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FROM REC. CANT. MUS., VOL. III., PP. 459-467

19TH AUGUST, 1932.

New or Little Known Tipulidae from
New Zealand (Order Diptera)
Part II.

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CHRISTCHURCH, N.Z.

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NEW OR LITTLE-KNOWN TIPULIDAE FROM NEW ZEALAND (ORDER DIPTERA)

PART II.

By CHARLES P. ALEXANDER, Amherst, Massachusetts, U.S.A.

The very interesting Tipulidae discussed in this report were collected by my friends, Messrs. James W. Campbell and André L. Tonnoir, chiefly in the South Island. The Tonnoir material is preserved in the Canterbury Museum, the Campbell collections in the cabinet of the present writer. I am very greatly indebted to the above-mentioned entomologists for the opportunity of studying further the vastly rich crane-fly fauna of New Zealand.

Macromastix (Aurotipula) orion (Hudson).

1895; *Tipula orion* Hudson *Trans. New Zealand Inst.*, 27: 294.

One male, Mount Arthur, Nelson, New Zealand, emerged from pupa, January 2nd, 1922 (A. L. Tonnoir).

The following notes are supplementary to those previously given by Edwards and Hudson.

Nasus black. Antennae with the basal segment orange, the remainder black; basal five flagellar segments gradually lengthening, the remainder very slender, with more conspicuous verticils. Vertex with a linear dark line. Mesonotal praescutum with three distinct dark brown stripes; scutal markings present, especially the antero-lateral area. Remainder of mesonotum and the pleura immaculate orange. Halteres brownish black, the base of stem narrowly orange. Wings with the veins darkened as described by Edwards, with the addition of R_1 and R_{1+2} . Venation: Cell M_1 sessile to very short-petiolate. Legs black, the fore femora with basal third obscure yellow; all tibiae longer than their respective basitarsi. Abdomen with the dorso-median stripe broken into spots on tergite one and the basal ring of tergite two, a little wider on tergites five and six; lateral margins of tergites darkened.

Pupa: Pupal skin with the breathing-horns (Fig. 3) short and clavate, dark ferruginous, the tips blackened, highly polished. Mesonotum transversely striolate. Sheaths of all legs ending about on a common level. Sternites with the broad posterior ring armed with a transverse row of acutely pointed red spines, the rows more or less interrupted; a longer, more acute spine near the lateral margin of the posterior ring of the sternite, placed just mesad and slightly cephalad of the lateral spine. Lateral spines, one on each ring, the posterior larger. Tergites with a transverse armature of spines—that is, much as on the sternites, the rows continuous medially, widely interrupted laterally, with two small isolated spines lying mesad of the lateral spine. Armature of the genital sheaths as shown in the figures (Figs. 1 and 2).

Harrisomyia terebrella sp. n.

General coloration of thorax reddish brown ; wings with a faint brown tinge ; $R_2 +_3 +_4$ shorter than anterior branch of R_s ; $m-cu$ beyond midlength of cell 1st M_2 .

Female.—Length about 4.2mm. ; wing, 5.3mm.

Rostrum short, brownish testaceous ; palpi short, dark brown. Antennae dark brown, the basal segment of scape and the terminal flagellar segments somewhat paler ; basal three segments of flagellum subglabrous, without verticils on lower face ; fourth segment subcylindrical, the lower face bulging and without verticils ; remaining segments cylindrical, with long conspicuous verticils on both the upper and lower faces. Head triangular in outline, narrowed behind, pale brownish testaceous.

