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NEW OR LITTLE-KNOWN TIPULIDÆ
(DIPTERA).—LVI. NEOTROPICAL SPECIES.

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

As was the case with the two preceding parts under this general title, in the present instalment I am considering only species taken in the Oriente of Ecuador. This rich material was secured by William Clarke-Macintyre, assisted by native collectors. I am very much indebted to the collectors for their interest in saving these fragile flies, the types of the novelties herein described being preserved in my collection of Tipulidæ.

Epiphragma (Epiphragma) subsolatrix, sp. n.

Mesonotal præscutum chiefly dark brown, the scutum, scutellum and mediotergite yellow pollinose; halteres chiefly pale yellow; legs yellow, each femur with two black rings on outer half; wings whitish subhyaline, irregularly fasciate with yellowish brown or tawny areas that are narrowly bordered by dark brown; male hypopygium with the interbasal rods slender, the extreme tips bent mesad into short points.

Male.—Length about 8–9 mm.; wing 10–11 mm.; antennæ 2.5–3 mm.

Female.—Length about 10–12 mm.; wing 10–12 mm.

Rostrum yellowish pollinose above, darker on sides; palpi black. Antennæ with scape and pedicel brown to dark brown; basal segment of flagellum yellow to obscure brownish yellow, the succeeding segments pale, outwardly passing into dark brown; verticils conspicuous. Head chiefly dark brown, the orbits more reddish brown.

Pronotum yellow. Mesonotal præscutum almost uniformly dark brown, the central portion of disk usually occupied by stripes being more reddish brown; extreme posterior border of præscutum, scutum, scutellum, and mediotergite more yellowish pollinose. Pleura chiefly dark brown, variegated with brownish yellow on ventral sternopleurite, the dark colour involving also the pleurotergite and lateral portions of mediotergite. Halteres chiefly pale yellow. Legs with the coxæ and trochanters yellow; femora yellow, each with two black rings, one

placed close to mid-length, the other subterminal, these somewhat variable in extent, the outer subequal to the yellow interspace; in some individuals the extreme femoral tip is further darkened; tibiæ and tarsi light yellow. Wings with the ground-colour whitish subhyaline, irregularly fasciate with yellowish brown or tawny areas that are narrowly bordered by dark brown; bands before cord interconnected in the radial and anal fields; band at cord usually disconnected from the basal dark mass but, in cases, narrowly interconnected in outer end of cell *R*; a narrow oblique area of the white ground beyond the cord, almost completely traversing the wing, separated from the pale area before cord only in outer end of cell; beyond cord, the dark areas more or less restricted to the ends of the veins; more extensive dark areas at stigma, anterior cord and outer end of cell *R*₅; veins yellow, darker in the patterned areas. Venation: *Rs* only weakly angulated but usually short-spurred at origin; *m-cu* at basal third or fourth of cell 1st *M*₂.

Abdominal tergites yellowish brown, the proximal rings of the more basal segments more brownish black, the caudal borders narrowly pale; sternites weakly bicoloured, brown, the caudal borders narrowly yellow; hypopygium brown. Male hypopygium with the interbasal rods slender, feebly bent at near mid-length, the extreme tips bent mesad into short points.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, September 20, 1937 (*Macintyre*). *Allotopotype*, ♀, pinned with type. *Paratopotypes*, ♂♀, November 1936, August 15 to September 20, 1937 (*Macintyre*).

In its wing pattern, *Epiphragma* (*Epiphragma*) *subsoatrix* is generally similar to *E. (E.) fascipennis* (Say) and *E. (E.) solatrix* (Osten Sacken), but differs conspicuously in the coloration, especially of the femora.

Epiphragma (*Epiphragma*) *nigroplagiata*, sp. n.

General coloration brown, the præscutum yellow with three brown stripes and two large polished black areas on either side; femora yellow with two narrow black rings, remainder of legs yellow; wings pale yellow with an ocellate brown pattern; *m-cu* at near one-third the

length of cell; abdominal tergites dark brown, the sternites yellow, ringed with darker.

Male.—Length about 11 mm.; wing 12 mm.; antennæ about 4 mm.

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

Rostrum yellow to brownish yellow; palpi black. Antennæ moderately long; scape brownish yellow; pedicel relatively long, dark brown; first flagellar segment light yellow, remainder of flagellum black; flagellar segments long-cylindrical, with conspicuous verticils. Head brownish yellow, the posterior portion of vertex with a transverse dark brown area.

Pronotum dark brown. Mesonotal præscutum with the ground-colour obscure yellow, polished in front, more pollinose near suture, the usual præscutal stripes dark brown, extensive; two major polished black areas on either side of præscutum, one at humeral area, the second larger, occupying the entire lateral margin of sclerite between the pseudosutural foveæ and suture; scutal lobes similarly polished black, the median area, together with the scutellum, pruinose; postnotum black, heavily grey pruinose. Pleura black, variegated with obscure brownish yellow on the dorsal sternopleurite and ventral pteropleurite; ventral sternopleurite dark brown. Halteres elongate, brown, the knobs a little paler. Legs with the coxæ blackened, the distal ends of fore coxæ yellow; trochanters yellow; femora yellow, with two black rings, one beyond mid-length, the other subapical, these rings relatively narrow, subequal in extent to the alternating yellow rings; tibiæ obscure yellow with an extensive pale brown ring just beyond base, this paling outwardly into the ground-colour; tarsi obscure yellow. Wings pale yellow, the costal portion more saturated; a heavy brown ocellate pattern, the area at origin of *Rs* not connected with the one at cord; a series of dark dashes in cell 2nd *A*; veins brown, yellow in the ground areas. Venation: supernumerary cross-vein in cell *C* perpendicular; R_{2+3+4} subequal to *m-cu*, the latter at near one-third the length of cell 1st M_2 ; cell M_1 a little longer than its petiole.

Abdominal tergites dark brown, at least the basal sternites yellow; in female, the bases of sternites narrowly but conspicuously ringed with brown. Male

hypopygium with the outer dististyle strongly curved at apex; interbase relatively stout, the tip curved.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, March 29, 1937 (*Macintyre*). *Allotopotype*, ♀, September 21, 1937 (*Macintyre*).

