

NEW OR LITTLE-KNOWN TIPULIDAE (DIPTERA).
XCIX. ORIENTAL-AUSTRALASIAN SPECIES.

By CHARLES P. ALEXANDER, Ph.D., F.R.E.S.,
University of Massachusetts, Amherst, Massachusetts, U.S.A.

IN the present report I am discussing various species of crane-flies from Afghanistan, Assam, Formosa, New Zealand and the Ryukyu Islands, derived from sources that are discussed in the text. Unless indicated to the contrary, the types of the novelties are preserved in my private collection.

Dolichopeza (Nesopeza) tuberculifera, sp. n.

Belongs to the *gracilis* group; wings with medial forks shallow; darkened costal wing-pattern not margined posteriorly by pale borders; male hypopygium with the tergal arms with erose tips; eighth sternite terminating in two broad lobes, separated by a notch, without paired setiferous lobules at its base.

Male.—Length about 8 mm.; wing 9 mm.

Rostrum brown, palpi somewhat darker. Antennæ with scape dark brown, pedicel obscure brownish yellow; flagellum broken. Head dark brown, the orbits narrowly grey; anterior vertex nearly three times the diameter of the scape.

Pronotum dark brown. Mesonotal præscutum with four brown stripes, the intermediate pair expanded at their anterior ends and with paler central triangles; posterior sclerites of notum brown. Pleura dark brown, with a narrow whitish transverse girdle occupying the mesepimeron, broadest dorsally, narrowed to a point above the posterior coxæ. Halteres with stem white, knob dark brown. Legs with coxæ brown, the posterior pair a little paler; trochanters yellow; femora yellowish white, the tips rather broadly black; tibiæ white, the tips narrowly black, the amount about one-third that of the femora; tarsi white. Wings chiefly hyaline, with a brown costal pattern arranged as in *geniculata*, the area produced caudad at arculus to vein *Cu*, at origin of *Rs* to vein *M*, and along the cord to vein *M*; centres of the darkened prolongations a trifle paler; no pale margins to the costal darkening as in *geniculata*; isolated ground-areas in centres of cells *Sc*₂, *R*₃ and *R*₅; veins brown, somewhat darker in the patterned areas. Venation: medial forks relatively shallow, cell *M*₁ subequal in length to its petiole.

Abdomen dark brown, slightly variegated with paler. Male hypopygium with the tergal arms bent backward, sparsely microscopically tuberculate near outer end, the apex erose. Outer dististyle blackened, the long beak obliquely truncated at outer end. Eighth sternite large and sheathing, terminating in two broad lobes, these and much of the

surface of disk with abundant tubercles, larger and more conspicuous than in some related forms; lobes much broader than in *profundemarginata*, broadly obtuse at tips, separated by a relatively shallow notch, behind which is pale membrane; no paired setiferous lobules at base of emargination, as in *magnisternata* and *profundemarginata*.

Hab. Formosa.

Holotype, ♂, Kansirei, March 25, 1935 (*Syuti Issiki*).

Dolichocheza (*Nesopeza*) *tuberculifera* is much like *D. (N.) magnisternata* Alexander and *D. (N.) profundemarginata* Alexander, of eastern China and Formosa, differing especially in the structure of the male hypopygium, particularly the ninth tergite, inner dististyle, and eighth sternite.

Dolichocheza (*Nesopeza*) *subalbitibia*, sp. n.

Allied to *albitibia*; general coloration of thorax medium brown, the præscutum with scarcely evident stripes; femora obscure yellow, the tips narrowly infuscated, tibiae and tarsi white; wings tinged with brown, the costal border broadly more saturated; medial forks relatively deep; male hypopygium with the lateral tergal lobes very large, the median one reduced; ædeagus large, heavily sclerotized.

Male.—Length about 10 mm.; wing 10 mm.; antenna about 2.6 mm.

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

Rostrum brown; palpi dark brown. Antennæ light brown, of moderate length; flagellar segments long-cylindrical, the verticils very small. Head light brown, the posterior orbits more pruinose.

Pronotum medium brown. Mesothorax medium brown, the præscutum with scarcely indicated stripes; præscutal setæ very sparse to virtually lacking. Halteres dark brown, the base of stem restrictedly yellow. Legs with all coxæ dark brown; trochanters testaceous yellow; femora obscure yellow, the tips narrowly infuscated; tibiae white, clearer outwardly; tarsi white. Wings with a brownish tinge, the costal border broadly more saturated brown, the colour extended backward about to the level of *r-m*, including the posterior prearcular field and much of cell *R*; stigma darker brown, long-oval; conspicuous whitish obliterative areas before and beyond the stigma; cell *C* basad of *h* whitened; veins brown. Venation: medial forks relatively deep, cell *M*₁ a little less than twice its petiole; *m-cu* about one-third its length before fork of *M*.

Abdomen bicoloured, dark brown, the intermediate segments with a narrow obscure yellow or pale ring at near mid-length, the base less evidently brightened. Male hypopygium with the tergite distinctive, the lateral lobes very large and conspicuous, the median one greatly reduced, as compared with *albitibia*; posterior prolongation of lateral lobe narrow, the margins with abundant spinules. Outer dististyle narrow, about seven times as long as broad. Inner dististyle with the beak stout, its apex obliquely truncate. Ædeagus large, strongly curved, heavily sclerotized.

Hab. Formosa.

Holotype, ♂, Musya, May 23, 1947 (*Syuti Issiki*). *Allotopotype*, ♀, pinned with type.

The present fly is generally similar to *Dolichopeza* (*Nesopeza*) *albitibia* (Alexander), of Japan, differing evidently in the structure of the male hypopygium, particularly the tergite and aedeagus.

Dolichopeza (*Nesopeza*) *noctipennis*, sp. n.

Size very small (wing about 7 mm.); general coloration of body dark brown; femora obscure yellow, the tips narrowly blackened, tibiae obscure white, the tips still more narrowly blackened; wings with a strong blackish tinge, the prearcular, costal and apical portions more saturated; stigma oval, darker than the ground; sparse macrotrichia in outer ends of cells R_3 , R_5 and M_1 ; medial forks usually shallow; cell M_1 subequal in length to its petiole.

