

NEW SPECIES OF CRANE-FLIES FROM SOUTH AMERICA  
PART XI. (Tipulidae, Diptera)

*By*

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# NEW SPECIES OF CRANE-FLIES FROM SOUTH AMERICA

## PART XI.<sup>1</sup> (Tipulidae, Diptera)

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The species described herewith are all from the vicinity of Mount Abitagua, Ecuador. The conditions obtaining around Abitagua have been briefly discussed in the preceding part under this title while still further notes concerning it are given by F. Martin Brown in his notable contribution to our knowledge of Ecuadorean Entomological Localities (Ann. Ent. Soc. America, 34: 809-851, 10 maps; 1941). The region has proved to be so prolific in species of insects that I have asked Mr. William Clarke-Macintyre, the collector of this and other rich series of Tipulidae, to describe it in somewhat more detail. I feel certain that the following supplementary notes concerning Mount Abitagua will be of much value to many students at this time and in the future.

"Mount Abitagua is really a low range of hills, beginning just east of the Rio Topo and extending along the Pastaza to the Rio Quilo, between here and Mera. The highest point of the range is called by the natives 'The Hill of Abitagua,' lying directly north of my place. This Abitagua Range at its highest point probably rises to 2,000 meters; there is then a rather broad plateau followed by a descent toward the north to a valley where rise the Rios Quilo, Mango Yacu and Anzu. North of this valley is the Llanganati Range of much higher hills, some of them snow-capped. I think that Abitagua is the remains of an old volcano although there is no lava or pumice in this immediate region; however, on the very highest point of the range there exists a small lake which from all descriptions must be an old crater lake. The slope of the 'Hill of Abitagua' comes down to the Pastaza between the Rios Abitagua and Ergano. The trail from Mera to Baños runs along a shoulder on that slope and takes quite a dip between the two rivers mentioned. Old earthquakes and landslides have shaped the hills into steps or shoulders.

"The Pastaza, which is 1800 meters above sea-level at Baños about 30 miles to our west has descended 800 meters during this distance. From here to Mera it descends about 100 meters more. At some places the last step or cliff descends abruptly to the river, almost forming a cañon, at other places leaving a sort of beach or 'playa' which varies in width from 10 to 100 meters. Excepting the Pastaza, the so-called rivers (Mera to Baños, east to west: Rio Ergano, Guillermino, Fox, Industria, Bella Vista and Abitagua) are really no more than small creeks, the larger ones about 10 meters wide where crossed by the trail.

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<sup>1</sup>Contribution from the Entomological Laboratory, Massachusetts State College.

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From the trail to the Pastaza they have cut deep gorges, a fine collecting spot for certain rare Tipulidae and Odonata. In the Pastaza, immediately in front of my place, are two small islands, from one to two hectares in area. When the river is low, the channel between my shore and one of these islands is completely dry, with only a few stagnant pools of water. There is always water between the shore and the second island but for about one-half the time it is only ankle-deep and fordable. Just west of the Rio Industria the cliff has worn down to a gentle slope to the river, the only one along the entire road between Baños and Mera; everywhere else one has to climb down the bank to the lowest playa. There is no sedimentary rock in the soil of Abitagua. Geologists of the Royal Dutch Shell Company state that the core of the range is granite. Immediately in front of my house is a gravel pit and the soil is evidently alluvial as many of the stones are water-worn. Top-soil in no place is very deep, in some places non-existent. The only spot that is boggy is about one-half of Mayorga's Playa and about one-half of a pasture between the Rios Fox and Guillermino.

"The temperature here runs: 6 A. M.—16° C.; Noon—20–22° C.; 7 P. M.—17° C., with very little variation. The dry season, so-called, is from December to April but the only difference is that it rains more in the so-called wet season. Absolutely clear sunny days during the dry season average about eight per month, in the wet season about four or five. However even during the wet season it seldom rains all day, there generally being an hour or two of sun either in the morning or afternoon. It appears that each of the small streams or rios flowing into the Pastaza, as listed above, supports its own peculiar fauna, at least in certain groups of insects."—*William Clarke-Macintyre*.

## Ozodicera Westwood

### *Ozodicera (Ozodicera) piatrix* sp. n.

General coloration dark brown, the scutellum, postnotum and pleura more pruinose; flagellar branches (male) subequal in length to the stems, simple; femora with a narrow, nearly apical, brownish black ring; wings with a strong grayish brown tinge, the prearcular and costal fields darker brown; stigma and a cloud on anterior cord conspicuously darker brown; male hypopygium with the basistyle produced at apex into an acute glabrous blackened spine; outer dististyle clavate, heavily blackened, the outer face of the apical club provided with abundant short erect setae.

*Male*.—Length, about 25 mm.; wing, 22 mm.; antenna, about 7 mm.

Frontal prolongation of head elongate, brownish black; nasus distinct; palpi black. Antennae (male) relatively long, brownish black, the pedicel and the incisures of the basal two or three flagellar segments very restrictedly paler; flagellar branches entirely simple and relatively short, subequal in length to but stouter than the segments themselves; simple terminal flagellar segments about equal in length to the remainder of antenna combined. Head dark grayish brown; anterior vertex narrow, about two-thirds the diameter of scape.

Pronotum brownish black. Mesonotum almost uniform dark brown, without distinct markings with the exception of a capillary more blackened vitta on cephalic portion of praescutum; scutellum and postnotum more heavily light gray pruinose. Pleura dark gray, the dorsopleural region still darker, more brownish black. Halteres black, the base of stem narrowly obscure yellow. Legs with the coxae gray pruinose; trochanters yellowish brown; femora obscure brownish yellow, each with a narrow, nearly apical, brownish black ring; tibiae brownish yellow, passing into black; tarsi black. Wings relatively narrow, with a strong grayish brown tinge, the prearcular region and cells *C* and *Sc* still darker brown; the narrowly oval stigma and a cloud on anterior cord conspicuously darker brown; veins light brown, somewhat darker in the costal portions. Venation: Cell *M*<sub>1</sub> rather broadly sessile.

Abdomen relatively long, black, sparsely pruinose, the basal tergal rings more reddish brown; hypopygium a little brightened. Ninth tergite of the male hypopygium with a small V-shaped median notch, the lateral lobes broadly truncated and provided with long setae. Basistyle produced at apex into a blackened glabrous spine, the tip acute. Outer dististyle heavily blackened, the basal half constricted, the apex expanded into an oval club provided with abundant short erect setae on outer face. Inner dististyle slender, curved, the apex terminating in two acute, slightly unequal spines; outer face of style near base produced into a stout triangular point and here provided with numerous very long and conspicuous yellow setae. Gonapophyses appearing as simple yellow rods subtending the shorter aedeagus, their tips acute.

*Holotype*, ♂, Abitagua, altitude 1,100 meters, May 26, 1941 (Macintyre); in spider's web.

*Ozodicer* (*Ozodicer*) *piatrix* is entirely different from the now relatively numerous species of the subgenus, differing especially in the structure of the male hypopygium, as the glabrous blackened spine of the basistyle and the darkened clavate outer dististyles. None of the regional species in Amazonian Peru, Ecuador or Brazil is closely allied.

### **Tanypremna** Osten Sacken

#### **Tanypremna (Tanypremnella) mediocornis** sp. n.

General coloration orange yellow, the thorax unpatterned; antennae (male) of moderate length, approximately one-half the length of body, the vestiture of the flagellar segments abundant and dense but short; legs dark brown, unpatterned; wings weakly tinted, stigma pale brown; *r-m* connecting with *Rs* at or just before the fork of the latter; male hypopygium with the spines of the inner dististyle relatively numerous, distributed over most of the extent of the style.

*Male*.—Length, about 12 mm.; wing, 13 mm.; antenna, about 5.6 mm.

Frontal prolongation of head obscure yellow; nasus long and conspicuous; palpi brown. Antennae (male) of moderate length, approximately one-half the length of body; scape and pedicel obscure

yellow, flagellum brownish black; first flagellar segment long-cylindrical, with abundant and dense short pubescence, the length of the setae less than the diameter of the segment; in *megacera*, the setae are long and coarse, the longest nearly three times the diameter of the segment. Head light brown, the front more brightened; anterior vertex relatively narrow, about two and one-half times the diameter of scape.

Pronotum testaceous yellow. Mesothorax almost uniform orange yellow, the pleura clearer yellow, the praescutum without distinct stripes; praescutal setae very small and sparse. Halteres elongate, black, the extreme base of stem yellow. Legs with coxae and trochanters yellow; remainder of legs dark brown or brownish black, the femoral bases not brightened. Wings subhyaline, a trifle more tinted than in either *microcera* or *megacera*; stigma pale brown; veins brown. Venation: *Rs* relatively short and straight; *r-m* at or just before its fork; cell 2nd *A* wider than in *microcera*.

Abdominal tergites chiefly brownish black, the basal rings obscure yellow, including about the basal third or slightly more; sternites more uniformly yellow, the posterior borders of the segments very weakly darkened; seventh and eighth segments more uniformly darkened, forming a subterminal dark ring; hypopygium yellow, the dististyles with darkened vestiture. Male hypopygium with the tergite large, the caudal margin convexly rounded to almost truncate across caudal border. Inner dististyle large and compressed, with abundant dark setae and about 18 short blackened spines that are well-distributed over most of the length of the style, not arranged in a small compact group of relatively few spines as in *megacera*; no flange on outer margin at base as in *microcera*.