Epiphragma (Epiphragma) nigroplagiata is readily told from all described species by the conspicuous pattern of the mesonotum.

Epiphragma (Epiphragma) deliberata, sp. n.

General coloration brownish black, the præscutal stripes reddish brown; antennæ short; basal and apical flagellar segments yellow, the remainder black; halteres dusky, the knob yellow; femora obscure brownish yellow on basal half, outer portion yellow enclosing a broad black subterminal ring; tibiæ black, the base narrowly, the apex broadly yellow, most extensively so on posterior legs; tarsi yellow; wings yellow, with a heavy brown pattern, including about eight larger and darker costal areas, cells R_4 , M and Cu more washed with brown; margin of 2nd anal cell with five dark areas; abdomen black, the intermediate sternites with broad, pale yellow, posterior margins.

Male.—Length about 6.5–8 mm.; wing 7–10 mm.

Female.—Length about 9–11 mm.; wing 8–11 mm.

Rostrum brownish black; palpi black. Antennæ short, black, basal fusion segment bright yellow; scape slightly pruinose; terminal flagellar segment paling to yellow. Head dark brown, the posterior orbits broadly obscure orange.

Mesonotal præscutum with the ground-colour dull black, most intense on the humeral and lateral portions; stripes more reddish brown, occupying virtually all of the disk, the posterior interspaces poorly delimited; median stripe more or less divided on anterior portion by a capillary dark vitta; posterior sclerites of notum black, pruinose, heaviest on the mediotergite. In some specimens the mesonotum is almost uniformly blackened. Pleura uniformly blackened. Halteres with stem dusky, knob pale yellow. Legs with the coxæ blackened; trochanters obscure yellow; femora with basal half obscure brownish yellow, deepening to a narrow brownish

black ring just beyond mid-length; distal portion of femur bright yellow, enclosing a broad black ring that is nearly twice as wide as either the yellow apex or sub-terminal ring; tibiæ with base narrowly yellow, the intermediate portion black, the tips yellow, the latter narrowest (about the distal sixth) on fore legs, widest on hind tibiæ (distal three-fourths or approximately so); tarsi yellow. Wings with the ground-colour yellow, with a heavy brown pattern, including about eight larger and darker-coloured costal areas; areas at arculus, origin of *Rs* and fork of *Rs* ocellate; stigmal area solid; ground-colour of cells *R*₄, *M* and *Cu* extensively infumed, the centres of remaining interspaces basad of cord less distinctly clouded; outer radial cells with the ground-colour clear yellow; yellow marginal spots in radial and medial cells; cell 1st *A* with three, 2nd *A* with five marginal dark areas, excluding the spots at ends of veins; veins dark, a little brighter in the yellow ground areas. Venation: *Rs* relatively short, square and spurred at origin; *R*₂₊₃₊₄ about one-half the length of *Rs*; *m-cu* at near mid-length of cell 1st *M*₂.

Abdominal tergites and hypopygium dark brown to brownish black; sternites dark brown, the caudal borders of segments three to seven broadly and conspicuously pale yellow.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, April 7, 1937 (*Macintyre*). *Allotopotype*, ♀. *Paratopotypes*, 1 ♂, several ♀♀, April 5–18, September 21, 1937 (*Macintyre*).

Epiphragma (*Epiphragma*) *deliberata* is readily distinguished by the diagnostic features listed above, especially the coloration of the antennæ, legs and abdominal sternites.

Epiphragma (*Epiphragma*) *enixa*, sp. n.

General coloration of notum dark brown, with grey stripes; antennæ with scape and pedicel pale, terminal segment of flagellum paling to yellow; halteres yellow with the base of knob darkened; femora yellow with two clearly defined black rings at and beyond mid-length, the remainder of legs yellow; wings pale yellow, patterned with brown; a series of about ten brown spots in cell *Cu*; abdominal tergites brown; sternites pale ochreous with

dark brown incisures ; male hypopygium with the inter-base a slender curved spinous rod.

Male.—Length about 10 mm. ; wing 11.5 mm. ; antennæ about 3 mm.

Rostrum brown, pruinose ; palpi black. Antennæ of moderate length, if bent backward extending about to wing-root or slightly beyond ; scape obscure yellow ; pedicel yellowish brown ; first flagellar segment clear yellow, remainder of flagellum black, the terminal segments paling to yellow ; flagellar segments sub-cylindrical, with unusually long verticils. Head buffy brown, the anterior vertex with a conspicuous chestnut-brown area ; posterior vertex with a dusky median line.

Pronotum brownish yellow, with a capillary dark line. Mesonotal præscutum with grey stripes, the interspaces interruptedly dark brown ; lateral margin of præscutum narrowly blackened ; posterior sclerites of notum chiefly pruinose, each scutal lobe darkened medially ; a black spot on side of scutum behind suture ; scutellum black, thinly pruinose ; mediotergite black, more heavily pruinose on sides. Pleura variegated brownish black and obscure brownish yellow, the former including the propleura, mesepisternum, pleurotergite and meron, the latter colour including the mesepimeron and sclerites ventrad of base of halteres. Halteres pale yellow, the base of knob darkened. Legs with the coxæ obscure yellow, the fore and middle coxæ restrictedly darkened medially ; trochanters yellow ; femora yellow, with two narrow, clearly defined black rings at and beyond mid-length, these narrower than the yellow apex and sub-terminal ring enclosed by them ; tibiæ and tarsi uniformly yellow. Wings with the ground-colour pale yellow, conspicuously patterned with brown, including a series of seven or eight darker brown costal areas ; areas at origin of *Rs*, cord, forks of R_{2+3+4} and M_{1+2} , *m* and stigma ocelliform ; a linear series of about ten brown spots in cell *Cu* ; margin of cell 1st *A* with two dark areas, of 2nd *A* with six areas, additional to those at ends of veins ; veins yellow, darker in the clouded areas. Venation : R_{2+3+4} longer than *m-cu*, the latter before mid-length of cell 1st M_2 .

