977 (Peña).

The most similar species are *Limonia (Peripheroptera) peramoena* Alexander, Ecuador, and *L. (P.) subamoena* Alexander, Bolivia, Peru, differing evidently in body coloration and in the pattern and venation of the wings. The unusually wide infuscated cell *2nd A* is noteworthy.

***Limonia (Rhipidia) atopolobos* sp.n.**

General coloration of thorax orange, pleura obscure yellow, with a narrow longitudinal brownish black stripe; antennae of male long-biflabellate, including ten flagellar segments; legs brownish yellow; wings pale yellow with a restricted light brown pattern involving the costal third and along the cord; abdomen with intermediate tergites yellow, apices narrowly brown; male hypopygium with ven-

tromesal lobe of basistyle distinctive in conformation.

*Male*. — Length about 6 mm.; wing 6.8 mm.; antenna about 3.8 mm. Rostrum and palpi black. Antennae (Fig. 9) conspicuously bicolored, bases and flagellar branches black, outer ends of stems white; first flagellar segment simply enlarged at base; segments 4 to 13 long-biflabellate, terminal segment very long and slender; flagellar branches of proximal two segments slightly unequal in length, the remaining segments with branches subequal, becoming progressively shorter on outer segments (proximal six segments in figure). Head dark gray.

Pronotum orange yellow above, darker laterally. Mesonotal praescutum dull orange with vaguely indicated darker lateral stripes; scutal lobes brown, central area and the scutellum brownish yellow; postnotal mediotergite light brown, pleurotergites more yellowed. Pleura obscure yellow with a conspicuous narrow brownish black longitudinal stripe extending from the propleura over the ventral anepisternum and pteropleurite, sternum orange yellow. Halteres with stem yellow, apices of knobs weakly darkened. Legs with coxae orange; trochanters yellow; remainder of legs brownish yellow, outer tarsal segments light brown. Wings with ground pale yellow, posterior cells of basal half and centers of outer radial cells pale brown; five large darker brown areas in costal region, the last being the stigma, the darkenings being slightly more extensive than the interspaces; cord and outer end of cell 1st  $M_1$  with similar smaller areas; veins pale brown in the ground, darker in the patterned areas. Longitudinal veins beyond general level of origin of  $R_s$  with conspicuous trichia, fewer on outer end of 2nd  $A$ . Venation:  $Sc_1$  ending opposite two-thirds  $R_s$ ,  $Sc_2$  longer, near its tip; free tip of  $Sc_2$  and  $R_1$  pale, in nearly transverse alignment; cell 1st  $M_1$  subequal in length to 2nd  $M_1$ ;  $m-cu$  at fork of  $M$ .

Abdomen with proximal eight tergites conspicuously bicolored, bases broadly yellow, apices more narrowly brown, outer segments more uniformly darkened; basal sternites yellow, apices more narrowly darkened, outer segments uniformly brown. Male hypopygium (Fig. 9) distinctive. Ninth tergite,  $t$ , large, its area nearly three times the ventral dististyle; transversely suboval, posterior border slightly convex, with sparse short setae, as shown. Basistyle,  $b$ , with ventromesal lobe distinctive, dark brown, contrasting with the yellow styles, general conformation as shown in the figures; elongate subcylindrical, terminating in a small oval cap with an intricate pattern of delicate parallel lines and short setae; mesal face of lobe with a short lobule tipped with sparse long yellow setae. Dorsal dististyle long, very slender; ventral style,  $vd$ , with rostral prolongation long and narrow, at near two-thirds the length with two long straight spines that are directed basad. Phallosome with gonapophyses,  $g$ , having the acute tips blackened. Aedeagus,  $a$ , with apical lobes very short, appressed, apices truncated.

*Holotype*. — ♂, Reventador, East Ecuador, 1750 meters, October 3-6, 1977 (Peña).

The present fly is quite distinct in hypopygial characters, especially the unique conformation of the ventromesal lobe of the basistyle. The most similar species is *Limonia (Rhipidia) flabelliformis* Alexander, Panama to Peru and Bolivia, which has



the wing pattern and structure of the male antennae much the same, differing in hypopygial characters, including the ninth tergite and especially the lobe of the basistyle, as described and figured.

***Limonia (Rhipidia) curtiramosa* sp.n.**

Male with antennae short-biflabellate, as shown; six intermediate flagellar segments with two short branches, the longest subequal to the stem of the segment; middle legs with femora light yellow, tips conspicuously brownish black, posterior legs with femora yellow, tips pale brown; wings yellowish white with a sparse darkened pattern, as described; abdomen chiefly yellowed, subterminal segments patterned with pale brown; male hypopygium with ventral dististyle with two short rostral spines.

*Male*. — Length about 6.0 mm.; wing 8 mm.; antenna about 2 mm.

Head dark brown, including the dark brown palpi, terminal segment slender, longer than the penultimate. Antennae (Fig. 11) dark brown, the narrowed apices of the flagellar segments whitened; second flagellar segment with a single flattened appendage, segments three to eight each with two short branches, the longest subequal to the stems, the branches slightly unequal, the longer one more dilated on outer ends; eighth segment with branches very reduced, the inner a small knob; segments nine and ten each with a single short lobe; subterminal segment only slightly dilated; terminal segment more dilated on basal three-fourths, apex narrowed.