Sex? Wing 7 mm.

Rostrum and palpi black. Antennae with the scape black, pedicel a little paler; flagellum broken. Head dark brown; eyes large.

Thorax almost uniformly dark brown, the pronotal scutellum restrictedly paler; vestiture of mesonotum very short and sparse. Halteres with stem dusky, the base more yellowed, knob broken. Legs with coxae dark brown; trochanters abruptly pale yellow; femora obscure yellow, the tips narrowly blackened; tibiae obscure white, the tips still more narrowly blackened; tarsi white. Wings with a strong blackish suffusion, the prearcular, costal and apical parts more saturated; stigma oval, darker than the ground; narrow and vague darkened seams over the cord and outer veins; centres of outer medial cells vaguely pale; veins brown. Spare macrotrichia in outer ends of cells R_3 , R_5 and M_1 . Venation: R_s longer than R_{2+3} ; medial forks unusually shallow; cell M_1 subequal to its petiole; $m-cu$ about one-third to one-fourth its length before fork of M .

Abdomen broken.

Hab. India (Khasi States).

Holotype, sex? Cherrapunji, Khasi Hills, altitude 4,000 feet, 1954 (*S. Sircar*).

The present fly is quite distinct from all other generally similar regional members of the subgenus, including *Dolichopeza* (*Nesopeza*) *himalayae* Alexander and *D. (N.) orientalis* Brunetti, in the very small size, blackened wings, and sparse but distinct macrotrichia in the apical cells of wing.

Dolichopeza (*Nesopeza*) *vitripennis*, sp. n.

Size medium (wing about 9 mm.); mesonotal praescutum with four reddish brown stripes, the intermediate pair narrowly margined internally by darker brown, isolating a narrow grey central area; pleura testaceous, the mesepisternum brown to form a transverse girdle; femora obscure yellow, the tips gradually darkened; tips of tibiae and tarsi white; wings vitreous, the oval stigma dark brown; medial forks of moderate length; $m-cu$ one-half or more its length before the fork of M ; abdominal segments bicoloured, greenish yellow basally, the tips broadly dark brown.

Male.—Length about 7 mm. ; wing 8.5 mm. ; antenna about 5 mm.

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

Rostrum light brown ; palpi dark brown. Antennæ of male elongate, approximately two-thirds the body ; scape and pedicel testaceous yellow, flagellum dark brown ; flagellar segments very long-cylindrical, with a short dense erect pubescence and short scattered verticils, the longest about one-fifth the segment ; antennæ of female short. Head medium brown.

Mesonotal præscutum with four reddish brown to medium brown stripes, the intermediate pair narrowly margined internally by darker brown, isolating a narrow grey central area ; posterior sclerites of notum brown. Pleura testaceous, with a broad transverse brown stripe occupying the mesepisternum and mesosternum. Halteres infuscated, the base of stem paler. Legs with all coxæ and trochanters pale yellow ; femora obscure yellow, the tips gradually darkened ; tibiæ pale brown, the tips narrowly white ; tarsi white. Wings vitreous ; stigma oval, dark brown, very conspicuous ; veins brownish black. Venation : *Rs* about one-half longer than *R*₂₊₃ ; medial forks moderately deep, cell *M*₁ from one-third to one-fourth longer than its petiole ; *m-cu* one-half or more times its length before fork of *M*.

Abdomen of male broken beyond base ; in female the segments conspicuously bicoloured, greenish yellow, with about the posterior half dark brown, the latter colour becoming more extensive on the outer segments to form a subterminal darkened ring.

Hab. India (Khasi States).

Holotype, ♂, Cherrapunji, Khasi Hills, altitude 4,000 feet, 1954 (*S. Sircar*). *Allotopotype*, ♀.

Most similar to species such as *Dolichopeza* (*Nesopeza*) *laetipes* Alexander, differing in the coloration of the body and wings.

Tipula (*Bellardina*) *differta*, sp. n.

Size small (wing, male, about 15 mm.) ; mesonotal præscutum light grey with three darker grey stripes that are bordered by dark brown ; legs yellow, the tips of femora narrowly and abruptly black ; claws of male conspicuous ; wings with ground light brown, variegated by darker brown and cream-yellow spots ; abdomen fulvous, the basal tergites bordered internally with brown, the margins broadly light grey, outer segments more uniformly blackened ; male hypopygium with the outer dististyle compact, bearing a clavate lobe on its face near base ; inner style a slender crook-like blade.

Male.—Length about 14–15 mm. ; wing 14.5–15.5 mm. ; antenna about 4.2–4.3 mm.

Frontal prolongation of head relatively long, brownish grey above, obscure yellow on lower half ; nasus greatly reduced ; palpi brownish black. Antennæ moderately long, the elongate scape and the pedicel obscure yellow ; proximal flagellar segments weakly bicoloured, faintly infuscated basally, the outer ends more yellowed ; outer segments more

uniformly dark brown; flagellar segments with basal swellings poorly developed; verticils shorter than the segments. Head dark grey; vertical tubercle very low to scarcely developed.

Pronotum dark grey. Mesonotal præscutum with the restricted ground light grey, with three darker grey stripes that are demarked by narrow dark brown lines, the borders of the median stripe better indicated; scutum grey, each lobe with two brown areas, the mesal edge narrowly lined with brown; posterior sclerites of notum dark grey, parascutella more obscure yellow; mediotergite with a vague capillary central darkened line. Pleura light grey, patterned with darker grey dorsally and on the ventral sternopleurite and meron. Halteres with stem brownish yellow, knob dark brown. Legs with the coxæ light grey; trochanters obscure yellow; femora yellow, the tips rather narrowly but very conspicuously black, the amount subequal on all legs, including about the outer eighth or ninth; tibiæ yellow, the tips brownish black, subequal in degree to the femora; tarsi obscure yellow, soon passing into black; claws (male) simple. Wings with the ground light brown, variegated with slightly darker brown and cream-yellow areas; darker areas small, at arculus, origin of *Rs*, cord and end of vein *2nd A*; scattered creamy spots in most cells, including prestigmal and poststigmal brightenings, marginal spots in centres of outer cells, largest in *R*₅ and in anal cells on either side of vein *2nd A*; more extensive brightenings near outer end of cell *M* and at near mid-length of cell *Cu*; prearcular and costal fields more uniformly yellow; veins brown, paler in the prearcular field. Sparse macrotrichia on outer veins; squama naked. Venation: *Rs* long and nearly straight, about twice *m-cu*; petiole of cell *M*₁ subequal to *m*.