Abdominal tergites brown ; sternites pale ochreous, the incisures narrowly dark brown ; hypopygium more

yellowish brown. Male hypopygium with the interbases appearing as slender simple rods, the curved tips acute.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, March 29, 1937 (*Macintyre*). *Paratopotype*, sex? September 21, 1937 (*Macintyre*).

Epiphragma (Epiphragma) enixa is generally similar to *E. (E.) deliberata*, sp. n., differing conspicuously in the coloration of the body, legs, and wings. Both species have at least the terminal segment of the antennal flagellum pale yellow.

Epiphragma (Epiphragma) subenixa, sp. n.

General coloration of mesonotum dark brown, the præscutum with four reddish orange stripes; antennæ black, the basal segment of flagellum orange; pleura and pleurotergite almost uniform brownish yellow, without markings; legs with coxæ uniformly pale, femora yellow with two black rings on outer half; wings yellow, heavily patterned with brown, the markings in part ocelliform; cell *Cu* without dark areas except at outer end; abdomen dark brown, the basal sternites variegated with yellow; male hypopygium with the interbase bent at a right-angle before apex.

Male.—Length about 9.5 mm.; wing 10.5 mm.; antennæ about 3 mm.

Rostrum reddish brown; palpi black. Antennæ moderately long, if bent backward extending about to wing-root or shortly beyond; scape and pedicel black; basal segment of flagellum orange, with white pubescence, remainder of flagellum black; flagellar segments nearly cylindrical, with long conspicuous verticils. Head deep orange, the central portion of vertex extensively darker.

Mesonotal præscutum with the ground-colour dark brown, with four more reddish orange stripes, the intermediate pair separated by a capillary dark vitta; scutum and mediotergite dark brown, the surface sparsely pruinose, the scutellum more testaceous yellow. Pleura and pleurotergite almost uniformly brownish yellow, without markings. Halteres uniformly infuscated. Legs with the coxæ uniformly brownish yellow to obscure yellow; trochanters yellow; femora yellow, with two

narrow black rings, the narrower one just beyond mid-length, the outer dark ring subterminal, nearly twice as wide as the inner and subequal to either the yellow apex or yellow subterminal ring; tibiæ and tarsi uniformly yellow. Wings with the ground-colour yellow, more saturated in the prearcular and costal fields; a heavy brown pattern, including about eight darker costal areas; a distinct ocellus surrounding origin of *Rs*, with more-broken and less-evident ocelli centreing at anterior cord and fork of M_{1+2} ; stigmal area solidly darkened; ground-colour of cells R_4 , R_5 , *Cu* and 1st *A* suffused with dusky; dark spots in cell *Cu* lacking or confined to outer end; outer end of cell 1st *A* with a single dark area between veins, cell 2nd *A* with about six such marginal areas; veins pale brown, yellow in the flavous areas. Venation: *Rs* nearly square at origin; R_{2+3+4} shorter than R_{2+3} ; *m-cu* at mid-length of cell 1st M_2 .

Abdominal tergites dark brown; third and succeeding sternites with posterior borders conspicuously yellow; second sternite with this band subapical; hypopygium brownish yellow. Male hypopygium with the interbase bent at a right-angle before apex.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, September 20, 1937 (*Macintyre*).

Epiphragma (*Epiphragma*) *subenixa*, while generally similar to *E. (E.) enixa*, sp. n., is entirely distinct in all details of coloration of body and wings, and in the structure of the interbasal rods of the male hypopygium.

Epiphragma (*Epiphragma*) *diadema*, sp. n.

General coloration of mesonotum dark brown, the usual præscutal stripes deep chestnut-brown, the intermediate pair dark brown on posterior half; antennal flagellum beyond the first segment uniformly black; scutellum and median area of scutum pale; pleura yellow, striped longitudinally with dark brown, including a broad dorsal stripe from the cervical region to the pleurotergite, sternopleurite and meron abruptly pale; legs yellow, the femora with two broad black rings; wings yellow, heavily patterned with brown, the areas partly ocelliform; abdominal tergites beyond the first brownish black.

Male.—Length about 11 mm. ; wing 12 mm. ; antennæ about 3.3 mm.

Female.—Length about 12–14 mm. ; wing 11–12 mm.

Rostrum ochraceous; palpi black. Antennæ of moderate length, in male if bent backward ending shortly before wing-root; scape yellow, pedicel dark brown, paler basally; first flagellar segment light orange, remainder of flagellum uniformly black, the segments with conspicuous verticils. Head with front and anterior vertex pale; remainder of head deep chestnut-brown, the central portion of vertex more infuscated.

Pronotum dark brown medially and on ventral portions, the sublateral region broadly yellow, confluent behind with the pale dorsopleural region. Mesonotal præscutum with most of the usual stripes medium brown to chestnut-brown, vaguely separated by darker lines, the humeral and lateral portions brownish black; posterior half of intermediate præscutal stripes darkened; scutal lobes extensively dark brown, the median area pale; scutellum pale, the parascutella dark; mediotergite with central portion grey pruinose, the borders darkened. Pleura yellow, striped longitudinally with dark brown, including a dorsal stripe from the cervical region to the pleurotergite, the centre of the latter pale; a more ventral dark stripe, involving chiefly the mid-coxæ; pale ground stripes occupying the dorsopleural region and the sternopleural and meral portions. Halteres pale, the base of knob infuscated, the apex a little paler. Legs with the fore coxæ yellow to more or less infuscated; mid-coxæ blackened; posterior coxæ obscure yellow; trochanters yellow; femora yellow, with two broad black rings at and beyond mid-length; tibiæ and tarsi yellow. Wings yellow, the costal portion more saturated; a heavy brown pattern, darker along the costal border; ocelliform areas centering at origin of *Rs*, anterior cord and fork of M_{1+2} ; dark areas in cell *Cu* few and restricted to outer end of cell, the basal half washed with darker; dark marginal spots at outer end of cell 1st *A* varying in number from one to three, in cell 2nd *A* four or five; veins yellow, darker in the clouded areas. Venation: R_{2+3+4} and R_{2+3} subequal; *m-cu* at or before mid-length of cell 1st M_2 .