Middle legs with femora light yellow, tips conspicuously brownish black; tibiae brownish black, tarsi paler brown, outer segments more blackened. Posterior legs with femora yellow, tips slightly pale brown; tibiae light brown, extreme apex darkened; tarsi brownish yellow, outer segments black. Wings pale yellowish white with a sparse darkened pattern; cells *C* and *Sc* with four large pale brown areas, more extensive than the ground areas; stigma yellow, encircled by brown; narrow dark brown seams over *Rs*, cord and outer ends of radial cells; very pale brown washes in centers of outer radial cells, more extensive and evident in cells *R*, *M* and bases of the Anal cells; veins light brown, darker brown in the patterned areas. Venation: *Sc*<sub>1</sub> ending opposite midlength of *Rs*, *Sc*<sub>2</sub> shortly removed; *m-cu* about two-thirds its length before fork of *M*.

Abdomen chiefly yellowed, subterminal segments patterned with pale brown. Male hypopygium (Fig. 13) with the tergite, *t*, transverse, posterior border very slightly emarginate medially. Basistyle, *b*, small, its area about one-third the ventral dististyle; ventromesal lobe oval, setae relatively short, the longest about one-half the lobe. Dorsal dististyle slightly dilated on outer third, apical spine long; ventral style, *vd*, with rostral prolongation flattened, the two short spines on the disk beyond midlength. Gonapophysis, *g*, with mesal-apical lobe terminating in a short black spine. Aedeagus, *a*, with terminal lobes short, slender.

*Holotype*. — ♂, on slide, Cochabamba, Unduavi-Corioco, Yungas La Paz, Bolivia, 3000 meters, January 1-3, 1976 (Peña).

The present fly is most readily distinguished by the antennal

structure, including the unusually short flagellar branches, together with the hypopygial structure. The more similar species include *Limonia (Rhipidia) proseni* Alexander, Bolivia; *L. (R.) surinamica* Alexander, Surinam; *L. (R.) sycophanta* Alexander, Ecuador, and *L. (R.) uxor* Alexander, Peru, all differing in the details of coloration of the body, legs and wings, and especially in the structure of the antennae and male hypopygium.

### ***Limonia (Rhipidia) cymula* sp.n.**

Size small (wing, male, 5.5 mm.); antennae with nine two-branched flagellar segments; general coloration of thoracic dorsum brownish orange, pleura yellowed, with a blackened longitudinal stripe; legs brownish black; wings almost uniformly light brown, without pattern; male hypopygium with spines of the ventral dististyle small, closely approximated; proctiger large and complex in structure.

*Male.* — Length about 7 mm.; wing 5.5 mm.; antenna about 2.3 mm. Rostrum moderately long, black; palpi black. Antennae (Fig. 12) blackish throughout; scape and pedicel small; first flagellar segment slightly produced, segments two to eight each with two moderately long branches, as shown; segments nine and ten each with a single branch, segments eleven and twelve simple, the last long; all flagellar segments with very long basal verticils, as shown. Head black.

Prothorax blackened. Mesonotum uniformly obscure brownish orange with vague indications of a darker pattern, most evident on the scutum and postnotum. Pleura narrowly obscure yellow above, brighter on the pleurotergite, sternum light yellow, intermediate region of pleura with a conspicuous narrow blackened longitudinal stripe extending from the pronotum to abdomen. Halteres darkened, including the stems. Legs with coxae and trochanters clear light yellow; remainder of legs brownish black; claw with a single powerful spine at near one-third the length, with two or three very small more basal points. Wings almost uniformly light brown, stigmal area slightly more darkened; veins dark brown; longitudinal veins beyond general level of origin of *Rs* with long trichia; vein *1st A* with two trichia near outer end, *2nd A* with scattered trichia on about the outer two-thirds. Venation: *Sc* ending shortly before midlength of *Rs*, *Sc*<sub>1</sub> near its tip; basal section of *R*<sub>4+5</sub> gently arcuated; cell *1st M*<sub>2</sub> nearly as long as vein *M*<sub>2</sub>; *m-cu* shortly before the fork of *M*.

Abdominal segments obscure yellow, bases and apices narrowly very pale brown; eighth and ninth segments dark brown. Male hypopygium (Fig. 14) about as shown. Basistyle, *b*, and its ventromesal lobe large, exceeding in size the ventral dististyle. Ninth tergite, *t*, smaller than the basistyle. Dorsal dististyle, a long slender gently curved blackened rod; ventral dististyle, *vd*, oval, produced into a relatively small slender rostrum, bearing two strong setae at apex; spines two, small, closely approximated, placed near base. Proctiger, *pr*, large and complicated in structure, approximately as figured, in area slightly exceeding the basistyle and its inner lobe.

*Holotype*. —  $\sigma$ , Reventador, East Ecuador, 1750 meters, October 3-5, 1977 (Peña).

This species is one of several Neotropical members of the subgenus where the male hypopygium has a complicated procitigeral scaffolding, as described and figured. Other regional species having a comparable structure and unpatterned wings as in the present fly include *Limonia* (*Rhipidia*) *eremnoptera* Alexander, Peru, and *L. (R.) illuminata* Alexander, Peru, both differing in details of structure of the antennae and the male hypopygium.

## HEXATOMINI

### **Epiphragma (Epiphragma) lipophleps sp.n.**

General coloration of thorax brownish yellow, praescutum with three brown stripes, pleura with a dark brown longitudinal stripe; antennae brown throughout; halteres yellow, knob weakly darkened; legs with coxae and trochanters yellow, remainder of segments light brown; wings pale yellow with an abundant spotted pattern in all cells, the markings chiefly rounded or oval spots subequal in area to the ground interspaces; no supernumerary crossvein in cell C; abdomen dark brown, posterior borders of basal tergites slightly paler.