Abdomen fulvous, the first tergite grey; tergites two to six fulvous, with the outer lateral margins broadly light grey, bordered internally by brown, this colour reaching the margins on the basal rings; sternites more uniformly fulvous; outer segments, including hypopygium, brownish black, styli yellow. Male hypopygium with the tergite massive, the posterior border subtruncate, with a median lobe or cushion on the ventral surface, this densely set with retrorse black setæ. Basistyle relatively small. Outer dististyles large and compact, with a paler clavate lobe arising near its base; inner style a more slender crook-like blade, bent and slightly dilated on outer end, near base with a small oval flange.

Hab. North Afghanistan (Badakschan).

Holotype, ♂, Schiva, on high steppe, altitude 2,900 metres, July 11, 1953 (*Hans Klapperich*). *Paratopotype*, ♂.

In its small size the present fly is most like *Tipula* (*Bellardina*) *sindensis* Alexander. The structure of the dististyles is most as in this species and in the much larger *T. (B.) cranbrookii* Alexander, yet with all details quite distinct.

Tipula (*Schummelia*) *appendifera*, sp. n.

Size large (wing, male, 14 mm.); mesonotal præscutum yellow with three darker stripes, the central one pale brown, margined broadly with darker brown; posterior sclerites of notum brown with a broad median

pale stripe; femora obscure yellow, with a nearly terminal black ring; claws (male) toothed; wings light brown, conspicuously variegated with whitened areas; cell M_1 petiolate; male hypopygium with the tergite emarginate laterally; outer dististyle very long and narrow; region of ninth sternite beneath with a conspicuous appendage, including paired black cylindrical lobes and a larger central mass.

Male.—Length about 13 mm.; wing 14 mm.

Female.—Length about 22 mm.; wing 17 mm.

Frontal prolongation of head obscure yellow, narrowly darkened above and again on sides; nasus slender; palpi brown, the terminal segment black. Antennæ with the elongate scape yellow, weakly infuscated outwardly; pedicel light yellow; proximal flagellar segments weakly bicoloured, yellow, the small basal enlargements narrowly ringed with brown; outer segments uniformly darkened. Head above dark brown, the orbits broadly obscure yellow.

Pronotal scutum dark brown, with a narrow yellow line on either side of the broad median area; scutellum yellow. Mesonotal præscutum with the restricted ground pale yellow, with three darker stripes, the central one pale brown, broadly margined laterally with dark brown, with a further vague central vitta; lateral stripes brownish yellow, margined with brown; humeral region restrictedly darkened; scutal lobes, sides of scutellum and two major areas on the mediotergite brown, the entire central region yellow, extending from the suture to the abdomen, more expanded at the posterior end of the mediotergite. Pleura yellow, the propleura and mesepisternum, with the pleural membrane, heavily patterned with brown; mesepimeron and metapleura almost unpatterned. Halteres with stem infuscated, pale yellow at base, knob conspicuously orange. Legs with the coxæ yellow, the fore and middle pairs slightly infuscated on basal and anterior parts; trochanters yellow; femora obscure yellow, with a conspicuous black nearly terminal ring; tibiæ brown; tarsi brownish black; claws (male) toothed. Wings with the ground light brown, conspicuously variegated with whitish hyaline areas and darker brown, the latter including the stigma and seams over the cord; the chief pale markings include prestigmal and poststigmal brightenings, much of cell M_1 , oblitative area across cell 1st M_2 , continued to the margin along vein M_4 , two major marks in cells M and Cu , and a clear-cut marginal area in cell 1st A adjoining vein 2nd A ; prearcular and costal fields somewhat more yellowed; veins brown, Sc and the prearcular veins more yellowed. Venation: Rs and the oblique $m-cu$ subequal; petiole of cell M_1 and m about equal.

Abdominal tergites brownish yellow, darker laterally, the posterior borders very restrictedly pale; basal sternites yellowed, patterned with darker; outer segments, including hypopygium, more uniformly blackened. Male hypopygium with the tergite and sternite entirely separate; basistyle with the straight ventral suture only, the outer end truncate. Ninth tergite transverse, narrowed outwardly, the posterior border shallowly emarginate; lateral lobes black, low, glabrous, beneath with a

lower median projection, appearing more or less hood-shaped. Outer dististyle very long and narrow, tapering gradually to the obtuse tip, the length exceeding five times the greatest width. Inner dististyle compact, the beak blackened beneath on side of face with a low rectangular plate or flange, its outer or free edge blackened; no outer basal lobe; surface of style with unusually few setæ. Region of ninth sternite beneath with a conspicuous black appendage, consisting of paired cylindrical lobes and a larger central mass.

Hab. East Afghanistan (Nuristan).

Holotype, ♂, Apsai, Bashgul Valley, altitude 2,000 metres, July 20, 1952 (*Hans Klapperich*). *Allotype*, ♀, Achmedi Dewane, altitude 2,700 metres, July 28, 1952 (*Klapperich*).

Generally similar to *Tipula* (*Schummelia*) *continuata* Brunetti and some allied forms, differing in the large size, details of coloration and, especially, in the structure of the hypopygium.

Tipula (*Acutipula*) *apoblepta*, sp. n.

Size large (wing, male, 20 mm., female 25 mm.); mesonotum pale yellowish grey, the præscutum with four clearer grey stripes; antennæ yellow; wings very pale yellow, restrictedly patterned with brownish grey, including extensive washes in cell *R* and outer end of *M*; small dusky clouds in cells 1st *M*₂, *M*₁, 2nd *M*₂ and *M*₃; stigma dark brown, very conspicuous; veins unusually glabrous.

Male.—Length about 18 mm.; wing 20 mm.; antenna about 3.2 mm.

Female.—Length about 28 mm.; wing 24.5 mm.