*Holotype*, ♂, Abitagua, altitude 1,800 meters, April 15, 1940 (Macintyre).

The nearest allies of the present fly are *Tanypremna* (*Tanypremna*) *megacera* Alexander and *T. (T.) microcera* Alexander, all three species having the thoracic pleura unvariegated and with no white color on legs. The antennae of the present fly are conspicuously shorter than in *megacera*, with the vestiture abundant but very short. All three species show marked differences in the structure of the male hypopygia, especially of the inner dististyle.

## Tipula Linnaeus

### *Tipula osculata* sp. n.

Belongs to the *glaphyoptera* group; allied to *obirata*; mesonotal praescutum with three entire dark brown stripes, the interspaces yellow pollinose; antennae (male) short, the basal flagellar segments bicolored; femora brownish yellow, with a narrow, darker brown subterminal ring; wings yellow, heavily patterned with brown; prearcular field and a broad band before cord of the yellow ground; *R*<sub>1+2</sub> entire; male hypopygium with the posterior border of tergite produced into a short depressed lobe, the apex of which is evenly emarginate; gonapophyses at apex dilated into broad pale blades.

*Male*.—Length, about 13 mm.; wing, 14.5 mm.; antenna, about 2.5 mm.

Frontal prolongation of head above light brown, the sides darker brown; nasus slender; palpi dark brown. Antennae relatively short; basal three segments yellow; succeeding segments weakly bicolored, the scarcely indicated basal swelling dark brown, the distal half or more of segment yellow; outer segments uniformly dark brown; longest verticils considerably exceeding the segments in length. Head with central portion yellowish, the posterior vertex behind the eyes slightly darker; vertical tubercle low.

Pronotum obscure yellow, weakly darkened on sides. Mesonotal praescutum with interspaces yellow pollinose, the three stripes entire, dark brown, the lateral pair merging gradually with the brown lateral praescutal border; scutum dark brown, the central area obscure yellow, weakly more darkened behind the suture, scutellum obscure brownish yellow; mediotergite dark brown on central portion, more reddish brown on sides. Pleura and pleurotergite yellow, the meron a trifle darker. Halteres yellow. Legs with coxae and trochanters yellow; femora obscure brownish yellow, each with a very narrow, darker brown, subterminal ring; tibiae and basitarsi light brown, the outer tarsal segments blackened; legs very long and slender. Wings with the ground color yellow, heavily patterned with brown; the main ground areas include the entire prearcular field and a broad complete band before the cord; cell *C* a trifle more brownish yellow than is cell *Sc*; the chief dark areas include four subcostal spots, the first three extensive and produced behind into cell *R*; last area, in extreme end of cell *Sc*, small; a very large dark marking centers about cell *1st M*<sub>2</sub>, crossing the entire wing and only slightly variegated with paler spots; outer ends of cells *R*<sub>5</sub> to *M*<sub>4</sub>, inclusive, with yellow areas, the one in cell *R*<sub>5</sub> very extensive, including the distal half of cell; basad of cord, cells *Cu*, *1st A* and *2nd A* with very extensive zigzag brown areas, these being posterior extensions of the three more basal subcostal darkened areas; veins yellow, dark in the patterned portions. Venation: *R*<sub>1+2</sub> entire, the tip pale; petiole of cell *M*<sub>1</sub> shorter than *m*.

Abdomen obscure brownish yellow, the basal tergites very weakly darkened medially, the outer tergites more uniformly darkened; hypopygium yellow. Male hypopygium with the tergite transverse, its caudal margin convex, the median portion produced into a short glabrous depressed lobe, the caudal border of which is evenly emarginate; dorsal surface of tergite with a median furrow. Basistyle small but complete, without lobes. Outer dististyle a slender cylindrical pale lobe. Inner dististyle relatively narrow, its outer lobe slender, the inner margin and apex of the inner lobe blackened. Gonapophysis at apex dilated into a broad pale blade.

*Holotype*, ♂, Abitagua, altitude 1,100 meters, June 8, 1941 (Macintyre).

*Tipula osculata* is most similar to species such as *T. consonata* Alexander, *T. juvenis* Alexander, and *T. obinata* Alexander, especially to the last. The combination of entire vein *R*<sub>1+2</sub>, subterminal dark femoral

rings, nature of the wing pattern, and the structure of the male hypopygium readily serves to separate the present fly from these similar forms.

***Tipula hedymopa* sp. n.**

Belongs to the *glaphyoptera* group; allied to *jubilans*; mesonotal praescutum obscure brownish yellow, with a restricted dark brown pattern; femora yellow, with a narrow, nearly terminal, dark brown ring; wings bright yellow, handsomely but restrictedly patterned with brown, including washings and marblings in all cells beyond cord and in outer ends of Anal cells; cell *M* with the apical darkening along vein *Cu* conspicuous, the subapical spot correspondingly reduced.

*Female*.—Length, about 12 mm.; wing, 12.5 mm.

Frontal prolongation of head yellow; nasus stout, concolorous; palpi yellow, the terminal segment blackened. Antennae short; basal three segments light yellow; succeeding segments weakly bicolored, the scarcely developed basal enlargements very pale brown, the remainder yellow; verticils much longer than the segments. Head obscure brownish yellow; vertical tubercle very low to scarcely indicated.

Pronotum obscure testaceous yellow. Mesonotal praescutum obscure brownish yellow, sparsely golden-yellow pollinose, especially marked on the interspaces, the usual stripes scarcely differentiated except as follows: A triangular area on extreme cephalic portion and a restricted darkened cloud on border opposite the pseudosutural foveae; scutum yellow pollinose, each lobe with two brown areas, the one nearer the midline larger; scutellum yellow pollinose; postnotum testaceous yellow, the posterior border of the mediotergite restrictedly darkened. Pleura yellow, the anterior portion of the mesepisternum vaguely darker to produce a weak transverse girdle. Halteres yellow, the base of knob a trifle darker. Legs with the coxae and trochanters obscure yellow; femora obscure yellow with a narrow, nearly terminal, dark brown ring that is subequal in extent to the more reddish brown apex; tibiae brownish yellow basally, passing into brownish black; tarsi black. Wings with the ground color unusually bright yellow, especially the basal and costal portions; a rather restricted but conspicuous brown pattern, with slightly darker areas at *h* and arculus, origin of *Rs*, stigma and *m*; the very slightly paler brown areas include a small spot in cell *Sc*, mid-distant between arculus and origin of *Rs*, and washes and marblings in all cells beyond cord; outer end of cell *1st M*<sub>2</sub> and outer ends of both Anal cells slightly darkened; the subapical darkening in cell *M* adjoining vein *Cu* is reduced in size, as in *absona*, differing conspicuously from the major dark cloud found in *jubilans*; veins yellow, conspicuously darkened in the clouded areas. Venation: Tip of *R*<sub>1+2</sub> atrophied, including less than the distal third of the vein.

Abdominal tergites orange-yellow, the basal tergite clearer yellow; lateral borders of tergites with narrow interrupted black dashes, longest and most extensive on the second segment; sternites obscure yellow; cerci relatively slender.

*Holotype*, ♀, Abitagua, altitude 1,100 meters, June 4, 1941 (Macintyre).

The nearest relative among the described species is *Tipula jubilans* Alexander, which differs most conspicuously in the wing pattern. In *jubilans*, vein  $R_{1+2}$  is entire whereas in the present fly the tip is atrophied but this character may not prove to be constant.

### ***Tipula emerita* sp. n.**

Belongs to the *monilifera* group; general coloration buffy yellow, the praescutum with three darker stripes, the median one paler and more or less distinctly split by a capillary dark line; antennae (male) elongate, nodulose, the basal swellings oval, not abruptly subglobular as in the typical members of the group; femora dark brown with a subterminal yellow ring; wings cream-yellow, heavily patterned with light and dark brown, including a series of four subcostal brown areas;  $R_{1+2}$  atrophied; basal abdominal segments yellow, the succeeding ones dark brown; eighth sternite unarmed.

*Male*.—Length, about 9–9.5 mm.; wing, 11–13 mm.; antenna, about 9–10 mm.

Frontal prolongation of head obscure yellow above, conspicuously dark brown on sides; nasus distinct, yellow; palpi black, the incisures restrictedly pale. Antennae (male) elongate, as shown by the measurements; basal three segments yellow; succeeding segments bicolored, the basal enlargements black, the pedicels brownish yellow, on the outer segments passing through brown to dark brown; basal swellings of segments oval, not abruptly globular or subglobular as in the typical members of the group; verticils long, approximately two-thirds the length of the segments; all flagellar segments densely clothed with shorter erect setae. Head buffy; vertical tubercle not or scarcely developed.