*Female*. — Length about 12 mm.; wing 11.5 mm.; antenna about 3 mm. Rostrum dark brown; palpi black. Antennae with scape and pedicel dark brown, flagellum light brown, the segments progressively more lengthened outwardly. Head dark gray.

Pronotum light brown. Mesonotal praescutum brownish yellow with three conspicuous brown stripes, scutum clearer yellow, each lobe with two brown areas; scutellum and postnotum yellowed, gray pruinose. Pleura brownish yellow, conspicuously patterned with dark brown, including a complete dorsal stripe extending from the propleura to the postnotum, gradually widened behind; ventral sternopleurite and meron paler brown. Halteres elongate, yellow, knob weakly more darkened. Legs with fore coxae pale brown, remaining coxae and all trochanters yellowed; remainder of legs light brown. Wings pale yellow, with an abundant darker spotted pattern in all cells; cell C with about ten larger and slightly darker areas, the last being the small stigma; slightly larger brown areas at origin of  $R_s$ , over the anterior cord and at tips of outer radial veins; remaining cells with relatively sparse larger rounded or oval spots, subequal in area to the pale ground; veins brown. Longitudinal veins with abundant long trichia, more sparse or lacking on the basal veins. Venation: No supernumerary crossvein in cell C as occurs in other species;  $R_{3+4}$  about twice the basal section of  $R_s$ ; petiole of cell  $M_1$  about twice  $m$ ;  $m-cu$  just before midlength of cell 1st  $M_2$ .

Abdomen dark brown, posterior borders of more basal tergites glabrous and slightly paler.

*Holotype*. — ♀, Junction of Coca and Napo Rivers, Ecuador, May 27, 1965 (Peña).

The present fly differs from other known regional species in the loss of the supernumerary crossvein in cell *C* and from the great majority of other Neotropical species in the nature of the wing pattern. Other such species that have the wings with brown spots or dots include *Epiphragma* (*Epiphragma*) *aspersa* (Wiedemann), Brasil, Guyana; *E. (E.) mephistophelica* Alexander, Venezuela; *E. (E.) muscicola* Alexander, Peru; *E. (E.) nephele* Alexander, Peru, and *E. (E.) sappho* Alexander, Peru, all with the darkened wing spots much smaller and more abundant than in the present fly.

### ***Polymera (Polymera) niveipes* sp.n.**

Size very small (wing of ♂ 3.5 mm.); general coloration of body dark brown to brownish black; antenna of male longer than wing; legs with tarsi snowy white; wings strongly darkened, unpatterned;  $R_{2+3+4}$  short, about two and one-half times the basal section of  $R_1$ ; cell  $M_1$  present.

*Male*. — Length about 3 mm.; wing 3.5 mm.; antenna about 4.2 mm. Rostrum and palpi black. Antennae black, scape and pedicel slightly paler; elongate, as shown by the measurements; flagellar segments only slightly constricted at midlength, the binodose appearance of the segment inconspicuous; proximal segments with long erect very slender delicate setae, the longest subequal in length to the segment; outer segments with vestiture much shortened, appearing as normal small setae. Head brownish black.

Thorax uniformly brownish black. Halteres strongly darkened. Legs with coxae and trochanters brownish black; femora brownish black, tibiae paler, their outer ends more whitened; tarsi snowy white; only the posterior legs are present and the condition in the other legs may differ. Wings strongly darkened throughout, unpatterned; veins darker. Venation:  $Sc$  ending nearly opposite fork of  $R_s$ ,  $Sc_1$  terminal, slightly exceeding the outer section of  $Sc_2$ ;  $R_{2+3+4}$  short, about two and one-half times the basal section of  $R_1$ ; cell  $M_1$  present; cell  $2nd\ A$  long.

Abdomen dark brown.

*Holotype*, ♂, Reventador, East Ecuador, 1750 meters, October 3-5, 1977 (Peña).

The present fly is readily told from other very small members of the genus by the strongly darkened wings and the whitened tarsi. Other species of somewhat comparable small size include *Polymera* (*Polymera*) *conjunctoides* Alexander, Peru; *P. (P.) evanescens* Alexander, Brasil; *P. (P.) minutior* Alexander, Ecuador; *P. (P.) minutissima* Alexander, and *P. (P.) tasioceroides* Alexander,

Brasil, differing in the wing and leg coloration and, in most species, in the venational details. The smallest of the above listed species is *minutissima* where the wing of the type specimen is slightly less than 3 mm. in length.

***Atarba (Ischnothrix) subaequalis* sp.n.**

General coloration of head and thorax brown, thoracic pleura yellowed on ventral half; antenna of male elongate, shorter than the wing; legs with coxae and trochanters yellow, remaining segments brown, darker outwardly; wings uniformly tinged with pale brown, stigma darker; *Rs* long, subequal in length to veins  $R_{1+2+3+4}$  and  $R_{3+4}$ ; veins  $R_1$  and  $R_2$  long, subequal, nearly as long as *Rs*; cell  $R_2$  at margin longer than cell  $R_1$ ; male hypopygium with posterior border of tergite produced into two divergent spines; outer dististyle with apex dilated, terminal spine strongly bent before tip; aedeagus long and sinuous.

*Male*. — Length about 5.5 mm.; wing 6.5 mm.; antenna about 5.2 mm. Palpi black. Antenna slightly shorter than the wing; scape and pedicel light yellow, flagellum black; flagellar segments long-cylindrical; vestiture abundant, long, erect. Head brown; anterior vertex broad.