Frontal prolongation of head light grey dorsally, extensively brown on sides; nasus long and slender; palpi dark brown. Antennæ (female) yellow, the small basal swellings of the outer segments slightly more infuscated; verticils of outer segments long. Head above light grey, the sides of the posterior vertex infuscated; vertical tubercle low and obtuse.

Pronotum light grey medially, the sides darkened. Mesonotal præscutum very pale yellowish grey with four clearer grey stripes that are very insensibly margined with darker; posterior sclerites of notum light grey, the scutal lobes very slightly patterned. Pleura almost uniformly pale greyish yellow, the dorsopleural region more strongly yellowed. Halteres with stem brownish yellow, knob infuscated. Legs with all coxæ and trochanters pale yellow; femora yellow, the tips very insensibly darkened; tibiæ and basitarsi obscure yellow, the tips more narrowly infuscated; outer tarsal segments brown. Wings very pale yellow, restrictedly patterned with brownish grey, including extensive washes over most of cell *R* and outer fourth of *M*, less extensively clouded in outer ends of cells *R*₅ to *Cu*, inclusive, more distinctly so in the last; isolated darkened spots in centre of cell 1st *M*₂ and in bases of cells *M*₁, 2nd *M*₂ and *M*₃, the first largest; stigma oval, dark brown, conspicuous; veins obscure yellow to yellow. Veins virtually glabrous, even *R*₄₊₅ with only a few scattered punctures. Venation: *Rs* nearly straight; *R*₂ unusually long, slightly

oblique; R_{1+2} entire, diverging only slightly from R_3 ; petiole of cell M_1 about one-half m ; $m-cu$ just before fork of M_{3+4} ; cells 2nd A broad.

Abdominal tergites brownish yellow, the sides grey, bordered internally by darker, much broader and distinct on the two basal tergites; sternites more uniformly brownish yellow. Ovipositor with the valves slender, relatively small for the size of the insect; cerci nearly straight.

Hab. East Afghanistan (Nuristan).

Holotype, ♀, Bashgul Valley, altitude 1,100 metres, April 9, 1953 (*Hans Klapperich*). *Allotopotype*, ♂, May 14, 1953.

The present fly is quite distinct from all other regional members of the subgenus in the coloration of the body and the distinctive very pale wing-pattern, with the conspicuous brown stigma. As regards size, the fly is almost as large as *Tipula* (*Acutipula*) *dicladura* Alexander and some others, which have the wings unpatterned.

Tipula (*Yamatotipula*) *reversa*, sp. n.

General coloration grey, the three præscutal stripes bordered by brown, the central one further split by a capillary dark line on anterior half; antennæ (male) long, the proximal flagellar segments bicoloured, yellow basally, the apices brown; femora obscure yellow, the tips abruptly black; wings brown, striped longitudinally with whitish, including a major prestigmal area; cell R_5 chiefly darkened; abdominal tergites orange, bivittate with dark brown; male hypopygium with the tergite produced into a yellow central plate that forks into two spinulose lobes outer dististyle about twice as long as broad, its tip obtuse; setæ of beak of inner dististyle numerous, their tips curved.

Male.—Length about 15 mm.; wing 16 mm.; antenna about 6 mm.

Female.—Length about 14 mm.; wing 13.5 mm.

Frontal prolongations of head brownish yellow, sparsely pruinose above; nasus conspicuous; palpi brown. Antennæ (male) elongate, if bent backward extending about to base of abdomen; scape yellow, pedicel dark brown; proximal flagellar segments yellow basally, their outer ends brownish black, on the first segment including about the outer third, increasing in amount on outer segments; terminal segments more uniformly darkened; flagellar segments elongate, the verticils very short. Head grey, with a vague capillary darker line on vertex; vertical tubercle very low to scarcely indicated.

Pronotal scutum infuscated medially, light grey on sides; scutellum and pretergites light yellow. Mesonotal præscutum with the ground light grey, including the cephalic border; three more brownish grey stripes that are margined with darker brown, the central stripe with a capillary median black vitta on anterior half; scutum grey, the lobes vaguely patterned with brown; posterior sclerites of notum clearer grey. Pleura pale grey, variegated with yellow on the dorsal sternopleurite, the mesepimeron and pleurotergite more uniformly yellow; ventral sternopleurite and meron darker grey; dorsopleural membrane obscure yellow. Halteres with stem pale brown, knob dark brown. Legs with the coxæ grey;

trochanters light brown, with blackened spot beneath; femora obscure yellow, the tips narrowly and abruptly black; tibiae brownish yellow, the tips less evidently darkened; tarsi black, the proximal ends of basitarsi paler; claws of male toothed. Wings brown, striped longitudinally with whitish, including a major prestigmal area, outer cephalic third of cell *M*, much of cell 1st *M*₂, and a vague seam over *M*₁₊₂ and its fork; cell *R*₅ chiefly darkened; bases of cells *Cu* and 1st *A* broadly, of cell 2nd *A* narrowly whitened; veins brown. Venation: Petiole of cell *M*₁ subequal to *m*; *M*₃₊₄ subequal to or shorter than basal section of *M*₁₊₂.

Abdominal tergites broadly orange medially, on either side with a broad brown sublateral stripe, the margins yellow, paling to grey; posterior borders of segments very narrowly grey; basal sternites more uniformly orange, the outer segments, including hypopygium, dark brown. Male hypopygium with the tergite produced into a central plate that forks into two spinulose lobes, separated by a deep U-shaped notch. Outer dististyle about twice as long as broad, the tip obtuse. Beak of inner dististyle a compressed blade, the numerous setae chiefly on the posterior half, their tips strongly curved. Gonapophysis with apex broadly expanded.

Hab. North Afghanistan (Badakhshan, Hindukush).

Holotype, ♂, Schau, Kokscha Valley, Badakhshan, altitude 2,000 metres, July 19, 1953 (*Hans Klapperich*). *Allotype*, ♀, Schiva, Badakhshan, on high steppe, altitude 2,800 metres, July 7, 1953. *Paratypes*, 2 ♂♂, Kinjan, Andarab Valley, Hindukush, altitude 1,240 metres, October 5, 1952 (*Hans Klapperich*).