Pronotum dark brown. Mesonotum reddish brown, somewhat shiny, the median area of the praescutum slightly darker. Pleura brownish yellow. Halteres pale, the knobs weakly darkened. Legs with the coxae and trochanters brownish yellow ; femora brownish yellow, with conspicuous brown setae ; tibiae and tarsi brownish testaceous, the tips of the tibiae and basal segments of tarsi indistinctly darkened. Wings (Fig. 4) with a faint brownish tinge, the costal region more yellowish ; veins dark brown, those in the costal region, together with vein Cu , more yellowish. Venation : Sc relatively short Sc_1 ending about opposite three-fourths the length of R_s , Sc_2 a little more than its own length from the tip ; $R_2 +_3 +_4$ a little shorter than the anterior branch of R_s ($R_2 +_3$ plus R_3) ; $R_1 +_2$ one-half longer than the very faintly indicated R_2 , the latter approximately twice as long as $R_2 +_3$; inner ends of cells R_4 , R_5 and 1st M_2 in oblique alignment ; cell 1st M_2 small, the outer end more or less pointed ; m short to obliterated ; $m-cu$ at near three-fourths the length of the lower face of cell 1st M_2 . Macrotrichia of veins more restricted than in *bicuspidata*, confined to the outer ends of veins M and 2nd A .

Abdomen dark brown, the basal sternites paler ; genital segment obscure yellow. Ovipositor (Fig. 5) with the valves entirely fleshy, the tergal lobes separated from one another by a U-shaped notch, each lobe with the caudal-lateral angle further prolonged into a slender fleshy lobe that terminates in a stout seta.

Habitat.—New Zealand (South Island).

Holotype, ♀, Nelson, November 6th, 1923 (A. L. Tonnoir).

Harrisomyia terebrella is very closely related to the genotype, *H. bicuspidata* Alexander, differing especially in the larger cell R_3 , longer anterior branch of R_s , and the distal position of $m-cu$. The structure of the ovipositor is very peculiar, and furnishes additional characters for the definition of the genus.

***Metalimnophila palmata* sp. n.**

Antennae elongate, brownish black throughout ; femora yellow, the tips extensively darker, more broadly so in the male ; male hypopygium with the basistyle on mesal face near apex, with a small darkened lobe that terminates in four or five finger-like lobules ; outer dististyle cultriform, stout, nearly straight, the apex simple, acute.

Male.—Length about 5.5mm. ; wing, 6.3-6.5mm. ; antenna, about 3.8mm.

Female.—Length about 6.5mm. ; wing, 7.5mm.

Rostrum and palpi dark brown. Antennae relatively elongate, brownish black throughout ; flagellar segments long-cylindrical. Head dark brownish grey, the anterior vertex with a more yellowish pollen, usually variegated with a darker spot.

Pronotum dark brown. Mesonotal praescutum dark brown, usually without well-defined markings, in cases with three slightly darker stripes ; remainder of mesonotum dark brown, grey pruinose, most heavily so on postnotum. Pleura brown, sparsely pruinose, the dorsal pleurites a little darker, but not forming a well-defined dorsal stripe, as is common in the genus. Halteres pale, the knobs weakly infuscated. Legs with the coxae and trochanters yellow ; femora brown, the bases extensively paler ; tibiae brown, the tips narrowly blackened ; tarsi brownish black, the proximal portions of the basitarsi somewhat paler ; in the female, the femora are more extensively yellow, the tips infuscated. Wings tinged with brown, the costal region slightly darker ; stigma oval, greyish brown ; veins dark brown. Venation : Sc_1 ending shortly beyond the cord, Sc_2 longer, near extreme tip of Sc_1 ; cell M_1 a trifle shorter than its petiole ; *m-cu* at or shortly before midlength of cell 1st M_2 .

Abdomen brownish black, the hypopygium yellow ; sternites slightly paler, more so in female. Male hypopygium with the basistyles relatively short, the apex on ventro-mesal face produced into two small lobes, one of which is darkened and extended into four or five slender, finger-like lobes, each of which is tipped with a stout seta. Outer dististyle cultriform, stout and nearly straight, the apex simple ; inner margin of style nearly straight, the outer margin evenly curved to the acute apex, the margin with several long powerful setae ; inner dististyle with the apical third narrowed, the apex with a single stout seta. Armature of genital chamber consisting of about five powerful black spines on either side.

Habitat.—New Zealand (South Island).