Pronotum light brown. Mesonotal praescutum uniformly brown, with very delicate setulae over the entire surface; posterior sclerites of notum darker brown, sparsely pruinose. Dorsal pleura brown, ventral half yellowed. Halteres brownish yellow, knobs slightly darker. Legs and trochanters yellow; femora light brown; tibiae and tarsi dark brown to black. Wings (Fig. 15) uniformly tinged with pale brown, stigma slightly darker; veins brown. Longitudinal veins with long trichia, lacking on basal half of *M*. Venation: *Sc* long, *Sc*<sub>1</sub> ending about opposite one-third *Rs*, *Sc*<sub>2</sub> slightly removed; *Rs* long, subequal to  $R_{1+2+3+4}$  or  $R_1$ ;  $R_1$  and  $R_2$  long, virtually parallel to one another except near outer ends; cell  $R_2$  at margin about one-half longer than  $R_1$ .

Abdominal segments dark brown, paler at the incisures; subterminal segments uniformly dark brown; hypopygium with the basistyle paler than the tergite. Male hypopygium (Fig. 18) with the tergite, *t*, having the posterior border with two broad-based divergent lobes, the outer third narrowed into long glabrous blackened spines. Outer dististyle, *od*, with outer end dilated, black, with about six spines, the more basal ones very small, the outer three progressively larger, subappressed, terminal spine strongly bent at apex; inner style, *id*, elongate, glabrous, very slightly curved to the obtuse tip. Aedeagus, *a*, long and sinuous. Gonapophyses, *g*, small, unequally bilobed, apices rounded.

*Holotype*, ♂, Sebundoi, Ecuador, 2600 meters, September 11-15, 1977 (Peña).

The present species is most similar to *Atarba (Ischnothrix) brevisetosa* Alexander, Bolivia; *A. (I.) integriloba* Alexander, Peru; *A. (I.) voracis* Alexander, Peru, and some others, differing

from all in the venation of the outer radial field of the wing, including the relative proportions of the included veins, especially vein  $R_3$ , as shown, and also in hypopygial structure, including the tergite and dististyles.

**Atarba (Atarba) margarita sp.n.**

Entire body polished black; legs with femora yellow, tips abruptly black; wings light yellow, conspicuously patterned with brown, including the stigma and a confluent band over the cord, with smaller darkenings at origin of  $R_s$  and paler areas at wing tip and in cell  $M$ .

*Male*. — Length about 6 mm.; wing 5 mm.; antenna about 3 mm. Rostrum polished black; palpi black. Antennae black throughout, elongate, as shown by the measurements; flagellar segments cylindrical, the abundant vestiture very short and inconspicuous, on the proximal three segments longer on the lower surface, outer six segments with verticils lacking. Head polished black.

Thorax entirely polished black. Halteres short, brownish black, base of stem slightly paler. Legs with coxae polished black; trochanters yellow; fore legs lacking; middle legs with femora yellow, tips black, with a paler darkened ring at midlength; tibiae yellow, base and tip narrowly black, tarsi black; posterior femora light yellow, tip abruptly black; tibiae yellow, base and apex narrowly black; proximal part of basitarsus obscure yellow, remainder of tarsi black. Wings light yellow, conspicuously patterned with brown, including areas at origin of  $R_s$ , stigma, and a confluent narrower band over the cord extending to the posterior border; outer end of cell  $1st\ M$ , narrowly brown; a large paler brown area at midlength of cell  $M$ ; wing apex narrowly light brown, extending from vein  $R_3$  into cell  $M$ ; veins yellow in the ground, darker in the patterned areas.  $R_s$  and  $M$  without trichia except at extreme outer ends; longitudinal veins beyond cord with trichia, including also the outer halves of  $Cu$  and  $2nd\ A$ , vein  $1st\ A$  glabrous. Venation:  $Sc$ , ending opposite origin of  $R_s$ ,  $Sc$ , near its tip; cell  $R$ , at margin slightly more extensive than cell  $R_1$ ; cell  $1st\ M$ , small,  $m$  short and straight;  $m-cu$  shortly beyond cord.

Abdomen entirely polished black. Male hypopygium (Fig. 19) with the median apical blade of tergite,  $t$ , broad, outer lateral angles pointed. Basistyle,  $b$ , blackened, with a small subterminal lobule on mesal face before apex; abundant very long setae on outer face of style, longest at apex; mesal face of basal half of style with still longer setae. Outer dististyle,  $od$ , blackened, gently curved and narrowed to the acute apex; outer margin near tip with a series of five longer subappressed spines, with further microscopic more basal points. Inner dististyle,  $id$ , subequal in length, slender and gently curved, with scattered very delicate setulae. Phallosome and proctiger,  $pr$ , a short massive blackened structure; aedeagus  $a$ , yellow, elongate, narrowed very gradually to the obtuse apex, the upper margin sinuous.

*Holotype*, ♂, Loja-Zamora, Ecuador, 2800 meters, October 6-28, 1977 (Peña).

This very distinct fly is dedicated to my dear wife and co-worker

on the Tipulidae, Mabel Marguerite, using the middle name *margarita* as has been done in many other species of crane-flies from all regions of the world. In the present fly the coloration of the body and wings is very striking and unique among the many Neotropical members of the genus.

