

New or little-known Tipulidæ (Diptera).—LIII. Neotropical Species. By CHARLES P. ALEXANDER, Ph.D., F.R.E.S., Massachusetts State College, Amherst, Massachusetts, U.S.A.

THE crane-flies discussed at this time were chiefly collected in the Oriente of Ecuador by Mr. William Clarke-Macintyre, and in Rio Grande do Sul, Brazil, by Mr. Fritz Plaumann. One additional species of unusual interest was taken in Dutch Guiana by my good friend Dr. John G. Myers. I express my sincere indebtedness to all the above for the privilege of retaining the types in my collection of these flies.

Brachypremna arcuaria, sp. n.

Size small (wingless than 13 mm.); thoracic pleura conspicuously variegated with obscure yellow and dark brown; femora and tibiæ black, the genua very narrowly whitened; tarsi yellowish brown; wings strongly darkened, the stigma oval, darker brown, preceded and followed by conspicuous yellowish-white areas; outer cells of wing without pale droplets; *Rs* short and very strongly arcuated at origin; *r-m* very short or entirely obliterated by approximation of adjoining veins; cell 2nd *A* reduced to a linear strip.

Male.—Length about 10 mm.; wing 11.5 mm.

Female.—Length about 11 mm.; wing 12.5 mm.

Frontal prolongation of head narrowly testaceous-yellow above, including nasus, the sides blackened; palpi brownish black. Antennæ with scape yellow; pedicel brownish yellow; flagellum black. Head dark brown.

Mesonotum almost uniformly dark brown, the median area of scutum very restrictedly and vaguely paler. Pleura conspicuously variegated with obscure yellow and dark brown, the general coloration being dark, with pale areas on dorsal and ventral sternopleurite, on ventral pteropleurite, and on dorsal meron. Halteres with stem obscure yellow, knob dark brown. Legs with the fore coxæ yellow, darkened on basal half; mid-coxæ obscure yellow; posterior coxæ dark brown; trochanters yellow; femora and tibiæ black, the genua very restrictedly (about 0.2–0.3 mm.) snowy white, involving equal amounts on both femora and tibiæ; tarsi somewhat paler, yellowish brown, but not conspicuously brightened. Wings with the ground-colour strongly darkened, the stigma oval, darker brown, preceded and followed by extensive yellowish-white areas; except for these brightened areas, the wing-disk is almost uniform in colour, without pale droplets in the outer cells as in other species; posterior prearcular field whitened; veins brown, the tips of the outer medial veins pale. Venation: *Rs* unusually short and very strongly arcuated, the basal portion being erect or even slightly recurved and more than one-half as long as the longitudinal distal portion; *r-m* obliterated or reduced to a mere point by approximation of veins R_{4+5} and M_{1+2} ; petiole of cell M_1 approximately two-thirds as long as vein M_2 ; cell 2nd *A* very narrow.

Abdominal tergites black, very restrictedly variegated with yellow at bases of the segments, especially at the lateral margins; sternites yellow, each with broad dark triangles, the point directed cephalad, the subbasal sternites more uniformly darkened; hypopygium dark.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, Rio Pastaza, altitude 3250 feet, November 6, 1936 (*Macintyre*). *Allotopotype*, ♀.

The present fly is most closely related to *Brachypremna candida* Alexander (Guiana–Brazil), differing from this and all other species by the coloration of the legs and wings.

The brevity and great arcuation of *Rs*, together with the almost uniformly darkened wings, furnish important specific characters.

Tanypremna (Pehlkea) pallitarsis, sp. n.

General coloration of notum brown, the præscutum darker laterally and in front; front and anterior vertex yellow; apex of frontal prolongation and nasus darkened; pleura yellow, with two transverse brownish-black girdles; femora and tibiæ black, with about the basal tenth of the latter abruptly white; all tarsi yellowish white; wings tinged with brown, with broad darker brown seams on cord and along the supernumerary cross-vein in cell *M*.

Male.—Length about 20–23 mm.; wing 17–18.5 mm.

Frontal prolongation of head yellow; the apex and nasus brownish black; palpi black. Antennæ short; scape and pedicel yellow; flagellum dark brown; flagellar segments cylindrical, with short verticils. Front and anterior vertex light yellow; posterior portion of head rich brown, darker behind.

Pronotum brown. Mesonotal præscutum with the lateral and humeral portions, as well as the cephalic end of the median præscutal stripe, dark brown, the remainder of disk, including both stripes and interspaces, a little paler, more reddish brown; posterior sclerites of notum dark brown, the median area of scutum and most of scutellum paler; mediotergite more reddish brown medially. Pleura yellow, variegated with two transverse brownish-black girdles, the anterior one narrow, extending from the pronotum, across the propleura, to and including the fore coxæ; posterior girdle wide, extending from the præscutal margin opposite and before the suture, including the pteropleurite and mid-coxæ; anepisternum, sternopleurite, and pleurotergite remaining of the pale ground-colour. Halteres obscure yellow, the knobs darkened. Legs with the fore and middle coxæ dark, as described; posterior coxæ pale; trochanters yellow; femora black, the extreme bases obscure yellow; tibiæ black, with about the basal tenth abruptly white, with weak greenish tinges; tarsi of all legs uniformly pale yellowish white. Wings with a brownish tinge, cells *C* and *Sc* more yellowish

brown; broad, conspicuous, darker brown seams including cord, outer end of cell 1st M_2 , and the supernumerary cross-vein in cell M ; stigma dark brown; longitudinal veins beyond cord more narrowly and less evidently seamed with brown; veins pale brown, a trifle brighter in the costal portions. Venation: R_{2+3} strongly arcuated, narrowing cell R_1 on its outer portion; supernumerary cross-vein in cell M transverse or only slightly oblique.

Abdominal tergites inconspicuously bicolorous, yellow, darkened sublaterally and at apices; sternites more uniformly yellow, the subterminal segments brownish black; eighth sternite chiefly pale.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, Rio Pastaza, altitude 3250 feet, October 1936 (*Macintyre*). *Paratopotypes*, 2 ♂♂, October 1936; November 6, 1936.

