

LVIII.—*New or little-known Tipulidæ (Diptera)*.—X. *Australasian Species*. By CHARLES P. ALEXANDER, Ph.D., F.E.S., Urbana, Illinois, U.S.A.

THE present instalment, like the last, considers only species from New Zealand, supplementary to those included in Mr. Edwards's monographic treatment of the crane-flies of this Dominion. The material discussed herein was received from Dr. Campbell, Mr. Gourlay, Mr. Harris, Mr. Howes, Mr. Lyndsay, Mr. Philpott, Dr. Tillyard, and Mr. Watt, to all of whom I would express my sincere appreciation and thanks. The holotypes of the species described herein are preserved in the writer's collection, except where noted otherwise.

Dicranomyia tarsalba, sp. n.

Basal segment of the antenna yellow; mesonotum greyish brown, dark brownish black sublaterally, the lateral margins of the præscutum conspicuously yellow; pleura yellow with a broad, dark brown, longitudinal stripe; terminal segments of tarsi snowy white; wings dusky, stigma dark brown; anal angle of wing almost lacking.

Male.—Length 3.6–3.8 mm.; wing 5.2–5.4 mm.

Rostrum and palpi brownish black. Antennæ with the first segment of the scape conspicuously light yellow, the remainder brownish black. Anterior part of vertex obscure yellow, the remainder of the head dark grey pruinose.

Pronotum dark, the scutellum yellow. Mesonotal præscutum greyish brown, passing into dark brownish black sublaterally, the lateral margins broadly yellowish white; scutum and scutellum greyish brown, brownish black laterally; postnotum dark brown, sparsely pruinose. Pleura yellow with a very conspicuous, black, longitudinal stripe extending from the propleura to the abdomen. Halteres elongate, dark brown. Legs with the coxæ and trochanters obscure yellow; femora pale brown, the tips dark brown; tibiæ black; metatarsi black basally, this including about two-thirds of the fore metatarsi, a little more than one-half of the posterior metatarsi; remainder of the tarsi snowy white. Wings with a dusky suffusion, more accentuated in the prearcular cells, cells *C* and *Sc*, the outer ends of cells 2nd *R*₁ and *R*₃ and the base of cell *Cu*; stigma conspicuous, oval, dark brown; anal angle of the wing conspicuously whitened; a less distinct whitish area before

and beyond the stigma; veins black. Anal angle of the wing almost lacking. Venation: Sc_1 ending a short distance beyond the origin of Rs , Sc_2 a corresponding distance before this origin, Sc_1 alone about equal to $r-m$; r a little shorter than the distal section of R_1 ; Rs feebly angulated at origin, about one-half longer than the deflection of R_{4+5} ; cell 1st M_2 open by the atrophy of m ; basal deflection of Cu_1 immediately beyond the fork of M .

Abdominal tergites dark brown, the basal sternites paler brown; hypopygium dark.

Hab. New Zealand (North Island).

Holotype, ♂, Ohakune, altitude 2060 feet, November 10, 1921 (*T. R. Harris*).

Paratopotypes, 2 ♂ ♂.

It is possible that the present species is more properly referable to the subgenus *Thrypticomylia*, Skuse.

Dicranomyia atrovittata, sp. n.

Head dark grey; antennæ black, the second scapal segment conspicuously pale brown; mesonotal præscutum with three brownish-black stripes, the lateral stripes extending to the lateral margins of the sclerite; pleura dark brown; femora with a pale brown subterminal ring; wings pale yellow, the stigma nearly black; cord, outer end of cell 1st M_2 , and vein Cu seamed with brown; wing-tip broadly infuscated; abdomen yellow, the lateral margins conspicuously and abruptly dark brown.

Female.—Length 9 mm.; wing 8.5 mm.

Described from an alcoholic specimen.

Rostrum moderately elongate, but much shorter than in *D. huttoni*, Edwards, dark brown, including the palpi. Antennæ black, the second scapal segment conspicuously paler, light brown; second scapal segment subpyriform; flagellar segments oval with short necks. Head dark grey, the anterior part of the vertex lighter grey.

Pronotum dark. Mesonotal præscutum obscure reddish yellow with three brownish-black stripes; median stripe not attaining the suture; lateral stripes crossing the suture and suffusing the cephalic half of the scutal lobes, these stripes very broad, on the præscutum extended laterad to the margin of the sclerite; median area of scutum reddish yellow, faintly and indistinctly darkened; scutellum conspicuously yellow; postnotum dark brown on caudal half. Pleura dark brown, the caudal margin of the propleura

obscure yellow; posterior pleurites obscure yellow; mesosternum dark brown. Halteres pale, the knobs brown. Legs with the coxæ yellow, the cephalic face infuscated, darkest on the fore coxæ; trochanters yellow; femora obscure yellow, with a narrow, indistinct, brown, subterminal ring; remainder of the legs pale brown, the terminal tarsal segments blackened; claws conspicuously toothed. Wings pale yellow, cells *C* and *Sc* a little brighter; stigma very conspicuous, almost black; narrow, dark brown seams at tip of *Sc*, origin of *Rs*, along the cord, outer end of cell 1st *M*₂ and along vein *Cu*; wing-tip very broadly and conspicuously darkened, the colour continued basad almost to the level of the outer end of cell 1st *M*₂; veins brown, darker in the infuscated areas. Venation: *Sc*₁ ending a short distance beyond the origin of *Rs*, *Sc*₂ about twice its length from the tip of *Sc*₁; *Rs* gently arcuated at origin; cell 1st *M*₂ unusually elongate, rectangular; basal deflection of *Cu*₁ near one-fourth the length of cell 1st *M*₂.

Abdominal tergites yellow, segments 1 and 8 brighter yellow; base of segment 2 and the broad lateral margins of tergites 2 to 7 conspicuously dark brown; tergites each with four brown dots arranged in the form of a broad **V**, more evident on tergites 2 to 6; sternites obscure yellow, the second segment infuscated; sternites 2 to 7 with a pair of brown dots near mid-length. Ovipositor with the valves elongate, horn-coloured, blackened at base.