### ***Limnophila micromera* sp.n.**

General coloration of body dark brown to black, the mesonotal praescutum with a brownish yellow pattern; knobs of halteres obscure yellow; legs black, the femoral bases brown; wings yellow with a conspicuous dark brown pattern of small and larger spots, in amount subequal to the ground pattern; *Rs* in direct alignment with *R*<sub>1+2+3</sub>; cell *M*<sub>1</sub> present; *m-cu* near midlength of cell 1st *M*<sub>1</sub>; male hypopygium with both dististyles setulose; gonapophyses very small, with a strong apical spine; aedeagus very short, nearly straight.

*Male*. — Length about 8-9.5 mm.; wing 8-10 mm.; antenna about 1.3-1.4 mm. Rostrum black, slightly pollinose; palpi black. Antennae small, black; basal flagellar segments oval, progressively smaller and more lengthened outwardly; lower face with abundant yellow erect setulae, upper face with single long verticils, progressively smaller on outer segments. Head black, heavily golden yellow pollinose, variegated by blackened areas, more extensive posteriorly; anterior vertex broad.

Pronotum brownish black. Mesonotal praescutum black, including a conspicuous median stripe, lateral areas with a brownish yellow pollen, the usual lateral stripes obsolete or nearly so; posterior sclerites of notum black, pollinose, scutal lobes clearer black. Pleura black, very sparsely pollinose. Halteres with stem light brown, knob obscure yellow. Legs with coxae brownish black, trochanters more obscure yellow; femora light brown basally, narrower on fore legs, passing into black; tibiae and tarsi black; claws yellowed, long and slender, basally gently curved. Wings yellow, more intense in the costal and subcostal fields, with a very conspicuous brown pattern, the light and darker areas subequal in size; larger marks at origin of *Rs*, in stigmal area and the fork of *Rs*; all other cells with brown markings, in cell *M* including seven areas; beyond the cord the dark pattern is more crowded, in cells *R*<sub>1</sub>, *R*<sub>2</sub>, and outer medial the ground areas more reduced; basal half of cell 2nd *A* with three brown clouds, the remainder chiefly yellow; veins brown. Longitudinal veins behind *R* virtually without trichia; *R*<sub>1</sub> with a series of short trichia over the entire length. Venation: *Rs* long, in direct alignment with *R*<sub>1+2+3</sub>; cell *M*<sub>1</sub> variable in size, in cases nearly as long as its petiole, shorter in the holotype; *m-cu* at or slightly before midlength of cell 1st *M*<sub>1</sub>; vein 2nd *A* long.

Abdominal tergites dark brown, basal sternites paler brown. Male hypopygium (Fig. 20) having the ninth tergite, *t*, with a small V-shaped median emargination. Outer dististyle, *od*, terminating in a strong gently curved black spine; surface of style with numerous long delicate setae. Inner dististyle, *id*, very short, its outer end a small knob; upper surface pale and membranous, with about five strong setae, the outermost longest. Proctiger, *pr*, with aedeagus, *a*, very short, nearly straight to scarcely sigmoid; apophyses, *g*, very small, short, inner apical angle produced into a

strong curved spine.

*Holotype*, ♂, Sebundoi, Ecuador, 2600 meters, September 11-15, 1977 (Peña). Paratopotypes, 6 ♂♂, one pinned with the holotype.

The present fly is most readily distinguished by the heavy brown pattern of the wings, the other species with abundant dark markings having these darkened areas much smaller. Such species include *Limnophila cancellata* Alexander, Bolivia; *L. dictyoptera* Alexander, Costa Rica to Venezuela; *L. lloydi* Alexander, Colombia; *L. spinulosa* Alexander, Ecuador, Peru, and some others. Various species in the related genus *Shannonomyia*, such as *S. per-reticularis* Alexander and *S. reticularis* Alexander, both from Bolivia, likewise have comparably heavily patterned wings, differing in hypopygial structure, including the more evident sigmoid aedeagus.

### **Hexatoma (Eriocera) subcandidipes sp.n.**

General coloration of thoracic dorsum yellowed, pleura clear light yellow; tarsi with outer segments snowy white, legs with abundant narrow appressed scales among the setae; wings dull white, without markings; *r-m* some distance beyond fork of *Rs*; basal section of *R*, about one-third *r-m*; cell 1st *M*<sub>2</sub> long and narrow, subequal to or exceeding in length all veins beyond it.

*Female*. — Length about 10.5 mm.; wing 11 mm.; antenna about 1.5 mm. Rostrum very short, obscure yellow; palpi black. Antennae 8-segmented; scape and pedicel yellow, flagellum pale brown; flagellar segments long-cylindrical, progressively shorter equal-outwardly, outer two subequal in length. Head above brown with a very delicate darker line; anterior vertex broad; eyes small.

Pronotum and extreme anterior border of praescutum yellow, remainder of mesonotum orange yellow, praescutum with three narrow scarcely darker reddened stripes. Pleura clear light yellow, more obscure dorsally. Halteres elongate, brown. Legs with coxae and trochanters light yellow; femora, tibiae and the broad bases of the first tarsal segments medium brown, outer tarsal segments snowy white, terminal segment vaguely more darkened; claws very small, almost straight; vestiture of legs chiefly abundant long narrow appressed scales, with more sparse longer subappressed setae. Wings (Fig. 17) dull white throughout, without stigma or other darkenings; veins pale brown with abundant long black setae on all longitudinal veins beyond the cord and on outer ends of *Rs*, *M* and *Cu*, lacking on Anal veins except for very sparse scattered trichia over almost the entire length of 1st *A*. Venation: *r-m* some distance beyond the fork of *Rs*, basal section of *R*, about one-third *r-m*; cell 1st *M*<sub>2</sub> long and narrow, exceeding in length all the veins beyond it.