The present fly, together with *Tipula* (*Yamatotipula*) *subreversa*, sp. n., have the pattern of the flagellar segments reversed from the normal condition, the bases being pale, the tips infuscated. I am placing these flies in the subgenus *Yamatotipula* Matsumura rather than in the restricted subgenus *Tipula* but it is evident that the two groups are very close and it may not prove possible to maintain them as distinct.

Tipula (*Yamatotipula*) *subreversa*, sp. n.

Male.—Length about 15–16 mm.; wing 15–16 mm.; antenna about 5–5.2 mm.

Female.—Length about 20 mm.; wing 19.5 mm.

Generally as in *reversa*, sp. n., differing in various respects. Antennal flagellum (male) less extensively bicoloured, the yellow colour less extensive and becoming obsolete on about the fourth or fifth flagellar segment. Femora darker, the tips only slightly contrasting with the remainder. Wings with the pale pattern differently arranged, cell *R*₅ being entirely pale and the white streak in cell *M* extended farther basad. Male hypopygium with the median region of the tergite produced into an oval lobe that is scarcely notched medially, the central part filled with pale membrane, the sides or lateral lobes with the spines longer and more conspicuous than in *reversa*. Outer dististyle small, narrow, the length fully three

times the width, tip obtuse. Inner dististyle with the beak blackened. Spatula of gonapophysis very large.

Hab. East Afghanistan (Nuristan).

Holotype, ♂, Bashgul Valley, altitude 1,100 metres, April 11, 1953 (*Hans Klapperich*). *Allotopotype*, ♀, April 6, 1953. *Paratopotype*, ♂, altitude 1,200 metres, May 21, 1953.

Tipula (Oreomyza) badakhensis, sp. n.

Size medium (wing, male, 15 mm.); head and thorax grey, the præscutum with four darker grey stripes that are bordered by dark brown; halteres with apices yellow; femora brownish yellow, the tips blackened; wings unusually broad, greyish, the small stigma brown; *Rs* very short, subequal to *m-cu* abdomen with basal five segments orange, the extreme lateral borders darkened, outer segments black; male hypopygium with the ninth tergite narrow, the posterior border with a very broad notch; inner dististyle dilated into a head; eighth sternite entirely unarmed.

Male.—Length about 13 mm.; wing 15 mm.; antenna about 4 mm.

Frontal prolongation of head brown or brownish ochreous, very sparsely pruinose; nasus distinct; palpi black. Antennæ moderately long, about one-third the length of body; scape obscure yellow, more or less darkened at outer end; pedicel yellow; flagellum black, the segments only slightly incised, longest verticils unilaterally distributed, subequal to the segments. Head grey, the orbits narrowly light grey; vertex lined medially with dark brown; vertical tubercle very low and inconspicuous.

Pronotum brownish grey, vaguely patterned with darker. Mesonotal præscutum obscure brownish grey, with four darker grey stripes that are bordered by dark brown, the internal margins of the intermediate pair forming a common central line; lateral stripes with the dark borders conspicuous; scutum dark grey, the anterior lateral parts infuscated; scutellum and mediotergite obscure yellow, the latter clearer yellow, with a pair of brown areas on posterior border; pleurotergite yellow. Pleura chiefly brownish grey, especially on the mesopleura, variegated with paler across the dorsal sternopleurite; dorsopleural membrane dusky. Halteres with stem obscure yellow, base of knob infuscated, the apex broadly yellow. Legs with coxæ brownish grey, the posterior pair more yellowed; trochanters obscure yellow; femora brownish yellow, the tips rather broadly blackened, involving about the outer seventh and subequal on all legs; tibiæ and tarsi dark brown to black; claws simple. Wings unusually broad, greyish, the small stigma brown; obliterative area before cord relatively inconspicuous; veins brownish black. Macrotrichia of outer medial veins relatively sparse and scattered. Venation: *Rs* very short, subequal to or shorter than *m-cu*, gently arcuated to straight; *R*₁₊₂ entire; cell 1st *M*₂ short and broad; petiole of cell *M*₁ variable in length, in cases equal to *m*, in others twice this length.

Abdomen orange, the sixth and succeeding segments black, both the tergites and sternites narrowly bordered laterally by darker but without central darkening. Male hypopygium with the ninth tergite narrow, transverse, the posterior border with a very broad and shallow notch, the lateral lobes low; margin fringed with yellow setæ. Ninth sternite very extensive; basistyle entire but very small. Outer dististyle a long and narrow blade, pale on inner face, longer than the inner style, narrowed to the obtuse tip. Inner dististyle distinctive, appearing as a relatively narrow stem that enlarges into a massive head or outer portion, the entire outer face blackened, including much of the beak and all of the lower beak; on dorsal surface, behind the narrowed part of the beak with a low rounded tubercle; no outer basal lobe. Eighth sternite small, unarmed with lobes or setæ.

Hab. North Afghanistan (Badakhshan).

Holotype, ♂, Schiva, on high steppe, altitude 2,900 metres, July 11, 1953 (*Hans Klapperich*). *Paratopotypes*, 2 ♂♂.

Tipula (*Oreomyza*) *badakhensis* is quite distinct from other regional species in the broad unpatterned wings with *Rs* unusually short, in conjunction with the structure of the male hypopygium. Superficially it suggests *T. (Lunatipula) tateyamae* Alexander, of the alpine regions of Japan, particularly in the general coloration and broad wings, but otherwise the two flies are entirely distinct.

Tipula (Lunatipula) quadriatrata, sp. n.

Size medium (wing, male, 12.5 mm.); mesonotum buffy yellow, the præscutum with four narrow polished black stripes; femora and tibiae obscure yellow, the tips rather narrowly dark brown; wings light brown, patterned with whitish, including a post-stigmal band extending backward into the base of cell M_3 ; abdomen yellow, the segments patterned with brown, hypopygium yellow; male hypopygium with the tergite prolonged into two broad lateral lobes, separated by a very small notch; eighth sternite fringed posteriorly with long setæ.

Male.—Length about 12 mm.; wing 12.5 mm.; antenna about 4 mm.