The present fly is most closely allied to the type of the subgenus, *Tanypremna* (*Pehlkea*) *columbiana* (Enderlein), differing most evidently in the uniformly whitened tarsi of all the legs.

Previously I had not considered *Pehlkea* as being sufficiently distinct from *Tanypremna* Osten-Sacken to be maintained as a valid genus or subgenus. Except for the supernumerary cross-vein in cell M of the wings, the venation is very similar to that of the genotype of *Tanypremna*, *opilio* Osten-Sacken. However, no fewer than three species having this character are now known, and it is evidently a constant one. The subgenus *Pehlkea* may be added to the four recently considered by the present writer (*Rev. Chilena Hist. Nat.* xl. pp. 298–305 (1936)), and the various groups may be separated by the accompanying key:—

1. Wings with vein R_{1+2} lacking; antennæ with basal two or three flagellar segments strongly produced on lower face to appear subpectinate *Tanypremnodes* Alexander.
Wings with vein R_{1+2} present; antennæ with flagellar segments simple, cylindrical 2.
2. A supernumerary vein in various cells of wing 3.
No supernumerary veins on wing. 4.
3. A supernumerary vein between R_{4+5} , and the anterior branch of M , forming a second discal cell above the normal 1st M_2 *Ceoneura* Alexander.

- A supernumerary cross-vein in cell M *Pehlkea* Enderlein.
 4. Cell 1st M_2 large, widened outwardly ;
 cell M_1 sessile *Aldrovandia* Enderlein.
 Cell 1st M_2 of moderate size, not strongly
 widened outwardly ; cell M_1 petio-
 late *Tanypremna* Osten-Sacken.

The subgenotypes of these groups are :—

Tanypremnodes Alexander, 1924 ; type, *leucoplaca* Alexander.

Ceoneura Alexander, 1924 ; type, *idioneura* Alexander.

Pehlkea Enderlein, 1912 ; type, *columbiana* Enderlein.

Aldrovandia Enderlein, 1912 ; type, *gesneri* Enderlein.

Tanypremna Osten-Sacken, 1886 ; type, *opilio* Osten-Sacken.

Xenotipula cisatlantica, sp. n.

General coloration grey, the præscutum with dark brown stripes, the intermediate pair confluent in front ; frontal prolongation of head elongate, without nasus ; palpi short ; antennæ 11-segmented ; wings brownish yellow, cells *C* and *Sc* conspicuously dark brown ; stigma clear bright yellow ; veins beyond cord virtually without trichia ; Sc_1 weakly preserved, Sc_2 ending about opposite the fork of *Rs* ; R_{1+2} preserved ; cell M_1 lacking ; abdominal tergites dark brown, the lateral borders pale.

Female.—Length about 14 mm. ; wing 12.2 mm.

Frontal prolongation of head elongate, without nasus, ferruginous above, darker beneath ; palpi black, terminal segment short, subequal to the third. Antennæ 11-segmented ; scape and pedicel yellow, flagellum black ; flagellar segments subcylindrical or weakly dilated in central portion ; outer two segments more slender and elongate. Head with the anterior vertex clear ashy-grey, the posterior vertex and occiput weakly infumed ; vertical tubercle entire, low.

Pronotum grey, infuscated medially. Mesonotal præscutum with the ground-colour obscure yellow, the interspaces in front and on the sides more pruinose ; four dark brown stripes, the intermediate pair confluent on cephalic half, narrowly separated before the suture ; scutum brownish grey, each lobe with the central portion extensively darker brown ; scutellum and postnotum brown, heavily pruinose. Pleura light grey, the ventral sternopleurite a little darker. Halteres pale brownish

yellow, the knobs dark brown. Legs with the coxæ grey; trochanters brownish yellow; femora obscure yellow, the tips rather narrowly dark brown, the amount subequal on all legs; tibiæ and tarsi brownish black; tibial spur-formula 1—2—2, the spurs hairy; claws (female) simple. Wings brownish yellow, including the prearcular field; cells *C* and *Sc* conspicuously and abruptly dark brown; stigma clear bright yellow, each end slightly darkened; veins brownish yellow, darker in the costal region. Veins virtually without macrotrichia, those beyond cord entirely glabrous, except for a single seta on R_{4+5} , probably a variable character. Venation: *Sc* long, Sc_2 ending opposite fork of *Rs*, Sc_1 weakly preserved; R_{1+2} entire, short, subequal to vein R_1 before it; R_3 relatively long and extended, cell R_2 at margin more than twice as extensive as cell R_3 ; cell M_1 lacking, there being only three outer medial branches; cell 2nd *A* narrow.

Abdomen relatively long and slender; tergites dark brown, the lateral borders broadly grey, of the basal tergites more yellow; sternites dark grey, the lateral margins narrowly pale; ovipositor with straight valves.

Hab. Brazil (Rio Grande do Sul).

Holotype, ♀, Nova Teutonia, October 7, 1936 (*Plaumann*).

I am referring the present fly to *Xenotipula* Alexander (*Ann. & Mag. Nat. Hist.* (9) viii. pp. 171–172 (1921)), though with some question. The genotype and hitherto only known species, *X. munroi* Alexander, of Natal, differs in some respects, notably the presence of a short, stout, frontal prolongation, 13-segmented antennæ, and lack of vein Sc_1 . However, both species agree in the loss of the nasus and in the essential features of venation, as the loss of cell M_1 . The present fly is the first Tipuline species so far discovered in South America in which cell M_1 is lacking.

Tipula absona, sp. n.

Mesonotal præscutum with lateral borders broadly dark brown, the median stripe much paler; scutellum yellow, parascutella dark; mediotergite with a broad brownish-black central portion, the lateral margins broadly pale; halteres pale; legs long and slender, yellow, the femora with a very narrow brown subterminal

ring; wings clear light yellow, with a restricted oblique zigzag pattern; vein R_{1+2} entire; R_3 nearly straight so that cells R_2 and R_3 at margin are subequal in extent; abdomen obscure yellow, scarcely patterned.

Female.—Length about 15 mm.; wing 15.5 mm.

Frontal prolongation of head light brown above, black on sides and beneath; nasus short and stubby. Antennæ with scape, pedicel, and first two flagellar segments yellow; succeeding segments bicolorous, the basal enlargements black, the remainder of the segments yellow; terminal segment uniformly pale, verticils shorter than the segments. Head above buffy, the vertex narrowly darker medially.