Abdominal tergites medium brown, sternites light yellow. Ovipositor with cerci very slender, gently upcurved.

*Holotype*, ♀, Reventador, East Ecuador, 1750 meters, October 3-5, 1977 (Peña).

The most similar species is *Hexatoma (Eriocera) candidipes* (Alexander), from Venezuela, differing in various characters, especially the venation of the radial and medial fields, as described and figured. For comparison I am providing a drawing of the wing of the holotype of *candidipes* (Fig. 16). Attention is directed to the description of the legs of the present fly concerning the abundant narrow appressed scales on the legs. Similar scales are found in *candidipes* but in the majority of allied species the leg vestiture is comprised only of normal setae.

#### ERIOPTERINI

##### ***Teucholabis (Paratropesa) subchalybeia* sp.n.**

General coloration of body polished black and yellow, as described; legs black and yellow, posterior femora with a narrow brown ring at near one-fourth the length; wings yellow, restrictedly patterned with pale brown; abdominal tergites black, sternites conspicuously bicolored, the segments black anteriorly, orange posteriorly.

*Female*. — Length about 9 mm.; wing 8.5 mm. Front part of head, including the ventral surface and anterior vertex, orange, posterior vertex and occiput black; palpi black. Antennae with scape orange, remaining segments black.

Prothorax light yellow, darkened posteriorly. Mesonotal praescutum polished black, disk of posterior half orange, the color including also the scutum and scutellum; postnotum polished black. Propleura yellow; mesopleura black, narrowly yellowed posteriorly; meral and adjoining sclerites yellow, silvery pruinose above the posterior coxae. Halteres with stem dark brown, knob light yellow. Legs with all coxae and trochanters yellow; fore legs with femora dilated on outer third, this brownish black, basal third yellowed; tibiae light brown, tips narrowly darkened; basitarsi light brown, outer tarsal segments passing into brownish black; middle and posterior legs yellow, the outer four tarsal segments brownish black; posterior femora with a narrow light brown ring at near one-fourth the length. Wings yellow, restrictedly patterned with pale brown, still lighter on outer half of cells beyond the cord and as a darkened seam along vein *Cu*; paler and more diffuse areas across the basal cells from *R* to vein *2nd A* and at outer end of *1st A*; stigma and a contiguous seam on basal section of *R*; darker brown; veins light brown, deeper in the brown areas. Anterior radial veins beyond the cord with trichia, including also *Rs*, the outer medial branches and extensively on outer two-thirds of *2nd A*. Venation as in the subgenus; *R*<sub>2</sub> and the erect basal section of *R*<sub>2</sub> in alignment; fusion of veins *R*<sub>1</sub> and *M*<sub>1+2</sub>, involving over one-half cell *1st M*<sub>2</sub>.

Abdominal tergites black; sternites conspicuously bicolored, black on basal half, orange posteriorly, the amount of the latter gradually decreasing on the outer segments; basal segments of ovipositor polished black. Cerci long and slender, orange.

*Holotype*, ♀, Tulcan-La Alearia, North Ecuador, 2900 meters, September 11, 1977 (Peña).

The most similar species are *Teucholabis (Paratropesa) chalybeia* Alexander, Colombia, and *T. (P.) nigrocoxalis* Alexander, South-eastern Brasil, all differing most evidently in details of body, wing and leg coloration.

***Teucholabis (Teucholabis) holomelania* sp.n.**

Size large (wing of male over 9 mm.); general coloration of entire body polished black; halteres and legs black; wings dark brown, base and costal border still darker brown; male hypopygium with posterior border of tergite with a large lobe; basistyle with apical spine elongate, sinuous, extended into a slender spine; dististyles small; aedeagus large and conspicuous, terminating in a stout spine, the lower margin with abundant long black setae.

*Male*. — Length about 10 mm.; wing 9.3 mm.; antenna about 2 mm. Head and appendages black. Antennae with proximal flagellar segments short-oval, outer segments progressively smaller and more slender; verticils shorter than the segments.

Thorax intense polished black; dorsopleural membrane narrowly yellow. Halteres black. Legs black throughout; posterior basitarsi slightly dilated on proximal two-thirds. Wings strongly dark brown, the base, cells *C* and *Sc*, with the small stigma, still darker brown; wing apex narrowly infuscated; veins black. *Rs* and outer veins beyond the cord with abundant trichia; *1st A* glabrous, *2nd A* with trichia throughout its length. Venation: *Rs* arcuated; *R*<sub>2</sub> and *R*<sub>3</sub> in transverse alignment; cell *1st M*<sub>2</sub> subequal to distal section of vein *M*<sub>1</sub>.

Abdomen black throughout. Male hypopygium (Fig. 21) with ninth tergite, *t*, narrow, posterior border produced into a broad lobe that bears several very long setae. Basistyle, *b*, with apical spine of mesal face long and sinuous, terminating in a slender spine. Outer dististyle, *od*, long and narrow, with numerous very long setae. Inner style, *id*, not clearly apparent on slide, appearing as a stout lobe that is slightly constricted at near midlength. Aedeagus, *a*, very large and conspicuous, nearly as long as the basistyle; black throughout; at near midlength constricted, terminating in a stout spine; lower margin of outer half with abundant long setae.

*Holotype*, ♂, Loja-Zamora, Ecuador, 2500-2800 meters, October 28, 1977 (Peña).