Frontal prolongation of head reddish brown above, more yellowed on sides, with coarse setæ; nasus very short to virtually lacking; palpi dark. Antennæ with the basal three segments yellow, the succeeding ones bicoloured, the small basal enlargements dark brown, the remainder brownish yellow, soon becoming uniformly dark brown; verticils elongate, subequal to the segments. Head obscure yellow, more grey pruinose in front, with a vague capillary dark vitta on vertex; vertical tubercle very low to virtually lacking.

Pronotum buffy yellow, vaguely patterned with darker. Mesonotal præscutum buffy yellow, with four narrow polished black stripes, the intermediate pair narrower than the median interspace; lateral border opposite the humeri and again at end of suture with a small darkened spot; posterior sclerites of notum buffy, each scutal lobe with two small polished black areas; scutellum with a vague capillary dark line. Pleura buffy

yellow, vaguely darkened on the anepisternum and ventral sternopleurite. Halteres with stem yellow, knob dark brown. Legs with the coxæ buffy yellow; trochanters yellow; femora and tibiae obscure yellow, the tips rather narrowly dark brown, subequal in amount on all legs; tarsi black, the proximal ends of basitarsi brightened; claws (male) toothed. Wings light brown, the outer cells darker, with a restricted white pattern, including prestigmal and post-stigmal brightenings, the latter extended backward into the base of cell M_3 ; basad of cord less distinct pale areas form a streaked or spotted pattern before the origin of R_s , along vein M , and as larger areas at near two-thirds vein Cu and in bases of cubital and anal cells; prearcular and costal fields more yellowish brown; veins brown, more brightened in the latter fields. Ventation: R_{1+2} entire; R_s about one-half longer than $m-cu$; petiole of cell M_1 a little longer than m .

Abdomen yellow, the tergites with a pair of brown sublateral spots on either side; bases of sternites more conspicuously blackened; hypopygium chiefly yellow. Male hypopygium with the tergite narrowed outwardly, the posterior border very gently emarginate to subtruncate, with a very small median notch, the outer angles of the broad lateral lobes extended into acute points. Basistyle short and stout. Ninth sternite with a low lobe on either side, bearing a brush of long yellow setæ. Outer dististyle a long slender club; inner dististyle massive, the beak and lower beak blackened; outer basal lobe long and low, occupying the dorsal margin of the style. Aedeagus long and straight, the apex narrowly notched. Eighth sternite transverse, the posterior border with a fringe of long yellow setæ, longer and more conspicuous on the lateral portions.

Hab. North Afghanistan (Badakhshan).

Holotype, ♂, Schiva, on high steppe, altitude 2,200 metres, July 12, 1953 (*Hans Klapperich*).

Most similar to *Tipula* (*Lunatipula*) *transfuga* Alexander and *T. (L.) trialbosignata* Alexander, differing conspicuously in the pattern of the thorax and wings and in all details of structure of the male hypopygium.

Limonia (*Libnotes*) *dolonigra*, sp. n.

General coloration of body dark brown; legs brownish black, the femoral bases yellowed; wings with the ground colour very restricted by unusually broad pale brown bands; supernumerary cross-vein in cell R_3 approximately its own length before R_2 ; m relatively short, less than twice the transverse basal section of M_3 .

Male.—Length about 10 mm.; wing 12.5 mm.

Female.—Length about 9 mm.; wing 10.5 mm.

Rostrum and palpi dark brown. Antennæ black, the pedicel a trifle paler; basal flagellar segments subglobular to short-oval, the outer ones more elongate. Head dark brown; eyes of male holoptic, of female very narrowly dichoptic, the anterior vertex about as wide as a single row of ommatidia.

Pronotum dark brown. Mesonotum and pleura dark brown, without distinct pattern. Halteres brownish black, the base of stem obscure

yellow. Legs with the coxæ brownish yellow, the fore pair darker; trochanters obscure yellow; remainder of legs brownish black, the femoral bases obscure yellow, narrowest on the fore legs, more extensive on the posterior pair, involving nearly the proximal half. Wings with the very restricted ground cream-yellow, the remainder pale brown, appearing as very broad bands at base, over cord and across the line of veins and deflections from R_2 to the outer end of cell 1st M_2 ; costal region narrowly brownish yellow; veins dark brown, paler in the ground. Venation: supernumerary cross-vein in cell R_2 approximately its own length before R_2 ; m relatively short, less than twice the transverse basal section of M_3 ; $m-cu$ at near one-third the length of cell 1st M_2 .

Abdominal tergites and outer stenites dark brown, the proximal sternites and genitalia of both sexes fulvous.

Hab. India (Khasi States).

Holotype, ♂, Cherrapunji, Khasi Hills, altitude 4,000 feet, 1954 (*S. Sircar*). *Allotopotype*, ♀.

The most similar regional species is *Limonia* (*Libnotes*) *fuscinervis* (Brunetti), described from the Darjiling District, now known to be more widely distributed in the eastern Himalayan region. One specimen from the Garo Hills, Assam, mentioned by Brunetti (Rec. Indian Mus., xv. p. 295; 1918) under *fuscinervis* belongs to the present species. I was able to examine this specimen in 1941 through the kindness of the authorities of the Indian Museum.

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

General coloration of thorax obscure yellow, præscutum with three brown stripes; pleura variegated with brown; legs yellow, the tips of the femora and tibiæ conspicuously blackened; wings milky white; clouded with pale greyish brown, including most of the cells; male hypopygium with a single rostral spine; apical lobes of ædeagus produced into needle-like points.

Male.—Length about 5.5 mm.; wings 6.8 mm.

Described from an alcoholic specimen. Rostrum and palpi black. Antennæ dark brown; basal flagellar segments short-oval, passing into subglobular. Head dark.