Hab. New Zealand (South Island).

Holotype, ♀, Governor's Bay, Banks Peninsula, Canterbury, October 5, 1921 (*J. W. Campbell*).

Dicranomyia reversalis, sp. n.

General coloration yellow, the præscutum with three confluent dark brown stripes; pleura dark brown with a large yellow area on the mesopleura; wings greyish subhyaline, stigma dark brownish black; narrow brown seams along the cord; abdominal segments bicolorous, the base of each brown, the apex broadly yellow.

Male.—Length about 5 mm.; wing 6.5 mm.

Female.—Length about 5.5 mm.; wing 6.6 mm.

Rostrum and palpi black. Antennæ black, the flagellar segments of the male elongate-oval. Head grey.

Pronotum yellow. Mesonotal præscutum obscure yellowish pollinose, with three confluent, dark brown stripes; scutal lobes dark brown, the median area yellow;

scutellum testaceous; postnotum brown. Pleura dark brown, including the ventral half of the lateral sclerite of the postnotum; a large and conspicuous obscure yellow blotch on the mesepisternum and mesosternum, ventrad of the wing-root. Halteres brownish testaceous, the extreme base yellowish. Legs with the coxæ and trochanters obscure greenish yellow; femora dark brown, more yellowish basally; remainder of the legs dark brown; claws with a long, slender, subbasal tooth. Wings greyish subhyaline, the stigma conspicuous, dark brownish black; paler brown seams at Sc_2 , origin of Rs , along the cord and outer end of cell 1st M_2 ; veins dark brown, paler in the infuscated areas, the veins here appearing somewhat bullate. Venation: Sc_1 ending opposite the origin of Rs , Sc_2 some distance from the tip of Sc_1 , the latter alone about one-third longer than the basal deflection of Cu_1 ; Rs about one-half longer than the basal deflection of R_{4+5} ; cell 1st M_2 small; basal deflection of Cu_1 before the fork of M , the distance about equal to $r-m$.

Abdomen bicolorous, the basal half of the tergites brown, the apical half yellow, the brown narrower on the basal segments, becoming more extensive posteriorly, on the seventh and eighth segments only the narrow caudal margins are bright yellow; sternites similar, but the brown bases are correspondingly narrower. Ventral appendages of the hypopygium tinged with green, the rostriform appendage with two spines.

Female similar to the male. Tips of the femora indistinctly yellowish. Basal deflection of Cu_1 at the fork of M . Ovipositor with the valves long and slender.

Hab. New Zealand (North Island).

Holotype, ♂, Ohakune, altitude 2060 feet, October 10, 1921 (*T. R. Harris*).

Allotype, ♀, Taihape, October 12, 1921 (*T. R. Harris*).

Dicranomyia reversalis is related to *D. vicarians*, Schiner, but is readily told by the reversal of coloration of the abdominal segments.

Dicranomyia hemimelas, sp. n.

General coloration yellow; mesonotal præscutum shiny black with broad lateral margins of the ground-colour; anterior part of vertex silvery; wings fulvous brown, the stigma slightly darker brown; abdominal sternites obscure yellow.

Male.—Length 5.8 mm.; wing 8 mm.

Female.—Length about 6.5 mm.; wing 8 mm.

Rostrum and palpi black. Antennæ black, the flagellar segments oval. Head dull grey; a conspicuous area on the vertex behind the antennæ covered with abundant, silver-white, appressed pubescence.

Pronotum black. Mesonotal præscutum yellow with three confluent black stripes, the lateral margins of the sclerite broadly yellow; scutal lobes black, the median area obscure yellow; scutellum pale brown, sparsely grey pruinose, more yellowish beneath; postnotum dark, sparsely pruinose. Pleura obscure yellow, the mesopleura very faintly pruinose. Halteres brown, the base of the stem narrowly yellow, the knobs dark brown. Legs with the coxæ and trochanters yellow; remainder of the legs dark brown, the femoral bases obscure yellow. Wings with a uniform fulvous-brown tinge, the stigma slightly darker brown; veins dark brown. Venation: Sc_1 ending opposite or just beyond the origin of R_s , Sc_2 retreated toward the wing-base, Sc_1 slightly variable in length, in the holotype being longer than the basal deflection of R_{4+5} , in others a little shorter; basal deflection of Cu_1 at or just before the fork of M .

Abdominal tergites dark brown, the sternites obscure yellow; hypopygium dark. Male hypopygium with the rostriform appendage bearing two stout, subequal, slightly separated spines. Ovipositor with the valves elongate.

Hab. New Zealand (South Island).

Holotype, ♂, Dun Mt., Nelson, altitude 3000 feet, January 6, 1921 (*A. Philpott*).

Allotopotype, ♀, February 9, 1921 (*R. J. Tillyard*).

Paratopotype, ♀.

Type in the collection of the Cawthron Institute.

Dicranomyia multispina, sp. n.

General coloration shiny brownish yellow; antennæ black; head brown; wings tinged with brown, the stigma oval, darker brown; Sc ending opposite or just beyond the origin of R_s ; abdominal tergites brown or indistinctly bicolorous; rostriform appendage of male hypopygium with a fascicle of about nine spines.

Male.—Length 6 mm.; wing 7 mm.

Female.—Length 8 mm.; wing 8 mm.

Rostrum brown, the palpi dark brown. Antennæ black. Head brown.