Other somewhat similar regional large species of *Teucholabis* include *cariosa* Alexander, Ecuador; *flavithorax* (Wiedemann), *rubroatra* Alexander, Bolivia and Peru, and some others, all differing in details of size, coloration of the body, legs and wing, and

especially in hypopygial structure.

**Teucholabis (Teucholabis) insolita sp.n.**

General coloration black, the thorax variegated with yellow areas, as described; halteres with knob clear light yellow; fore legs black, basal third of femur yellow, remaining legs with femora and tibiae yellowed; wings whitened, stigma subcircular, dark brown; male hypopygium with outer spine of basistyle very long; outer dististyle elongate, slender, before midlength with a conspicuous point; inner dististyle a small flattened blade, apex broadly obtuse; aedeagus with nearly the outer half a broadly flattened oval blade.

*Male*. — Length about 4.5 mm.; wing 4.8 mm. Head polished black; palpi and antennae dull black. Antennae with flagellar segments subglobular to short-oval, progressively smaller outwardly.

Pronotum black; scutal lobes light yellow. Mesonotum polished black, with yellowed areas including the scutum and an anterior median area at the suture that involves both the praescutum and scutum; scutellum light yellow. Pleura similarly polished black, the dorsal area yellow; a small yellow pruinose spot above the mid and hind coxae. Halteres short, stem black, knob conspicuously clear light yellow. Legs with coxae and trochanters brownish yellow; fore legs black, basal third of femora yellow; middle and hind legs with femora yellow; tibiae brownish yellow; tarsi black, posterior basitarsi with almost the proximal half slightly dilated. Wings whitened, stigma dark brown, subcircular; veins beyond the general level of origin of *Rs* with trichia, including also the outer two-thirds of vein *2nd A*, *1st A* glabrous. Venation: *Sc*<sub>1</sub> ending about opposite one-fifth *Rs*; *R*<sub>2+3+4</sub> subequal to the erect *R*<sub>1</sub>; *R*<sub>5</sub> deflected outwardly to the wing tip.

Abdomen black throughout. Male hypopygium (Fig. 22) with the outer spine of the basistyle, *b*, very long, subequal in length to the basal portion of the style, outwardly gradually narrowed into an acute spine. Outer dististyle, *od*, elongate, slender, before midlength with a conspicuous flattened point; inner style, *id*, a small flattened blade, the apex broadly and obtusely rounded, more evident in the holotype, as shown in the subfigure (*id*). Aedeagus, *a*, with nearly the outer half broadly flattened into an oval blade bearing about a dozen setae.

*Holotype*, ♂, Otavalo-Apuela, Ecuador, 2200 meters, September 8-9, 1977 (Peña). Paratopotype, ♂, pinned with type.

The most similar species are *Teucholabis (Teucholabis) azuayensis* Alexander, Ecuador, and *T. (T.) brevisetosa* Alexander, Peru, which differ chiefly in hypopygial characters, including the spine of the basistyle and the structure of the dististyles.

**Gonomyia (Lipophleps) complicata sp.n.**

Size small (wing of male about 4 mm.); general coloration of thorax dark brown; wings uniformly light brown, *Sc*<sub>1</sub> shortly beyond base of *Rs*, cell *R*<sub>4</sub> extensive at margin; male hypopygium with apex of basistyle and the dististyles complexly lobed;

phallosome with apex of gonapophysis deeply divided.

*Male*. — Length about 3.5 mm.; wing 4.1 mm. Rostrum brownish gray; palpi black. Antennae black. Head gray.

Mesonotal praescutum and scutum uniformly dark brown, posterior sclerites of notum more yellowish brown. Pleura with dorsopleural membrane yellow, the remainder dark brown with the pteropleurite and dorsal sternopleurite slightly gray pruinose. Halteres with stem brown, knob slightly paler. Legs with coxae and trochanters brownish yellow; remainder of legs dark brown, the posterior pair more yellowish brown. Wings uniformly light brown, veins very slightly darker. Venation:  $Sc_1$  ending shortly beyond base of  $Rs$ ,  $Sc_2$  shortly removed, basad of  $Rs$ ; vein  $R$ , deflected outwardly, ending just before the wing tip; cell  $R_1$  extensive, about two and one-half times cell  $R_2$ ; cell  $M_1$  open by atrophy of  $m$ ;  $m-cu$  at near three-fifths  $M_{3+4}$ .

Abdomen brown; on slide mount the segments appearing to be longitudinally lined with paler. Male hypopygium (Fig. 23) unusually complicated in the dististyles,  $d$ , and lobes of the basistyle,  $b$ , about as shown. Inner dististyle,  $id$ , with rostral prolongation long and slender, especially on outer third, at base with a darkened obtuse lobe. Phallosome pale to subhyaline; aedeagus  $a$ , strongly bent at outer end; gonapophysis,  $g$ , divided into two acute points at apex.

*Holotype*,  $\sigma$ , Sebundoi, Ecuador, 2600 meters, September 11-15, 1977 (Peña).

The present fly is quite distinct in its hypopygial structure, especially the dististyles, gonapophyses, and the apex of the basistyle.

### **Trentepohlia (Neomongoma) pictipes sp.n.**

General coloration of body brownish yellow; legs conspicuously patterned, femora black, tips snowy white, tibiae pale brown basally, base and apex, together with the tarsi snowy white; wings whitish subhyaline, stigma large, oval, dark brown; vein  $R_1$  erect, subequal to  $R_{1+2}$ ; petiole of cell  $R_1$  subequal to the erect  $m$ ; cell 2nd  $A$  very narrow.

