

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

THE crane-flies discussed herewith are all from Peru and virtually all from the Department of Ayacucho, where they were collected by Mr. Felix Woytkowski, to whom my deepest thanks are extended for this co-operation. All of the species described belong to the single genus *Limonia* Meigen, vastly developed in Tropical America, as, indeed, in almost all parts of the world, including the most remote oceanic islands. There seems to be no question but that this genus will vastly exceed all other Tipulid groups in the number of included species. The types of the novelties are preserved in my personal collection of these flies.

Limonia (Dicranomyia) bigladia, sp. n.

General coloration dark greyish brown, the præscutum with a still darker median stripe ; rostrum and scape on antenna yellow ; median region of scutum and the scutellum conspicuously light grey ; halteres unusually long and slender ; wings with a light brown tinge, stigma a trifle darker ; Sc_1 long ; abdomen relatively elongate ; male hypopygium unusually complicated by outgrowths and setal areas on basistyle and ventral dististyle ; each basistyle with a powerful sword-like spine at apex of ventromesal lobe.

Male.—Length about 7 mm. ; wing 8 mm.

Rostrum obscure yellow, about one-half the length of remainder of head ; palpi black. Antennæ with scape light yellow, pedicel and flagellum black ; basal flagellar segments oval, the outer ones more elongate ; verticils of outer segments shorter than the segments alone ; terminal segment slightly longer than the penultimate. Head light grey ; anterior vertex relatively wide, nearly three times the diameter of scape.

Pronotum dark brown above, slightly paler on sides. Mesonotal præscutum dark greyish brown, with a still darker brown median stripe, the lateral stripes scarcely indicated ; humeral region of præscutum a little more buffy ; scutal lobes dark brown ; median region of scutum and the scutellum conspicuously light grey ; mediotergite dark brown, grey pruinose. Pleura and pleurotergite pale brownish yellow with a sparse pruinosity, the ventral sternopleurite slightly darker. Halteres unusually long and slender, dark brown, the base of the stem brightened. Legs with the coxæ and trochanters obscure testaceous yellow ; femora brown, the bases restrictedly obscure yellow ; tibiæ and tarsi pale brown, the terminal tarsal segments darker. Wings with a light brown tinge, the oval stigma a very little darker ; veins delicate, pale brown. Ventation : Sc_1 ending opposite origin of R_s , Sc_2 far from its tip so Sc_1 alone is about equal to R_s ; $m-cu$ close to fork of M ; vein 2nd A sinuous, the cell relatively narrow.

Abdominal tergites dark brown, the sternites obscure brownish yellow ; caudal borders of segments pale, more extensive and conspicuous on outer tergites ; segments eight or nine more uniformly darkened ; hypopygium yellowish brown. Male hypopygium (fig. 1) with the

tergite, 9t, very large, transversely oval in outline; caudal border on either side of median line with a strong tubercle, the mesal portion and base of which is provided with about fifteen strong but not particularly long spinous setæ; elsewhere on tergal disk a transverse row of more

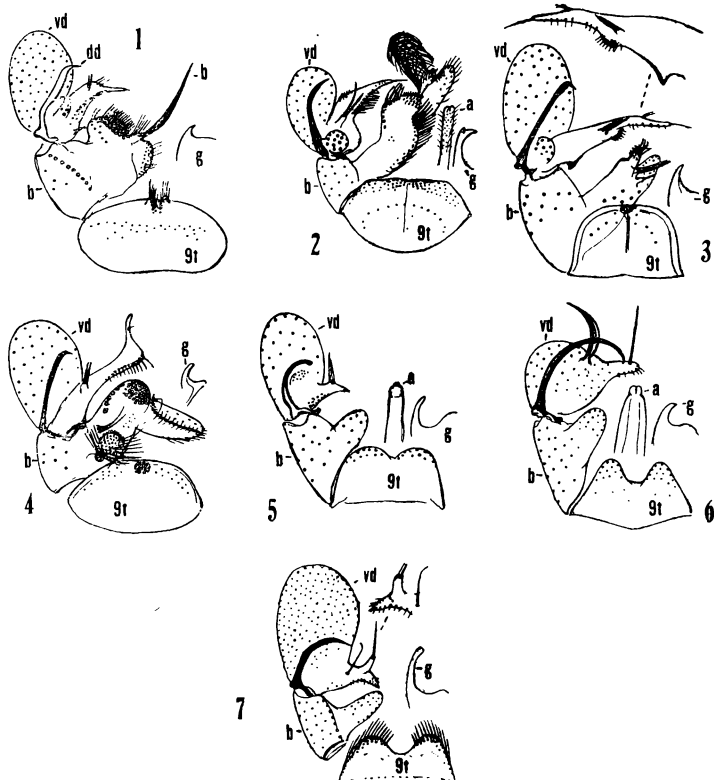


Fig. 1.—*Limonia (Dicranomyia) bigladiæ*, sp. n.; male hypopygium.
 Fig. 2.—*Limonia (Dicranomyia) humerosa*, sp. n.; male hypopygium.
 Fig. 3.—*Limonia (Dicranomyia) muliercula*, sp. n.; male hypopygium.
 Fig. 4.—*Limonia (Dicranomyia) imitabilis*, sp. n.; male hypopygium.
 Fig. 5.—*Limonia (Dicranomyia) complacita*, sp. n.; male hypopygium.
 Fig. 6.—*Limonia (Dicranomyia) diversigladiæ*, sp. n.; male hypopygium.
 Fig. 7.—*Limonia (Geranomyia) heteroxipha*, sp. n.; male hypopygium.

(Symbols: a, aedeagus; b, basistyle; dd, dorsal dististyle;
 g, gonapophysis; t, 9th tergite; vd, ventral dististyle.)

delicate setæ from conspicuous punctures. Basistyle, b, relatively small, down the face of main portion with an oblique row of about ten very long and powerful setæ, those at either end of row shorter and weaker ventromesal

lobe complex, chiefly bilobed, the lateral lobe densely provided with numerous strong spines or spinous setæ ; inner lobe subequal in size, with numerous long delicate pale setæ ; between these two lobes extends chiefly caudad a very powerful flattened blade that is evidently comprised of several strong fasciculated setæ, the spine at apex produced into a needle point. Dorsal dististyle, *dd*, relatively weak and of somewhat peculiar conformation, as shown, narrowed on basal third, the tip acute. Ventral dististyle, *vd*, relatively large, its total area approximately equal to that of the basistyle ; rostral prolongation strongly developed, separated from the main body of style by a deep notch that is occupied by a rounded lobe or cushion that is provided with a few very long setæ ; blade of prolongation compressed, narrowed to a long apical point ; rostral spines subequal in length, placed close together on face of blade, not arising from basal tubercles ; near base of blade on margin with a conspicuous hair-pencil. Gonapophysis, *g*, with mesal apical lobe short and pale, inconspicuous. Ædeagus glabrous.

Hab. Peru (Ayacucho).

Holotype, ♂, Yanamonte, La Mar, in fog forests, altitude 3000–4100 metres, October 3, 1941 (*Woytkowski*).

Limonia (*Dicranomyia*) *bigladia* is one of numerous species of the subgenus having the halteres exceedingly long and slender and with the male hypopygium very complex in structure. From all such species, the present fly differs conspicuously in the presence of the major spine at apex of ventromesal lobe of basistyle, from which character the specific name is derived.

Limonia (*Dicranomyia*) *humerosa*, sp. n.

General coloration dark brown ; antennæ black throughout ; halteres elongate, black throughout ; legs brown ; wings with a brown tinge, the oval stigma slightly darker brown ; *Sc*₁ long, subequal to *Rs* ; male hypopygium with the tergite large, its caudal border nearly truncate ; basistyle with the ventromesal lobe very complicated by outgrowths and hair brushes ; dorsal dististyle a relatively weak, gently curved rod ; ventral dististyle with the rostral prolongation a flattened compressed blade, the two spines unequal in length, arising from a common tubercles ; gonapophyses with mesal-apical lobe unequally bidentate at tip.

Male.—Length about 6.5 mm. ; wing 7 mm.

Rostrum obscure yellow ; palpi black. Antennæ black throughout ; flagellar segments short-cylindrical, passing into elongate, the terminal segment nearly twice the length of the penultimate ; longest verticils unilaterally distributed, exceeding the segments in length. Head dark brown ; anterior vertex of moderate width, about one-half wider than the diameter of scape.