Abdominal tergites beyond the first brownish black; basal sternites more uniformly yellow; hypopygium

obscure yellow. Male hypopygium with the tergal lobes low and broad. Interbasal rods relatively short, at apex curved laterad into acute points.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, August 15, 1937 (*Macintyre*). *Allotopotype*, ♀, April 4, 1937. *Paratopotype*, ♀, September 20, 1937 (*Macintyre*).

Epiphragma (Epiphragma) diadema is closest to *E. (E.) enixa*, sp. n., and *E. (E.) subenixa*, sp. n., differing especially in the pattern of the mesonotal præscutum and pleura. It is certain that there are numerous generally similar but quite distinct species within this particular complex of forms.

Epiphragma (Epiphragma) xanthomela, sp. n.

General coloration black, the præscutum variegated with dark brown; antennæ elongate, black, the first flagellar segment orange; femora black, the base, apex and a subterminal ring narrowly yellow; tibiæ yellow at extreme base, followed by a broad black ring, the tip yellow; tarsi yellow; wings pale yellow, with a heavy brown pattern, including large ocelliform areas; abdominal tergites black, the caudal borders restrictedly silvery; sternites with posterior borders broadly yellow.

Female.—Length about 10 mm.; wing 9 mm.; antennæ about 3.3 mm.

Rostrum and palpi black. Antennæ black, the basal segment of flagellum abruptly orange; antennæ relatively long, especially for the female sex, if bent backward extending to shortly beyond base of abdomen; flagellar segments cylindrical, with conspicuous verticils. Head dark brown, the front and narrow orbits somewhat more reddish brown, the posterior vertex and genæ slightly more pruinose.

Pronotum obscure yellow, the anterior notum and pleura more infuscated; pretergites obscure yellow. Mesonotal præscutum with the disk chiefly light brown, variegated with black, including a conspicuous median vitta and broad lateral and cephalic borders, slightly interrupted at the humeri; scutum with the ground-colour brownish yellow pollinose, each lobe with disk extensively darkened, the median line with a narrow vitta; scutellum and mediotergite black, sparsely pruinose. Pleura and pleurotergite chiefly black, including the dorso-

pleural region, the meral area a trifle paler. Halteres moderately long, infuscated, the base of stem and apex of knob obscure yellow. Legs with the coxæ black, the tips narrowly yellow, of the fore coxæ the distal half more piceous; trochanters brownish black; femora black, the bases narrowly yellow, somewhat more extensively so on posterior legs; a narrow ring at near two-thirds to three-fourths the length, together with the apex, yellow, the black subterminal ring very broad; tibiæ extensively black on proximal portion, the extreme base yellow, the dark colour most extensive on the fore and middle tibiæ where more than three-fourths the total length is included, narrower on posterior legs where about one-half the length is involved; tips of tibiæ and all tarsi yellow. Wings relatively narrow, pale yellow, the costal border more saturated yellow; a heavy brown pattern, including about eight darker costal areas that are more extensive than the interspaces, especially the more basal ones; ocellate rings centreing at origin of *Rs*, cord and fork of M_{1+2} , with a further incomplete ocellus at arculus, the rings large, enclosing extensive pale areas; stigmal area not ocelliform; cells *Cu* and 1st *A* clouded, the former with only one or two darker areas; cell 1st *A* with four marginal darkenings, cell 2nd *A* with about eight, excluding the areas at ends of veins; veins brown, yellow in the flavous areas. Venation: *m-cu* at near two-thirds the length of cell 1st M_2 .

Abdominal tergites black, the caudal margins of the segments restrictedly silvery; sternites similar, the posterior margins more broadly and conspicuously yellow.

Hab. Ecuador (Oriente).

Holotype, ♀, Abitagua, altitude 1200 metres, April 5, 1937 (*Macintyre*).

In its general appearance, especially the blackened tibiæ, *Epiphragma* (*Epiphragma*) *xanthomela* is most similar to *E. (E.) deliberata*, sp. n., but is entirely distinct. The unusually long antennæ of the female indicate an even longer organ in the male.

Epiphragma (*Epiphragma*) *oxyphallus*, sp. n.

General coloration of præscutum bright brown; antennæ with basal three or four segments pale, the remainder black; pronotum and dorsopleural membrane

obscure yellow, the remainder of pleura black, including the broad bases of the coxæ; halteres relatively long, infuscated; legs yellow, the femora with a narrow brown subterminal ring; wings yellow, the ground-colour more or less washed with brown, heavily patterned with darker brown, the markings in part ocelliform; male hypopygium with the ædeagus a flattened compressed blade, narrowed into a long apical point, protruding ventrad and cephalad from the genital chamber.

Male.—Length about 8–8.5 mm.; wing 9–9.5 mm.; antennæ about 2.8–3 mm.

Female.—Length about 9–10 mm.; wing 9.5–10.5 mm.

Rostrum brownish black; palpi black. Antennæ with the basal three or four segments yellow, the scape sometimes a trifle darker; remainder of flagellum black. Head brownish grey, the posterior vertex with a darker median line; front and narrow posterior orbits more yellow.

Pronotum obscure yellow, with a narrow median vitta. Mesonotal præscutum with the stripes bright brown, the interspaces dark brown to brownish black, most conspicuous on lateral margins behind the pseudosutural foveæ and less evidently on anterior portion of sclerite; posterior interspaces and median dark vitta sometimes restricted and virtually confluent with the ground; scutum reddish brown, the lobes darkened; scutellum dark; mediotergite dark medially, the caudal and lateral portions obscure yellow. Pleura and pleurotergite black, only the dorsopleural region abruptly yellow. Halteres relatively elongate, infuscated. Legs with the coxæ blackened, the tips abruptly yellow, involving about the distal half on middle and posterior legs, narrower on fore pair; trochanters yellow; femora brownish yellow, clearer yellow at base and tip, with a narrow brown subterminal ring; tibiæ and tarsi yellow. Wings with the ground-colour yellow, more saturated in costal portion; much of disk washed with brown but not forming distinct pale-margined centres to the interspaces as in many species, the most conspicuous darkening involving the outer radial field and cells *M*, *Cu*, 1st *A* and 2nd *A*; a heavy brown pattern, including about eight still darker brown costal areas; ocellate areas centreing at origin of *Rs* and cord; stigmal area solid;

an irregular series of more or less confluent dark spots in cell *Cu*; dark marginal spots at ends of longitudinal veins, in cases confluent along extreme outer margin but leaving central pale droplets at ends of cells; outer end of cell 1st *A* with two or three, of 2nd *A* with from six to eight dark spots, additional to areas on the veins themselves; veins pale brown, darker in the heavily patterned areas, yellower in the flavous portions. Venation: *Rs* angulated and spurred at origin; *m-cu* before mid-length of cell 1st *M*₂.