Pronotum buffy. Mesonotal praescutum with the ground color buffy yellow, with three brown stripes, the median one much paler on cephalic portion and, in cases, for the entire length, more or less distinctly split by a still darker median vitta; posterior sclerites of notum obscure buffy yellow, the centers of the scutal lobes, parascutella and a strong central line on mediotergite dark brown. Pleura obscure yellow, with a more or less distinct brown girdle occupying the cephalic portion of the mesepisternum. Halteres with stem obscure brownish yellow, the knob dark brown. Legs with the coxae and trochanters obscure yellow; femora obscure yellow basally, passing into dark brown, with a subterminal yellow ring that is slightly less extensive than the darkened tip; tibiae and tarsi dark brown to brownish black. Wings with the ground color cream yellow, conspicuously variegated by light and darker brown, the latter areas including four subcostal markings that are prolonged backwards across cells *R* and *M* to vein *Cu*, the second and third confluent behind; cells beyond cord and outer ends of Anal cells very extensively clouded with somewhat paler brown; veins dark brown. Venation:  $R_{1+2}$  entirely atrophied; petiole of cell  $M_1$  a little longer than *m*.

Abdomen with basal two tergites obscure yellow, the first darkened on discal portion; succeeding segments, including hypopygium,



dark brown. Male hypopygium with the caudal margin of tergite with two shallow notches, one on either side of the slightly produced median portion which is extended into two short points separated by a shallow groove or notch; margins of the two major notches conspicuously fringed with setae. Caudal portion of basistyle, immediately below the dististyles, with an oval lobe that is densely covered with coarse setigerous tubercles. Outer dististyle slender. Inner dististyle parallel-sided on basal portion. Gonapophyses notched at tips, the outer spine largest. Eighth sternite unarmed.

*Holotype*, ♂, Abitagua, Mayorga's Playa, altitude 1,000–1,100 meters, April 12, 1940 (Macintyre). *Paratopotypes*, 6 ♂♂, April 12, 1940, June 6, 1941; *paratypes*, 2 ♂♂, Cunibunda, altitude 1,100 meters, April 7, 1940 (Macintyre).

*Tipula emerita* is very different from the normal *monilifera* type in the oval, more gradual, basal enlargements of the flagellar segments in the male. In this respect it is approached by the otherwise entirely distinct *T. procericornis* Edwards, from very high altitudes in Ecuador (3,800 meters and over). It is becoming evident that the so-called *monilifera* and *glaphyoptera* groups of the genus, as well as the subgenus *Microtipula* Alexander, all represented by abundant species in the Neotropics, are becoming closely interconnected by the discovery of numerous new forms. It seems probable that all eventually will be placed in the last-named subgenus, with the various groups being maintained chiefly for convenience in handling the great mass of species.

### ***Tipula luteilimbata* sp. n.**

Size small (wing, 12 mm.); general coloration of thoracic notum pale brown, without pattern; antennae (male) very long, approximately three-fourths the length of wing, flagellum black; wings with a strong brownish tinge, sparsely patterned with darker brown, including a large cloud near outer end of cell *M*; cord, especially *m-cu*, bordered by yellow; male hypopygium with the tergite notched medially, the low lateral lobes set with many straight black pegs; outer dististyle a small dusky lobe bearing a blackened tooth on mesal face near base.

*Male*.—Length, about 10 mm.; wing, 12 mm.; antenna, about 9 mm.

*Female*.—Length, about 11 mm.; wing, 12 mm. antenna, about 2.5 mm.

Frontal prolongation of head relatively short and stout, obscure brownish yellow above, darker beneath; nasus short and stout; palpi black. Antennae of male very long, of female moderately so; scape and pedicel yellow, flagellum black in male, dark brown in female; flagellar segments of male very elongate-cylindrical, with scarcely developed basal tubercles; verticils much shorter than the segments; besides the verticils, the entire segment bears abundant erect pale setae that are from two to three times as long as the diameter of the segments; a third type of delicate pubescence covers the entire surface of each segment. In the female, the three types of vestiture likewise occur but in slighter degree. Head with the front and anterior vertex light yellow, the posterior vertex dark brown, more intense adjoining the eyes; anterior vertex wide, the tubercle lacking.

Pronotum yellow. Mesonotum uniformly pale brown, without pattern; vestiture of praescutal interspaces exceedingly short and sparse. Pleura uniformly yellow. Halteres relatively long, dark brown, the extreme base of stem pale. Legs with coxae and trochanters yellow; remainder of legs obscure yellow, the outer segments passing into brownish black; claws short and strongly curved, simple in both sexes. Wings with a strong brownish tinge, the prearcular field, cells *C* and *Sc*, and the stigma darker brown, especially the last; a conspicuous brown cloud near outer end of cell *M*; restricted yellow areas, including a broad seam on either side of *m-cu*, with further similar but less conspicuous areas along anterior cord, before and beyond stigma, and just basad of the darkened area in cell *M*; veins brown. Abundant macrotrichia on veins beyond cord, more sparse on *M*<sub>4</sub>; squama glabrous. Venation: Tip of *R*<sub>1+2</sub> more or less atrophied, in the male with only a basal spur, in the female with about the basal half of the vein preserved; *M*<sub>3+4</sub> short to very short, subequal to *r-m*; cell 2nd *A* relatively wide.

Abdominal tergites chiefly dark brown, the sternites and hypopygium yellow. Ovipositor with cerci long and slender, nearly straight. Male hypopygium small and of simple construction. Ninth tergite transverse, the caudal margin with a broad V-shaped notch, the low lateral lobes with many straight black spinuous pegs. Outer dististyle a small dusky lobe, the mesal face near base with a short blackened tooth. Inner dististyle subequal in length to last but stouter, with two conspicuous black teeth on margin, beyond which point the style is produced into a flattened yellow blade. Gonapophyses appearing as simple flattened blades, the tips a little wider, obtuse.

*Holotype*, ♂, in poor condition, Abitagua, altitude 1,100 meters, April 12, 1940 (Macintyre). *Allotopotype*, ♀, altitude 1,800 meters, April 15, 1940.

*Tipula luteilimbata* is readily told from all of the numerous species of the genus by the peculiar wing pattern which is entirely different from that of other described forms. The structure of the antennae and the male hypopygium provide other distinctive features. Despite the structure of the ovipositor I am inclined to believe that the species should be referred to the subgenus *Nephrotomodes* Alexander, various members of which it most nearly resembles superficially.

#### ***Tipula* (*Nephrotomodes*) *cerogama* sp. n.**

Size large (wing, male, 14 mm. or more); antennae elongate; mesonotum brownish yellow without distinct markings; wings with a strong brown tinge, restrictedly patterned with still darker brown; conspicuous whitish subhyaline areas before stigma and across base of cell 1st *M*<sub>2</sub>; vein *R*<sub>1+2</sub> preserved; male hypopygium large and bulbous, the outer dististyle very large, earlike, the inner dististyle exceedingly small, in area less than one-tenth that of the outer style; no lobes in notch of ninth sternite.

*Male*.—Length, about 13–14 mm.; wing, 14–15 mm.; antenna, about 7–7.2 mm.

*Female*.—Length, about 15 mm.; wing, 17 mm.

Frontal prolongation of head obscure brownish yellow; nasus distinct; palpi pale brown. Antennae (male) moderately long; basal three segments obscure yellow, the remainder black; flagellar segments rather strongly incised; longest verticils about two-thirds the segments. Head fulvous brown; vertical tubercle not developed.

Pronotum and mesonotum almost uniform brownish yellow, without clearly defined markings; praescutal setae extremely small and sparse. Pleura clearer yellow. Halteres with stem and base of knob infuscated, apex of knob obscure yellow. Legs with the coxae and trochanters yellow; femora obscure brownish yellow; tibiae a little darker; tarsi brownish black; claws (male) toothed. Wings with a strong brown tinge, especially in the female, restrictedly patterned with darker brown and whitish subhyaline; the dark areas include the prearcular field behind cell *C*, all of cell *Sc*, stigma and conspicuous clouds along cord, most evident on *m-cu* and the distal section of *Cu*<sub>1</sub>; the whitened areas include two very evident obliterative areas, one before stigma, the second across the base of cell 1st *M*<sub>2</sub> extending into the base of cell *M*<sub>3</sub>; veins brown. Venation: *R*<sub>1+2</sub> entire; *Rs* arcuated, longer than *m-cu*, the latter close to the fork of the short *M*<sub>3+4</sub> or just beyond this point on *M*<sub>4</sub>; cell 2nd *A* relatively wide.

Abdominal tergites chiefly dark brown, especially medially, the outer segments slightly more brightened sublaterally; basal sternites yellow; a conspicuous black subterminal ring in male, involving segments seven and eight, together with the posterior portion of tergite six; hypopygium large and bulbous, uptilted, obscure yellow. Ovipositor with the valves very short and fleshy, setiferous, as in the subgenus. Male hypopygium with the tergite narrowed outwardly, the outer lateral angles produced into moderate sized lobes, the intervening caudal border truncate, provided with numerous black setae. Outer dististyle very large and complex, appearing as a compressed earlike blade, the apex obtuse; mesal face and a small curved lobe near base provided with abundant conspicuous black setae. Inner dististyle very small, in area less than one-tenth that of the outer style, appearing as a compressed blade, the narrow rostral portion blackened. Notch of ninth sternite only feebly emarginate, without lobes as is common in the subgenus. Eighth sternite relatively small, without lobes or appendages.