Pronotum dark brown, somewhat paler laterally. Mesonotal præscutum dark brown, the humeral and lateral portions of præscutum paling to obscure yellow ; scutellum obscure testaceous brown. Pleura obscure testaceous yellow, vaguely patterned with slightly darker, especially on the anepisternum and ventral sternopleurite. Halteres elongate, black throughout, the outer portion of stem fringed with long conspicuous setæ. Legs with the coxæ and trochanters testaceous yellow ; femora brown, the bases restrictedly brightened ; tibiæ and tarsi brown. Wings with a rather strong brownish tinge, the oval stigma slightly darker brown, well-delimited ; veins brown. Venation : Sc_1 ending opposite origin of Rs , Sc_2 far from its tip, Sc_1 alone subequal to the arcuated Rs ; cell 1st M_2 relatively large, subequal in length to vein M_{1+2} beyond it ; $m-cu$ a short distance before fork of M ; cell 2nd A relatively narrow, the vein gently sinuous, cell 1st A narrowed just beyond the level of arculus.

Abdomen dark brown above, sternites obscure yellow, the incisures feebly darkened, the outer segments, with the hypopygium, more uniformly darkened. Male hypopygium (fig. 2) with the tergite, 9t, large, the caudal margin nearly truncate, the cephalic border convexly rounded ; surface of tergite with numerous setæ that are more densely grouped on either side of mid-line near caudal border ; in addition, closer to mid-line of sclerite with a gently curved row of about sixteen very long setæ. Basi-style, b , relatively small, its ventromesal lobe very large and complicated by outgrowths, as figured ; outermost lobule with a group of six or seven very powerful setæ at outer angle, the inner portion with a very dense comb of short spines ; margin of lobe with coarse setæ that become flattened and spinous on the outer portion of the series ; outermost lobules of appendage with additional coarse setæ, the extreme outer one very densely covered with yellow setæ or spinous bristles, the inner series exceedingly

long and flattened, strongly recurved upon themselves to form a dense mane. Dorsal dististyle a relatively weak rod, more curved to the acute apical spine than in most allied forms. Ventral dististylè, *vd*, with the main body unusually small, its area very much less than that of the basistyle; rostral prolongation conspicuously compressed-flattened, narrowed into a slender apical point, the lower margin of blade with a row of coarse setæ; rostral spines two, slightly unequal in length, arising from summit of a conspicuous tubercle that exceeds in length one-half the shorter spine; at base of rostrum with a globular lobule provided with several setæ. Gonapophyses, *g*, with mesal-apical lobe slender, nearly straight, conspicuously but unequally bidentate at tip; mesal portion of apophysis at base densely setuliferous. Ædeagus, *a*, unusually slender, the distal portion with long conspicuous but very delicate setæ.

Hab. Peru (Ayacucho).

Holotype, ♂, Yanamonte, La Mar, in fog forests, altitude 3000–4100 metres, October 7, 1941 (*Woytkowski*).

Limonia (*Dicranomyia*) *humerosa* is a further species of the subgenus having conspicuous outgrowths and hair-brushes on the basistyle of the male hypopygium. All of these species are best separated by the details of structure of the hypopygium which, while very complex, is capable of some definition and illustration. The present fly is well distinguished by the ventral dististyle, basistyle and the bidentate gonapophyses.

Limonia (*Dicranomyia*) *muliercula*, sp. n.

General coloration dark brownish grey, the præscutum with a single darker brown median stripe; rostrum black; antennæ with the scape brownish yellow, remainder of organ black; head grey, anterior vertex relatively wide; wings with a weak brownish tinge, stigma a trifle darker; *Sc*₁ subequal in length to *Rs*; abdomen and halteres elongate; male hypopygium with basistyle and rostral prolongation of the ventral dististyle complex in structure; ninth tergite with a close median group of about four very long setæ near caudal margin.

Male.—Length about 7 mm.; wing 7 mm.

Rostrum relatively small, blackened, more or less grey pruinose; palpi black. Antennæ with scape brownish yellow, pedicel and flagellum uniformly black; flagellar

segments oval, the outer segments passing into long-oval ; verticils relatively weak and inconspicuous, shorter than the segments ; terminal segment about one-third longer than the penultimate. Head light grey ; anterior vertex relatively wide, fully three times the diameter of scape.

Pronotum dark brown above, sparsely pruinose on sides. Mesonotum relatively high and gibbous, dark brownish grey, the præscutum with a single, darker brown, median stripe ; scutal lobes more or less infuscated. Pleura brownish grey, the meral region paler. Halteres of unusual length and slenderness ; stem pale brown, knob darker. Legs with the coxæ obscure yellow, the fore pair darker basally ; trochanters obscure yellow ; femora obscure brownish yellow at bases, passing into brown ; remainder of legs dark brown, the terminal tarsal segments blackened. Wings with a weak brownish tinge, the oval stigma a trifle darker ; veins brown, delicate. Venation : *Sc* short, *Sc*₁ ending a short distance before origin of *Rs*, *Sc*₂ some distance from its tip, *Sc*₁ alone subequal in length to the more arcuated *Rs* ; cell 1st *M*₂ about equal in length to vein *M*₃ beyond it ; *m-cu* just beyond fork of *M*.

Abdomen elongate ; tergites dark brown, basal sternites obscure brownish yellow, the more basal segments somewhat clearer yellow, the outermost segments, with the hypopygium, uniformly darkened. Male hypopygium (fig. 3) with the tergite, *9t*, large, the caudal border convexly rounded, the margins more or less blackened and sclerotized ; median portion near caudal margin with about four very long setæ that are about two-thirds as long as the tergite itself ; elsewhere on surface with a few scattered shorter setæ. Basistyle, *b*, with outer face having relatively few setæ ; ventromesal lobe complex, about as figured, including a heavily blackened apical lobule terminating in microscopic cultrate blades and longer curved flattened bristles, at base of lobule with an obtuse shoulder ; a second lobule is paler ; in the notch between these two with a pencil of long bristles and a smaller fleshy lobe.

Dorsal dististyle a straight rod, the tip abruptly narrowed and decurved. Ventral dististyle, *vd*, large and fleshy, its area exceeding that of basistyle ; rostral prolongation elongate, of irregular conformation, as shown ; spines two, placed close together at near mid-length of the prolongation, the more basal spine slightly shorter ; ventral margin of prolongation near base with a conspicuous black-

ened lobe or flange ; more distally the margin opposite the rostral spines is dilated into a low tubercle set with numerous setæ. Gonapophyses, *g*, with mesal-apical lobe short, acute, the mesal margin microscopically roughened. Ædeagus, *a*, pale, with a row of pale spines along its face.

Hab. Peru (Ayacucho).

Holotype, ♂, Yanamonte, La Mar, in fog forests, altitude 3000–4100 metres, October 3, 1941 (*Woytkowski*).

Limonia (*Dicranomyia*) *muliercula* is allied to several other regional species having the male hypopygium unusually complicated by outgrowths of the basistyle and ventral dististyle. It is most similar to species such as *L. (D.) apposita* Alexander, yet amply distinct.

Limonia (Dicranomyia) imitabilis, sp. n.

General coloration pale yellow, the pronotum and cephalic portion of præscutum with a narrow median brown line ; rostrum yellow ; antennæ with scape yellow, succeeding segments black ; halteres elongate, darkened throughout ; legs pale brown, the tips of femora narrowly pale ; wings tinted with ochreous, the stigma faintly darker ; *Sc*₁ long ; male hypopygium with tergite large, the posterior border with a median group of more than a dozen elongate setæ ; basistyle short, its ventromesal lobe greatly complicated by outgrowths and setal tufts ; rostral prolongation of ventral dististyle elongate, at outer end produced at a right-angle into a slender arm.

Male.—Length about 6.5 mm. ; wing 7.5 mm.

Rostrum yellow, relatively short ; palpi with basal segments yellow, the outer ones brown. Antennæ with scape yellow, pedicel and flagellum black ; basal flagellar segments long-oval, the succeeding segments passing through short-cylindrical to elongate ; terminal segment about one-half longer than the penultimate ; verticels shorter than the outer segments. Anterior vertex pale, silvery pruinose, remainder of head yellow ; anterior vertex moderately wide, exceeding twice the diameter of scape.