Mesonotal præscutum with lateral borders broadly dark brown, the median stripe much paler brown, darker at anterior end, tapering rapidly to a point behind, the broad interspaces yellow; scutum testaceous, the centre of each lobe with two brown areas; scutellum yellow, the parascutella dark; mediotergite with the central portion broadly brownish black, slightly widened behind, the lateral borders broadly yellow. Pleura almost uniformly pale brown or yellowish brown, the posterior dorso-pleural membrane more infuscated; pleurotergite and meron darker brown, forming a weakly defined transverse girdle. Halteres pale. Legs relatively long and slender; coxæ and trochanters yellow; femora obscure yellow, with a very narrow brown subterminal ring, preceded and followed by slightly more extensive clearer yellow annuli; tibiæ and tarsi yellow. Wings clear light yellow, the costal portion a little more saturated; restricted brown areas forming a more or less distinct oblique zigzag pattern, including areas at arculus; across all cells basad of cord, much heavier and more continuous in the anal field; and as seams to the longitudinal veins beyond the cord, especially of the outer medial field; cell C clear yellow, except at h ; cell Sc clear, except for three small darkened areas below h , at one-third the length of cell and at origin of Rs , the outer end of cell clear; an oblique darkened cloud across cell R_3 beyond mid-length; a heavier dark mark on petiole of cell M_1 and adjoining veins; a >-shaped dark mark at outer end of cell M ; veins yellow, darker in the clouded portions. Macrotrichia on longitudinal veins beyond cord, lacking on distal third of R_3 . Venation:

R_{1+2} entire, but without trichia; R_3 nearly straight, cells R_2 and R_3 at margin subequal in extent; petiole of cell M_1 a little longer than m .

Abdomen obscure testaceous yellow, scarcely patterned; ovipositor with slender, straight cerci.

Hab. Ecuador (Oriente).

Holotype, ♀, Abitagua, Rio Pastaza, altitude 3250 feet, November 6, 1936 (*Macintyre*).

This very distinct species is most similar to *Tipula arecuna* Alexander (northern Brazil), but is very different in the coloration of the body, legs, and wings. The general appearance of the fly is somewhat suggestive of the genus *Holorusia*, but the verticillate antennæ and straight vein R_3 show the true position.

Tipula juvena, sp. n.

Belongs to the *glaphyoptera* group; general coloration of mesonotum brownish yellow, the præscutum with three darker brown stripes; antennæ 12-segmented, short, bicolorous, yellow with black bases; femora with a conspicuous yellow subterminal ring; wings cream-yellow, with a tessellate brown pattern; male hypopygium with the lobes of tergite divergent; eighth sternite narrowed outwardly, pale and somewhat inflated at outer end, but not bearing a distinct appendage or lobe.

Male.—Length about 15 mm.; wing 18 mm.; antenna about 2.8 mm.

Frontal prolongation of head brown; nasus distinct; basal segment of palpus obscure brownish yellow, the outer segments dark brown. Antennæ 12-segmented, short, as shown by the measurements; basal three segments yellow, succeeding segments bicolorous, the poorly-developed basal enlargement dark brown, the remainder yellow; verticils long and conspicuous, exceeding the segments in length. Head reddish brown, sparsely pollinose.

Mesonotal præscutum brownish yellow, with three darker brown stripes that are insensibly bordered by darker brown, the lateral stripes reaching the lateral borders of the sclerite, restricting the ground-colour to the interspaces and narrow humeral portions; scutum dark brown, the centres of the lobes darker; scutellum

yellow, parascutella dark brown; mediotergite dark brown, the sides restrictedly obscure yellow. Pleura variegated dark brown and obscure yellow, the former including the dorsal pleurites and pleurotergite, the sternopleurite, and ventral pteropleurite paler. Halteres yellow. Legs with the coxæ obscure yellow, darker basally, more extensively so on fore legs; trochanters yellow; femora brown, darker outwardly, with a narrow yellow subterminal ring, subequal in width to the darkened apex; tibiæ and tarsi black. Wings pale cream-yellow, heavily tessellated with brown; cell *C* more uniformly brown, *Sc* more yellow; a series of dark areas in cell *Sc*, all produced caudad into the cells behind to form part of the mottled pattern; an oblique dark cross-band in outer radial field, from *C* to cell 1st *M*₂; outer ends of all veins with pale spots, the veins narrowly seamed with dark; veins dark, more brightened in the flavous areas. Venation: *R*₁₊₂ entire; vein *R*₃ slightly sinuous and somewhat decurved on outer portion, so cell *R*₂ is about one-half more extensive at margin than cell *R*₃; cell 1st *M*₂ broad, pentagonal; petiole of cell *M*₁ and *m* subequal.

Abdominal tergites brownish yellow, the basal segments conspicuously blackened laterally; hypopygium brownish yellow; sternites yellow, the outer segments more darkened. Male hypopygium with the tergite narrowed outwardly, with two intermediate divergent flattened lobes, the tips acute, separated from one another by a U-shaped notch. Outer dististyle long and slender. Inner dististyle narrow, the basal portion produced ventrad some distance below the point of insertion. Eighth sternite extensive, narrowed outwardly, the median area at apex pale and somewhat inflated, feebly notched and provided with short setæ.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, Rio Pastaza, altitude 3250 feet, November 6, 1936 (*Macintyre*).

Among the described species of the *glaphyroptera* group, closest to *Tipula duidæ* Alexander, of Venezuela, differing especially in the structure of the male hypopygium. The antennæ of the latter fly, while short, are distinctly longer than in the present species and have the normal number of 13 segments.

Tipula serval, sp. n.

General coloration of mesonotum yellow, the præscutum with three dark brown stripes; scutellum, mediotergite, and pleura yellow; ventral pleurotergite dark brown; femora brownish yellow, just before the tip with a black ring, preceded by a clearer yellow annulus; wings pale yellowish cream, variegated with brown to form a tessellated pattern; vein R_{1+2} atrophied; abdominal tergites orange-yellow, virtually immaculate medially.

Female.—Length about 14 mm.; wing 14.5 mm.