*Holotype*, ♂, Abitagua, altitude 1,800 meters, April 15, 1940 (Macintyre). *Allotopotype*, ♀, in copula with holotype. *Paratopotype*, 1 ♂.

*Tipula* (*Nephrotomodes*) *cerogama* is entirely different from the other regional species of the subgenus. In its general appearance it is somewhat similar to *T* (*N.*) *palaeogama* sp. n., but differs in all details of wing pattern and structure of the male hypopygium.

#### ***Tipula* (*Nephrotomodes*) *palaeogama* sp. n.**

Size large (wing, male, 15 mm.); general coloration of mesonotum reddish brown, scarcely patterned; wings subhyaline to weakly darkened, heavily and conspicuously patterned with dark brown, including cells *C* and *Sc*, stigma, outer radial field and a broad seam on *m-cu*; male

hypopygium with the tergite elongate, strongly narrowed outwardly, the decurved apex produced into a blackened lobe set with strong black setae and spinous points; inner dististyle on outer margin bearing a strongly flattened black blade; appendage of ninth sternite paired, strongly compressed, densely setiferous.

*Male*.—Length, about 13 mm.; wing, 15 mm.; antenna, about 8 mm.

*Female*.—Length, about 18 mm.; wing, 18 mm.

Frontal prolongation of head obscure brownish yellow above, darker brown on sides and beneath; nasus elongate; palpi dark brown, the elongate terminal segment conspicuously whitened. Antennae (male) elongate, exceeding one-half the length of wing; scape, pedicel and base of first flagellar segment obscure yellow, the remaining segments black; flagellar segments moderately incised; longest verticils a little exceeding one-half the length of the segments. Head reddish brown, without distinct vertical tubercle.

Pronotum and mesonotum almost uniform reddish brown, the praescutum without clearly differentiated stripes; setae of praescutal interspaces relatively short; setae of scutellum and postnotum longer and more conspicuous. Pleura, pleurotergite and dorsopleural membrane uniformly pale yellow. Halteres infuscated, the apices of knobs a little brightened. Legs with coxae and trochanters pale yellow; femora dark brown, obscure yellow basally; tibiae and tarsi brownish black; legs long and slender; claws (male) toothed. Wings with the ground color subhyaline and weakly darkened, as described; heavily and conspicuously patterned with dark brown, including all of cells *C* and *Sc*; stigma; outer radial field as far caudad as vein  $R_{4+5}$ , deepest in the basal portions; a very broad seam on *m-cu*; outer end of cell *1st M*<sub>2</sub> and fork of  $M_{1+2}$ ; a restricted cloud at origin of *Rs*; prearcular field paler brown; the clearer ground areas include a major area before stigma and anterior cord, cell *M* and the basal portions of cells *Cu*, *1st A* and *2nd A*; veins brown. Venation:  $R_{1+2}$  entire; cell *1st M*<sub>2</sub> narrow; cell *2nd A* relatively wide. In the type, a tiny cell is cut off in the axil of cell *R*<sub>2</sub> by an adventitious crossvein just beyond vein *R*<sub>2</sub>; in female, venation normal.

Abdomen dark brown, the incisures of the segments narrowly obscure testaceous yellow; in male the subterminal segments uniformly dark brown; hypopygium yellow. Ovipositor with the cerci compressed and hairy, as common in the subgenus. Male hypopygium with the ninth tergite elongate, strongly narrowed and decurved at apex, on the outer deflected portion with a blackened structure densely set with strong black setae and spinous points. Outer dististyle flattened-compressed, parallel-sided, the tip obtuse, the outer end blackened. Inner dististyle with the beak slender, the posterior lobe with abundant dense setae and more scattered stronger bristles; outer margin of style bearing a black flattened blade. Appendage of ninth sternite paired, strongly flattened and compressed, densely set with long yellow setae. Eighth sternite with caudal margin rounded, on either side of median line with numerous elongate setae forming two distinct groups, the mid-region without major setae.

*Holotype*, ♂, Abitagua, altitude 1,800 meters, April 15, 1940 (Macintyre). *Allotopotype*, ♀, pinned with type.

*Tipula* (*Nephrotomodes*) *palaeogama* is entirely distinct from the now numerous species of the subgenus, differing especially in the wing pattern and in the structure of the male hypopygium. It rivals in size the largest known members of the subgenus, as *T* (*N.*) *aymara* Alexander, of Bolivia.

### **Limonia** Meigen

#### **Limonia** (**Limonia**) **aurigena** sp. n.

Belongs to the *praeclara* group; general coloration brown, the mesonotum with a conspicuous, golden-yellow, dorsomedian stripe; antennal scape yellow, the remainder black; legs black, with two snowy white rings, one at tip of tibia, the second on tarsi, involving only the extreme tip of basitarsi, with the succeeding three segments; wings yellowish brown, restrictedly patterned with darker brown; male hypopygium with mesal-apical lobe of gonapophysis darkened, slightly curved at tip; apex of aedeagus small, only slightly expanded.

*Male*.—Length, about 6.8–7 mm. wing, 7.2–7.5 mm.

Rostrum very reduced, yellow, tipped with black; palpi reduced, black. Antennae with scape pale yellow; pedicel and flagellum black; flagellar segments oval, the outer segments more elongate; all segments except the last with very short glabrous apical pedicels; terminal segment elongate, nearly twice the penultimate; longest verticils unilaterally distributed, exceeding twice the segments. Head with front and anterior vertex pale, silvery pruinose; posterior vertex brown; anterior vertex wide, approximately four times the diameter of scape.

Pronotum pale brown, slightly darker laterally. Mesonotum medium brown with a broad, golden-yellow, median stripe extending from the cephalic border of praescutum to the abdomen, gradually narrowed behind, ending as a point on the posterior border of mediotergite; on praescutum, the stripe more intense, more or less divided by a capillary dark line, the stripe bordered laterally by a more intense darkening of the ground color, this deepened pattern bordering the pale stripe continued more or less distinctly for the entire length of the mesonotum, the lateral borders distinctly paler. Pleura obscure brownish yellow, clearer yellow on most of sternopleurite. Halteres blackened. Legs with coxae and trochanters yellow; femora black, the extreme bases obscure yellow; tibiae black, the tips narrowly snow-white, the amount subequal on all legs and involving the distal seventh or eighth; basitarsi black, the extreme tips whitened; remainder of tarsi white, only the terminal segment again abruptly black. Wings with a rich yellowish brown suffusion, the costal border weakly darkened; a restricted darker brown pattern, including small spots at origin of *Rs*, fork of *Sc*, a very small stigmal area, cord and outer end of cell *1st M*<sub>2</sub>; veins brown. Venation: *Sc*<sub>1</sub> ending nearly opposite two-thirds the length of *Rs*, *Sc*<sub>2</sub> at its tip; *Rs* angulated at origin; inner ends of cells *R*<sub>3</sub> and *1st M*<sub>2</sub> about in transverse alignment and lying some distance basad of cell *R*<sub>5</sub>; *m-cu* close to fork of *M*.

Abdominal tergites brownish black, even more intense laterally; sternites light yellow; incisures of outer segments restrictedly pale; male hypopygium dark. Male hypopygium characteristic of the group; basistyle with ventromesal lobe low and stout, with numerous setae. Dorsal dististyle a strongly curved blade, slightly more widened on outer third. Ventral dististyle small, its rostral prolongation long and unusually glabrous, with a small oval sensory area close to tip. Gonapophysis with mesal-apical lobe darkened, slightly curved at tip. Apex of aedeagus relatively small, not modified into a large compressed blade or flange as is the case in several allied forms.

*Holotype*, ♂, Abitagua, Cunibunda, altitude 1,100 meters, April 2, 1940 (Macintyre). *Paratopotypes*, 2 ♂♂, with the type.

There are several allied species in the Neotropical fauna having snowy white to pale rings on the legs, such species including *Limonia* (*Limonia*) *capnora* Alexander, *L. (L.) curraniana* Alexander, *L. (L.) limbinervis* Alexander, *L. (L.) lutzi* Alexander, *L. (L.) metae* Alexander, *L. (L.) praeclara* Alexander and *L. (L.) trialbocincta* Alexander. The present fly is closest to *metae*, differing from this and other allies especially in the leg-pattern and in slight details of the male hypopygium, notably the gonapophyses and aedeagus. The structure of the ventral dististyle and its rostral prolongation is very characteristic of the entire group. It seems further evident that still other Neotropical species having unpatterned legs, including *L. (L.) fumosa* Alexander, *L. (L.) insularis* Williston, *L. (L.) grossa* Alexander, *L. (L.) infucata* Alexander, *L. (L.) mesotricha* Alexander, *L. (L.) multisignata* Alexander, and *L. (L.) pernobilis* Alexander, belong to this same group.