Pronotum obscure yellow, narrowly darkened medially above, this colour continued caudad for more than one-half the length of the mesonotal præscutum ; remainder of mesonotum uniform yellow. Pleura uniformly still paler yellow. Halteres elongate, darkened throughout. Legs with coxæ and trochanters yellow ; femora pale

brown, their tips narrowly yellow; tibiæ and tarsi pale brown. Wings tinted with ochreous, the oval stigma only faintly darker; veins brown. Venation: *Sc* relatively short, *Sc*₁ ending about one-third the length of *Rs* before the origin of the latter; *Sc*₂ far from tip of *Sc*₁, the latter subequal in length to the strongly arcuated *Rs*; cell 1st *M*₂ large, longer than vein *M*₁₊₂ beyond it; *m-cu* at fork of *M*; vein 2nd *A* gently sinuous.

Basal abdominal tergites weakly infuscated, the outer segments and hypopygium more strongly so; sternites yellow. Male hypopygium (fig. 4) with the ninth tergite, 9t, large and ample, both the caudal and cephalic borders convexly rounded, especially the latter; near posterior border a compact median group of more than a dozen elongate setæ that are fully one-half as long as the total length of tergite. Basistyle, *b*, very short, with sparse coarse setæ; ventromesal lobe much complicated by outgrowths and armatures of spines and hair-tufts; the major lobe, nearest the dististyle, bears a row of six or seven very strong, powerful, spinous setæ; apex of lobe beyond this point with a group of more abundant shorter setæ; near base of primary lobe with two very long and strongly modified setæ; attached distally to the primary lobe a further ear-like lobule or appendage, likewise provided with abundant modified setæ; more basally, the ventromesal lobe bears an oval cushion that is very densely set with flattened pale setæ in addition to fewer powerful spinous bristles, together with a small pencil of eight to ten very long setæ. Dorsal dististyle a relatively weak, nearly straight rod, its tip acute and decurved at a right angle. Ventral dististyle, *vd*, a large fleshy lobe, its area somewhat greater than the total area of the basistyle; rostral prolongation a relatively narrow sclerotized rod, at apex further produced at a right-angle into a slender arm; lower margin of outer portion of prolongation with a linear series of strong setæ; rostral spines two, placed at about the basal third of the prolongation, arising from summit of a short common tubercle, both spines subequal in length, approximately three times that of the tubercle. Gonapophyses, *g*, very small, the mesal-apical lobe nearly straight but weak.

Hab. Peru (Ayacucho).

Holotype, ♂, Yanamonte, La Mar, in fog forests, altitude 3000–4100 metres, October 2, 1941 (*Woytkowski*).

Limonia (Dicranomyia) imitabilis is quite different from the other allied regional species having greatly complicated outgrowths on the male hypopygium. Among such forms it is perhaps most similar to *L. (D.) muliercula*, yet entirely distinct.

Limonia (Dicranomyia) complacita, sp. n.

General coloration blackish, grey pruinose; rostral prolongation black; antennæ black throughout, flagellar segments oval; halteres with stem white, knob blackened; legs with femora brownish yellow, with a nearly terminal dark brown ring; wings whitish subhyaline, heavily patterned with brown; *Rs* square and spurred at origin; *m-cu* before fork of *M*; male hypopygium with caudal margin of tergite notched; dorsal dististyle obtuse at tip; rostral prolongation of ventral dististyle short, the two spines straight, slightly unequal in length.

Male.—Length about 6.5 mm.; wing 7.8 mm.

Rostrum slightly shorter than the remainder of head, polished black; palpi black. Antennæ black throughout; flagellar segments short-oval; verticils subequal in length to the segments. Head dark grey, the centre of vertex restrictedly darkened; anterior vertex relatively wide, about three times the diameter of scape.

Pronotum blackish, dark grey pruinose. Mesonotal præscutum dark grey with three black stripes, the median one broad and conspicuous, not reaching the suture behind; lateral stripes very narrow and inconspicuous; posterior sclerites of notum blackened, very sparsely pruinose, the centres of scutal lobes conspicuously blackened, the median area and base of scutellum grey pruinose. Pleura dark grey, restrictedly patterned with darker on ventral anepisternum and ventral sternopleurite. Halteres with stem conspicuously white, knob blackened. Legs with coxæ blackened, grey pruinose; trochanters brown; femora obscure brownish yellow, with a nearly terminal dark brown ring, the very narrow apex obscure yellow; tibiæ and tarsi brown, the terminal segments blackened; claws with one conspicuous spine and reduced more basal ones. Wings whitish subhyaline, handsomely and conspicuously patterned with brown, as follows:—prearcular field and axillary margin; stigma; cord and outer end of cell 1st *M*₂, including a major oval area at fork of *Rs*; two oval spots in centre of cell *R* before origin of *Rs*, the more

basal one larger ; distinct paler brown washes in outer radial and medial fields, chiefly adjoining the veins ; further brown washes in cells *M*, *Cu* and outer ends of both anal cells ; no very distinct cloud at fork of *Sc* ; veins brown, scarcely darker in the clouded areas. Venation : *Sc* short, *Sc*₁ ending a short distance before origin of *Rs*, *Sc*₂ not far from its tip ; *Rs* relatively short, square and spurred at origin ; cell 1st *M*₂ relatively long, subequal to vein *M*₃ beyond it ; *m-cu* varying from approximately one-half to nearly its own length before the fork of *M* ; vein 2nd *A* convexly arched, not sinuous.

Abdomen brownish black, sparsely pruinose ; hypopygium scarcely brightened. Male hypopygium (fig. 5) with the ninth tergite, 9t, transverse, the caudal margin rather broadly emarginate, the lateral lobes broadly obtuse, with numerous setæ. Basistyle, *b*, with the ventromesal lobe simple, dark-coloured, provided with abundant setæ, some of which are subequal in length to the lobe itself. Dorsal dististyle a relatively short curved rod, its tip obtuse. Ventral dististyle, *vd*, large and fleshy, in area much exceeding the basistyle ; rostral prolongation relatively short, with two straight spines shortly beyond mid-length of outer surface ; spines placed close together, the inner one a trifle longer than the outer ; outer portion of rostrum relatively short, less than the length of the outer spine. Gonapophyses, *g*, with mesal-apical lobe long and narrow, almost straight. Ædeagus, *a*, narrow.

Hab. Peru (Junin).

Holotype, ♂, Tulumayo Valley, Tarma, altitude 4000–8000 ft., September 10, 1940 (*Woytkowski*).

Limonia (*Dicranomyia*) *complacita* is very different from all other described regional members of the subgenus. Superficially ; it somewhat resembles species such as *L.* (*D.*) *jorgenseni* (Alexander), but is entirely distinct.

Limonia (*Dicranomyia*) *diversigladia*, sp. n.

Allied to *latispina* ; general coloration brown, the mesonotum without distinct pattern ; femora obscure yellow, the tibiæ and tarsi passing into black ; wings with a weak brown tinge ; *Sc*₁ ending opposite origin of *Rs*, *Sc*₂ some distance from its tip ; male hypopygium with the rostral spines very dissimilar in shape, the outer one a long slender straight spine placed on the rostrum, the inner

spine a curved flattened blade placed on the face of the style itself.

Male.—Length about 7 mm. ; wing 8 mm.

Rostrum slightly pendant, obscure yellow ; palpi black. Antennæ black throughout ; basal flagellar segments oval, soon passing into elongate-oval ; terminal segment a trifle exceeding the penultimate ; verticils subequal in length to the segments. Head brown, sparsely patterned with still darker brown ; anterior vertex wide, approximately twice the diameter of the scape.

Pronotum relatively long, dark brown above, paler brown on sides. Mesonotum almost uniform medium brown, without distinct pattern ; præscutal setæ sparse but long and conspicuous. Pleura brown, the ventral sclerites a trifle paler. Halteres relatively long, blackened, the base of stem pale. Legs with coxæ obscure brownish testaceous ; trochanters yellow ; femora obscure yellow, their tips weakly infuscated ; tibiæ and tarsi passing through brownish black to black ; claws with one major tooth and more basal microscopic denticles. Wings with a weak brown tinge, the oval stigma a trifle darker ; veins brown, a little more yellowish brown in the prearcular and costal fields. Venation : Sc_1 ending opposite origin of Rs , Sc_2 some distance from its tip, Sc_1 alone exceeding one-half the length of $m-cu$, the latter at fork of M .

Abdominal tergites dark brown, somewhat paler laterally ; sternites and hypopygium obscure yellow. Male hypopygium (fig. 6) with the tergite, 9t, deeply emarginate, the lobes relatively narrow, obtuse, with conspicuous setæ. Ventromesal lobe of basistyle simple. Dorsal dististyle a slender, strongly-curved hook, the tip acute. Ventral dististyle, vd , relatively small, pale, in area somewhat less than the basistyle ; two rostral spines of very different appearance, the outermost a long slender straight spine placed at near three-fourths the length of the moderately long rostral prolongation ; second spine on the face of the style itself, appearing as a shorter flattened blade, gently curved to the acute tip. Gonapophyses, g , with mesal-apical lobe relatively short, the tip narrowly blackened.