Frontal prolongation of head light yellow above, dark brown on sides; nasus very short and stout; palpi with basal segment brownish yellow, remainder dark brown, the incisures restrictedly paler. Antennæ with the scape, pedicel, and first flagellar segment yellow; remaining flagellar segments weakly bicolorous, brown, the basal enlargement darker. Head buffy brown, unmarked.

Pronotum yellow, darker on sides. Mesonotal præscutum yellow pollinose, with three very conspicuous and well-defined dark brown stripes, the median one with cephalic end paler; scutum with median area obscure yellow, the lobes extensively dark brown; scutellum yellow, parascutella dark brown; mediotergite olive-yellow. Pleurotergite with ventral part dark brown, the remainder yellow; pleura yellow, variegated with dark brown on propleura. Halteres with stem yellow, knob dark brown. Legs with coxæ and trochanters yellow; femora brownish yellow, just before tips with a black ring of moderate width, preceded by a clearer yellow annulus, the extreme tip very narrowly obscure yellow; tibiæ brownish yellow, the tips narrowly darkened; tarsi brownish black. Wings pale yellowish cream, variegated with brown to form a tessellate pattern; prearcular field chiefly darkened; cell *C* almost uniformly pale brown; cell *Sc* bright yellow, with four brown spots, the third above the origin of *Rs*; stigma brown, its proximal end pale; the dark discal pattern includes zigzag areas crossing the cells basad of cord and broad seams to the veins beyond cord, leaving the centres

of the cells pale; cell 2nd *A* darkened, the base and sub-apical portion pale; veins dark, pale yellow in the ground areas. Squama naked. Venation: *Sc*₂ ending about opposite three-fourths the length of *Rs*, the latter more than twice *m-cu*; *R*₁₊₂ entirely atrophied; *M*₃₊₄ relatively short; *m-cu* a short distance beyond base of *M*₄, the first section of the latter perpendicular; cell 2nd *A* relatively narrow.

Abdominal tergites almost uniformly orange-yellow, immaculate or virtually so, with vague indications of a median darker stripe on the intermediate tergites; lateral borders of the more basal tergites narrowly blackened; sternites yellow, the caudal portions narrowly darkened subterminally, the extreme margin grey. Cerci slender, straight.

Hab. Brazil (Rio Grande do Sul).

Holotype, ♀, Nova Teutonia, August 27, 1936 (*Plaumann*).

Tipula serval is allied to *T. fraudulenta* Alexander, in the total atrophy of vein *R*₁₊₂, differing very conspicuously in the coloration of the body and wings. It is questionable whether these two species are to be considered as representing unusually large species of the subgenus *Microtipula* Alexander.

Limonia (Geranomyia) umbricolor, sp. n.

General coloration brownish black; rostrum less than one-half the remainder of body; halteres and legs dark brown to black; wings with a strong blackish tinge, the stigma darker; *Sc* relatively short; *m-cu* at fork of *M*; male hypopygium with the rostral spines of the ventral dististyle moderately long, placed close together on short, slightly unequal tubercles; gonapophyses with mesal-apical lobe with numerous setulæ.

Male.—Length, excluding rostrum, about 7 mm.; wing 7 mm.; rostrum about 2.8 mm.

Rostrum dark, the tips of the labial palpi paler. Antennæ black throughout; basal flagellar segments cylindrical, the outer ones passing into oval; terminal segment about one-third longer than the penultimate; verticils short. Head dark.

General coloration of mesonotum brownish black, the humeral and lateral regions of the præscutum a little

brighter. Pleura infuscated on dorsal portion, the sternopleurite and meron yellow. Halteres dark brown, the base of stem restrictedly pale. Legs with the coxæ and trochanters yellow, the bases of fore coxæ a trifle darkened; remainder of legs black, the extreme femoral bases paler. Wings with a strong blackish tinge, unmarked except for the somewhat darker stigma; veins brown. Venation: Sc relatively short, Sc_1 ending a short distance beyond the origin of Rs , the distance about equal to R_{1+2} , Sc_2 near its tip and similarly beyond the origin of Rs ; R_{1+2} and R_2 subequal; cell 1st M_2 subequal in length to vein M_{1+2} beyond it; $m-cu$ at fork of M .

Abdominal tergites dark brown, the sternites obscure yellow; hypopygium dark. Male hypopygium with the ventral dististyle large and fleshy, more than three times as extensive as the basistyle; rostral prolongation of moderate length, bearing two straight spines of approximately equal length; spines from very closely approximated to virtually confluent tubercles, one a little shorter than the other; spines exceeding in length the apex of the prolongation beyond their insertion. Dorsal dististyle a short sickle-shaped blade that is about twice the length of the rostral spines. Gonapophyses with mesal-apical lobe narrow, pointed at tip, the surface provided with numerous setulæ.

Hab. Ecuador (Oriente).

Holotype, ♀, Baños, altitude 5850 feet, September 12, 1936 (*Macintyre*).

In its general appearance the present fly is closest to *Limonia* (*Geranomyia*) *infamosa* Alexander (southern Brazil) and *L. (G.) lachrymalis* (Alexander) of Panama, Ecuador, and Peru, differing very conspicuously from both in the structure of the male hypopygium. The abundant setulæ on the mesal-apical lobes of the gonapophyses are quite different from the condition found in other allied Neotropical species of *Geranomyia*, though found in several Oriental species.

Shannonomyia cæsia, sp. n.

General coloration clear light grey; præscutum with three slightly darker grey stripes; halteres yellow; femora yellow, tibiæ and tarsi dark brown to black;

wings whitish subhyaline, sparsely patterned with brown, including the stigma and seams along cord and outer end of cell 1st M_2 ; abdomen dark brown, the subterminal segments more yellowish.

Male.—Length about 5.3–5.5 mm.; wing 5.4–5.6 mm.

Rostrum black, sparsely pruinose; palpi black. Antennæ with scape obscure yellow; pedicel dark brown; flagellum broken. Head clear light grey; posterior portions of vertex behind eyes a little more darkened; a capillary dark vitta extending from anterior vertex to occiput.