Abdominal tergites brownish black, the incisures somewhat brightened; sternites more obscure yellow, variegated with darker, the lateral portions blackened; hypopygium brownish yellow. Male hypopygium with the tergal lobes long and slender. Outer dististyle with a distinct lobe or shoulder on outer margin near base, the style gradually narrowed outwardly into a long curved point. *Ædeagus* entirely different from the type normal in the genus, appearing as a flattened compressed blade that narrows to a slender tip, in a position of rest directed ventrad and cephalad, showing conspicuously even with a hand lens.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, September 18, 1937 (*Macintyre*). *Allotopotype*, ♀, in copula with type. *Paratopotypes*, several males and females, March 23 to April 20, 1937; August 20, 1937; September 18–20, 1937 (*Macintyre*).

In the peculiar and somewhat remarkable *ædeagus*, the present fly is entirely distinct from all regional species of the genus so far described.

Epiphragma (Epiphragma) hirtistylata, sp. n.

General coloration of notum obscure yellow, patterned with brown; terminal segments of maxillary palpi and antennæ abruptly yellow; antennæ elongate, the basal flagellar segments bicoloured; halteres elongate, obscure yellow; femora black; tibiæ black, the tips yellow; tarsi yellow; wings pale yellow, all cells abundantly dotted with brown, with about seven slightly larger areas that are costal in distribution; *m-cu* shortly before mid-length of cell 1st *M*₂; male hypopygium with the outer face of basistyle with unusually long and conspicuous setæ.

Male.—Length about 9.5–10 mm. ; wing 9.5–10.5 mm. ; antennæ about 4.2 mm.

Rostrum black ; palpi black, the terminal segment abruptly yellow. Antennæ (male) elongate, if bent backward extending to about base of third abdominal segment ; basal four segments yellow, the succeeding three bicolorous, the base narrowly black, the apex yellow, with the amount of black becoming more extensive on outer segments ; outer half of flagellum black, the small terminal segment abruptly pale yellow ; flagellar segments long-cylindrical, with conspicuous erect setæ and sparse longer verticils. Head light orange.

Pronotum yellow, narrowly darkened medially. Mesonotal præscutum obscure yellow, restrictedly patterned with brown, including the lateral and cephalic borders and less distinct discal markings ; an inverted V-shaped brown marking at mid-length of præscutum, behind which the median area is more pruinose, bordered laterally by brown ; scutal lobes weakly darkened ; scutellum and mediotergite brown, pruinose, especially the latter. Pleura obscure yellow, with a conspicuous dark brown longitudinal stripe extending from the cervical region, passing above the fore coxæ to base of halteres and pleurotergite, its dorsal edge sharply defined. Halteres elongate, obscure yellow. Legs with the fore coxæ chiefly infuscated, remaining coxæ yellow ; trochanters brown ; femora black ; tibiæ black, the tips abruptly yellow, including about the distal fourth or fifth, more extensive on posterior legs ; tarsi yellow. Wings pale yellow, all cells abundantly dotted with brown, with about seven slightly larger areas that are costally arranged, the second at origin of *Rs*, third at the supernumerary cross-vein in cell *C*, fourth at fork of *Sc* ; last area at end of vein R_4 ; more restricted seams along cord, outer end of cell 1st M_2 , fork of M_{1+2} and ends of the longitudinal veins ; the only indication of the usual ocellate pattern common in the genus includes an area surrounding the origin of *Rs* ; veins yellow, darker in the clouded areas. Venation : R_{1+2} and R_2 subequal ; *Rs* nearly square at origin ; petiole of cell M_1 from about one-half to two-thirds the cell ; *m-cu* shortly before mid-length of cell 1st M_2 .

Abdominal tergites medium brown ; sternites yellow, ringed with brown on basal portions ; hypopygium brown.

Male hypopygium with the basistyle provided with unusually long and strong setæ on outer face of distal half, these hairs exceeding in length the basistyle itself; shorter strong setæ on proximal half of mesal face of basistyle. Dististyles relatively small, the outer terminating in a simple hook. Interbase with the lobe relatively short, the tip appearing as a short acute spine.

Hab. Ecuador (Oriente).

Holotype ♂, Abitagua, altitude 1200 metres, September 22, 1937 (*Macintyre*). *Paratopotypes*, 2 ♂♂, April 18–20, 1937 (*Macintyre*).

Epiphragma (*Epiphragma*) *hirtistylata* is so distinct from all other described species that any comparison with others is unnecessary.

Austrolimnophila persessilis, sp. n.

General coloration of præscutum grey, with three brown stripes; scape light yellow; pleura pale yellow; legs yellow; wings subhyaline, the stigma very pale brown; very pale brown clouds at origin of *Rs*, along cord and on outer end of cell 1st *M*₂; cell *M*₁ broadly sessile; *m-cu* at near one-third the length of cell 1st *M*₂; abdominal tergites weakly bicolorous, dark brown, the caudal margins of the segments narrowly obscure yellow.

Female.—Length about 8.5 mm.; wing 8.5 mm.

Rostrum yellow; palpi brownish black, the basal segment yellow. Antennæ with scape light yellow; pedicel pale brown; flagellum dark brown; flagellar segments cylindrical, with conspicuous verticils that exceed the segments in length; segments gradually increasing in length outwardly. Head brownish grey, the occiput obscure yellow.