Hab. Peru (Ayacucho).

Holotype, ♂, Yanamonte, La Mar, in fog forests, altitude 3000–4100 metres, October 2, 1941 (*Woytkowski*).

Limonia (*Dicranomyia*) *diversigladia* is most similar to *L. (D.) latispina* Alexander, likewise of Peru, differing

very conspicuously in the structure of the male hypopygium, notably the formation and position of the rostral spines.

Limonia (Rhipidia) aphrodite, sp. n.

Size large (wing, male, 11.mm.) ; antennæ (male) with 10 long-bipectinate segments, the first flagellar segment simply pectinate ; pleura reddish brown with a broad black dorsolongitudinal stripe ; femora dusky, the tips narrowly blackened, preceded by a vague yellow ring ; wings cream-yellow, heavily patterned with brown ; numerous macrotrichia in outer cells of wing ; abdomen conspicuously hairy, the segments dimidiate, their bases yellow, the apices black ; male hypopygium with two relatively short rostral spines.

Male.—Length about 10 mm. ; wing 11 mm. ; antenna about 3.8 mm.

Rostrum black, relatively long, with the mouth-parts slightly exceeding the remainder of head ; palpi black. Antennæ black, the apical pedicels of the branched segments yellow ; ten long-bipectinate segments, the longest branches (at mid-length of organ) exceeding one-fourth the length of the entire antennæ ; first flagellar segment with a simple stout protuberance, the short apical pedicel black ; terminal segment elongate, nearly twice the length of the penultimate segment ; basal enlargements of segments with unusually long verticils ; branches covered with a dense white pubescence. Head grey, with coarse black setæ ; eyes (male) very large, broadly holoptic.

Pronotum dark brown. Mesonotum reddish brown, the humeral and central portions of præscutum with a broad central black stripe, more diffuse and slightly paler on cephalic half, the region of the usual lateral stripes remaining of the reddish ground-colour ; posterior sclerites of notum brownish black, the suture between the mediotergite and the pleurotergite, with the posterior portion of the former, more reddish. Pleura reddish brown, with a broad black dorsal stripe extending from the cervical region to the pleura. Halteres relatively short, blackened, the base of stem narrowly yellow. Legs with the coxæ blackened, the fore pair a little paler ; trochanters obscure yellow ; femora infuscated basally, the tips narrowly but conspicuously blackened, preceded by a wider but vague yellowish ring, the pattern approximately similar on all

legs ; tibiae and tarsi yellowish brown to pale brown, the tips of tibiae very narrowly darkened, the terminal tarsal segments passing into black ; claws with a single long acute spine and shorter, less conspicuous denticles. Wings with the restricted ground cream-yellow, the remainder of surface heavily patterned with brown ; five major costal areas of a still darker colour, the third at origin of *Rs*, the fifth at stigma, all of these areas confluent with the very extensive darkened areas behind ; the brightened ground appears in the small costal interspaces, as several areas in the outer radial and medial fields, as a longitudinal stripe in cell 1st *A*, and as an axillary brightening involving both anal cells ; veins dark brown, *Sc* and *R* in the costal interspaces bright yellow. Outer cells of wing with abundant and conspicuous macrotrichia, involving all cells beyond cord, as well as the outer ends of cells *Cu* and 1st *A*. Venation : *Sc*₁ ending about opposite four-fifths the length of *Rs*, *Sc*₂ near its tip ; cell 1st *M*₂ relatively small, irregularly pentagonal in outline, *m* being arcuated, the other elements closing the cell straight ; *m-cu* about one-fourth its own length before fork of *M*.

Abdomen relatively long, conspicuously hairy ; segments dimidiate, their bases yellow, the apices black, on the more proximal segments the yellow exceeding the dark colour ; hypopygium dark brown. Male hypopygium with the ninth tergite transverse, the caudal margin evenly and convexly rounded. Basistyle relatively small, the ventromesal lobe simple, without modified lobes or setae. Dorsal dististyle a strongly-curved blackened hook, the acute tip a decurved spine. Ventral dististyle relatively small, its area less than that of basistyle ; rostral prolongation relatively short, with two short spines placed close together at mid-length ; spines a little shorter than the prolongation beyond their insertion. Gonapophysis with mesal-apical lobe blackened, relatively narrow, the extreme tip suddenly narrowed.

Hab. Peru (Ayacucho).

Holotype, ♂, Yanamonte, La Mar, in fog forests, altitude 3000–4100 metres, September 7, 1941 (*Woytkowski*).

Limonia (*Rhipidia*) *aphrodite* is strikingly different from all previously-described members of the subgenus in the hairy wings. Despite this difference, the fly is closest to species such as *L. (R.) cytherea*, sp. n., and *L. (R.) stonei* Alexander.

Limonia (Rhipidia) cytherea, sp. n.

Size large (wing, female, over 11 mm.); mesonotum chiefly brown, the præscutum with the lateral margins broadly yellow; thoracic pleura dark brown with a broad, very conspicuous, black, longitudinal stripe; femora yellow, slightly more blackened on basal half; wings with a strong brownish yellow tinge, restrictedly patterned with large brown clouds and seams; *Rs* elongate; stigmal trichia present; abdominal tergites obscure yellow, narrowly darkened laterally; ovipositor with cerci blackened, very slender.

Female.—Length about 10 mm.; wing 11.2 mm.; antenna about 2.2 mm.

Rostrum black, relatively elongate, subequal to the remainder of head; palpi black. Antennæ with basal swelling and pectinations black, the apical pedicels abruptly yellow; flagellar segments simply produced, the longest pectination about two-thirds the total length of the segment. Head grey; anterior vertex reduced to a linear blackened strip that is less than the diameter of a single row of ommatidia.

Pronotum brownish yellow above, blackened laterally. Mesonotum with the disk chiefly covered by three brown stripes that are almost confluent, restricting the interspaces to feebly differentiated narrow lines; lateral and humeral portions of præscutum broadly yellow; posterior sclerites of notum brown, the posterior half of mediotergite more testaceous. Pleura dark brown, the dorsal portion, with the dorsopleural membrane, covered by a broad, very conspicuous, longitudinal, black stripe extending from the cervical region to the base of the abdomen, chiefly passing beneath the wing-root. Halteres dusky, base of stem restrictedly pale; knob elongate, merging gradually with the stem, the latter fringed unilaterally with long setæ. Legs with the coxæ infuscated, the fore pair slightly paler at tips; trochanters obscure yellow; femora yellow, slightly more blackened on basal half, the extreme proximal ends pale; tibiæ and basitarsi brown, the outer tarsal segments black; claws toothed. Wings with a strong brownish-yellow tinge, clearer yellow in costal portions; a heavy but restricted brown pattern, as follows:—a weak darkening in humeral region; a major area at one-third the length of cell *C*, extending caudad almost to vein *M*; a smaller

darkening at origin of *Rs*, including cells *C*, *Sc* and *R*, but interrupted by the yellow vein *R*; a major dark cloud at and above *m-cu*, involving the adjoining portions of vein *M* and including clouds in outer radial and medial fields that are more extensive than the pale ground; stigma pale brown, narrowly more darkened along veins at outer end; strong brown washes in cubital and anal fields; veins yellow, more infuscated in the clouded portions. Stigma with from 14 to 18 macrotrichia. Venation: *Sc* long, *Sc*₁ ending shortly before fork of *Rs*, *Sc*₂ near its tip; *Rs* long, weakly angulated at origin; cell 1st *M*₂ relatively small, irregularly pentagonal, *m* longer than the basal section of *M*₃ and gently arcuated; *m-cu* more than one-half its own length before fork of *M*; vein 2nd *A* strongly sinuous.

Abdomen obscure yellow, the basal segments narrowly darkened laterally; segments rather conspicuously hairy. Ovipositor with the cerci blackened, very slender, strongly upcurved.

Hab. Peru (Ayacucho).

Holotype, ♂, Yanamonte, La Mar, in fog forests, altitude 3000–4100 metres, September 2, 1941 (*Woytkowski*).

This unusually beautiful species has no close ally so far described. It is perhaps closest to *Limonia* (*Rhipidia*) *stonei* Alexander, of Colombia, which is of approximately the same size, but is entirely different in coloration.