Holotype, ♂, Cass, Canterbury, altitude 1,850 feet, February, 1925 (A. L. Tonnoir).

Allotopotype, ♀.

Paratopotypes, 14♂♀, February 18th, 1925 (A. L. Tonnoir).

In its hypopygial characters, *Metalimnophila palmata* resembles *M. greyensis* Alexander in the darkened branched lobe near the apex of mesal face of basistyle, differing in the structure of this lobe and the simple cultriform outer dististyle.

***Zelandomyia atridorsum* sp. n.**

Head and thoracic dorsum shiny black; pleura not pruinose; halteres pale throughout; wings with cell M_1 very small; abdomen black, the hypopygium obscure yellow; male hypopygium with the gonapophyses strongly curved, the long tips acute.

Male.—Length, about 4.5mm.; wing, 5.5mm.

Rostrum and palpi dark brown. Antennae uniformly brown, the verticils of moderate length. Head brownish black.

Pronotum dark brown. Mesonotal praescutum shiny black, the lateral margins broadly reddish brown, the black coloration crossing the suture and including the scutum; scutellum a little paler; postnotum dark brown. Pleura dark brown, not pruinose, the dorso-pleural membrane even darker. Halteres pale throughout. Legs with the coxae and trochanters obscure yellow; femora brownish yellow, the bases somewhat clearer; tibiae and tarsi pale yellowish brown, the terminal tarsal segments darker brown. Wings with a slight greyish tinge, the stigma a little darker; veins brown. Venation: Sc_1 ending shortly before the end of R_s , Sc_1 a little longer than Sc_2 ; R_{1+2} a little longer than R_{2+3} ; cell M_1 small, less than one-half its petiole; *m-cu* at about one-third its length beyond the fork of M .

Abdomen brownish black, the hypopygium obscure yellow. Male hypopygium with the basistyle relatively slender. Outer dististyle relatively stout and not intensely blackened, the apex shallowly bifid. Gonapophyses very strongly curved upon themselves, the apex of each a long acute point.

Habitat.—New Zealand (South Island).

Holotype, ♂, Mt. Grey, Canterbury, altitude 2,000 feet, March 19th, 1922 (J. W. Campbell).

Zelandomyia atridorsum is well distinguished from the other species of the genus in the shiny black mesonotal praescutum and scutum.

***Limnophila campbelliana* sp. n.**

General coloration of mesonotum brownish ochreous; antennae (male) very long and filiform, equal in length to the entire body; halteres ochreous; wings with a strong yellow suffusion, the stigma darker; cell M_1 present; abdominal tergites weakly dimidiate.

Male.—Length, about 5.5-6mm.; wing, 6.5-7mm.; antennae, about 5.8-6mm.

Rostrum yellowish brown ; palpi black. Antennae (male) of an unusual length, being approximately as long as the entire body, black, the pedicel more reddish apically ; flagellar segments elongate-cylindrical, with delicate erect setae over their entire length. Head dark grey, with a sparse yellow pollen ; a small tubercle on anterior vertex.

Pronotum brownish ochreous. Mesonotal praescutum brownish ochreous, with indications of three more reddish ochreous stripes ; pseudosutural foveae very small ; tuberculate pits not apparent ; posterior sclerites of notum yellow ochreous. Pleura brownish ochreous, variegated with brown on the dorsal pleurites and again on the ventral sternopleurite. Halteres ochreous. Legs with the coxae brownish yellow ; trochanters yellow ; remainder of legs yellowish brown, the tips of the tibiae and the outer tarsal segments darker. Wings with a strong yellowish suffusion, the stigma darker ; veins yellowish brown. Venation : Sc_1 ending opposite the fork of R_s , Sc_2 a short distance from its tip ; R_s angulated at origin ; veins R_3 and R_4 diverging rather strongly, cell R_3 at margin about twice R_2 ; cell 1st M_2 small, with $m-cu$ before midlength ; cell M_1 small ; anterior arculus preserved.