Pronotum dark medially. Mesonotal præscutum shiny obscure yellow or brownish yellow, the median darker stripe

indicated only posteriorly; scutal lobes and postnotum slightly darker. Pleura obscure brownish testaceous. Halteres brown, the base of the stem paler. Legs with the coxæ pale yellowish brown; trochanters testaceous; femora and tibiæ pale brown, the tarsi darker. Wings with a strong brown tinge, the stigma oval, darker brown; veins dark brown. Venation: Sc_1 ending opposite or just beyond the origin of R_s , Sc_2 some distance from the tip of Sc_1 , the latter alone variable, from one-half to nearly as long as the basal deflection of Cu_1 ; cell 1st M_2 closed, the basal deflection of Cu_1 at the fork of M .

Abdomen pale brown, the sternites a little more yellowish. Usually both sternites and tergites appear faintly bicolorous, the bases being paler than the dark brown caudal margins of the segments. Male hypopygium with the rostriform appendage bearing, instead of the usual two spines, a fascicle of about nine such spines, the apex of the appendage beyond these spines long and slender.

Hab. New Zealand (both Islands).

Holotype, ♂, Ohakune, altitude 2060 feet, October 1, 1921 (*T. R. Harris*).

Allotype, ♀, Governor's Bay, Banks Peninsula, Canterbury, October 5, 1921 (*J. W. Campbell*); alcoholic.

Paratopotype, 1 ♂; *paratypes*, 15 ♂ ♀, with the allotype, alcoholic; 1 ♂, Dunedin (Waitati), Otago, October 24, 1921 (*M. N. Watt*).

Molophilus luteipygus, sp. n.

General coloration pale reddish brown; front yellow, vertex and occiput brownish grey; scutellum obscure yellow; postnotum and pleura dark brown; halteres yellow; wings with a strong yellow tinge; vein 2nd A elongate; abdomen dark brown, the hypopygium obscure yellow.

Male.—Length 2.8 mm.; wing 3.8 mm.

Female.—Length 3 mm.; wing 4–4.1 mm.

Rostrum pale brown, the palpi darker brown. Front yellow. Antennæ dark brown, short, the flagellar segments oval with conspicuous verticils. Vertex and occiput dark brownish grey.

Pronotal scutellum almost white. Mesonotal præscutum reddish brown without distinct markings, more greyish laterally; scutum with the median area broadly obscure yellow, the lobes dark brown; scutellum obscure brownish yellow, darker basally; postnotum dark brown. Pleura dark brown. Halteres yellow, the knobs very conspicuous,

light yellow. Legs with the coxæ and trochanters obscure yellowish testaceous; remainder of the legs very pale brownish yellow, only the terminal tarsal segments conspicuously infuscated. Wings with a strong yellowish tinge; veins pale brown, *Sc*, *R*, *R*₄₊₅, and *Cu* more yellowish. Venation: basal deflection of *Cu*₁ one-half longer than the deflection of *M*₃₊₄ and conspicuously arcuated; vein *2nd A* elongate, ending opposite mid-length of the basal deflection of *Cu*₁.

Abdomen dark brown, the hypopygium obscure light yellow. Male hypopygium with the basal pleural appendage a long straight rod, enlarged at base, the apex somewhat pointed, the apical quarter of the appendage sparsely provided with weak spines. Apical appendage a similar straight arm, the apex bifid by a deep U-shaped notch, the mesal arm a conspicuous, nearly straight, black spine, the lateral arm stouter, at its tip bent at an angle into a conspicuous spine directed mesad to almost touch the mesal arm; apex of pleurite on mesal side produced into a slender chitinized spine.

Hab. New Zealand (South Island).

Holotype, ♂, Dunedin, Otago, November 5, 1921 (*G. Howes*).

Allotopotype, ♀.

Paratopotypes, 4 ♂ ♂, November 26–December 14, 1921; *paratypes*, 2 ♂ ♂, 1 ♀, Waipori, December 5, 1921 (*G. Howes*); 2 ♂ ♂, Mt. Fitzgerald, Banks Peninsula, Canterbury, January 24, 1922 (*E. S. Gourlay*); *R. R.*

Molophilus terminans, sp. n.

General coloration dark brown, the humeral region of the præscutum obscure yellow; antennæ short; halteres yellow; male hypopygium with the two pleural appendages terminal in position.

Male.—Length about 3 mm.; wing 4.8 mm.

Female.—Length about 4 mm.; wing 5 mm.

Rostrum and palpi dark brown. Antennæ short, dark brown. Head greyish brown with conspicuous yellow setæ.

Mesonotum dark brown, the humeral triangle obscure yellow; lateral margin of præscutum narrowly yellow; remainder of the mesonotum paler brown. Pleura brown. Halteres conspicuously light yellow, the knobs very bright. Legs with the coxæ and trochanters pale brownish testaceous; femora pale brown; tibiæ and tarsi dark brown. Wings with a faint yellowish-brown tinge; veins pale brown,

the macrotrichiæ dark brown. Venation: vein 2nd A long, sinuous, ending opposite the fork of Cu.

Abdomen dark brown. Male hypopygium with the pleural appendages terminal in position, consisting of an outer flattened blade that terminates in an acute beak, the surface with a short dense pubescence; inner appendage longer than the outer, very slender, feebly sinuous, the tip slightly enlarged and with a few weak denticles; mesal face of pleurite grooved to receive the pleural appendages. Penis-guard very long and slender, straight.

Hab. New Zealand (North Island).

Holotype, ♂, Ohakune, altitude 2060 feet, November 13, 1921 (*T. R. Harris*).

Allotopotype, ♀, November 6, 1921.

Paratopotypes, 1 ♂, 2 ♀ ♀, November 15, 1921.

NOTHOPHILA, gen. nov.

Antennæ with sixteen segments; flagellar segments elongate-oval with short verticils that are shorter than the segments that bear them. Halteres elongate. Wings with Sc usually long, ending beyond the end of Rs (*nebulosa*, Edwards) to opposite the fork of R_{2+3} (*fuscana*, Edwards); Sc_2 at the tip of Sc_1 and subequal to it; r close to the tip of R_1 and on R_2 beyond mid-length; R_{2+3} as long as, or longer than, the basal deflection of Cu_1 ; cell M_1 present; anterior arculus atrophied. Abundant macrotrichiæ in all the cells distad of the cord, as well as in the centres of cells C , 1st R_1 , and R , and the distal ends of cells M , Cu , and 1st A . Valves of the ovipositor moderately elongate, the slender tergal valves gently upcurved.