Limonia (*Rhipidia*) *melanaria*, sp. n.

General coloration of mesonotal præscutum reddish brown with three darker brown stripes; pleura with a conspicuous black longitudinal stripe; antennæ black throughout, in male with seven bipectinate segments, in female with segments simply produced; legs black; wings uniformly and very strongly blackened, variegated only by the even darker stigma; male hypopygium with the ventromesal lobe of basistyle stout but simple; rostral prolongation of ventral dististyle slender, with two approximated, very elongate spines.

Male.—Length about 5 mm.; wing 5.4 mm.; antenna about 2 mm.

Female.—Length about 8 mm.; wing 8.5 mm.; antenna about 1.5 mm.

Rostrum and palpi black. Antennæ black throughout in both sexes; in male, flagellum with seven bipectinate segments; first flagellar segment simply produced; segments two to eight, inclusive, with moderately long branches, the longest about twice the segment; flagellar segment nine with a single branch that exceeds the segment in length; segments ten and eleven each with a slight protuberance only; terminal segment elongate, pointed at apex; in female, flagellar segments with conspicuous basal swellings that are bluntly produced, the enlargements exceeding twice the length of the darkened apical pedicel; terminal segment nearly twice the penultimate, narrowed outwardly. Head behind brownish grey, the anterior vertex brown, darker medially behind; anterior vertex of female a little less than the diameter of scape, in male even narrower to virtually eliminated by the approximation of the eyes.

Pronotum brownish black. Mesonotal præscutum reddish brown, with three darker brown stripes, in addition to narrowly darkened lateral borders behind the pseudosutural foveæ; præscutal setæ long but sparse; scutal lobes dark brown, the median area paler; scutellum and cephalic half of mediotergite blackened, the posterior half of latter more reddened. Pleura reddish brown with a conspicuous black longitudinal stripe crossing the dorsal sclerites; sides of sternopleurite more narrowly and less conspicuously darkened. Halteres blackened. Legs with coxæ brownish yellow, the fore pair darker; trochanters yellow; remainder of legs uniformly black, only the femoral bases restrictedly brightened. Wings uniformly and very strongly blackened, variegated only by the oval, still darker stigma and the slightly more brightened prearcular field; no brightened areas nor any darkened seams or clouds at cord or elsewhere on surface; veins brownish black. Trichia of veins long and conspicuous; stigmal trichia sparse but present. Venation: *Sc* moderately long, *Sc*₁ ending opposite mid-length of *Rs*, *Sc*₂ not far from its tip; *Rs* relatively long; cell 1st *M*₂ small, irregularly pentagonal, *m* longer and more arcuated than the other elements; *m-cu* at or just beyond fork of *M*.

Abdominal tergites brownish black, weakly dimidiate, the basal portions obscure yellow, posterior borders blackened, in amount a little less than the bases; abdomen

with conspicuous setæ. Ovipositor with cerci long and slender, strongly upcurved. Male hypopygium with the tergite transverse, the lobes low and obtuse. Basistyle with the ventromesal lobe broad-based, simple, with elongate setæ. Dorsal dististyle a very short, gently-curved blackened rod, the tip acute. Ventral dististyle small, dusky, in area subequal to or smaller than the basistyle; rostral prolongation slender, with two very long spines arising close together at near mid-length of prolongation, the spines subequal, about as long as the prolongation itself, directed strongly backward. Gonapophyses with mesal-apical lobe blackened, irregular in conformation.

Hab. Peru (Ayacucho).

Holotype, ♂, Ayna, La Mar, altitude 2400 metres, April 23, 1941 (*Woytkowski*). *Allotype*, ♀, Yanamonte, La Mar, in fog forests, altitude 3000–4100 metres, September 6, 1941 (*Woytkowski*).

The most similar regional species are *Limonia* (*Rhipidia*) *sprucei* Alexander and *L. (R.) tridigitata* Alexander, both of Ecuador, which are well-distinguished by differences in the antennæ and in the structure of the male hypopygium. The holotype male of the present fly is very much smaller than the female, but the association seems to be correct.

Limonia (*Rhipidia*) *superarmata*, sp. n.

Allied to *perarmata*; general coloration of præscutum reddish brown with a darker brown median stripe; antennæ (male) elongate, approximately one-half the entire body, with ten long-bipectinate flagellar segments, the longest branches exceeding three times the segments that bear them; all tarsi black; wings strongly darkened, with a restricted still darker pattern; male hypopygium complex in structure, including a massive blackened phallosomic structure; rostral prolongation of ventral dististyle a long compressed yellow blade, the two spines placed close together far out on the blade.

Male.—Length about 7 mm.; wing 7 mm.; antenna about 3.4 mm.

Rostrum and palpi black. Antennæ with ten long-bipectinate flagellar segments; scape, basal enlargements, all flagellar branches and the entire terminal segment black, the long apical pedicels of the remaining flagellar

segments yellow ; pedicel brownish yellow ; branch of first flagellar segment shorter than the pedicel of the segment ; second segment with long branches that are unequal in length, one fully one-half longer than the other, the longest exceeding twice the length of segment ; longest branches (at mid-length of organ) exceeding three times the segments, the two branches more nearly equal to one another in length ; branches of eleventh flagellar segment subequal, nearly three times the length of segment ; terminal segment about one-half longer than the penultimate ; all flagellar branches clothed with coarse erect pale setulæ. Head dark grey ; eyes contiguous.

Pronotum dark brown. Mesonotal præscutum reddish brown, more pruinose laterally, with a darker brown median stripe that does not reach the suture behind ; lateral stripes obsolete or virtually so ; posterior sclerites of notum strongly infuscated, more or less pruinose, especially the mediotergite. Pleura obscure yellow, with two narrow, brownish-black longitudinal stripes, the ventral sternopleurite yellow ; dorsal pleurotergite chiefly pale. Halteres relatively short, stem obscure yellow, knob infuscated. Legs with the coxæ yellow, narrowly darkened across their bases by the ventral pleural stripe ; trochanters yellow ; femora brownish black, their basal portions more obscure yellow ; remainder of legs passing through brown to black ; all tarsi blackened. Wings with the ground-colour strongly darkened, restrictedly patterned with slightly darker brown, including clouds at origin of *Rs*, fork of *Sc*, stigma, anterior cord and outer radial field ; prearcular field more whitened ; veins dark brown. Macrotrichia of veins abundant and conspicuous. Venation : *Sc*₁ ending about opposite three-fifths the length of *Rs*, *Sc*₂ at its tip ; cell 1st *M*₂ relatively long, subequal to vein *M*₃ beyond it ; *m-cu* close to fork of *M*.

Abdominal tergites almost uniformly dark brown, the sternites weakly bicoloured, obscure yellow, with the caudal borders of the segments narrowly infuscated ; hypopygium chiefly darkened. Male hypopygium with the tergite transverse, its caudal margin truncate or very feebly emarginate across the central portion. Basistyle with ventromesal lobe unusually slender, fringed with long coarse setæ along lower margin of distal half. Dorsal dististyle a gently curved dark rod, its tip an acute long

straight spine. Ventral dististyle of moderate size, blackened, the rostral prolongation a long curved yellow blade; rostral spines two, placed close together or on a common tubercle far out on the blade, the apex beyond them shorter than either spine; lower margin of blade at near one-third the length with a group of about five strong setæ. Gonapophyses with mesal-apical lobes blackened, slender, the apex of each a little sinuous. Ædeagus much shorter and broader than in *perarmata*, with lateral wings or flanges. Behind the ædeagus a massive blackened phallosomic structure with transverse corrugations, apparently rather similar to a comparable structure in *perarmata* but with the details not sufficiently clear in the unique type-slide.

Hab. Peru (Junin).

Holotype, ♂, Tulumayo Valley, Tarma, altitude 4000–8000 ft., October 10, 1940 (*Woytkowski*).

The present fly is closest to *Limonia* (*Rhipidia*) *perarmata* (Alexander) from Amazonian Peru, differing especially in the details of structure of the male hypopygium, notably the rostral prolongation and the position of its spines, the ventromesal lobe of the basistyle, the mesal-apical lobe of the gonapophysis, and the ædeagus.

Limonia (*Rhipidia*) *uxor*, sp. n.