### *Limonia* (*Geranomyia*) *stenophallus* sp. n.

General coloration of mesonotum reddish, the praescutum with three diffuse, more reddish brown stripes, the lateral praescutal borders weakly darkened; knobs of halteres dark brown; wings pale yellow, restrictedly patterned with brown; *Sc* relatively long; *Rs* angulated and spurred at origin; dark areas at origin of *Rs* and fork of *Sc* separate; male hypopygium with the rostral prolongation short, truncated at apex, the two long rostral spines arising from low separate tubercles; gonapophyses with mesal-apical lobes produced into blackened spines; aedeagus unusually long and slender, narrowest at near midlength.

*Male*.—Length, excluding rostrum, about 6 mm.; wing, 7 mm. rostrum, about 3 mm.

Rostrum relatively long, about one-half the length of body, black, the tips of labial palpi a very little paler. Antennae black throughout; flagellar segments oval to long-oval; verticils of moderate length. Head black; a narrow silvery line extending from the front over the vertex to the occiput, its width equal to the diameter of the anterior vertex.

Pronotum obscure yellow. Mesonotal praescutum with the ground color reddish gray, with three diffuse, more reddish brown stripes that are only poorly indicated and defined, subequal in width to the posterior interspaces; lateral praescutal borders weakly

darkened; scutum reddish brown; scutellum and postnotum obscure yellow; vestiture of notum much reduced. Pleura testaceous yellow, the dorsopleural membrane and dorsal sclerites a trifle darker. Halteres with stem pale, knob dark brown. Legs with coxae and trochanters yellow; remainder of legs broken. Wings with the ground color pale yellow, rather sparsely patterned with brown, including the oval stigma and seams at the supernumerary crossvein in cell  $Sc$ ; origin of  $Rs$ ; fork of  $Sc$ , the latter much smaller than the former and entirely separate from it; conspicuous seams along cord and outer end of cell  $1st\ M_2$ ; veins pale, darker in the patterned areas. Costal fringe short and dense. Venation:  $Sc$  of moderate length,  $Sc_1$  ending opposite midlength of  $Rs$ ,  $Sc_2$  near its tip;  $Rs$  angulated and short-spurred at origin; basal section of  $R_{1+2}$  long, shortening  $r-m$ ; cell  $1st\ M_2$  a little shorter than the distal section of  $M_{1+2}$ ;  $m-cu$  a short distance beyond the fork of  $M$ ; vein  $2nd\ A$  sinuous.

Abdomen with tergites pale brown or yellowish brown, provided with long conspicuous setae; sternites somewhat paler; hypopygium brownish yellow. Male hypopygium with the tergite relatively long, its caudal border only gently emarginate, the low lateral lobes provided with several long black setae. Basistyle with the ventromesal lobe relatively long but simple. Dorsal dististyle a gently curved rod, its tip abruptly narrowed into a spine. Ventral dististyle fleshy, its area about twice that of the basistyle; rostral prolongation short and stout, the apex truncate; two long rostral spines from very long separate tubercles, placed side by side on basal half of prolongation; spines long and slender, about twice as long as the prolongation. Gonapophyses with mesal-apical lobe produced into a slender acute blackened spine. Aedeagus unusually long and slender, narrowest near midlength, the distal half dilated to about twice its width at the narrowest point, the apex weakly bilobed.

*Holotype*, ♂, Abitagua, Mayorga's Playa, altitude 1,100 meters, April 12, 1940 (Macintyre).

Despite its very different general appearance, especially the wing pattern, I believe the nearest relative of the present fly is *Limonia* (*Geranomyia*) *hirsutinota* Alexander, which has the general structure of the male hypopygium much as in the present fly though differing in details.

### ***Limonia* (*Geranomyia*) *refuga* sp. n.**

General coloration of mesonotum orange, including the disk of praescutum and the scutal lobes; scutellum testaceous; knobs of halteres dark brown; wings yellow, very sparsely patterned with brown, including the oval stigma and restricted seams at origin of  $Rs$  and over the supernumerary crossvein in cell  $Sc$ ; vein  $Sc$  short,  $Sc_1$  ending just beyond the origin of  $Rs$ ; cell  $1st\ M_2$  subequal in length to vein  $M_{1+2}$  beyond it; male hypopygium with the rostral spines arising from separate tubercles, these spines slightly unequal in diameter and length; gonapophyses with a conspicuous flange on the concave face of the mesal-apical lobe.

*Male*.—Length, excluding rostrum, about 6 mm.; wing, 7 mm.; rostrum, about 2.2 mm.

Rostrum black throughout, of moderate length. Antennae black; flagellar segments cylindrical to subcylindrical. Head dark brownish gray; anterior vertex reduced to a capillary line.

Pronotum obscure yellow. Mesonotal praescutum with the entire disk occupied by three confluent orange stripes, the humeral region restrictedly more yellow; scutal lobes similarly orange, the median region and the scutellum more testaceous; postnotum testaceous yellow; praescutum and scutum with sparse but very long and conspicuous erect setae, most evident near suture. Pleura yellow. Halteres with stem yellow, knob dark brown. Legs with coxae and trochanters yellow; remainder of legs broken. Wings with the ground color yellow, very sparsely patterned with brown, including the oval stigma, a small seam at the supernumerary crossvein in cell *Sc* and a restricted common seam at origin of *Rs* and fork of *Sc*; no distinct darkening along cord or outer end of cell 1st *M*<sub>2</sub>. Costal fringe short and dense. Venation: *Sc* short, *Sc*<sub>1</sub> ending immediately beyond the origin of *Rs*, *Sc*<sub>2</sub> at its tip; cell 1st *M*<sub>2</sub> elongate, subequal to vein *M*<sub>1+2</sub> beyond it; *m-cu* more than one-third its length beyond the fork of *M*.

Abdominal tergites obscure brownish yellow; sternites clearer yellow. Male hypopygium with the caudal margin of tergite broadly and shallowly emarginate, the low lobes with long coarse setae. Basistyle with the ventromesal lobes large, simple. Dorsal dististyle appearing as a gently curved sickle, the tip acute. Ventral dististyle very large, fleshy, in area nearly four times the basistyle; rostral prolongation relatively slender, with two rostral spines from separate tubercles, the outer spine a little longer and more slender, from a smaller tubercle; inner spine close to the base of the prolongation. Gonapophysis with mesal-apical lobe elongate, gently curved, pale, the concave face with a conspicuous flange.

*Holotype*, ♂, Abitagua, altitude 1,100 meters, March 21, 1940 (Macintyre).

*Limonia (Geranomyia) refuga* is very different from other regional species having a short *Sc* and restrictedly patterned wings. The immaculate praescutum separates it from several species having three narrow brown stripes on the praescutum. The nature of the hypopygium is most like that of *L. (G.) myersiana* Alexander, of the Greater Antilles, which has the wings unpatterned except for the stigma, and the details of body coloration distinct.

#### ***Limonia (Geranomyia) pastazina* sp. n.**

General coloration of mesonotum brownish yellow or testaceous brown, unmarked; rostrum elongate, black; halteres uniformly blackened; wings subhyaline, the cells beyond cord weakly darkened; stigma oval, dark brown, conspicuous; *Sc*<sub>1</sub> ending about opposite two-fifths the length of *Rs*; cell 2nd *A* relatively narrow, vein 2nd *A* gently and evenly arched throughout its length, not at all sinuous; male hypopygium with the apex of the dorsal dististyle narrowly obtuse; rostral spines of ventral dististyle arising from small individual tubercles; mesal-apical lobe of gonapophysis very long and slender, entirely pale.



*Male*.—Length, excluding rostrum, about 5 mm.; wing, 5.5 mm.; rostrum, about 2.5 mm.

Rostrum elongate, fully one-half the length of remainder of body, black. Antennae brownish black throughout; flagellar segments oval. Head dark brown, without pattern; anterior vertex reduced to a narrow strip that is narrower than the diameter of the scape.

Mesonotal praescutum, scutum and postnotum uniform brownish yellow or testaceous brown; scutellum broad, a trifle paler than the remaining sclerites of notum; notal setae very reduced to virtually lacking. Pleura testaceous yellow. Halteres uniformly blackened. Legs with coxae and trochanters testaceous yellow; remainder of legs broken. Wings subhyaline, the cells beyond cord weakly darkened; stigma oval, dark brown, conspicuous; veins brown. Venation: *Sc* of moderate length, *Sc*<sub>1</sub> ending about opposite two-fifths the length of *Rs*, *Sc*<sub>2</sub> at its tip; a supernumerary crossvein in cell *Sc*; basal section of *R*<sub>4+5</sub> in approximate longitudinal alignment with *Rs*; cell 1st *M*<sub>2</sub> subequal in length to or slightly shorter than vein *M*<sub>1+2</sub> beyond it; *m-cu* at or close to fork of *M*; cell 2nd *A* relatively narrow, the vein evenly and gently arched throughout its length.

Abdomen with tergites brown, the sternites brightened; hypopygium conspicuously darker, especially the ventral dististyle. Male hypopygium with the caudal margin of ninth tergite with a very broad U-shaped notch. Dorsal dististyle a strongly curved sickle, the tip narrowly obtuse. Ventral dististyle very large, exceeding three times the area of the basistyle; rostral prolongation short, truncated at apex, the spines long and conspicuous, more than twice as long as the prolongation itself, arising from small individual tubercles that are placed close together a short distance back from apex of prolongation; spines subequal in length but one more curved, both acute at tips. Gonapophyses entirely pale, the mesal-apical lobes very long and narrow, gently curved to the acute tips.