Genotype:—*Utomorpha fuscana*, Edwards (New Zealand).

The two New Zealand species that Edwards has referred to *Utomorpha* are not congeneric with the five Nearctic species of the genus. *Utomorpha* has vein Sc shorter, Sc_1 ending before the fork of Rs; r far removed from the tip of R_1 , on R_2 before mid-length; cell R_2 sessile or very short-petiolate; cell M_1 present or (usually) absent; arculus complete. Verticils of the flagellum elongate as in *Pilaria*. The relation of *Nothophila* to other generalized Hexatomine genera in New Zealand is apparently analogous to that of *Utomorpha* to *Pilaria*, Sintenis.

LIMNOPHILA, Macquart.

METALIMNOPHILA, subgen. nov.

Characters as in *Limnophila*, s. s. Antennæ elongate.

Male hypopygium very complicated in structure, the mesal and apical faces of the pleurites produced into lobes; eighth sternite bearing two apical rows of spines. Ovipositor with the tergal valves very short, strongly upcurved, with a basal spur or tooth on the dorsal side.

Type of the subgenus:—*Limnophila howesi*, sp. n. (New Zealand).

The group also includes *Limnophila mirifica*, Alexander (North Island), *L. nigroapicata*, sp. n., and *L. producta*, sp. n. The very peculiar structure of the ovipositor probably indicates a specialized method of egg-laying.

Limnophila (Metalimnophila) howesi, sp. n.

General coloration grey; antennæ of male elongate; mesonotal præscutum obscure yellow with three brown stripes; pleura with a dark brownish-black dorsal stripe; wings tinged with brown; stigma conspicuous, dark brown; male hypopygium with the apex of each pleurite produced into a short broad lobe; outer pleural appendage clavate, terminating in a blackened hook-like spine; gonapophyses sinuous. Eighth sternite with two conspicuous rows of five spines each.

Male.—Length 6 mm.; wing 8 mm.

Female.—Length 7.5–8 mm.; wing 8.3–9.2 mm.

Rostrum and palpi dark brown. Antennæ elongate, if bent backward extending to mid-length of the abdomen; flagellum black, the scapal segments a little paler; flagellar segments elongate-cylindrical. Head dark grey.

Mesonotal præscutum obscure yellow with three ill-defined brown stripes that are confluent behind; scutum dark brown; scutellum and postnotum light grey. Pleura grey with a conspicuous brownish-black longitudinal stripe extending from the cervical sclerites across the dorsal pleurites, passing dorsad of the halteres; dorsal margin of this stripe ill-defined. Halteres pale yellow. Legs with the coxæ and trochanters light yellow, the fore coxæ a little darker; legs brown, the femoral tips narrowly darkened. Wings with a strong brown tinge, highly iridescent, the stigma well-defined, oval, darker brown; veins conspicuous, dark brown. Venation: Sc long, Sc_1 ending opposite the deflection of R_{4+5} , Sc_2 a little longer than Sc_1 ; Rs long, arcuated or feebly angulate at origin; $r-m$ proximad of the deflection of R_{4+5} ; R_{2+3} in alignment with Rs , a little longer than the deflection of R_{4+5} ; R_2 not conspicuously angulated at origin; r near mid-distance between the fork of R_{2+3} and

the tip of R_1 ; veins R_2 and R_3 generally parallel, so cell $2nd\ R_1$ is very wide at margin; petiole of cell M_1 only a little longer than the cell; basal deflection of Cu_1 near mid-length of cell $1st\ M_2$.

Abdomen dark brown, the hypopygium only a little paler. Male hypopygium with the ninth tergite not produced into lobes, the margin with a very broad notch; pleurites at apex on mesal face produced into a short subquadrate lobe that is truncated apically; on mesal face near mid-length the pleurites are produced into a smaller lobe that is truncated at apex. Outer pleural appendage clavate, the apex a squat, black, hook-like spine with a smaller subterminal spine; inner pleural appendage very small, pale, broadest basally. Eighth sternite with two convergent rows of five spines each. Gonapophyses sinuous, together appearing lyriform.

Hab. New Zealand (South Island).

Holotype, ♂, Dunedin, Otago, November 5, 1921 (G. Howes).

Allotopotype, ♀, November 26, 1921.

Paratopotypes, 2 ♂♂, with the allotype; *paratypes*, 1 ♂, 1 ♀, Mt. Grey, Canterbury, altitude 1200–1500 feet, in beech forest, November 27, 1921 (Campbell and Lyndsay).

This species is named in honour of the collector, Mr. W. George Howes, to whom I am greatly indebted for many Tipulidæ from Otago.

Limnophila (Metalimnophila) producta, sp. n.

Male.—Length 5.5 mm.; wing 7 mm.

Female.—Length 6.3 mm.; wing 7.5 mm.

Generally similar to *L. howesi*, sp. n., differing as follows:—

Size smaller. Basal flagellar segments indistinctly pale at ends. Median præscutal stripe distinctly divided by a pale median line. Pleural black line very distinct, rather narrow, both the dorsal and ventral margins very clear-cut. Legs with the femoral apices narrowly blackened. Wings not so strongly tinged with brown, the stigma pale brown but well-defined. Venation: *Rs* shorter than *L. howesi*; petiole of cell M_1 variable in length, from one-fourth to a little more than one-half longer than the cell.