Mesonotum clear light grey, the præscutum with three slightly darker grey stripes; tuberculate pits lacking; central portions of scutal lobes weakly darkened. Pleura light grey. Halteres yellow. Legs with the coxæ brownish yellow; trochanters yellow; femora yellow; tibiæ and tarsi dark brown to black. Wings whitish subhyaline to pale yellow; a very sparse brown pattern, including the small stigma and narrow seams at origin of R_s , along cord and outer end of cell 1st M_2 ; veins pale, slightly darker in the clouded areas. Venation: Sc long, Sc_1 ending a short distance before fork of R_s , Sc_2 near its tip; R_s longer than usual in the genus; R_2 at or shortly before fork of R_{2+3+4} ; cell 1st M_2 relatively small, only a little longer than vein M_4 beyond it; $m-cu$ about one-third to one-half its length beyond fork of M .

Abdomen dark brown, the subterminal segments more yellowish. Male hypopygium with the outer dististyle unequally bifid at apex, the outer tooth long and spine-like. Gonapophyses appearing as strongly curved spines.

Hab. Brazil (Rio Grande do Sul).

Holotype, ♂, Nova Teutonia, September 4, 1935 (*Plau-*
mann). *Paratopotype*, ♂, August 26, 1936.

Shannonomyia cæsia is quite distinct from other somewhat similar regional species, such as *S. paraguayensis* Alexander, in the clear light grey colour of the head and thorax, in conjunction with the differences in pattern of the legs and wings.

Shannonomyia justa, sp. n.

General coloration grey; præscutum vaguely striped with brownish; halteres pale yellow; femora obscure

yellow, the tibiæ and tarsi darker; wings whitish subhyaline, conspicuously patterned with small brown areas that are confined to the vicinity of the veins; *Rs* shorter than cell 1st M_2 ; R_2 before fork of R_{2+3+4} ; veins R_3 and R_4 strongly curved cephalad at distal ends; cell 1st M_2 longer than any of the veins beyond it; abdomen chiefly dark brown, the basal sternites more bicolorous; hypopygium dark.

Male.—Length about 7.5 mm.; wing 7.5 mm.

Rostrum grey pruinose; palpi black. Antennæ short; scape and pedicel light yellow, flagellum more brownish yellow, darker outwardly; basal flagellar segments with the lower face convexly rounded, the outer segments passing into cylindrical; verticils long and conspicuous, much exceeding the segments in length. Head clear light grey, with a very indistinct capillary dark vitta; anterior vertex wide.

Pronotum whitish grey. Mesonotal præscutum grey, with four scarcely indicated, more brownish stripes; posterior sclerites of notum grey, the scutal lobes vaguely darkened. Pleura grey, variegated with brown on the anepisternum, ventral sternopleurite, and on the pleural membrane before the wing-root. Halteres pale yellow. Legs with the coxæ pale, sparsely pruinose; trochanters obscure yellow; femora obscure yellow to brownish yellow; tibiæ and tarsi darker brown. Wings whitish subhyaline, conspicuously patterned with rather small brown areas, as follows:—At *h*; origin of *Rs*; fork of *Sc*; stigma; cord and outer end of cell 1st M_2 ; marginal areas on all longitudinal veins with the exception of R_5 , largest and most conspicuous on R_3 , R_4 , and 2nd *A*; veins yellow, darker in the clouded areas. Venation: *Sc* of moderate length, Sc_1 ending shortly before fork of R_{2+3+4} ; R_{3+4} present as a very short element; veins R_3 and R_4 curved strongly cephalad at distal ends; cell 1st M_2 long, exceeding any of the veins beyond it; *m-cu* at near one-third to one-fourth the length of cell 1st M_2 ; vein 2nd *A* with a weak spur near tip.

Abdomen chiefly dark brown; basal sternites more bicolorous, obscure yellow, the caudal margins darkened; outer segments and hypopygium dark brown.

Hab. Brazil (Rio Grande do Sul).

Holotype, ♂, Nova Teutonia, October 12, 1935 (*Plau-*
mann).

In its conspicuous wing-pattern and general details of venation the present fly agrees most closely with *Shannonomyia lathræa* (Alexander), of Colombia, which differs in the coloration of the body, legs, and wings, and in the venation, as the longer *Rs*, nearly straight veins *R*₃ and *R*₄, and the arrangement of veins at the outer end of cell 1st *M*₂.

Hexatoma (Eriocera) perversa, sp. n.

General coloration of notum dark brown, the præscutum with three reddish stripes; antennæ short, 7-segmented, the basal four segments pale; thoracic pleura with a broad dorsal blackish stripe; halteres slender, dark brown; legs yellowish brown, the outer tarsal segments darkened; wings with a brownish tinge, the cord and outer end of cell 1st *M*₂ broadly seamed with darker brown; longitudinal veins beyond cord with numerous macrotrichia; cell *R*₂ at margin about two and one-half times as extensive as cell *R*₃; cell 1st *M*₂ long-rectangular, with *m-cu* at mid-length.

Male.—Length about 13 mm.; wing 12.5 mm.

Rostrum and palpi black. Antennæ 7-segmented, short; scape, pedicel, and first two flagellar segments yellow, the outer segments passing into black; flagellar segments cylindrical, the outer ones with long conspicuous verticils. Head dark brown, the orbits paler.

Mesonotal præscutum chiefly occupied by three reddish stripes, narrowly bordered by darker brown interspaces, the humeral and lateral portions light yellow; centres of scutal lobes reddish, the remainder of notum dark brown, only the posterior half of the mediotergite paler, this colour continued cephalad and laterad on to the dorsal pleurotergite. Pleura traversed by a broad dorsal blackish stripe extending from the cervical region to the abdomen, occupying the propleura, anepisternum, dorsal pteropleurite, and most of pleurotergite; dorsopleural membrane pale; ventral pleurites testaceous yellow. Halteres long and slender, dark brown. Legs with the coxæ and trochanters yellow; remainder of legs yellowish brown, the outer tarsal segments darkened. Wings

tinged with brown, restrictedly patterned with broad, darker brown seams, as follows:—Origin of R_s ; cord, outer end of cell 1st M_2 and vein R_2 ; longitudinal veins beyond cord less distinctly margined with brown; veins dark brown, not or scarcely darker in the clouded areas. All longitudinal veins beyond cord with numerous long macrotrichia. Venation: Sc_1 ending beyond level of $r-m$, Sc_2 about opposite fork of R_s ; R_{2+3} about one-half longer than R_2 and more than half as long as R_{1+2} , the latter nearly three times R_2 alone; vein R_3 at margin deflected rather strongly caudad so cell R_2 at margin is fully two and one-half times as extensive as cell R_3 ; cell 1st M_2 long-rectangular, nearly as long as vein M_{1+2} beyond it and exceeding in length the distal section of vein M_3 ; $m-cu$ at near mid-length of cell 1st M_2 , subequal in length to outer section of vein Cu_1 ; cell 2nd A relatively narrow.