Pronotum pale yellow. Mesonotal præscutum with the ground-colour grey chiefly concealed by three dark brown stripes, the laterals less clearly delimited, the interspaces poorly defined; scutal lobes dark brown, the median region a little paler; posterior sclerites of notum dark brown. Pleura pale yellow, the pleurotergite a little darker. Halteres very long, pale, the knobs weakly darkened. Legs with the coxæ and trochanters pale yellow; remainder of legs uniformly yellow, the terminal segments weakly infuscated; claws small, simple. Wings subhyaline; stigma long-oval,

very pale brown; scarcely evident clouds at origin of R_s , along cord and at outer end of cell 1st M_2 ; veins dark brown. Macrotrichia of veins relatively short. Venation: Sc long, Sc_1 ending about opposite fork of R_{2+3+4} , Sc_2 longer at its tip; R_{1+2} a little longer than R_2 ; R_{2+3+4} relatively short, less than twice $r-m$; cell M_1 broadly sessile, m on vein M_2 about one-half its length beyond fork of M_{1+2} ; $m-cu$ at near one-third the length of cell 1st M_2 .

Abdominal tergites weakly bicoloured, dark brown, the caudal margins of the segments narrowly obscure yellow; sternites obscure yellow; cerci strongly up-curved, horn-yellow.

Hab. Ecuador (Oriente).

Holotype, ♀, Abitagua, altitude 1200 metres, September 21, 1937 (*Macintyre*).

Austrolimnophila persessilis is very distinct from the other species so far described. In the sessile cell M_1 it resembles *A. pacifera* Alexander, of Brazil, but in all other respects is quite distinct.

Austrolimnophila nematocera, sp. n.

General coloration brownish black; antennæ (male) equal in length to the wing; flagellar segments long-cylindrical, with numerous long scattered verticils; wings obscure yellow, the colour almost obliterated by five broad transverse brown bands; Sc long, Sc_1 ending beyond fork of R_{2+3+4} , cell M_1 present; male hypopygium with the outer dististyle terminating in two small teeth.

Male.—Length about 6 mm.; wing 6 mm.; antennæ about 6 mm.

Rostrum and palpi black. Antennæ (male) of unusual length, subequal to the body or wing, brown throughout or the outer segments a trifle paler; flagellar segments long-cylindrical, with numerous long scattered verticils that are about two-thirds as long as the segments; terminal segment shorter. Head brownish black.

Pronotum and mesonotum almost uniformly brownish black, without clearly defined markings. Pleura similarly darkened, the ventral sclerites a trifle paler. Halteres with stem pale, knob dark brown. Legs with the coxæ

testaceous, the fore pair darker; trochanters obscure yellow; femora and tibiæ dark brown, the tarsi a little paler. Wings with the ground-colour obscure yellow, almost obliterated by five broad transverse brown bands; first band prearcular, almost confluent with the second; third band at level of origin of *Rs* and end of 2nd *A*, somewhat paler and broken in cell *M* and here interconnected with second band; fourth band at cord; outermost band occupying the broad apex, a little variegated by pale spots; veins brown, with conspicuous trichia. Venation: *Sc* long, *Sc*₁ ending beyond fork of *R*₂₊₃₊₄, *Sc*₂ near its tip; *Rs* long, angulated at origin, in alignment with *R*₂₊₃₊₄; basal section of *R*₅ and *r-m* in transverse alignment; cell *M*₁ subequal in length to its petiole; cell 1st *M*₂ long and narrow, with *m-cu* at near two-fifths its length; anterior arculus broken.

Abdomen, including hypopygium, black. Male hypopygium with the outer dististyle small, subcylindrical, the apex with two small teeth, the outer more slender; surface of style with numerous coarse setæ. Inner dististyle small, terminating in a short obtuse point. *Ædeagus* short.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, August 20, 1937 (*Macintyre*).

I am referring the present fly to *Austrolimnophila* on the basis of the broken arculus, though with much question. The fly is quite different from any hitherto described species, especially in the elongate antennæ and unusually heavily banded wings.

Pseudolimnophila pluto, sp. n.

General coloration brownish black; antennæ black, the pedicel brownish yellow; halteres obscure yellow; legs brown, the tarsi paling to yellow; wings very strongly suffused with brown, stigma and seams on cord and outer end of cell 1st *M*₂ darker brown; *R*₂₊₃₊₄ short; veins *R*₃ and *R*₄ extending generally parallel to one another, so cell *R*₂ at margin is very wide; *m-cu* at from one-half to two-thirds the length of cell 1st *M*₂.

Male.—Length about 7–7.5 mm.; wing 7.5–8 mm.; antennæ about 1.5 mm.

Female.—Length about 9 mm.; wing 8.5 mm.

Rostrum moderately long, about one-third the remainder of head, black throughout; palpi black. Antennæ with scape and flagellum black, pedicel brownish yellow; flagellar segments oval to long-oval, the verticils relatively long and conspicuous; terminal segment longer than the penultimate. Head brownish black; anterior vertex about one-third the width of front.

Thorax uniformly brownish black. Halteres obscure yellow, the base of stem a little darkened. Legs with the coxæ black to brownish black; trochanters yellow; femora and tibiæ brown, the tarsi paling to yellow. Wings very strongly suffused with brown, cell *Sc* above the arculus restrictedly more yellowish; stigma elongate, darker brown; darker seams along cord and outer end of cell 1st M_2 ; paler longitudinal streaks in cells *R* and *M*; veins dark brown, paler on basal third of wing. Macrotrichia of veins abundant, long and conspicuous. Venation: Sc_1 ending just beyond fork of *Rs*, Sc_2 at tip; R_{2+3+4} in longitudinal alignment with *Rs*, shorter than R_{2+3} and about twice the basal section of R_5 ; R_{1+2} from one and one-half to two times R_2 ; tip of vein R_3 bent strongly toward wing-tip, greatly widening cell R_2 , veins R_3 and R_4 thus extending generally parallel to one another throughout their lengths; cell M_1 approximately twice its petiole; *m-cu* from one-half to two-thirds the length of the small cell 1st M_2 ; anterior arculus present.

Abdomen brownish black, the sternites, and in cases, the intermediate tergites, a little paler; hypopygium brownish yellow. Male hypopygium with the outer dististyle a simple rod, its tip a gently curved spine; surface of style with abundant setæ on mesal face, the ventral margin before apex with several appressed teeth. Inner dististyle small.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, April 20, 1937 (*Macintyre*). *Allotopotype*, ♀, April 7, 1937. *Paratopotype*, ♂, with the allotype.