Caudal margin of the ninth tergite of the male hypopygium with two elongate, slender, slightly divergent lobes, separated by a deep U-shaped median notch. Pleurites at base on mesal face produced into a large tumid lobe, these

lobes contiguous on the median line; apex of each pleurite produced into a long slender arm directed mesad and slightly caudad, longer than the pleurite itself, the apex slightly enlarged; two pleural appendages, the outermost bifid, bearing a conspicuous lobule before the apex; inner appendage a flattened, irregular, pale blade. Gonapophyses appearing as long, slender, straight, divergent rods. Eighth sternite with two narrow convergent rows of black spines, there being about a dozen small spines in each row. Ovipositor with the tergal valves very short and strongly upcurved, the ventral margin at base microscopically serrulate.

Hab. New Zealand (South Island).

Holotype, ♂, Dunedin, Otago, November 5, 1921 (G. Howes).

Allotopotype, ♀.

Paratopotypes, 2 ♂♂, with the type; 6 ♂♂, 1 ♀, November 26, 1921.

Limnophila (*Metalimnophila*) *nigroapicata*, sp. n.

Antennæ elongate; general coloration grey; mesonotal præscutum with three brown stripes; pleura with a dark brown longitudinal stripe; halteres elongate, light yellow; femora and tibiæ yellow, conspicuously tipped with black; wings yellowish subhyaline, veins pale; stigma very faintly indicated; *Rs* comparatively short; abdomen dark brown; tergal valves of ovipositor very short and strongly upcurved.

Female.—Length 7.2 mm.; wing 7.8 mm.

Rostrum and palpi black. Antennæ elongate for the female sex, dark brown; flagellar segments elongate; the antennæ of the male are undoubtedly elongate. Head yellowish grey.

Mesonotal præscutum yellowish grey with three conspicuous brown stripes, the median stripe feebly bisected by a paler line; cephalic margin of præscutum narrowly dark brown; tuberculate pits lacking; scutum light grey, the lobes darker grey; scutellum almost white; postnotum grey. Pleura grey; a conspicuous dark brown longitudinal stripe extending from the cervical sclerites, dorsad of the fore coxa, to the postnotum. Halteres elongate, light yellow. Legs with the coxæ yellow, the fore coxæ infuscated; trochanters obscure yellow; femora obscure yellow, the tips narrowly blackened; tibiæ and metatarsi yellowish testaceous, the tips more narrowly blackened; remainder of the tarsi brownish black. Wings yellowish subhyaline;

stigma very faintly indicated; veins pale brown. Venation: Sc_1 longer than Sc_2 , ending immediately before the end of R_s ; R_s rather short, gently arcuated at origin, in alignment with R_{2+3} ; R_2 subperpendicular and angulated at origin; r faint, a little more than twice its length beyond the fork of R_{2+3} ; cells R_3 , R_5 , and 1st M_2 in alignment; a spur on $r-m$, jutting into cell R ; petiole of cell M_1 a little less than twice the cell; cell 1st M_2 elongate, gently widened distally; basal deflection of Cu_1 near mid-length of the caudal face of cell 1st M_2 ; vein 2nd A ending before the level of R_s .

Abdomen dark brown. Ovipositor with the tergal valves usually short, very strongly upcurved, the tips acute.

Hab. New Zealand (North Island).

Holotype, ♀, Taihape, Wellington Province, October 14, 1921 (*T. R. Harris*).

Limnophila deviata, sp. n.

General coloration light reddish brown; head grey; halteres yellow; legs dark brown, the femoral bases narrowly obscure yellow; wings yellowish subhyaline; veins R_2 and R_3 divergent, cell R_2 being very wide at wing-margin; male hypopygium with two small pleural appendages, the outer one bifid at apex.

Male.—Length about 4.5 mm.; wing 5.6 mm.

Female.—Length 5.6–6 mm.; wing 6.3–6.4 mm.

Rostrum small, dark brown; palpi brownish black. Antennæ short in both sexes; scapal segments obscure brownish yellow beneath, dark brown above; flagellum dark brownish black, the segments oval. Head grey, the centre of the vertex slightly infuscated.

Mesonotal præscutum light reddish brown without distinct markings; tuberculate pits present, elongate; remainder of mesonotum pale reddish brown. Pleura pale brownish yellow. Halteres yellow. Legs with the coxæ and trochanters concolorous with the pleura; remainder of legs dark brown, the bases narrowly obscure yellow. Wings yellowish subhyaline, iridescent, the base and costal margin paler; stigma indistinct; veins pale brownish yellow. Venation: Sc_1 ending beyond the fork of R_s , Sc_2 close to the tip of Sc_1 and about equal to it; R_s long, arcuated at origin, in alignment with R_{2+3} ; r lacking or barely indicated; R_{2+3} about one-half longer than the deflection of R_{4+5} ; veins R_2 and R_3 divergent, cell R_1 at margin being only a little wider than cell R_3 , cell R_2 correspondingly

widened; inner ends of cells R_3 , R_5 , and 1st M_2 in oblique alignment; cell M_1 small, about one-half the length of its petiole; cell 1st M_2 small, the basal deflection of Cu_1 near one-third its length; vein 2nd A ending nearly opposite the origin of Rs .

Abdomen dark brown. Male hypopygium with two small pleural appendages, the outer appendage chitinized, with a small spine immediately before the slender apex; inner pleural appendage a little shorter, slender, fleshy. Ovipositor with the tergal valves elongate, gently upcurved.

Hab. New Zealand (South Island).

Holotype, ♂, Greymouth, sea-level, September 7, 1921 (T. R. Harris).

Allotopotype, ♀, September 6, 1921.

Paratopotype, ♀, September 7, 1921.

Limnophila exclusa, sp. n.

Mesonotum yellowish grey with three dark brown stripes; antennæ short; pleura light grey; wings tinged with yellow, sparsely marked with brown; R_{2+3} long; cell M_1 lacking.

Male.—Length 11 mm.; wing 11 mm.

Female.—Length 12 mm.; wing 10.5 mm.