Pronotum obscure yellow, darkened medially. Mesonotal præscutum yellow, with three brownish black stripes; scutal lobes infuscated; posterior sclerites of notum infuscated. Pleura obscure yellow, extensively pattern with browned; dorsopleural region yellow. Halteres white. Legs with the fore and middle coxæ infuscated, the posterior pair paler; trochanters yellow; femora yellow, the tips narrowly and abruptly black; tibiæ yellow, the tips more narrowly blackened; carsi yellow, the extreme tips of the proximal two segments darkened, outer segments dark brown; claws with four teeth, the outermost largest. Wings milky white, washed and clouded with pale greyish brown over much of the surface, including extensive areas in all cells before cord, less conspicuously so in the outer radial field; very narrow and slightly darker

seams at fork of *Sc*, cord and outer end of cell 1st M_2 ; stigma pale brown; cells *C* and *Sc* extensively clouded; veins pale brown. Venation: *Sc* ending opposite origin of *Rs*, Sc_2 near its tip; cell 1st M_2 subequal in length to the distal section of vein M_{1+2} ; $3-cu$ close to fork of *M*; cell 2nd *A* broad.

Abdominal tergites dark brown; basal sternites variegated with obscure yellow. Male hypopygium with the tergite transverse, the posterior border with a broad shallow notch, the lobes very low with most of the setæ at the summit, directed slightly mesad. Proctiger consisting of extensive pale setuliferous membrane. Basistyle with the ventromesal lobe large, simple the apex obtuse. Dorsal dististyle a strongly curved sickle, the apex nearly acute. Ventral dististyle approximately one-half as extensive as the basistyle, oval, produced into the strong rostral prolongation which bears about six strong apical setæ; a single slender rostral spine, placed near base of the prolongation, directed backward on face of style. Gonapophysis with metal-apical lobe narrow, erect. Aedeagus relatively broad, conspicuously bifid at apex, each lobe extended into a hyaline needle-like point.

Hab. New Zealand (North Island).

Holotype, ♂, Hen Island, Hen and Chicken Islands, North Auckland, August 1953 (*G. Hard*); on rocky shore of island, several miles distant from mainland, flying in association with the marine caddis-fly, *Philanisus plebeius* Walker. Type returned to Mr. Wise, to be preserved in Auckland.

This interesting marine crane-fly is named in honour of Mr. K. A. J. Wise, to whom I am indebted for the privilege of examining several marine Tipulidae from New Zealand. It is generally similar to regional species such as *Limonia* (*Dicranomyia*) *lindsayi* Alexander, *L. (D.) marina* (Skuse), and *L. (D.) nebulifera* Alexander, differing in the wing pattern and, especially, the structure of the male hypopygium.

Lechria nehruana, sp. n.

General coloration black; antennæ and legs black; wings with a strong blackish tinge; $r-m$ at fork of the short *Rs*; R_2 some distance before cell R_3 , leaving an element R_{3+4} ; cell 1st M_2 long and narrow; abdomen dull brownish black, the posterior margins of the segments broadly grey pruinose, especially conspicuous on the sternites.

Female.—Length about 7.5 mm.; wing 8.5 mm.

Rostrum and palpi black. Antennæ black throughout; flagellar segments subcylindrical, with very short verticils. Head black, narrowly grey on central part; eyes very large, reducing the anterior vertex to a capillary line.

Pronotum black, grey pruinose on sides. Mesonotal præscutum and scutum polished black, the posterior sclerites of notum and the plaira black, grey pruinose. Halteres dark brown, the basal half of stem brownish yellow. Legs with all coxæ and trochanters black, pruinose; remainder of legs black, the fore femora with the bases narrowly obscure yellow. Wings with a strong blackish tinge, the prearcular and costal

regions still more darkened, the former continued outwardly along vein *Cu*; stigma small and narrow, lying above vein R_1 ; veins dark brown. Venation: *Rs* short, with *r-m* at its fork, cell R_4 thus being very deep; vein R_{3+4} subequal to R_2 , the latter thus some distance before cell R_3 ; free tip of Sc_2 preserved; cell 1st M_2 long and narrow, with *r-m* at near mid-length, *m-cu* just beyond one-third the length; cell 2nd *A* moderately broad.

Abdomen dull brownish black, the posterior margins of the segments broadly grey pruinose, especially clear and distinct on the sternites. Ovipositor with the shields black, the short valves horn-yellow.

Hab. India (Khasi States).

Holotype, ♀, Cherrapunji, Khasi Hills, altitude 4,000 feet, 1954 (*S. Sircar*).

At the suggestion of Mr. Sircar, I am naming this striking fly for Prime Minister Jawaharlal Nehru, of India. The species is entirely distinct from all regional members of the genus in the black colour of the body and legs and in the venation. I now am interpreting the venation of the tribe Lechriini as above, considering that vein R_{1+2} has atrophied and that veins R_3 , R_4 and R_5 are preserved.

Limnophila (Elæophila) amamiana, sp. n.

General coloration of mesonotum brownish grey, the præscutum with four darker brown stripes, the intermediate pair rather widely separated; wings with a brownish ground, vaguely to scarcely marked with darker clouds, with no accessory dotted pattern; male hypopygium with the outer dististyle smooth, gently widened outwardly, the apex subtruncate, produced into a slender spine, with a smaller acute spine on outer margin before tip.

Male.—Length about 5 mm.; wing 6 mm.; antenna about 1.2 mm.

Rostrum and palpi black. Antennæ moderately long, if bent backward, extending about to the wing-root, dark brown, the scape more pruinose; flagellar segments elongate, especially the outer ones which are a trifle shorter than their verticils. Head dark brown.

Pronotal scutum brown, scutellum obscure brownish yellow, narrowly darkened medially and on sides. Mesonotum brownish grey, the præscutum with four darker brown stripes, the intermediate pair subequal in width to the median interspace. Pleura brownish grey, patterned with darker brown. Halteres obscure yellow, the knobs scarcely darker. Legs with the coxæ yellow, the fore pair slightly darker basally; trochanters yellow; remainder of legs broken. Wings with a brownish ground, very vaguely clouded with darker brown, the oval stigma darkest; the paler brown clouds occur at origin of *Rs*, cord, fork of R_{2+3+4} , tip of R_3 , outer end of cell 1st M_2 , fork of M_{1+2} , at supernumerary cross-vein in cell *M*, and before the tip of vein 2nd *A*, all such markings being so faint as to be scarcely visible; veins pale brown. Venation: Sc_1 ending a short distance before fork of *Rs*, Sc_2 shortly removed from its tip; R_{2+3+4}

about one-half longer than the basal section of R_5 ; cell M_1 about one-half longer than its petiole; $m-cu$ at near mid-length of cell 1st M_2 .