General coloration grey, the cephalic half of præscutum with an extensive black area, the posterior half abruptly reddish brown, the posterior and lateral portions heavily pruinose; antennal flagellum (female) long-subpectinate, the subterminal two segments yellow, the remainder black with yellow apical pedicels; fore femora tipped with black, the remaining femora with scarcely indicated brown subterminal rings; wings cream-yellow, restrictedly patterned with brownish black and pale grey, the pale stigma ringed with darker; *m-cu* some distance before fork of *M*; abdominal tergites very weakly bicolored, the lateral portions of the more basal segments narrowly velvety black; ovipositor with cerci unequally bidentate at tips.

Female.—Length about 6.5–7 mm.; wing 6.4–6.7 mm.

Rostrum black, subequal in length to remainder of head; palpi black. Antennæ black, the short pedicels of the flagellar segments yellow; penultimate and antepenultimate segments uniformly yellow; flagellar segments

(female) each produced into a stout simple lobe, the longest a little exceeding the apical pedicel of the segment in length. Head grey, the anterior vertex opposite the posterior border of eyes with a trifid blackened area ; anterior vertex narrow, about one-third the diameter of scape.

Pronotum brownish black, somewhat paler sublaterally. Mesonotal præscutum with the cephalic half conspicuously blackened, the posterior half abruptly reddish brown, heavily grey pruinose near suture and on sides ; lateral borders and humeral region of præscutum extensively grey, with a small marginal black spot behind the pseudo-sutural foveæ ; central portion of scutum grey pruinose, the lobes similar but with extensive brownish-black areas ; scutellum pale, heavily pruinose ; mediotergite with central portion brownish black, the cephalic and lateral portions conspicuously pruinose. Pleura grey pruinose, the mesepisternum with blackened stripes on anepisternum and sternopleurite, the mesepimeron and ventral pleurotergite much more extensively blackened. Halteres short, stem pale, knob weakly infuscated. Legs with coxæ pale yellow, more or less darkened basally, especially the middle pair ; trochanters yellow ; femora yellow, the tips of fore pair broadly and conspicuously black ; middle and hind pairs with narrow, scarcely indicated brown subterminal rings ; tibiæ and tarsi yellowish white, only tarsal segments four and five, with the distal end of three, abruptly blackened. Wings with the ground-colour cream-yellow, restrictedly but conspicuously patterned with brownish black and pale grey ; the darkest colour is distributed as follows :—a series of four subcostal markings, the third at origin of *Rs*, the last at fork of vein ; along cord and outer end of cell 1st *M*₂ ; a conspicuous ring around the otherwise pale oval stigma, more extensive and heavier on distal and posterior portions ; narrow marginal seams at ends of longitudinal veins, more extensive on vein 2nd *A*, especially as a submarginal cloud back from the tip ; the grey washes occur as central streaks in the outer radial and medial cells and more sparsely in the basal cells, in cell *R* appearing as pale washes behind the subcostal darkenings ; a more or less distinct dark cloud in cell *M* adjoining vein *Cu* at about mid-length ; veins yellow, darkened in the patterned areas. Venation : *Sc*₁ ending about opposite

two-thirds to three-fourths the length of *Rs*, *Sc*₂ at its tip ; *m-cu* varying from less than one-half to approximately its entire length before the fork of *M*.

Abdominal tergites with the basal segments more or less greenish or yellow, the lateral borders narrowly velvety black ; succeeding segments almost uniformly brown, the basal rings of the segments a very little paler than the distal portions ; sternites darkened, the basal segments slightly paler ; genitalia and preceding segment yellow. Ovipositor with cerci shorter than the hypovalvæ, their tips unequally bidentate.

Hab. Peru (Ayacucho).

Holotype, ♀, Ayna, La Mar, altitude 2400 metres, May 26, 1941 (*Woytkowski*). *Paratopotype*, ♀, May 31, 1941.

In the pattern of the wings, *Limonia* (*Rhipidia*) *uxor* is generally similar to *L. (R.) domestica* (Osten Sacken) and related forms, differing markedly in the coloration of the body and legs. The bidentate tips of the cerci introduce a character not previously known to me in this subgenus though well known in other subgeneric groups of *Limonia*.

Limonia (*Rhipidia*) *thysbe*, sp. n.

General coloration of mesonotal præscutum grey with a conspicuous black median stripe ; antennæ (male) short-unipectinate ; all flagellar branches darkened, the short apical pedicels abruptly yellow ; halteres yellow ; tips of fore femora conspicuously blackened, middle and hind femora yellow with a very weak, pale brown, subterminal ring ; wings cream-yellow, very restrictedly patterned with brown, the stigma pale, ringed with pale brown ; abdominal segments bicolored ; rostral spines of male hypopygium short.

Male.—Length about 7 mm. ; wing 9 mm. ; antenna about 1.7 mm.

Rostrum black throughout, about equal in length to remainder of head ; palpi black. Antennæ (male) with eight or nine short-unipectinate flagellar segments ; scape pedicel and all flagellar branches, with the adjoining bases, blackened, the short glabrous apical pedicels abruptly yellow ; longest branches (at near mid-length of flagellum) subequal in length to the segments ; branch of first segment slightly shorter and stouter than the succeeding one or two ; branches of penultimate and antepenultimate

flagellar segments very reduced to scarcely distinguishable; terminal segment about one-half longer than the penultimate, simple and uniformly darkened. Head light buffy grey, the posterior portion of anterior vertex opposite hinder border of eyes darkened; anterior vertex narrowed, approximately one-half the diameter of scape.

Pronotum brownish black, restrictedly patterned with paler sublaterally. Mesonotal præscutum grey, the humeral region restrictedly brightened; a conspicuous black median stripe that is gently constricted at near mid-length and encloses a pruinose spot just before suture; scutum pale medially, the lobes extensively darkened; scutellum testaceous yellow; postnotum infuscated, the lateral portions of mediotergite and most of the dorsal pleurotergite yellow. Pleura brownish grey, the dorsal portion deepening to brownish black, forming a relatively narrow longitudinal stripe that passes beneath the root of halteres to the abdomen. Halteres uniformly pale yellow. Legs with the coxæ testaceous, weakly darkened basally; trochanters yellow; fore femora obscure yellow, the tips broadly blackened, the basal half of segment strongly darkened; middle and hind femora obscure brownish yellow with a narrow to scarcely indicated pale brown ring just before the narrow tip; tibiæ and proximal two tarsal segments of all legs yellow, with very narrow brownish-black tips; remainder of tarsi black; claws with a single major spine. Wings cream-yellow, very restrictedly patterned with brown in the usual *domestica* pattern; the small dark spots occur at *h*, arculus, beyond mid-length of cell *Sc*, origin of *Rs*, *Sc*₂, along cord, outer end of cell 1st *M*₂, and as a paler brown oval around the otherwise pale stigma; very restricted marginal darkenings at ends of longitudinal veins, most conspicuous at 2nd *A*; veins yellow, darkened in the patterned areas. Costal fringe relatively short and dense. Venation: *Sc*₁ ending about opposite two-thirds the length of *Rs*, *Sc*₂ near its tip; *m-cu* from approximately two-thirds to fully its own length before fork of *M*.

Abdominal segments obscure yellow, the lateral margins narrowly, the posterior borders more broadly, infuscated; on subterminal segments the dark colour more extensive; hypopygium yellow. Male hypopygium with the caudal margin of tergite convexly rounded. Basistyle with

ventromesal lobe simple except for a low basal lobule. Dorsal dististyle a powerful rod, more thickened before the abruptly narrowed spinous tip. Ventral dististyle oval, fleshy; rostral spines two, slightly separated at base, shorter than the prolongation beyond the point of insertion of the outer spine. Gonapophysis with tip of mesal-apical lobe narrowly darkened, suddenly narrowed into a small blackened point.

Hab. Ecuador (Ayacucho).

Holotype, ♂, Yanamonte, La Mar, in fog forests, altitude 3000–4100 metres, September 29, 1941 (*Woytkowski*).

Limonia (Rhipidia) thysbe is one of rather numerous species of the subgenus in the Neotropics that have the wing-pattern arranged much as in *L. (R.) domestica* (Osten Sacken). It differs from such allied forms in the short-unipectinate flagellum of the male antennæ, with the subterminal segments unbrightened; the strong differentiation in colour of the fore femora from the other two pairs; the restricted wing-pattern, including no dark colour in cells *R* and *M* at near the middle of their length; and in the structure of the male hypopygium.

Limonia (Geranomyia) sumptuosa, sp. n.

Size large (wing, male, over 11 mm.); general coloration dark plumbeous grey, the præscutum with two velvety black stripes; halteres with blackened knobs; femora black, with a narrow yellow subterminal ring; wings whitish subhyaline, conspicuously patterned with clear-cut brown areas; *Sc* long; *Rs* spurred at origin; abdomen black; male hypopygium with the ninth tergite notched; rostral spines short, arising from a low common tubercle.