Rostrum and palpi black. Antennæ short, the basal segment dark pruinose. Head grey, the centre of the vertex extensively infuscated, restricting the ground-colour to narrow margins adjoining the eyes.

Mesonotal præscutum yellowish grey with three conspicuous dark brown stripes, the median stripe split caudally; scutum and scutellum light grey, the scutal lobes infuscated; postnotum light grey. Pleura light grey. Halteres yellow. Legs with the coxæ obscure yellow, sparsely pruinose; trochanters obscure yellow; femora and tibiæ brown, the tips passing into black; metatarsi dark brown, the tips blackened; tarsi black. Wings with a yellowish tinge, more saturated at the base and in the costal region; stigma conspicuous, brown; a brown seam at origin of Rs ; narrow brown seams along the cord and outer end of cell 1st M_2 ; in the type the outer end of cell R_2 is strongly infuscated; vein Cu and the wing-margin less distinctly infuscated; veins dark brown, more yellowish in the costal region. Venation: Sc_1 ending just before the end of Rs , Sc_2 at the tip of Sc_1 ; Rs long, angulated and spurred at origin; R_{2+3} long, only a little shorter than R_2 ; r a little more than its length from the tip of R_1 and on R_2 less than its length beyond the fork of R_{2+3} ; cells R_3 , R_5 , and 1st M_2 in oblique alignment;

$r-m$ long, arcuated; cell M_1 lacking; cell 1st M_2 elongate, widened distally, m about one-half the outer deflection of M_3 ; basal deflection of Cu_1 about its own length beyond the fork of M ; anterior arculus preserved.

Abdominal tergites light brown, in the female darker brown; hypopygium concolorous with abdomen. Ovipositor very long and slender, yellowish horn-colour.

Hab. New Zealand (both Islands).

Holotype, ♂, Charteris Bay, Banks Peninsula, Canterbury, November 12, 1921 (*J. W. Campbell*).

Allotype, ♀, Ohakune, altitude about 2060 feet, November 12, 1921 (*T. R. Harris*).

The holotype was associated with *Aphrophila neozelandica* (Edwards) and *Dicranomyia fasciata*, Hutton, on the lee side of rocks amidst rough foaming water.

Gynoplistia hirtamera, sp. n.

General coloration shiny black; antennæ with fifteen segments; flagellar segments 1 to 8 long-flabellate; all coxæ light brown; wings subhyaline with a conspicuous brown pattern, including the cord, outer end of cell 1st M_2 , bases of cells R and M , origin of Rs , a large spot in cell M and another in cells Cu and 1st A ; wing-apex not darkened; cell 2nd R_1 at margin equal in width to cell R_2 ; vein 2nd A ending far before the level of the origin of Rs ; male hypopygium with each gonapophyse terminating in a dense brush of long yellow setæ.

Male.—Length 7.5 mm.; wing 6.8 mm.

Described from an alcoholic specimen.

Rostrum black, the palpi dark brownish black. Antennæ 15-segmented, the formula being 2+2+6+5; antennæ dark brown, the basal two flagellar segments indistinctly paler at ends; flagellar branches very long, the longest from three-fifths to two-thirds the entire flagellum; eighth flagellar segment with a pectination that is at least three times the length of the segment; terminal flagellar segment elongate, one-half longer than the penultimate. Head shiny black.

Mesonotal præscutum shiny black, the humeral region restrictedly reddish brown; scutal lobes black, the median area reddish brown; scutellum reddish brown with two confluent dark brown spots at base, on either side of the median line; postnotum black. Pleura dark brownish black; no pruinosity can be detected in the alcoholic type. Halteres pale yellow throughout. Legs with coxæ uniform

yellowish brown, the fore coxæ darker basally; trochanters obscure brownish yellow; femora light brown, the tips broadly brownish black; tibiæ dark brown, the tips blackened; tarsi black. Wings rather broad, subhyaline; cells *C* and *Sc* yellowish; a conspicuous dark brown pattern distributed as follows: bases of cells *R* and *M*; a large subcircular area at origin of *Rs*, remote from vein *M*; stigmal area large, sending a broad cloud along the cord, ending in a large blotch at the tip of *Cu*₂; a large cloud at *m*; a conspicuous oval area beyond mid-length of cell *M*; an infuscation in centre of cell *Cu*, crossing vein *1st A* into cell *1st A* immediately above the end of vein *2nd A*; wing-tip not darkened; veins dark brown. Venation: *r* at or before mid-length of vein *R*₂, cell *2nd R*₁ being unusually wide at the margin, equal to cell *R*₂; *R*₂ strongly angulated at origin; *m* short to very short, constricting the adjoining veins; petiole of cell *M*₁ about two-thirds the cell; basal deflection of *Cu*₁ at from one-half to two-thirds the length of cell *1st M*₂; vein *2nd A* short, ending considerably before the level of the origin of *Rs*.

Abdomen brownish black. Male hypopygium with the apex of each pleurite produced into a short blade as in this group of species; mesal face of pleurite at base produced into a conspicuous, flattened, glabrous blade directed caudad and slightly mesad, the apex obtusely rounded; mesal apical angle of pleurite likewise produced into a small blunt lobe that bears a few conspicuous setæ; inner pleural appendage dilated at apex. Gonapophyses broad at base, narrow at apex, which is split into a dense brush of long yellow hairs.

Hab. New Zealand (South Island).

Holotype, ♂, Waitati, Pipetine, Otago, October 29, 1921 (*G. Howes*).

Gynoplistia niveicincta, sp. n.

General coloration shiny brownish yellow; head shiny black; antennæ 20-segmented; femora yellow, the tips broadly and abruptly blackened; posterior tibiæ with a narrow, clearly-defined, whitish ring beyond mid-length, the setæ on this pure white; wings nearly hyaline, cells *Sc* and *Sc*₁ entirely dark brown; abdomen with intense purple reflections, the hypopygium obscure reddish yellow.