Abdominal tergites brownish black, the extreme caudal ends and slightly wider bases of the segments paler, on tergite two with the base more extensively brightened; basal sternites yellow, the outer segments and hypopygium more obscured.

Hab. Ecuador (Oriente).

Holotype, ♂, Yunquilla, altitude 5850 feet, November 19, 1936 (*Macintyre*).

Hexatoma (Eriocera) perversa is very distinct from all described species. It is most similar to *H. (E.) pallidipes* Alexander (Mexico), differing conspicuously in the wing-pattern and coloration of the body and legs.

Sigmatomera (Sigmatomera) æquinoctialis, sp. n.

General coloration yellow to fulvous yellow; flagellar segments bicolorous, black, the apex of each segment restrictedly yellow; flagellar segments moderately incised; femora obscure yellow, the tips narrowly brownish black, preceded by a somewhat clearer yellow ring; wings with a strong yellowish tinge, the tip faintly infumed; narrow brownish-black seams along cord and outer end of cell 1st M_2 ; R_{1+2} and R_2 short, subequal; R_{2+3+4} and m angulated and short-spurred at near mid-length; cell 1st M_2 long, exceeding any of the veins beyond it;

abdomen orange-yellow, the base of ovipositor and preceding segment blackened.

Female.—Length about 15 mm.; wing 15 mm.; antenna 7 mm.

Rostrum and palpi yellow. Antennæ with the scape and pedicel yellow; flagellar segments bicolored, black, the apex of each segment restrictedly yellow, the amount of the latter decreasing on the outer segments; flagellar segments moderately incised. Head brownish yellow; anterior vertex narrow, only about one-third to one-fourth the diameter of scape.

Thorax uniformly yellow to fulvous yellow. Halteres yellow throughout. Legs with the coxæ and trochanters yellow; femora obscure yellow, the tips narrowly brownish black, preceded by a somewhat broader, clearer yellow ring; tibiæ obscure brownish yellow, the tips narrowly darkened; tarsi dark brown to brownish black. Wings with a strong yellow tinge, the stigma and outer cells faintly infumed; narrow brownish-black areas appear as seams to the following veins:—Extreme origin of R_s , Sc_2 , cord, outer end of cell 1st M_2 , outer end of stigma and extreme wing-margin at ends of veins R_3 , M_{1+2} , M_3 , and M_4 ; veins yellow, darkened as described above. Venation: Sc relatively long, Sc_1 ending shortly before fork of R_{2+3+4} , Sc_2 opposite the angulation of the latter vein; R_{1+2} and R_2 short, subequal; both R_{2+3+4} and m angulated and short-spurred at near mid-length; cord moderately oblique; cell 1st M_2 long, exceeding any of the veins beyond it; $m-cu$ at fork of M .

Abdomen orange-yellow; base of ovipositor and preceding segment blackened; cerci bidentate at tips, as in subgenus.

Hab. Ecuador (Oriente).

Holotype, ♀, Hdaila, Rio Anzu, altitude 2115 feet, December 23, 1936 (*Macintyre*).

By my most recent key to the species of *Sigmatomera* (*Encycl. Entomol., Diptera, v. pp. 1–8 (1930)*) the present fly runs to *S. (S) seguyi* Alexander (Costa Rica), which differs conspicuously in the uniformly blackened antennal flagellum, as well as in the venation and coloration of the wings.

Gnophomyia (Gnophomyia) duplex, sp. n.

General coloration rusty, the præscutum with humeral and lateral portions pale yellow; postnotal mediotergite chiefly blackened; a narrow black longitudinal stripe on dorsal pleurites; femora yellow, narrowly brownish black at or close to tips; wings subhyaline, with two pale brown cross-bands, the more basal one incomplete, the outer fascia completely traversing the wing, lying at or before the cord; Sc_1 ending about opposite mid-length of R_{2+3+4} ; cell 1st M_2 small.

Female.—Length about 7 mm.; wing 7.5 mm.

Rostrum yellow; palpi dark brown. Antennæ with scape testaceous; pedicel pale brown; flagellum black; basal flagellar segments cylindrical, the outer ones becoming progressively shorter, passing through elongate-oval to oval. Head light ferruginous.

Mesonotal præscutum rusty, the humeral and lateral portions pale yellow, the disk without clearly defined stripes; scutum reddish brown, the centres of the lobes slightly darkened; scutellum weakly infuscated; postnotal mediotergite black, the cephalic lateral portions paler. Pleura pale, with a narrow, almost entire, black longitudinal stripe across the dorsal sclerites, extending from the cervical region to the central portion of the pleurotergite, immediately above the root of the halteres. Halteres pale, the knobs brownish black. Legs with the fore coxæ weakly darkened, the remaining coxæ more testaceous; trochanters yellow; femora yellow, narrowly brownish black at or just before the tips, the amount subequal on all legs; tibiæ yellow, the tips very narrowly darkened; tarsi yellow, the outer segments darkened. Wings subhyaline, with two pale brown cross-bands, the outermost at and before cord, extending from the stigma to the posterior wing-margin in cell Cu ; basal band incomplete, embracing the proximal ends of cells Cu , 1st A , and 2nd A ; extreme outer end of cell 1st M_2 darkened, but the cell otherwise entirely pale; veins pale, darker in the clouded portions. Venation: R s relatively short, less than vein M_4 alone, Sc_1 ending some distance before R_2 , at near mid-length of R_{2+3+4} ; cell 1st M_2 small, about two-thirds the length of vein M_4 beyond it.