Holotype, ♂, Abitagua, Mayorga's Playa, altitude 1,100 meters, April 12, 1940 (Macintyre).

*Limonia* (*Geranomyia*) *pastazina* is evidently most closely related to members of the *canadensis* group, as *L. (G.) argentinensis* (Alexander), *L. (G.) austroandina* Alexander, and *L. (G.) guatemalensis* (Alexander), all of which have vein 2nd *A* sinuous and not evenly arcuated throughout its length, and with conspicuously elongated basal tubercles to the rostral spines of the ventral dististyle.

## Epiphragma Osten Sacken

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

Mesonotal praescutum rich chestnut brown, the posterior sclerites darker; thoracic pleura with a broad yellow longitudinal stripe extending from the pronotum to beneath the wing root, clearly separated from a black pleural stripe immediately beneath it; legs yellow, the femora with two conspicuous dark brown rings; wings yellow, heavily marked with brown, the pattern in part ocelliform.

*Male*.—Length, about 8 mm.; wing, 7.5 mm.

Rostrum and palpi black. Antennae with the scape and pedicel weakly infuscated to obscure yellow; fusion-segment of flagellum yellow; succeeding segments brownish black; antennae broken beyond the tenth segment; flagellar segments long-cylindrical, with conspicuous verticils that are subequal in length to the segments; antennae relatively short. Head orange-yellow, the posterior vertex more testaceous, with a central infuscation.

Pronotum light yellow, the color continued caudad as a very broad and conspicuous longitudinal stripe to below the wing-root, becoming wider behind, involving the extreme lateral border of praescutum, the dorsopleural membrane and the dorsal portions of the thoracic pleura, the stripe behind involving the dorsal pteropleurite and pleurotergite. Mesonotum rich chestnut brown, the disk not or scarcely patterned, the lateral border conspicuously blackened; scutal lobes chestnut brown, the median area weakly darkened; scutellum and postnotum more strongly infuscated, sparsely pruinose, the lateral portions of mediotergite and adjoining portions of pleurotergite extensively obscure yellow. Pleura beneath the yellow dorsal stripe with a comparable longitudinal black stripe, its upper edge clear-cut, the ventral portion merging with the obscure yellow of the ventral sternopleurite and meron. Halteres yellow. Legs with the coxae yellow, the fore pair weakly darkened, especially on proximal portions; trochanters yellow; legs detached; femora yellow, each with two conspicuous dark brown rings, the outer one narrower than the yellow ring on either side; tibiae and tarsi yellow. Wings relatively broad; ground color yellow, the prearcular and costal fields more saturated yellow; a heavy brown pattern that is in part ocelliform, including a complete ring at origin of *Rs*; incomplete rings at arculus, along cord and fork of  $M_{1+2}$ ; cell *Cu* with a single dark cloud at near midlength; outer margin of cell *1st A* with two dark dashes, cell *2nd A* with five, the innermost a larger cloud that extends into the base of cell *1st A*; dark area over the supernumerary crossvein in cell *C* not connected with other brown spots; veins yellow, a little darker in the patterned areas. Venation:  $R_{2+3+4}$  relatively short, a trifle less than two times *r-m*; *m-cu* more than three-fourths its own length beyond the fork of *M*.

Basal abdominal tergites chiefly obscure yellow, patterned with brown, the outer segments more extensively darkened; tergal impressions more yellowish; basal sternites obscure yellow, the outer segments more darkened; hypopygium obscure yellow. Male hypopygium with the interbasal rods strongly recurved at their tips.

*Holotype*, ♂, Abitagua, Cunibunda, altitude 1,100 meters, March 22, 1940 (Macintyre).

The broad yellow stripe on the pronotum and dorsal thoracic pleura readily separates the present fly from other regional allies. Among the now numerous Neotropical species of the genus, the closest relatives appear to be *Epiphragma* (*Epiphragma*) *amphileuca* Alexander and *E. (E.) delicatula* Osten Sacken. It is unfortunate that the apical segments of the antennae of the unique type are broken and thus it cannot be stated whether or not the outer antennal segments are abruptly whitish, as is the case in *amphileuca* and certain other species.

**Ctenolimnophila** Alexander**Abitagua** subgen. n.

Characters as in the typical subgenus. Antennae 15-segmented; scape elongate; basal five flagellar segments united into an elongate fusion-segment, the former sutures feebly indicated, each ring thus formed with a strong bristle; sixth flagellar segment partly fused with the basal segment; succeeding seven segments more elongate, the terminal one nearly twice the penultimate; all outer segments with long verticils, including a unilaterally arranged series consisting of a single, unusually long seta on each segment, the longest bristle fully three times the segment alone. Halteres elongate. Tibiae with two strong spurs; claws simple. Wings with anterior arculus broken; vein  $R_{2+3+4}$  very long,  $R_2$  lacking; cell  $M_1$  lacking; cell 1st  $M_2$  very long and narrow, with *m-cu* at near midlength. Male hypopygium with the outer dististyle terminating in a simple truncated point; inner dististyle provided with conspicuous spines and spinous points; gonapophyses appearing as pale clubs, their tips set with numerous appressed spines.

*Type of Subgenus*.—*Ctenolimnophila* (*Abitagua*) *longifusa* sp. n. (Neotropical Region).

**Ctenolimnophila** (*Abitagua*) *longifusa* sp. n.

General coloration of notum light chestnut brown, without pattern; thoracic pleura with a conspicuous black longitudinal stripe; halteres elongate, yellow; legs black, the tarsi paling to obscure yellow; wings uniform pale brown, unpatterned;  $R_{2+3+4}$  and cell 1st  $M_2$  unusually long; male hypopygium with the inner dististyle conspicuously spinous.

*Male*.—Length, about 6.5 mm.; wing, 6.3 mm.; antenna, about 1 mm.

Rostrum and palpi black. Antennae with scape and pedicel black, flagellum pale brown. Head brown.

Pronotum and pretergites obscure yellow. Mesonotum almost uniformly light chestnut brown, without distinct pattern. Pleura light brownish yellow with a conspicuous black longitudinal stripe extending from the cervical region to the base of abdomen. Halteres unusually long, with small club, yellow throughout. Legs with the coxae and trochanters brownish yellow; remainder of legs black, the tarsi paling to obscure yellow. Wings with a uniform pale brown tinge, without pattern. Veins beyond cord with abundant long trichia. Venation:  $Sc_1$  ending opposite fork of  $Rs$ ,  $Sc_2$  near its tip;  $Rs$ ,  $R_{2+3+4}$  and  $R_3$  all elongate and generally equal in length; inner end of cell 1st  $M_2$  lying far basad of cell  $R_5$ ; *m* and basal section of  $M_3$  in approximate transverse alignment; cell 2nd *A* moderately wide.

Abdomen weakly bicolored, obscure brownish yellow, the incisures and lateral borders more strongly blackened. Male hypopygium as described under the subgenus; outer dististyle entirely sclerotized and blackened, relatively narrow and parallel-sided, the apex narrowed into a decurved point, the apex truncated; inner dististyle much stouter, the entire outer face set with conspicuous blackened

appressed spines; apex of style terminating in three or four long powerful setae. Aedeagus broadly dilated at base.

*Holotype*, ♂, Abitagua, altitude 1,100 meters, June 13, 1941 (Macintyre).

The present fly superficially is most like *Ctenolimnophila* (*Campbellomyia*) *neolimnophiloides* Alexander, of southeastern Brazil, and it is possible that this latter fly will be found to belong to the new subgenus as above defined. The elongate vein  $R_{2+3+4}$  and the fusion segment of the antennae suggest the conditions found in the genus *Neolimnophila* Alexander but from the structure of the male hypopygium it is certain that there is no close relationship between these two groups. The typical members of both *Ctenolimnophila* and *Campbellomyia* Alexander have the antennal segments simple and unfused and it seems probable that when more material becomes available *Abitagua* will require full generic ranking.

### Atarba Osten Sacken

#### *Atarba* (*Atarba*) *procericornis* sp. n.

General coloration of thorax testaceous yellow, not or scarcely patterned; antennae (male) exceeding in length either the body or the wing; basal flagellar segments bicolored, their proximal ends yellow, the apices black; flagellar segments long-cylindrical, with conspicuous outspreading verticils; legs yellow; wings tinged with brown, the stigma slightly darker; *m-cu* about one-third its own length beyond the fork of *M*; abdominal tergites weakly bicolored, their bases yellow, the apices more broadly dark brown; male hypopygium with both dististyles unusually long, the outer at near one-third its length dilated into a triangular body, the long slender apex with seven or eight strong spines along outer border; inner dististyle unusually slender; aedeagus short and straight, unmodified.

*Male*.—Length, about 5 mm.; wing, 5.6 mm.; antenna, about 6.5 mm.