Male.—Length 10 mm.; wing 8·3 mm.

Rostrum very short, black; first segment of palpi obscure yellow, the remainder dark brown. Antennæ with the first segment yellow, the apex darker; second scapal segment

dark brown; flagellar segments, including the pectinations, black; antennæ 20-segmented, the formula being $2+2+13+3$, the pectination of flagellar segment 15 being comparatively small; flagellar segments short with a distinct apical neck, the longest pectination being approximately one-third the entire flagellum. Head entirely shiny coal-black.

Pronotum shiny yellowish brown. Mesonotal præscutum shiny obscure brownish yellow, with three darker brown stripes that are ill-defined; remainder of mesonotum shiny, obscure yellowish brown. Pleura brownish yellow, the mesepimeron and mesosternum between the mid and hind coxæ with a transverse line of silvery-white pubescence. Halteres pale brown, the knobs almost orange. Legs with the coxæ concolorous with the pleura; trochanters obscure yellow; femora bright yellow, the apical third (mid-femur) or half (hind femur) abruptly blackened; tibiæ black; posterior tibiæ with a clearly defined whitish ring just beyond mid-length, this band a little narrower than the black apex; setæ on this pale area white; tibial spurs slender, the apex acute, the distal margin weakly spinulose. Wings nearly hyaline; cells *Sc* and *Sc*₁ entirely dark brown; a conspicuous dark brown blotch at origin of *Rs*, extending to *M*; stigmal blotch large and compact, continued along the cord; centre of cell 1st *M*₂ clear; outer end of cell 1st *M*₂ and basal deflection of *Cu*₁ narrowly seamed with brown; an elongate-oval paler brown cloud just beyond mid-length of vein 1st *A*; wing-tip broadly but faintly infuscated; veins brownish black. Venation: *R*₂ perpendicular at origin; *r* near mid-length of *R*₂; basal deflection of *Cu*₁ shortly before mid-length of cell 1st *M*₂; vein 2nd *A* very strongly sinuous.

Abdomen shiny dark brown with intense violet and purple reflections; hypopygium, including all but the base of sternite 8, obscure reddish yellow. Male hypopygium with the pleurites short and stout, their mesal faces densely setiferous, the apex of each produced caudad and mesad into a rather long, flattened, setiferous blade; two pleural appendages, both slender and unspined. Gonapophyses appearing as very long, acicular, sinuous rods.

Hab. New Zealand (North Island).

Holotype, ♂, Ohakune, altitude 2060 feet, December 15, 1919 (*T. R. Harris*).

The type of *Gynophlistia niveicincta* was sent to Mr. Edwards for his expert opinion; he writes that this insect is certainly distinct from *speciosa*, Edwards, which has

brownish hind tibiæ covered with uniform dark brown pubescence, the pale ring being on the integument only; in *niveicincta* the setæ, as well as the integument, are pale. *G. formosa*, Hutton, is represented in the writer's collection by a male; it is a very different fly, with the tibial ring ill-defined, broad, and orange-yellow in colour.

Tricyphona novæ-zelandiæ, sp. n.

General coloration obscure yellowish brown; mesonotal præscutum with four narrow dark brown stripes; wings with a brown tinge, the stigma a little darker; cell R_2 long-petiolate; cell R_4 short-petiolate; cell 1st M_2 closed; cell M_1 sessile or very short-petiolate.

Male.—Length 6 mm.; wing 8.6 mm.

Rostrum and palpi dark brown. Antennæ 16-segmented, the scapal segments pale brown; flagellum black; flagellar segments oval. Head dark brown with a sparse bloom, leaving blotches of the ground-colour exposed.

Mesonotal præscutum light yellowish brown with four conspicuous dark brown stripes, the intermediate pair separated from one another by a line of the ground-colour that is nearly one-half the width of either stripe; scutum brown, indistinctly greyish medially; scutellum and post-notum pale brown with an indistinct pruinosity. Pleura brown with a sparse, microscopic, appressed pubescence that appears like a pruinosity; a narrow, dark brown, dorsal stripe extending from the propleura to ventrad of the wing-root. Halteres pale, the base of the stem yellow, the knobs infuscated. Legs with the coxæ obscure yellow, infuscated basally; trochanters obscure yellow; femora pale brown, the tips scarcely darkened; tibiæ and metatarsi pale brown, the tips narrowly darker brown; remainder of the tarsi dark brown. Wings with a brown tinge; cells *C* and *Sc* more saturated; stigma darker brown, but its limits ill-defined; veins dark brown. Venation: Sc_2 before the origin of *Rs* a distance approximately as long as cell 1st M_2 ; *Rs* strongly arcuated at origin; R_{2+3} elongate, the outer deflection of R_2 a little more than its own length from the tip of R_{1+2} , without macrotrichiæ; R_{4+5} a little shorter than $r-m$; $r-m$ on R_{4+5} immediately beyond its origin; cell M_1 short-petiolate or sessile, m in this case being exactly at the fork of M_{1+2} ; m about one-third the outer deflection of M_3 ; basal deflection of Cu_1 about one-fourth its length beyond the fork of M ; $M_3 + Cu_1$ a little more than one-half the outer deflection of M_3 .

Abdomen dark brown, the posterior margins of the sternites very narrowly and indistinctly paler; hypopygium conspicuously reddish brown.

Hab. New Zealand (South Island).

Holotype, ♂, Dunedin, Otago, November 5, 1921 (*G. Howes*).

The discovery of a species of the tribe Pediciini in New Zealand is of unusual interest. *Tricyphona novaezealandiae* is in all its characters a typical member of the genus. The venation is interpreted as showing a distal fusion of R_1 and R_2 , the type of venation found in the Pediciini (for a discussion, see 'Entomological News,' vol. 29, pp. 201-205, 1918) and very possibly in other groups of Limnobiinæ, the *apparent* radial cross-vein in these cases being the free portion of vein R_2 .