Abdomen yellowish brown, the caudal portion of the first tergite black; sternites more uniformly pale. Ovipositor with the cerci small and straight.

Hab. Ecuador (Oriente).

Holotype, ♀, Yunquilla, altitude 5850 feet, November 19, 1936 (*Macintyre*).

The nearest allied species is *Gnophomyia* (*Gnophomyia*) *laticincta* Alexander (Panama), which differs conspicuously in the coloration of the body, antennal flagellum, legs, and wings.

Erioptera (*Erioptera*) *multiannulata*, sp. n.

Belongs to the *annulipes* group; mesonotum brown, the præscutum narrowly blackened laterally; thoracic pleura conspicuously striped longitudinally with whitish; halteres white; legs conspicuously ringed with black, white, and yellow; femora with two black rings; tibiæ with central two-thirds yellow, each end narrowly snowy-white, preceded by a narrow black ring; wings strongly tinged with brown, unmarked; vein 2nd *A* sinuous, simple.

Female.—Length about 4 mm.; wing 3.7 mm.

Rostrum and palpi black. Antennæ black throughout; flagellar segments with long conspicuous verticils. Head dark brown.

Pronotum dark brown medially, whitened on sides and on cephalic portion. Lateral pretergites dirty white. Mesonotal præscutum rather light brown, narrowly dark brownish black on lateral border; scutum light brown, the centres of lobes more darkened; scutellum brown basally, paler apically; mediotergite chiefly brownish black. Pleura black, with a conspicuous whitish longitudinal stripe, beginning as a narrow point behind the fore coxæ, widened behind, the dorsal edge at the base of halteres; dorsopleural membrane obscure yellow; ventral sternopleurite yellowish brown. Halteres white, especially the knobs. Legs with the fore coxæ brownish black, the remaining coxæ pale brown; trochanters testaceous; legs conspicuously banded with black, white, and yellow; the hind leg is described as representative of this pattern: femora with basal fifth pale brownish yellow, a trifle deeper at outer end; second fifth snowy-white; central

fifth black; distal end including a black ring nearly equal to the more basal black one, preceded by a white annulus half as wide and a narrow white tip; tibiæ with the central two-thirds yellow, each end narrowly snowy-white, preceded by a similar narrowly blackened ring; tarsi yellow, the proximal fifth of basitarsus black. Wings with a strong brownish tinge, unmarked; veins pale; macrotrichia light brown. Venation: cell M_2 open by atrophy of m ; vein $2nd\ A$ sinuous, simple.

Abdomen rather bright brown, narrowly blackened laterally; intermediate tergites with a narrow dark vitta.

Hab. Brazil (Rio Grande do Sul).

Holotype, ♀, Nova Teutonia, October 6, 1936 (*Plaumann*).

Readily told from all other described members of the *annulipes* group by the unmarked wings. The nature of the leg-pattern is distinctive of the species.

Molophilus (Molophilus) debilistylus, sp. n.

Belongs to the *plagiatus* group; general coloration dark grey, the humeral region of præscutum conspicuously yellow; antennæ (♂) short; halteres yellow, the knobs weakly infuscated; legs black; male hypopygium with the basal dististyle a stout pale fleshy lobe, provided with long scattered setæ.

Male.—Length about 3.8–4 mm.; wing 4.1–4.3 mm.

Rostrum and palpi black. Antennæ short, black; flagellar segments elongate, with very long, unilaterally distributed verticils. Head black.

Pronotum and anterior lateral pretergites yellow. Mesonotum grey; præscutum with median area broadly dark brown; humeral region of præscutum conspicuously yellow; scutellum dark. Pleura dark grey, the anterior dorsopleural membrane yellow. Halteres yellow, the knobs weakly darkened. Legs with the coxæ and trochanters testaceous yellow; remainder of legs black, the extreme femoral bases paler. Wings relatively broad, with a strong brownish tinge, the stigmal region darker; axilla weakly darkened; veins brownish yellow, trichia darker. Venation: R_2 lying a short distance before level of $r-m$; petiole of cell M_3 less than twice $m-cu$; vein $2nd\ A$ long, ending about opposite mid-length of petiole of cell M_3 .

Abdomen brownish black, the hypopygium a little brightened. Male hypopygium with apical beak of basistyle slender. Outer dististyle with the stem short and stout, expanded outwardly, the lobes short and obtuse, especially the outer lobe. Basistyle a stout, pale, fleshy lobe, provided with long scattered setæ. Phallosomic plate a broadly flattened glabrous structure, the caudal portion widest, the apical margin truncate.

Hab. Brazil (Rio Grande do Sul).

Holotype, ♂, Nova Teutonia, July 11, 1936 (*Plaumann*).

Paratopotype, ♂, October 10, 1936.

In the general structure of the male hypopygium the present fly agrees most closely with *Molophilus* (*Molophilus*) *cænosus* Alexander. It differs conspicuously in the short antennæ, broad wings, coloration of the body, legs, and wings, and in the details of structure of the male hypopygium, especially of the basal dististyle and phallosomic plate.

Molophilus (*Molophilus*) *emarginatus*, sp. n.

Belongs to the *plagiatus* group; general coloration of mesonotum brown, the posterior sclerites brownish black; antennæ (♂) short; pleura chiefly covered by a blackish longitudinal stripe, widened behind; halteres yellow; legs yellow, the tarsi darker; wings greyish yellow; male hypopygium with the basal dististyle a slender black rod, bearing a strong lateral spine before apex and a smaller one just beyond mid-length; phallosomic structure densely set with erect coarse setæ, the apex with a U-shaped median notch.

Male.—Length about 4 mm.; wing 4.7 mm.

Rostrum and palpi black. Antennæ short, black; flagellar segments with unusually long verticils. Head pale brown, the front and orbits more yellowish.

Pronotum testaceous yellow. Mesonotal præscutum brown, the humeral region pale yellow; scutellum and mediotergite brownish black. Pleura chiefly covered by a broad black longitudinal stripe, narrowest on the propleura, greatly widened behind, the dorsopleural region pale; ventral sternopleurite and meron paler brownish black. Halteres yellow. Legs with the fore coxæ infuscated; remaining coxæ and all trochanters yellow; remainder of legs yellow, the tarsi darker. Wings

greyish yellow, the prearcular and costal portions clearer yellow; wing-axilla a little darkened; costal fringe and trichia of veins brown; veins pale. Venation: R_2 lying just distad of level of $r-m$; petiole of cell M_3 about one-half longer than $m-cu$; vein 2nd A long, extending to slightly beyond level of $m-cu$.