Rostrum testaceous yellow, with very long and conspicuous black setae; palpi dark brown. Antennae (male) exceeding the body in length, as shown by the measurements; scape and pedicel yellow; flagellar segments with the bases yellow, the tips black; on the first and second segments the two colors are about equal in extent, on the third and succeeding segments the amount of yellow progressively restricted, on segment three occupying one-third the segment, on segment five about one-fifth, on the seventh and eighth segments virtually lacking, the succeeding segments uniformly black; flagellar segments long-cylindrical, with conspicuous outspreading verticils over their total length. Head brown, very sparsely pruinose; eyes large; anterior vertex about one-half wider than the diameter of scape.

Pronotum and mesonotum almost uniform testaceous yellow, not or scarcely patterned. Pleura testaceous yellow, the dorsal sclerites a trifle darker. Halteres yellow, the knobs weakly darkened. Legs yellow, the outer tarsal segments passing into brown; tibiae spurred. Wings relatively narrow, tinged with brown, the prearcular and costal fields light yellow; stigma narrow, pale brown; veins and crossveins

very narrowly and insensibly seamed with darker; veins brown, yellow in the brightened portions. Venation:  $Sc_1$  ending opposite origin of  $R_s$ ,  $Sc_2$  some distance from its tip,  $Sc_1$  alone exceeding one-half the length of the relatively short  $R_s$ ;  $R_s$  very gently arcuated, its branches long and straight; cell  $1st\ M_2$  short, subquadrate;  $m-cu$  about one-third its length beyond the fork of  $M$ .

Abdominal tergites weakly bicolored, the bases obscure yellow, the apices more broadly dark brown, the subterminal segments more uniformly dark brown; hypopygium obscure brownish yellow, the styli darkened. Male hypopygium with the basistyle moderately long, on mesal face before apex with a small finger-like lobe; mesal face near base with a group of from eight to ten unusually strong and powerful setae. Outer dististyle long and narrow, at near one-third the length dilated into a triangular body that terminates in a strong spine; outer two-thirds of style slender, its outer border with about seven or eight strong spines before the decurved terminal one. Inner dististyle a little longer than the outer, unusually long and slender, gently curved at about one-third the length. Aedeagus straight, relatively short, moderately stout, the tip truncated and unmodified; at base of aedeagus on either side with two strong spinous points, the outermost again unequally bispinous; the exact homologies of these spines cannot be determined from the material available. No evident appendage of the ninth sternite is visible in the unique slide.

*Holotype*, ♂, Abitagua, Cunibunda, altitude 1,100 meters, April 2, 1940 (Macintyre).

*Atarba* (*Atarba*) *procericornis* is readily told from all of the now numerous Neotropical members of the genus by the very long antennae of the male and by the structure of the male hypopygium, especially the outer dististyle and the unusually slender inner dististyle. The most similar of these regional forms are *A. (A.) idonea* Alexander and *A. (A.) tatei* Alexander.

### Gnophomyia Osten Sacken

#### Gnophomyia (*Gnophomyia*) *coxitalis* sp. n.

General coloration black; antennae (male) relatively elongate, black throughout; halteres and legs black; wings with a strong blackish suffusion, vein  $Cu$  and the cord broadly seamed with darker;  $m-cu$  about opposite midlength of cell  $1st\ M_2$ ; male hypopygium with the lateral angles of ninth tergite produced caudad into long lobes, the margin between these with a comb of long spinous setae; basistyle on mesal face near proximal end with a row of about five very powerful black spinous setae.

*Male*.—Length, about 5.3–5.5 mm.; wing, 5.2–5.6 mm. antenna, about 2.5–2.7 mm.

Rostrum and palpi black. Antennae relatively long, nearly one-half the length of wing, black throughout; flagellar segments elongate-oval; longest verticils exceeding the segments in length. Head black, broad, the anterior vertex about three times the diameter of scape.

Pronotum black; anterior lateral pretergites very restrictedly brightened. Mesonotum black, the surface opaque or subopaque. Pleura black, the surface sparsely pruinose. Halteres black. Legs with the coxae black, sparsely pruinose; trochanters brownish black; remainder of legs black, the bases of femora, especially the fore pair, restrictedly obscure yellow. Wings with a strong blackish suffusion, more heavily seamed with brown as a broad band at and beyond cord and as a conspicuous cloud along vein *Cu* in cell *M*; stigma narrowly long-oval, still darker in color; a more or less distinct subhyaline brightening in outer ends of cells *R* and *M* before the darkened cross-band; veins black. Venation: *Sc* long, *Sc*<sub>1</sub> ending a short distance before fork of *R*<sub>2+3+4</sub>, *Sc*<sub>2</sub> some distance from its tip, about opposite two-thirds the length of *Rs*; *Rs* straight, in alignment with *R*<sub>s</sub>, the basal section of the latter eliminated or virtually so; *R*<sub>2+3+4</sub> only slightly arcuated, in longitudinal alignment with its anterior branch; *R*<sub>2</sub> about one-half *R*<sub>2+3</sub>; cell 1st *M*<sub>2</sub> of moderate length, about one-half of vein *M*<sub>1+2</sub> beyond it; *m-cu* at near midlength of cell 1st *M*<sub>2</sub>; cell 2nd *A* of moderate length.

Abdomen, including hypopygium, black. Male hypopygium with the tergite transverse, its caudal margin with a dense comb of elongate black spinous setae; lateral angles of tergite greatly produced into long lobes that are provided with shorter, more appressed, spinous setae. Basistyle relatively short, the mesal face of each near base with a row of about five very powerful black spinous setae. Outer dististyle nearly straight, broadest on basal third, the apex subacute. Inner dististyle much smaller, blackened, gently arcuated, the distal end subtriangularly dilated, its apex obtuse. Phallosomic plate conspicuously bilobed.

*Holotype*, ♂, Abitagua, altitude 1,100 meters, March 21, 1940 (Macintyre). *Paratopotype*, ♂, with the type.

*Gnophomyia* (*Gnophomyia*) *coxitalis* is most nearly allied to *G. (G.) kertesiana* Alexander, *G. (G.) maestitia* Alexander, and *G. (G.) pallidapex* Alexander, differing from all in the peculiar structure of the male hypopygium, notably of the ninth tergite and the armed basistyles (coxites, parameres).

### ***Gnophomyia* (*Gnophomyia*) *teleneura* sp. n.**

General coloration of mesonotum black, the praescutum virtually covered by a continuous dorsal shield; pleura yellow, the anepisternum with a conspicuous blackened spot that includes the entire sclerite or virtually so; wings yellowish subhyaline, the central cells washed with brown to about the level of the darker brown stigma; costa opposite stigma conspicuously thickened; cord of wing lying unusually basad, at about midlength of wing, the veins beyond being very long; *M*<sub>1+2</sub> distad of the unusually narrow cell 1st *M*<sub>2</sub> about three times the length of the cell; cell 2nd *A* wide; male hypopygium with numerous very long strong setae on ninth sternite; outer dististyle slender, its tip obtuse.

*Male*.—Length, about 6.5 mm. wing, 6.1 mm. antenna, about 2 mm.

*Female*.—Length, about 6 mm. wing, 6.2 mm.

Rostrum pale yellowish brown; palpi black. Antennae relatively long, as shown by the measurements; scape brown; pedicel and flagellum black; basal flagellar segments long-cylindrical, with relatively inconspicuous verticils; outer segments gradually shorter, the verticils longer and more conspicuous but still shorter than the segments; terminal segment small, about two-thirds the penultimate. Head gray.

Pronotum dark brown, pale laterally; pretergites pale yellow. Mesonotal praescutum covered by a polished black shield, the humeral region extensively yellow; region of suture, median area of scutum and the posterior border of scutellum more reddish, the remainder of mesonotum, including the pleurotergite, black. Pleura yellow, the anepisternum covered by a conspicuous circular blackened spot. Halteres with stem brown, knob blackened. Legs with the coxae and trochanters yellow; femora pale brown to yellowish brown; tibiae and tarsi obscure brownish yellow, the tips of tibiae and the outer tarsal segments restrictedly blackened. Wings yellowish subhyaline, distinctly patterned with darker; a heavy brown infuscation extending from the axillary region to beyond the cord, involving the extensive basal portions of cells *1st A*, *Cu* and *M*, as well as the bases of the outer radial cells to the general level of the stigma, the outer cells of wing somewhat less distinctly darkened; stigma oval, dark brown, conspicuous; prearcular field and costal region light yellow; veins brown, yellow in the brightened portions. Venation: In male, cord of wing lying unusually far basad, at midlength of wing, the veins beyond cord thus of unusual length; costa opposite the stigmal area strongly incrassated and darkened; *Rs* in longitudinal alignment with *R*<sub>5</sub>; *R*<sub>2</sub> relatively faint; *R*<sub>2+3+4</sub> about three times *R*<sub>2+3</sub>; cell *1st M*<sub>2</sub> very long and narrow, about one-third as long as vein *M*<sub>1+2</sub> beyond it; *m-cu* faint, slightly less than its own length beyond the fork of *M*; distal section of *Cu*<sub>1</sub> very long, cell *M*<sub>4</sub> correspondingly very deep; vein *2nd A* strongly arched on basal third, approaching vein *1st A*, cell *2nd A* wide. In female, venation about as in male but *R*<sub>2+3+4</sub> and veins beyond cord a trifle shorter; *m-cu* more evident, lying farther distad, at near one-third the length of cell.