Male.—Length, excluding rostrum, about 8.5 mm.; wing, 11.8 mm.

Rostrum and palpi black; rostrum evidently elongate but the distal portion broken in the unique type and the total length thus unknown; the part remaining is almost as long as the combined head and thorax, indicating an organ of unusual length. Antennæ broken. Head with anterior vertex light grey; posterior vertex dark plumbeous grey; a blackish spot on posterior portion of anterior vertex.

Pronotum dark grey, with a narrow, velvety black, median vitta and more diffusely darkened sides. Mesonotal præscutum with the ground-colour dark grey, with two conspicuous velvety black longitudinal stripes, one on either side of the broad median ground stripe, the latter with vague indications of a still darker but very diffuse central line; humeral region with an oval ochreous spot; the usual lateral præscutal stripes bordered laterally and behind the humeri with darker grey; posterior sclerites of notum dark grey, the median region of scutum pale, the mesal and lateral portions of scutal lobes more darkened; scutellum dark grey, the parascutella more brownish. Pleura chiefly blackened, pruinose, vaguely patterned with lighter grey on the more ventral pleurites. Halteres with stem white, knob abruptly blackened. Legs with coxæ and trochanters dark plumbeous grey; femora black, with a very narrow but conspicuous yellow subterminal ring, this approximately four times its own length from the tip; femoral bases, especially the fore pair, somewhat paler; tibiæ and tarsi brownish black, the tips of former and outer segments of latter blackened. Wings whitish subhyaline, conspicuously and heavily patterned with dark and paler brown, the areas restricted but very clearly defined; a major costal series, the second at the supernumerary cross-vein in cell *Sc*, third above origin of *Rs*, narrowed in cell *C*; fourth area small and irregular in outline, at fork of *Sc*; last area at stigma behind reaching vein R_{4+5} ; cord and outer end of cell 1st M_2 narrowly seamed with brown; elsewhere scattered brown spots over much of the wing, chiefly restricted to the vicinity of the veins, larger and more diffuse in outer portions of cells *Cu*, 1st *A* and 2nd *A*; cells *M*, M_4 and *Cu*, except at outer ends, washed with pale brown; subcostal interspaces more yellowish; veins brown, brightened in the subcostal and radial interspaces. Venation: *Sc* long, Sc_1 ending about opposite three-fourths the length of *Rs*, Sc_2 at its tip; *Rs* angulated and long-spurred at origin; basal section of R_{4+5} arcuated, restricting *r-m*; outer section of R_{4+5} bent strongly cephalad at base; cell 1st M_2 relatively long, subequal to vein M_{1+2} beyond it; *m-cu* at fork of *M*.

Abdomen, including hypopygium, black, sparsely pruinose. Male hypopygium with caudal border of ninth

tergite conspicuously notched, forming obtusely rounded lateral lobes. Basistyle with ventromesal lobe obtuse, provided with long conspicuous setæ. Dorsal dististyle a strongly curved hook, its tip acute. Ventral dististyle large and fleshy, its area exceeding twice that of the basistyle; rostral prolongation slender, the two short, straight, spike-like spines at summit of a low common tubercle, placed one just behind the other; spines only a little longer than the tubercle and much shorter than the distal portion of the prolongation. Gonapophysis with mesal-apical lobe expanded into a weak flange shortly before the narrowed tip.

Hab. Peru (Junin).

Holotype, ♂, Tulumayo Valley, Tarma, altitude 4000–8000 ft., October 10, 1940 (*Woytkowski*).

Limonia (*Geranomyia*) *sumptuosa* is very distinct from all other regional species of the subgenus. From such other forms of large size and having conspicuously-patterned wings, including *L. (G.) dstricta* Alexander, *L. (G.) gaudens* (Alexander), *L. (G.) laudanda* Alexander, *L. (G.) subgaudens* Alexander, and *L. (G.) uberis* Alexander, the fly is readily distinguished by the coloration of the body, legs and wings, and by the structure of the male hypopygium.

Limonia (*Geranomyia*) *neogaudens*, sp. n.

Allied to *gaudens*; general coloration grey, the præscutum with three black stripes, the median one wider than the grey interspaces; knobs of halteres black; femora brown, deepening to a conspicuous, dark brown annulus that is preceded and followed by yellow rings, the terminal one very narrow; stigma uniform pale brown, not encircled by darker brown; vein 2nd *A* sinuous; abdominal tergites reddish brown, the sternites blackened, restrictedly patterned with yellow.

Female.—Length, excluding rostrum, about 9–10 mm.; wing 12.5–13 mm.; rostrum about 5.5–6 mm.

Rostrum elongate, exceeding one-half the length of body, black throughout. Antennæ black throughout; flagellar segments long-oval to subcylindrical; terminal segment pointed. Head brownish grey; anterior vertex buffy, relatively narrow, less than the diameter of scape.

Pronotum buffy brown, brownish black on sides. Mesonotal præscutum grey, with three black stripes, the

median one wider than the grey interspaces, the latter more suffused behind; lateral præscutal borders broadly blackened; humeral region conspicuously orange; posterior sclerites of notum dark grey, more or less variegated with black, including the posterior border of postnotum. Pleura brownish grey, patterned with black, especially as a longitudinal stripe across the ventral anepisternum, with a similar but less distinct area on ventral sternopleurite. Halteres with stem whitened, knob black. Legs with coxæ dark brown, sparsely pruinose, fore coxæ more blackened, the tips restrictedly yellow; trochanters yellowish brown; femora brown, deepening to a conspicuous dark brown subterminal ring, preceded by a much narrower yellow ring, the actual tip still more narrowly pale; tibiæ brown, the tips more darkened; tarsi passing into black. Wings cream-coloured, handsomely patterned with brown, much as in *gaudens* but with the areas differently arranged; area at supernumerary cross-vein in cell *Sc* not involving cell *C*; dark seam along *Rs* continuous or virtually so; stigma uniform pale brown, not encircled by darker brown; seams and washes in cells and along veins more extensive, restricting the pale colour; dark seam along vein *M* occupying more than the outer third of vein and with a very gradual beginning. Venation: 2nd *A* more sinuous.

Abdominal tergites reddish brown, including the genital shield, the subterminal segments a trifle darkened; sternites much more blackened, the central portion of the basal segment and the caudal borders of the succeeding sternites yellow.

Hab. Peru (Ayacucho).

Holotype, ♀, Lake Rasvilca, Huanta, Huanta, altitude 3800 metres, April 16, 1941 (*Woytkowski*). *Paratopotype*, ♀, April 18, 1941.

Limonia (*Geranomyia*) *neogaudens* is related to both *L. (G.) gaudens* (Alexander) and *L. (G.) subgaudens* Alexander, differing from both especially in the details of pattern and venation of the wings, and in the body-colouration.

Limonia (*Geranomyia*) *inquisita*, sp. n.

Size small (wing, male, 6 mm.); mesonotal præscutum reddish yellow with a single median brownish-black vitta, subtended on either side by slightly more pruinose lines; halteres with brownish-black knobs; femora obscure yellow with a blackened subterminal ring; wings with a

brownish tinge, very restrictedly patterned with darker, including areas at the supernumerary cross-vein in cell *Sc*, a common mark at origin of *Rs* and fork of *Sc*, and the stigma; *Sc* short, *Sc*₂ ending about opposite the origin of *Rs*; male hypopygium with the ventral dististyle large, its rostral prolongation short, with two conspicuous spines from very unequal tubercles, one of the spines with a tubercle that is approximately four-fifths its own length; gonapophyses with mesal-apical lobe appearing as a curved dark-coloured hook, its tip acute.

Male.—Length, excluding rostrum, about 5.5 mm.; wing 6 mm.; rostrum about 2.5 mm.

Rostrum moderately long, nearly one-half the length of remainder of body, black. Antennæ black throughout, short; flagellar segments oval, with inconspicuous verticils; terminal segment about one-third longer than the penultimate. Head dark grey, including a median line on posterior vertex, on either side of which is a conspicuous blackened area; anterior vertex reduced to a narrow strip.