Pseudolimnophila pluto is entirely distinct from all other species of the *Limnophilaria* in the Neotropical fauna. Superficially it most resembles *Limnophila charon* Alexander, of southern Brazil, but may be told readily by the venation and structure of the male hypopygium.

Polymera (Polymera) clausa, sp. n.

General coloration of mesonotum testaceous brown; pleura yellow, with a broad black dorsal stripe; antennæ (male) subequal to or longer than body, flagellum black, the segments binodose; halteres and legs black; wings with a uniform brown tinge, unpatterned; R_{2+3+4} short, about twice $r-m$; cell 1st M_2 closed, cell M_1 present; abdomen black, hypopygium yellowish brown.

Male.—Length about 6 mm.; wing 7 mm.; antennæ about 6 mm.

Female.—Length about 7 mm.; wing 6.5–7 mm.; antennæ about 2.5–2.6 mm.

Rostrum and palpi black. Antennæ black throughout, in male approximately as long as or slightly longer than body; flagellar segments weakly binodose; in female, antennæ short and normal for this sex. Head dark brownish grey.

Mesonotum uniformly light testaceous brown. Pleura with a broad black dorsal stripe extending from the cervical region to the base of abdomen; ventral pleurites pale yellow. Halteres dark throughout. Legs with the coxæ and trochanters yellow; femora dark brown, the bases narrowly obscure yellow; tibiæ and all tarsi black. Wings with a uniform brown tinge, unpatterned, the costal border a trifle more yellowish; veins and trichia brown. Venation: Sc_1 ending shortly before fork of R_{2+3+4} , Sc_2 near its tip; R_{1+2} approximately two-thirds R_s and from two-thirds to three-fourths R_{2+3} ; R_{2+3+4} short, about twice $r-m$; cell M_1 present; cell 1st M_2 closed by the retention of m , the cell long and narrow; $m-cu$ about its own length, or slightly less, beyond the fork of M .

Abdomen black; hypopygium yellowish brown.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, September 18, 1937 (*Macintyre*). *Allotopotype*, ♀. *Paratopotypes*, 3 ♀♀, September 18–22, 1937 (*Macintyre*).

Polymera (Polymera) clausa is readily told from all known members of the genus by the closed cell 1st M_2 of the wings. The uniformly blackened antennæ and tarsi, in conjunction with the presence of cell M_1 of the wings, similarly distinguishes the fly from most of its relatives.

Polymera (Polymera) albogenualis, sp. n.

General coloration of mesonotum cinnamon brown, unmarked; antennæ (male) very long, more than one-half longer than body, the flagellar segments binodose; femora dark brown, the tips narrowly and abruptly white; tarsi dirty brownish white; wings tinged with grey; R_{2+3+4} short, about one-fifth the length of vein R_{2+3} ; R_{1+2} a little shorter than R_s and about three times $m-cu$; abdomen, including hypopygium, black.

Male.—Length about 6 mm.; wing 7 mm.; antennæ about 10 mm.

Rostrum obscure yellow; palpi testaceous brown. Antennæ very long, more than one-half longer than the body; scape brown, pedicel brownish yellow; flagellar segments pale brown, the tips narrowly pale; flagellar segments elongate, binodose, with very long outspreading verticils on both nodes. Head dark brownish grey.

Mesonotum uniformly light cinnamon brown, unmarked. Pleura with a broad brownish black longitudinal stripe on dorsal portion, the sternopleurite and meron abruptly light yellow. Halteres pale brownish yellow. Legs with the fore coxæ darkened basally, yellow at tips; remaining coxæ and all trochanters light yellow; femora dark brown, the bases a little paler, the tips narrowly (about 0.3 mm.) but conspicuously white, the amount subequal on all legs; tibiæ brown, the extreme tips very narrowly and insensibly paler; all tarsi paling to dirty brownish white. Wings with a greyish tinge, unmarked; veins and trichia darker. Venation: R_{2+3+4} only a little longer than basal section of R_5 and about one-fifth the length of vein R_{2+3} alone; R_{1+2} about three times R_{2+3+4} and only a little shorter than R_s ; cell M_1 present; $m-cu$ at fork of M .

Abdomen, including hypopygium, black.

Hab. Ecuador (Oriente).

Holotype, ♂, Rio Blanco, near Baños, Tungurahua, altitude 1700 metres, June 2, 1937 (*Macintyre*).

The most similar species is *Polymera (Polymera) albo-geniculata* Alexander, likewise from Ecuador, which has the femoral tips similarly whitened, differing in the patterned præscutum and scutum and in the venational details, as the long R_{2+3+4} , which is about two-thirds as long as R_{2+3} .

Atarba (Atarba) idonea, sp. n.

General coloration brown, the præscutum more reddish brown; antennæ (male) very long, nearly as long as body; flagellum black throughout, the longest verticils solitary on each segment, unilaterally arranged; legs yellow; wings with a weak brown tinge, stigma pale brown; cell R_2 at margin wider than cell R_3 ; *m-cu* shortly before mid-length of the rectangular cell 1st M_2 ; abdominal tergites brownish black, hypopygium yellow; male hypopygium with the ædeagus relatively short and stout, parallel-sided, the apex not expanded.

Male.—Length about 4.5 mm.; wing 5 mm.; antennæ about 4 mm.

Rostrum brown; palpi dark brown. Antennæ (male) very long, nearly equal in length to the body; scape and pedicel pale brown, flagellum black; flagellar segments long-cylindrical, clothed with abundant long erect pale setæ; each segment with a single powerful seta, subequal in length to the segment, inserted on basal half of segment, unilaterally arranged; terminal segment about one-third the penultimate. Head dark brown.