Abdominal tergites dark brown, the sternites obscure brownish yellow, vaguely patterned with darker; hypopygium and preceding segment a little paler than the tergites. Male hypopygium with the sternite provided with about seven or eight very powerful setae arranged in a loose group on either side of midline, the setae directed ventrad. Outer dististyle relatively slender, its tip obtuse. Inner dististyle a compact mass consisting of a basal blackened lobe provided with a few long strong setae and an outer apical portion with apex obtuse, the margin roughened. Ovipositor with cerci relatively elongate, somewhat parallel-sided, with setae over the entire length; tips obtuse.

*Holotype*, ♂, Abitagua, altitude 1,800 meters, April 15, 1940 (Macintyre). *Allotopotype*, ♀, with the type.

*Gnophomyia* (*Gnophomyia*) *teleneura* is entirely distinct from all other regional members of the genus, the most striking character being

the position of the cord at near midlength of the wing and the corresponding very unusual length of the veins beyond. The wing pattern is likewise distinctive of the species.

**Gnophomyia (Gnophomyia) flebilis** sp. n.

General coloration black, the meral region of the thoracic pleura more yellow; antennae and legs brownish black; halteres with stem darkened, knob light yellow; wings with a very strong and uniform brown tinge, the prearcular field restrictedly yellow;  $Sc_2$  far from the tip of  $Sc_1$ , before the level of the fork of  $R_s$ ; male hypopygium with the outer dististyle long and slender, gradually narrowed to the subacute tip; inner dististyle short and stout, with a strong blackened tooth at base.

*Male*.—Length, about 5.2–5.5 mm. wing, 5.3–6 mm. antenna, about 1.1–1.2 mm.

*Female*.—Length, about 5.5 mm.; wing, 5.5 mm.

Rostrum and palpi black. Antennae black throughout, relatively short; flagellar segments subcylindrical, the longest verticils exceeding the segments in length. Head dull brownish black.

Pronotum black, the pretergites yellow. Mesonotum black, the surface glabrous and subnitidous. Pleura black, the more ventral pleurites paler and sparsely pruinose; meral region more yellowed. Halteres with stem brown, knob conspicuously light yellow. Legs with the fore and hind coxae testaceous, middle coxae darker; trochanters obscure yellow; remainder of legs brownish black to black, the femoral bases restrictedly brightened. Wings with a very strong and uniform brown tinge, the prearcular field restrictedly yellow; veins brownish black. Venation:  $Sc_1$  ending beyond midlength of  $R_{2+3+4}$ ,  $Sc_2$  far from its tip, shortly before the fork of  $R_s$ ;  $R_2$  very faint to subatrophied, placed shortly beyond the fork of  $R_{2+3+4}$ , varying from longer to shorter than vein  $R_{2+3}$  alone; *m-cu* variable, from one-third to nearly its own length beyond the fork of  $M$ .

Abdomen, including hypopygium and genital shield of ovipositor black. Male hypopygium with the outer dististyle unusually long and slender, gradually narrowed outwardly, the apex subacute to narrowly obtuse. Inner dististyle short and stout, obtuse at tip, only about one-third the length of outer style; at base of inner style with a strong blackened tooth or flange. Major plate of phallosome at apex narrowed into a median blackened point.

*Holotype*, ♂, Abitagua, altitude 1,100 meters, March 21, 1940 (Macintyre). *Allotopotype*, ♀ *Paratopotypes*, 1 ♂, 1 ♀, with types.

In its general appearance, the present fly is most similar to *Gnophomyia (Gnophomyia) lachrymosa* Alexander, differing conspicuously in the structure of the male hypopygium, especially the very long, slender outer dististyle, the basal tooth of the inner style, and the strongly narrowed apex of the phallosome. The halteres of *lachrymosa* are black throughout.

**Gnophomyia (Gnophomyia) perlata** sp. n.

General coloration dull black; anterior pretergites conspicuously light yellow; halteres with knob clear light yellow; legs brown, the



terminal segments blackened; wings unusually broad, especially in male, the width (male) exceeding one-third the length; male hypopygium with the outer dististyle terminating in a straight black spine; inner dististyle with the basal lobe obtuse.

*Male*.—Length, about 5.3–5.6 mm.; wing, 6 x 2.0 to 6.2 x 2.2 mm.

*Female*.—Length, about 5.5 mm.; wing, 6.2 x 1.9 mm.

Rostrum and palpi black. Antennae black, relatively short; flagellar segments suboval to elongate, the longest verticils exceeding the segments. Head black, sparsely pruinose.

Thoracic notum dull black, the surface more or less pruinose; anterior pretergites conspicuously light yellow; humeral region of praescutum and extreme posterior portions of scutal lobes slightly reddened. Pleura dull black, the dorsopleural membrane a trifle brightened; meral region yellow. Halteres with stem obscure yellow, the knob clearer yellow. Legs with the fore and middle coxae blackened, their tips more or less paler, posterior coxae uniformly yellow; trochanters brownish yellow, the posterior pair clearer yellow; remainder of legs brown, the terminal segments more blackened. Wings unusually broad, especially in male, representing the maximum in this respect as found in the Neotropical fauna; membrane strongly suffused with brown but not as dark as in *flebilis*; prearcular field restrictedly more yellow; stigma very narrow, still darker brown; veins dark brown, those in the prearcular field brighter. Venation:  $Sc_1$  ending about opposite fork of  $R_{2+3+4}$ ,  $Sc_2$  far from its tip, about opposite the fork of  $Rs$ ;  $R_{2+3+4}$  moderately arcuated;  $Rs$  in direct longitudinal alignment with  $R_s$ , as common in the genus; cell 1st  $M_2$  widened distally; *m-cu* variable in position, from about one-half to nearly its entire length beyond the fork of  $M$ .

Abdomen, including the genitalia of both sexes, brownish black. Male hypopygium with the outer dististyle a rather strongly curved blackened rod, narrowed into a long straight black spine or spike, its tip acute or subacute. Inner dististyle with the basal lobe obtuse. Phallosome with the aedeagus slender, blackened, the truncated tip pale. Ovipositor with cerci of moderate length, narrowed outwardly, the tips obtuse, with setae distributed over the entire length, as common in the genus.

*Holotype*, ♂, Abitagua, altitude 1,100 meters, March 18, 1940 (Macintyre). *Allotopotype*, ♀, March 21, 1940. *Paratopotype*, 1 ♂, with the allotype.

*Gnophomyia* (*Gnophomyia*) *perlata* has the broadest wings of any of the now numerous species known from Tropical America. In other regards it is apparently closest to *G. (G.) flebilis* sp. n., which differs further in the much more strongly darkened wings and in the details of structure of the male hypopygium, especially the dististyles.

### **Trentepohlia Bigot**

#### **Trentepohlia (Mongoma) errans sp. n.**

Coloration of thorax uniformly pale yellow; abdomen with a narrow dark brown subterminal ring, the remaining tergites brownish yellow,

the sternites clear yellow; legs obscure yellow throughout; wings with a pale yellow tinge, the yellow veins poorly differentiated against the ground; four veins issuing from cell *1st M*<sub>2</sub>; cell *Cu* closed by the touching of veins *Cu*<sub>1</sub> and *1st A*.

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

Rostrum yellow; palpi yellow, the terminal segment a little darker. Antennae with scape and pedicel yellow, flagellum a trifle darker, brownish yellow; flagellar segments oval with inconspicuous verticils. Head pale gray; anterior vertex reduced to a narrow strip.

Thorax almost uniformly pale yellow, the mesonotum a trifle more reddish; praescutum with scattered erect setae. Halteres pale yellow. Legs obscure yellow. Wings with a pale yellow tinge, the yellow veins poorly differentiated against the ground. Venation: *Sc*<sub>1</sub> ending just beyond fork of *Rs*, *Sc*<sub>2</sub> some distance from its tip, *Sc*<sub>1</sub> alone subequal to *R*<sub>2</sub>; *R*<sub>2</sub> about its own length before fork of *R*<sub>3+4</sub>, cell *R*<sub>3</sub> thus relatively short; four branches (*R*<sub>s</sub>, *M*<sub>1+2</sub>, *M*<sub>3</sub> and *M*<sub>4</sub>) issue from cell *1st M*<sub>2</sub>, the medial branches distinct but unusually pale and subevanescent; cell *Cu* closed by the apical touching of veins *Cu* and *1st A*; cell *2nd A* relatively large.

Abdominal tergites brownish yellow, sternites clear yellow; segment eight and part of nine dark brown to form a narrow subterminal ring; hypopygium yellow.

*Holotype*, ♂, Abitagua, altitude 1,100 meters, June 13, 1941 (Macintyre).

*Trentepohlia (Mongoma) errans* is the first member of the great subgenus *Mongoma* Westwood to be discovered in the New World. In the Palaetropical regions it is one of the largest and most characteristic groups in the Tipulidae. The present fly is certainly a member of the subgenus and its discovery in Tropical America is of unusual interest. Superficially the fly resembles certain species of the subgenus *Paramongoma* Brunetti, such as *T. (P.) pallida* (Williston).