Abdominal tergites dark brown, sternites a trifle paler. Male hypopygium with the outer dististyle smooth, slightly widened outwardly, the apex subtruncate, the outer apical angle produced into a slender spine; outer margin before tip with a smaller acute spur.

Hab. Ryukyu Islands.

Holotype, ♂, Shinmura, Amami O Shima, March 26, 1954 (*T. Mohri*).

The most similar species include *Limnophila* (*Elæophila*) *serenensis* Alexander and *L. (E.) subaprilina* Alexander, which have the wings heavily patterned and with the details of the male hypopygium slightly different.

Erioptera (Psiloconopa) amamiensis, sp. n.

General coloration of thorax brownish grey, scutellum light yellow; antennæ brownish black, the scape obscure yellow; legs brownish yellow; wings with a greyish tinge; Sc_1 ending just before R_2 , Sc_2 nearly opposite origin of Rs , Sc_1 thus very long; cell 1st M_2 small, closed; vein 2nd A sinuous on about the outer third; male hypopygium with two terminal dististyles, the outer a short mace-like club, the inner style a compressed yellow blade; ædeagus appearing as a transverse oval pale structure, terminating in two divergent points; gonapophyses entirely pale.

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

Female.—Length about 4.5 mm.; wing 5 mm.

Rostrum dark brown; palpi brownish black. Antennæ with the scale obscure yellow, the remainder brownish black to black; flagellar segments short-oval, the more proximal ones shorter than their verticils. Head brownish grey; anterior vertex broad. Pronotum brownish grey. Mesonotal præscutum with the disk brownish grey, the humeral and lateral portions yellow, enclosing the castaneous pseudosutural foveæ; scutum brownish grey, vaguely patterned with obscure yellow medially at suture and on posterior angles of the lobes; scutellum light yellow; postnotum brownish grey. Pleura and pleurotergite grey. Halteres infuscated, the base of stem yellow. Legs with the coxæ obscure yellow, narrowly darkened basally; trochanters yellow; remainder of legs brownish yellow, the tarsi darker. Wings with a greyish tinge, the stigma very vaguely more darkened; wing base restrictedly more yellowed; veins pale brown. Venation: Sc_1 ending just before R_2 , Sc_2 far basad, opposite or shortly beyond origin of Rs ; R_2 just beyond fork of R_{2+3+4} , R_{2+3} short to punctiform; cell 1st M_2 small, closed, from one-third to one-fourth the distal section of M_{1+2} ; $m-cu$ at or very close to fork of M ; vein 2nd A sinuous on outer third or fourth.

Abdomen dark brown, the segments weakly bicoloured, darker on more than the posterior half; hypopygium dark. Male hypopygium with the tergite poorly developed. Basistyle long; dististyles terminal, the outer a short blackened club, the slightly dilated apex densely set with

short points to appear mace-like; inner style a flattened compressed cultrate blade. Phallosome very small, the ædeagus appearing as a depressed, transverse oval structure that terminates in the two short divergent apices of the genital openings; gonapophyses appearing as still smaller pale obtuse blades that lie just laterad of the ædeagus.

Hab. Ryukyu Islands.

Holotype, ♂, Yuwan, Amami O Shima, March 29, 1954 (*T. Edashige*).

Allotopotype, ♀.

In its venation and general appearance, this fly is most like *Erioptera* (*Psiloconopa*) *trivialis* Meigen and some other species, differing primarily in the very distinctive male hypopygium.

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

Belongs to the *gracilis* group and subgroup; general coloration brown: antennæ with basal segments yellow, flagellum light brown; halteres yellow; legs brownish yellow, the posterior legs very long; male hypopygium with both the mesal and ventral lobes of the basistyle with conspicuous spine-like setæ; two dististyles, the inner one longer, curved, its concave lower margin with about six conspicuous spines.

Male.—Length about 4 mm.; wing 4.7 mm.; antenna about 1 mm.

Rostrum and palpi black. Antennæ moderately long; scape and pedicel yellow, flagellum light brown; flagellar segments oval, the outer ones more elongate. Head grey.

Pronotal scutum and scutellum, with the pretergites, yellow. Mesonotum brown, the humeral region of the præscutum more yellowed; posterior part of scutellum vaguely reddened. Pleura brown, sparsely pruinose. Halteres yellow. Legs with the coxæ and trochanters yellow; femora brownish yellow, with darker setæ; remainder of legs yellow, the outer tarsal segments darker; posterior legs very long, especially the femora and tibiæ, each of which is nearly three-fourths as long as the wing. Wings subhyaline, the prearcular and costal portions a trifle more yellowed; a vague darkened cloud on posterior cord; veins brownish yellow to yellow, trichia darker. Venation: R_2 lying just beyond level of $r-m$; petiole of cell M_3 nearly two times $m-cu$; vein 2nd A long, ending beyond two-thirds the length of the petiole of cell M_3 .

Abdomen brown, hypopygium more brownish yellow. Male hypopygium with the dorsal lobe of basistyle small, narrowed to the subacute apex, hairy almost to tip; mesal lobe conspicuous, with about a score of long spine-like setæ; ventral lobe broader and more spatulate, with somewhat fewer and shorter spine-like setæ. Two dististyles, the outer nearly straight, gently widened outwardly, the tip acute, with a low tooth on inner margin at near three-fourths the length, surface of outer half with abundant microscopic squamules or appressed points; inner dististyle longer, curved at mid-length, thence narrowed to a long acute spine, the concave lower surface of outer half with five or six conspicuous spines. Phallosome oval, microscopically setuliferous.

Hab. Formosa.

Holotype, ♂, Hassensan, June 4, 1942 (*Syuti Issiki*).

The present fly is very different from all the numerous species of the genus now known from eastern Asia, especially in the structure of the male hypopygium, particularly the armature of the lobes of the basistyle. In the spinous ventral lobe it suggests members of the *pubipennis* subgroup, very characteristic of the Nearctic fauna, but I believe the species is correctly placed in the typical or *gracilis* subgroup of the genus.