*Male*. — Length about 7 mm.; wing 7.3 mm. Rostrum light yellow, mouthparts chiefly yellowed. Antennae with scape brownish yellow, pedicel brown; flagellum broken. Anterior vertex very narrow, silvery white; posterior parts of head obscure brownish yellow.

Pronotum yellow. Mesonotum almost uniformly brownish yellow; scutal lobes brown, posterior part of postnotal mediotergite weakly darkened. Pleura testaceous yellow. Halteres weakly darkened. Legs with coxae and trochanters pale yellow; femora light brown basally, outer half black, tips abruptly snowy white; tibiae very pale brown on more than the basal half, the extreme base and broader apex, together with the tarsi, snowy white. Wings whitish subhyaline, the large oval stigma dark brown; veins dark brown. Venation:  $Sc_1$  ending just before vein  $R_1$ ,  $Sc_2$  far retracted, nearly opposite the fork of  $Rs$ ;  $R_1$  at midlength of stigma, shorter than

vein  $R_{3+4}$  beyond it;  $R_5$  erect, subequal to vein  $R_{3+4}$ , the latter about one-third vein  $R_5$ ; petiole of cell  $R_5$  subequal to the erect  $m$ ; cell  $2nd\ A$  very narrow.

Abdominal tergites almost uniformly brownish yellow, sternites clearer yellow.

*Holotype*, ♂, Reventador, East Ecuador, 1750 meters, October 3-6, 1977 (Peña).

The present fly differs from other members of the subgenus *Neomongoma* in the leg pattern, all other species having the legs unicolorous or virtually so. In the related subgenus *Paramongoma* there are various species having the leg pattern much as in the present fly, including *calloipe* Alexander, *disparilis* Alexander, and *tethys* Alexander, all from Peru, all differing from the present species in the distinctive venational characters that distinguish the two subgenera.

### **Molophilus (Molophilus) inusitatus sp.n.**

General coloration of body dark brown, pruinose; wings weakly infuscated; male hypopygium with basal dististyle distinctive, as described and figured.

*Male*. — Length about 5 mm.; wing 5.5 mm.

*Female*. — Length about 5.5 mm.; wing 6 mm. Rostrum and palpi black. Antennae black. Head brownish gray. Pronotum dark brown. Mesonotum of the holotype male dark reddish brown, praescutum with the anterior half darker brown; in the females, thorax more uniformly dark grayish brown, narrowly more yellowed on sides. Pleura in male obscure brownish, the posterior sclerites paler brown, in the females the pleura more uniformly dark brown. Halteres of male with the knob and base of stem yellow, the intermediate portions darker; in the females, halteres light yellow. Legs of male with fore coxae dark brown, remaining coxae and all trochanters obscure yellow, remainder of legs broken; in the female the legs brownish black. Wings weakly infuscated, stigma darker brown; veins and trichia light brown.

Abdomen dark brown, hypopygium slightly paler. Male hypopygium (Fig. 24) with the apical spine of the basistyle, *b*, slender. Outer dististyle, *od*, with apical arms unequal, the lower one short and stout. Basal dististyle, *bd*, distinctive, as shown, appearing as a long slender nearly straight rod, unequally bifid at apex, the shorter point stout, tipped with several short spines, the subterminal arm long and slender, erect; outer half of style, including both arms, with microscopic black spines, as shown.

*Holotype*, ♂, Loja-Zamora, Ecuador, 1600-2500 meters, October 6-28, 1977 (Peña). Allotopotype, ♀, pinned with type. Paratopotype, ♀, pinned lowermost, with type.

This species is readily told from all related members of the genus by the hypopygial structure, especially the basal dististyle.

**Molophilus (Molophilus) parviclavus** sp.n.

Size medium (wing about 4 mm.); antennae relatively long; body brown, the abdomen darker; halteres brownish yellow; male hypopygium with the basal dististyle a narrow rod that is dilated at apex into a small club bearing microscopic denticles and fewer elongate points.

*Male*. — Length about 4.8-5 mm.; wing 4-4.2 mm.; antenna about 1.8 mm. Rostrum and palpi black. Antennae black, relatively long; flagellar segments long-oval with numerous very long black verticils, the longest nearly three times the segments. Head dark brown.

Pronotum brownish black, with very long erect black setae. Mesonotum polished medium brown; setae of praescutal interspaces long, black. Pleura ventrally concolorous with the notum, the dorsal and anterior pleurites darker. Halteres brownish yellow. Legs with fore coxae brown; intermediate and posterior coxae and all trochanters obscure yellow; remainder of legs medium brown, with darker setae. Wings weakly infuscated; veins and trichia darker brown.

Abdomen dark brown, ninth segment slightly more yellowed. Male hypopygium (Fig. 25) with the apical spine of the basistyle, *b*, very slender; outer setae elongate, before the apex darker, provided with numerous shorter more delicate setae. Dististyles, *d*, as shown; basal style, *bd*, diagnostic, appearing as a narrow rod that is dilated at apex into a small club, the outer part more extended into four spinous points, the obtuse lower face with more numerous microscopic denticles.

*Holotype*, ♂, Reventador, East Ecuador, 1750 meters, October 3-5, 1977 (Peña). Paratopotypes, 2 ♂♂, with the type.

This species is most readily distinguished by the hypopygial structure, particularly the basal dististyle, as described and figured.