Abdomen dark brown; hypopygium somewhat paler brown; subterminal segment obscure yellow. Male hypopygium with the apical beak of basistyle slender. Outer dististyle with the lateral arm parallel-sided, truncated at tip; inner arm a slender straight black spine. Basal dististyle a slender black rod, bearing a conspicuous spine shortly before tip to produce an unequally bifid apex; a second smaller spine just beyond mid-length of the style. Phallosomic structure with surface densely covered with erect coarse setæ; apex of structure with a U-shaped median notch.

Hab. Brazil (Rio Grande do Sul).

Holotype, ♂, Nova Teutonia, July 15, 1936 (*Plaumann*).

Molophilus (Molophilus) emarginatus is very different from all generally similar regional forms, being characterized especially by the structure of the male hypopygium, as the dististyles and phallosomic structure. In the shape of the basal dististyle the species somewhat resembles *M. (M.) fagetorum* Alexander (Chile) and *M. (M.) schultzei* Alexander (Mexico), yet is quite distinct.

Toxorhina (Ceratocheilus) leucostena, sp. n.

General coloration polished black; front and orbits light grey; pleura black, sparsely pruinose; halteres black; legs black, tarsal segments 2 and 3 snowy-white; wings with a strong blackish tinge, cells C and Sc , with the wing-apex, still darker; abdomen black, the caudal margins of the individual segments broadly light grey.

Female.—Length, excluding rostrum, about 8 mm.; wing 6.5 mm.; rostrum 3 mm.

Rostrum and palpi black. Antennæ black throughout. Front and orbits light grey, the vertex and occiput abruptly light grey.

Pronotum black. Mesonotum entirely polished black. Pleura black, sparsely pruinose. Halteres black, the

base of stem restrictedly yellow. Legs black; tarsal segment 3 and all of segment 2, with the exception of the base, snowy-white. Wings with a strong blackish tinge, cells *C* and *Sc*, together with the wing-tip, still darker; veins black. Venation: *Sc* ending about opposite four-fifths the length of the long, feebly angulated *Rs*; anterior branch of *Rs* perpendicular and angulated at origin, for more than its basal half extending generally parallel to the posterior branch, at margin cell R_2 a little narrower than cell R_3 ; basal section of vein R_3 nearly in longitudinal alignment with *Rs*; cell 1st M_2 rectangular, shorter than vein M_{1+2} beyond it; *m-cu* about one-third its length beyond fork of *M*; cell 2nd *A* moderately wide.

Abdomen black, the caudal margins of the individual tergites and sternites broadly light grey, the amount involving between one-third and one-fourth the length of the segment; genital shield black; valves of ovipositor light horn colour; cerci straight.

Hab. Dutch Guiana.

Holotype, ♀, King Frederick William Falls, Courartyne River, November 30, 1935 (*J. G. Myers*); collector's no. 5946.

The only other American species of *Ceratocheilus* with white tarsal segments is *Toxorhina* (*Ceratocheilus*) *niveitarsis* (Alexander) of Panama and Colombia, which differs conspicuously in the coloration of the body, legs, and wings. The present fly bears a somewhat noteworthy superficial resemblance to *Elephantomyia* (*Elephantomyia*) *tarsalba* Alexander, likewise from Dutch Guiana. The genera *Toxorhina* and *Elephantomyia* are not closely allied, despite the similarity produced by the elongate rostra and the general features of venation. *Toxorhina* is readily told by the profoundly bifid setæ that clothe the legs, in *Elephantomyia* these being simple. The basic plan of structure of the male hypopygium of the two groups is entirely different.

Toxorhina (*Toxorhina*) *stenophallus*, sp. n.

General coloration dark grey, the præscutum with four narrow brown stripes; legs obscure yellow, the tips of the tibiæ conspicuously blackened; wings subhyaline, the prearcular field light yellow; abdomen bicolorous,

tergites obscure brownish yellow, the caudal margins and a transverse fascia before mid-length dark brown; male hypopygium with branches of ædeagus unusually long, sinuous, subequal in length to the basistyle.

Male.—Length, excluding rostrum, 10 mm.; wing 6 mm.

Rostrum broken. Antennæ black throughout. Head dark grey.

Cervical region black, sparsely pruinose. Mesonotum dark grey, the præscutum with four narrow brown stripes, the intermediate pair confluent in front, very narrow, and becoming obsolete before suture; scutal lobes darkened. Pleura dark grey, the ventral sternopleurite darker. Halteres dusky, the base of stem restrictedly pale. Legs with the fore coxæ dark, the remaining coxæ and all trochanters obscure brownish yellow; femora and tibiæ brownish yellow, the tips of the latter conspicuously blackened; tarsi brown, the terminal segments a trifle darker. Wings subhyaline, the prearcular field light yellow; axilla weakly darkened; veins brown, those at wing-base yellow, in the costal region paler brown. Venation: cell 1st M_2 longer than any of the veins beyond it; *m-cu* close to fork of *M*.

Abdomen bicolored, the tergites obscure brownish yellow, with the caudal margin and a transverse fascia before mid-length dark brown; subterminal segments uniformly darkened; hypopygium brownish yellow. Male hypopygium with the apex of basistyle on mesal face produced into a slender spine. Dististyle between mid-length of the beak and base of style on outer margin with a thin flange that is produced into a series of conspicuous teeth to produce a serrate appearance. Branches of ædeagus unusually long and conspicuous, sinuous and bidecussate, each arm approximately equal in length to the basistyle.

Hab. Brazil (Rio Grande do Sul).

Holotype, ♂, Nova Teutonia, September 30, 1935 (*Plau-*
mann).

Toxorhina (*Toxorhina*) *stenophallus* is amply distinct from all other described species. The grey coloration of body, transversely fasciate abdomen, and structure of the male hypopygium are distinctive.