GENUS HOLORUSIA, LOEW.

ZELANDOTIPULA, subgen. nov.

Characters as in *Holorusia*, differing as follows: vein M with a strong spur on the caudal side, jutting disto-caudad into cell M . Male hypopygium with the outer pleural appendage narrowed apically into a point. Gonapophyses appearing as deeply bifid plates, each lobe broadly rounded at apex.

Type of the subgenus:—*Holorusia novarae* (Schiner).

The writer is quite prepared to follow Mr. Edwards in placing the *Tipula novarae*, Schiner, in the essentially Neotropical genus *Holorusia*. The three species of the group from New Zealand known to the writer exhibit certain characters that seem to warrant their removal from typical *Holorusia* in some degree, and so the new subgeneric term, *Zelandotipula*, is proposed for these three New Zealand species. The writer is strongly inclined to believe that the conspicuous spur or stump of a vein in cell M is a character of some phylogenetic significance. Although it is lacking in some individuals, it is usually present as a strong spur, or, in some cases, as a more or less complete cross-vein in cell M . The course of the spur, and especially the slight cephalic deflection of the main vein immediately beyond it to form a symmetrical fork, leads one to the conclusion that the character is atavic. In the specimens seen by the writer where the cross-vein is most nearly complete, the caudal portion of the vein, nearest vein Cu , is weak and not in alignment with the base of the spur. What this spur on M can represent in the phylogeny of the Diptera is a

question that future studies must answer. The other species belonging to this new group are *H. (Z.) fulva* (Hutton) and *H. (Z.) otamana*, sp. n. The species described by the writer as *Macromastix maori* is certainly not a member of this group, and likewise does not seem to be a true *Macromastix*. The presence of a spur on *M* in exactly the same position as found in the three species of *Zelandotipula* may indicate that both of these groups have descended from some Maorian ancestor in remote ages past. The discovery of the immature stages of *H. novaræ* by Mr. Gourlay is of unusual interest. The larvæ resemble those of *Holorusia* in general appearance, but the pupæ strikingly suggest species of *Prionocera*.

Holorusia (Zelandotipula) otamana, sp. n.

General coloration light grey; centre of vertex and median stripe of præscutum obscure rufous; wings relatively long and narrow, the pattern but faintly indicated; abdomen uniformly light brown; male hypopygium with the outer pleural appendage not produced into a conspicuous attenuate point.

Male.—Length 18–19 mm.; wing 19–22 mm.; wing-width 3·8 mm.

Female.—Length about 20 mm.; wing 17 mm.

Frontal prolongation of the head elongate, reddish brown; palpi dark brown. Antennæ with the scapal segments brownish yellow; flagellum black. Dorsum of head deep rufous, with a capillary dark brown median line; inner margin of eyes broadly cinereous.

Mesonotal præscutum light grey with three stripes, the median stripe obscure rufous, the lateral stripes varying from rufous to dark grey; scutum light grey, the centres of the lobes dark grey; scutellum and postnotum light grey with a capillary brown median line. Pleura light grey; dorso-pleural membrane obscure yellow. Halteres pale brown. Legs with the coxæ light grey; trochanters brownish yellow; femora and tibiæ light brown, the tips darkened; tarsi dark brown. Wings relatively long and narrow, subhyaline, with a subobsolete pattern, cells *C*, *Sc*, 2nd *R*₁, *R*₂, and *R*₃ being suffused with pale brown; outer ends of the posterior and anal cells faintly darkened; the subhyaline ground-colour includes cell *R*₅ to the apex; no conspicuous dark pattern along *Rs* or *M* as in *novaræ*. Venation: as in *novaræ*, but the cells longer and narrower, resulting from the narrowing of the wing.

Abdomen uniformly light brown, including the hypopygium. Male hypopygium very different in the details of structure from other known species of the subgenus. Ninth tergite with a profound median incision, the mesal face of the lobes formed obliquely truncated and densely set with abundant black spicules. Outer or dorsal pleural appendage flattened as in the genus, but the apex scarcely more than one-half as long as the dilated base, not at all prolonged into an attenuate lobe as in the genotype.

The female is smaller. The unique specimen of this sex at hand lacks the spur on vein *M*.

Hab. New Zealand (South Island).

Holotype, ♂, Seaward Moss, near Invercargill, October 15, 1906 (*A. Philpott*).

Allotype, ♀.

Paratopotypes, 2 ♂♂, October 15, 1905; *Paratype*, ♂, West Plains, November 30, 1902 (*A. Philpott*).

Macromastix subtenera, sp. n.

Male.—Length about 7.5 mm.; wing 10.5 mm.

Related to *M. tenera* (Hutton), differing as follows:—

Size smaller. Antennæ more elongate, the flagellar segments beyond the first elongate-cylindrical, those near mid-length of the organ much longer than those at base. Head obscure yellow; a large brown area on either side of the vertex behind the eyes, only narrowly separated on the median line; no median dark line on the anterior part of vertex. Mesonotal postnotum obscure yellow with the lateral margins of the median sclerite conspicuously margined with pale brown, the median pale area broad; in *tenera* there are two circular black spots on the posterior margin of the postnotum. Pleura with a continuous, but rather indistinct, transverse brown line on the anterior part of the mesepisternum, continued ventrad on to the mesosternum. Wings faintly tinged with brown. *Rs* a little shorter than in *tenera*; cell 2nd *A* a little narrower. Basal tergite dark; basal half of second tergite conspicuously light brown; remaining tergites with the pale median stripe as in *tenera*, but less distinct and conspicuously interrupted across the caudal margin of each segment by a narrow brownish-black margin to the sclerite, those cross-bars concolorous with the lateral stripes.

Hab. New Zealand (South Island).

Holotype, ♂, The Hump, Otago, altitude 3000 feet, December 24, 1915 (*A. Philpott*).