Pronotum dark brown. Mesonotal præscutum chiefly obscure reddish yellow, with a single median brownish-black vitta that does not reach the suture behind, the vitta subtended on either side by a somewhat more pruinose line but not trivittate as is common in members of the subgenus; scutal lobes extensively dark brown, bordered by paler brown, the median line narrowly more whitened; scutellum medium brown, sparsely pruinose; postnotum more reddish brown; mesonotum with setæ of præscutum and scutum relatively sparse but long and erect. Pleura reddish brown, the dorsal pleurites darker brown. Halteres with stem obscure yellow, clearer at base, the knobs brownish black. Legs with coxæ and trochanters obscure yellow; femora obscure yellow or brownish yellow, with a conspicuous black subterminal ring; tibiæ and tarsi brown, the terminal tarsal segments more blackened. Wings with a brown tinge, very restrictedly patterned with darker, including areas at the supernumerary cross-vein in cell *Sc* and a common mark at origin of *Rs* and fork of *Sc*; stigma oval, paler brown; cord and outer end of cell 1st *M*₂ not patterned with darker; veins brown, those in prearcular field somewhat more yellow. Venation: *Sc*₁ ending opposite or just beyond origin of *Rs*. *Sc*₂ at its tip; cell 1st *M*₂ about as long as vein *M*₁₊₂ beyond it; *m-cu* close to fork of *M*.

Abdomen, including hypopygium, dark brown, the

incisures paler. Male hypopygium with the tergite transverse, the caudal margin very gently emarginate; lateral lobes very low, each with several conspicuous setæ. Dorsal dististyle a gently-curved darkened rod, the acute tip decurved. Ventral dististyle large, from three to four times the area of the basistyle; rostral prolongation short, subcultrate in outline; rostral spines two, placed side by side at near mid-length of the prolongation, both from basal tubercles; one spine from an unusually long tubercle that is fully four-fifths the length of the spine itself; second spine stouter and more flattened, gently curved, from four to five times as long as its tubercle. Gonapophyses with mesal-apical lobes appearing as slender, curved, dark-coloured hooks, their tips acute.

Hab. Peru (Ayacucho).

Holotype, ♂, Ayna, La Mar, altitude 2400 metres, April 25, 1941 (*Woytkowski*).

Limonia (*Geranomyia*) *inquisita* is very different from all described regional members of the subgenus, in some regards approaching *L. (G.) conquisita* Alexander, but differing in all details of coloration and structure of the male hypopygium.

Limonia (*Geranomyia*) *heteroxipha*, sp. n.

Allied to *cerberus*; general coloration brownish black, the præscutum scarcely patterned; halteres and legs blackened, the tarsi paling to brown; wings with a very strong blackish tinge, the oval stigma somewhat darker; *Sc*₁ ending about opposite one-third the length of *Rs*; male hypopygium very large, especially the ventral dististyle; rostral prolongation with two very unequal spines, the outermost long and straight, from a powerful basal tubercle, the inner spine delicate and curved on its distal portion.

Male.—Length, excluding rostrum, about 10 mm.; wing 9 mm.; rostrum at least 4.5 mm.

Rostrum black throughout, elongate, the tip broken in the unique type, the organ evidently about one-half the length of the body; palpi black. Antennæ black throughout; flagellar segments subcylindrical, the verticils shorter than the segments; five terminal segments all about equal in length. Head brownish black, restrictedly patterned with more greyish, including the anterior vertex and narrow median and orbital lines on posterior vertex; anterior vertex narrow, less than one-half the diameter of scape.

Pronotum black. Mesonotal præscutum almost uniform

brownish black, with vague indications of a slightly darker median vitta; scutal lobes brownish black, the median area, with the base of scutellum, testaceous; posterior border of scutellum, with the mediotergite, brownish black. Pleura and pleurotergite dark brown, restrictedly patterned with brownish black on the dorsopleural membrane, anepisternum, and somewhat less distinctly, on the ventral sternopleurite. Halteres blackened, the extreme base of stem yellow. Legs with the coxæ and trochanters brownish black; femora and tibiæ black, the bases of femora a trifle brightened; tarsi paling to brown. Wings with a very strong blackish tinge, the oval stigma somewhat darker; very narrow to scarcely indicated darkenings along cord and origin of *Rs*; veins brownish black. Venation: *Sc* of moderate length, *Sc*₁ ending about opposite one-third the length of *Rs*, *Sc*₂ near its tip; cell 1st *M*₂ subequal in length to vein *M*₁₊₂ beyond it; *m-cu* at or shortly before fork of *M*.

Abdomen, including hypopygium, black. Male hypopygium (fig. 7) very large. Ninth tergite, 9*t*, conspicuously notched, the obtusely rounded lateral lobes with abundant long coarse setæ. Basistyle, *b*, relatively small, the ventromesal lobe elongate but unmodified. Dorsal dististyle a curved sickle, gradually narrowed to the long acute tip. Ventral dististyle, *vd*, a very large fleshy lobe, in area fully four times the basistyle; rostral prolongation relatively short, with two very unequal spines, the outer one a strong straight spine from an elongated basal tubercle, the spine approximately twice the length of the tubercle; second spine much more delicate, gently curved at tip, placed at base of prolongation, with no basal tubercle. Gonapophysis, *g*, with mesal-apical lobe long and gently curved, the tip a trifle expanded, obtuse.

Hab. Peru (Ayacucho).

Holotype, ♂, Sivia, in jungle, altitude 790 metres, June 25, 1941 (*Woytkowski*).

Limonia (*Geranomyia*) *heteroxipha* is most nearly related to *L. (G.) cerberus* Alexander (Mexico-Panama), differing very conspicuously in the structure of the male hypopygium. The superficially similar *L. (G.) contorta* Alexander and *L. (G.) lachrymalis* (Alexander) are more distantly related.

Limonia (*Peripheroptera*) *cynara*, sp. n.

General coloration of body polished black, including the entire præscutum; head, median portion of scutum,

the scutellum, and parts of the thoracic pleura grey pruinose; fore femora black, the proximal fifth light yellow; middle and hind femora yellow, the outer fourth darkened, the tips passing into black; wings subhyaline, handsomely patterned with brown, including major areas at arculus, along cord, outer end of cell 1st M_2 and the wing-tip; cell 1st M_2 small, shorter than vein M_4 beyond it; abdomen black, the incisures of tergites with very narrow bands of grey pubescence.

Female.—Length about 5 mm.; wing 6 mm.

Rostrum and palpi black. Antennæ black throughout; flagellar segments oval, becoming more elongate outwardly; verticils exceeding the segments in length. Head black, heavily silvery grey pruinose, more blackened behind the antennal bases and on the genæ; anterior vertex wide, approximately three times the diameter of scape.

Pronotum polished black, the posterior border very restrictedly brightened. Mesonotum chiefly polished black, the præscutum entirely so, the median region of scutum and the scutellum heavily pruinose. Pleura black, sparsely pruinose, more extensively so on the mesepimeron, the ventral anepisternum and ventral sternopleurite extensively polished black. Halteres with knob black, stem slightly brightened, especially at base. Legs with coxæ polished black, the distal end of fore coxæ restrictedly brightened; trochanters black; fore femora black with about the proximal fifth abruptly light yellow; middle and posterior femora chiefly yellow, the outer fourth more darkened, the tips passing into black; extreme bases of posterior femora darkened; tibiæ brown, the tips narrowly blackened; tarsi black. Wings subhyaline, handsomely patterned with brown, including a major area at and beyond arculus in bases of cells R and M ; a broad band extending from the stigma across the cord; outer end of cell 1st M_2 and Sc_2 darkened; wing-tip broadly but somewhat less intensively infuscated; veins dark, slightly brightened in the costal and prearcular fields. Venation: total prearcular field only a little shorter than vein M before its fork; R_s very short, oblique, less than the very strongly-arcuated basal section of R_{4+5} ; free tip of Sc_2 and R_2 very faint, about in transverse alignment; cell 1st M_2 small, shorter than vein M_4 beyond it; $m-cu$ at fork of M ; cell 2nd A moderately wide, slightly constricted at near mid-length.

Abdomen black, the incisures of the tergites with very narrow bands of grey pubescence ; genital segment black ; valves of ovipositor reddish yellow, the cerci blackened basally, very slender, only gently upcurved.

Hab. Peru (Ayacucho).

Holotype, ♀, Ayna, La Mar, altitude 2400 metres, April 23, 1911 (Woytkowski).

Limonia (*Peripheroptera*) *cynara* has the wing-pattern and venation somewhat as in *Limonia* (*Peripheroptera*) *angustifasciata* Alexander, of Venezuela, but differs conspicuously in the coloration of the body and legs. From the other polished black species of the subgenus, the fly differs conspicuously in the wing-pattern and venation.