Mesonotum almost uniform brown, the præscutum somewhat more reddish brown, the posterior sclerites darker. Pleura brown, the sternopleurite obscure yellow. Halteres dusky, the extreme base of stem pale. Legs with the coxæ and trochanters pale brown; remainder of legs yellow, the terminal tarsal segments more infuscated; no darkening of femoral tips. Wings with a weak brownish tinge, the prearcular and costal borders more yellowish; stigma pale brown, ill-defined; veins brown. Venation: *Sc* short, Sc_1 ending opposite origin of *Rs* or virtually so, Sc_2 close to tip; *Rs* unusually short, only a little longer than basal section of R_5 ; branches of *Rs* generally parallel to one another so cell R_2 at margin is wider than cell R_3 ; cell 1st M_2 rectangular, *m-cu* shortly before mid-length. In *brunneicornis* the branches of *Rs* diverge at tips so cell R_3 at margin is considerably more extensive than R_2 .

Abdominal tergites dark brown to brownish black, the sternites a little more yellowish brown; hypopygium yellow. Sternal plate of male hypopygium with short lateral spines, the caudal margin truncate. Basistyle with a conspicuous interbasal lobe. Outer dististyle

dilated beyond mid-length, thence narrowed into a slender point, the spines of outer margin about eight in number, on the apical point with only a single spine before the bifid apex; face of style with supplementary roughenings and spinulæ. Inner distyle relatively stout, gently curved. Ædeagus short and stout, parallel-sided, the apex not expanded.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, April 5, 1937 (*Macintyre*).

The nearest ally is *Atarba* (*Atarba*) *brunneicornis* Alexander, of Colombia, which is readily told by the venation and by the structure of the male hypopygium.

Atarba (*Atarba*) *nodulosa*, sp. n.

Belongs to the *cincticornis* group; general coloration of præscutum testaceous yellow; antennæ (male) elongate, subequal in length to body, bicoloured, the bases of the flagellar segments black, conspicuously swollen, producing a nodulose appearance; legs yellow; wings yellow, with a restricted brown pattern; Sc_1 ending about opposite one-third the length of the relatively long Rs , $m-cu$ close to mid-length of the rectangular cell 1st M_2 ; male hypopygium with the ædeagus angularly bent at near two-thirds the length and here provided with a spinous point.

Male.—Length about 5.5 mm.; wing 6 mm.; antennæ about 5.5 mm.

Rostrum brown; palpi with basal segment yellow, outer segments black. Antennæ (male) elongate, approximately as long as body; scape, pedicel and first flagellar segment pale yellow; succeeding segments bicolored, yellow, the basal half black, conspicuously swollen, about twice as thick as the apical portion, with long conspicuous verticils. Head greyish brown; eyes large; anterior vertex greatly reduced, not exceeding one-half the diameter of the scape.

Mesonotal præscutum and scutum testaceous yellow, the lateral margin narrowly darkened; posterior sclerites of notum darker. Pleura testaceous yellow, the dorso-pleural region more darkened. Halteres pale. Legs with the coxæ and trochanters yellow; remainder of legs yellow, the outer tarsal segments darkened. Wings

yellow, restrictedly patterned with brown, including the stigma and a narrow vague seam along cord, the latter chiefly indicated by the darker veins; veins yellow, except as described. Venation: Sc_1 ending about opposite one-third the length of Rs , the latter relatively long, nearly twice $m-cu$; cell 1st M_2 relatively large, rectangular, with $m-cu$ at or close to mid-length.

Abdominal tergites chiefly dark brown, the sternites more bicoloured, dark with paler caudal borders; abdomen with conspicuous erect pale setæ; hypopygium yellow. Male hypopygium with the caudal margin of sternal plate only weakly emarginate. Outer dististyle moderately wide, the outer crest of spines extending virtually to base of style, totalling about a dozen spines, the outer longer and more appressed; apical spines short, stout, slightly decurved; surface of style roughened by other smaller scabrous points and spinulæ. Ædeagus of moderate length and stoutness, about the distal third angularly bent and directed laterad, with a conspicuous spinous point at the angle.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, September 18, 1937 (*Macintyre*).

Atarba (*Atarba*) *nodulosa* is allied to *A. (A.) cincticornis* Alexander, of British Guiana and Ecuador, in the reversed pattern of the antennal flagellum, with the base black instead of yellow. It is readily told from the two hitherto described members of this group by the nodulose antennæ and by details of structure of the male hypopygium.

Trentepohlia (Neomongoma) suberecta, sp. n.

Thoracic notum black, the pleura and pleurotergite obscure yellow; halteres blackened, the base of stem yellow; legs dark brown, the tarsi a little paler; wings whitish subhyaline, the base and costal portion more yellowish, the outer radial field infumed; stigma conspicuous, dark brown; vein R_3 suberect; petiole of cell R_5 subequal to m .

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

Rostrum brown; palpi small, black. Antennæ black throughout; flagellar segments oval with relatively short verticils. Head grey; anterior vertex reduced

to a tiny line about as wide as the diameter of a single row of ommatidia.

Pronotum black. Mesonotal præscutum chiefly covered by a black dorsal shield, the humeral and lateral portions yellow; scutal lobes black, the median area yellow; scutellum and mediotergite black. Pleura and pleurotergite light yellow, the ventral sternopleurite a trifle infuscated. Halteres with base of stem yellow, remainder blackened. Legs with coxæ and trochanters yellow; femora dark brown, the bases very restrictedly brightened; tibiæ brownish black; tarsi paler brown or yellowish brown. Wings whitish subhyaline, the basal and costal portions a little more yellowish; basal portion of cell *Sc* slightly darkened; wing-tip in outer radial field more infumed; stigma conspicuous, oval, dark brown; veins dark brown, pale in the brightened portions. Venation: R_3 suberect, R_2 oblique; petiole of cell R_5 subequal to m ; $m-cu$ at fork of M ; cell Cu at margin subequal to distal section of Cu_1 .

Abdominal tergites dark brown, the lateral borders narrowly pale; lateral portions of intermediate sternites more broadly yellow; hypopygium black.

Hab. Ecuador (Oriente).

Holotype, ♂, Abitagua, altitude 1200 metres, September 20, 1937 (*Macintyre*).

Trentepohlia (*Neomongoma*) *suberecta* is entirely distinct from *T. (N.) disjuncta* (Alexander), the only other species of the subgenus hitherto described.