Abdominal tergites brownish black, the caudal margins of the segments restrictedly pale ; hypopygium brownish yellow ; basal sternites reddish brown medially, the outer segments more brownish black. Male hypopygium with the outer dististyle bidentate at apex. Gonapophyses appearing as short curved spines. Aedeagus short.

Habitat.—New Zealand (South Island).

Holotype, ♂, Kumara, Westland, September 22nd, 1929, in Rapu flax swampland (J. W. Campbell).

Paratopotypes, 4 ♂♂.

Associated in nature with *Zelandomyia deviata* (Alexander).

This very distinct fly is named in honour of my friend and co-worker, James Wishart Campbell. The exceedingly elongate antennae of the male sex are diagnostic for the present species. The only other generally similar fly in the New Zealand fauna is *Metalmnophila nemocera* Alexander, which has shorter antennae and differs notably in the structure of the male hypopygium.

***Limnophila miroides* sp. n.**

Male.—Length, about 6-7mm. ; wing, 6.5-8mm.

Most closely allied to *Limnophila mira* Alexander (*Ann. Mag. Nat. Hist.* (9), 17 : 521-523 ; 1926), likewise from Westland. The chief points of distinction between the two species are as follows :—

Antennae (male) short, if bent backward not extending far beyond the wing-root ; flagellar segments correspondingly shorter than in *mira*, with verticils that are nearly twice as long as the

segments ; flagellar segments with setae very short, scarcely evident under low power of a microscope, not long and outspreading, as in *mira* ; terminal flagellar segment about as long as the subterminal. Mesonotum dark brown. Legs with the femoral tips narrowly but conspicuously blackened ; tarsi black. Wings with the dark pattern arranged as in *mira*, but heavier and more clearly defined. Macrotrichia of veins shorter and less conspicuous. Male hypopygium with the caudal margin of the tergite squarely truncate, with a relatively small U-shaped median notch. Gonapophyses produced into long slender pale spines.

Habitat.—New Zealand (South Island).

Holotype, ♂, Kapitea Creek Track, Kumara, Westland, October 20th, 1929 (J. W. Campbell).

Paratopotypes, 4 broken ♂♂.

Tasiocera tonnoirana sp. n.

General coloration dark brown ; wings with $R_2 +_3 +_4$ longer than basal section of R_5 ; male hypopygium with the dististyle slender, with an erect black spine on outer face at base, the apex of style simple ; phallosome with caudal margin five-lobed, all lobes being obtusely rounded ; an extensive blackened plate on either side, its caudal end terminating in an acute point.

Male.—Length, about 2.5mm. ; wing, 3.5mm.

Rostrum and palpi dark brown. Antennae (male) much longer than body, dark brown throughout. Head greyish brown.

Thorax dark brown, the pleura a trifle paler. Halteres dark brown. Legs with the coxae and trochanters brownish testaceous ; remainder of legs dark brown. Wings with a uniform pale brown tinge, the veins slightly darker ; macrotrichia dark brown. Venation : $R_2 +_3 +_4$ about one-half longer than the basal section of R_5 ; *r-m* arcuated to feebly angulated ; vein 1st *A* elongate, ending about opposite the fork of R_s ; vein 2nd *A* short, ending shortly beyond the arculus.

Abdomen dark brown, including the hypopygium. Male hypopygium (Fig. 6) with the basistyle relatively stout, more densely setiferous on mesal face and especially just before apex on outer face. Dististyle slender, on outer face at base with a conspicuous erect blackened tooth ; style gradually narrowed to the gently curved apex, before the tip with two microscopic denticles, but without setae on basal half. Phallosome five-lobed, all the lobes being obtusely rounded, the median lobe largest, separated from the slightly smaller lateral lobes by moderately deep incisures ; outermost pair of lobes low, separated from the median group by deep notches. Ventrad of the phallosomic plate an extensive blackened plate on either side, each extended obliquely into an acute point. The homologies of these latter structures cannot be affirmed

at this time, other than that they are identical with the parallel chitinized blades occurring in most other New Zealand species of *Tasiocera*.

Habitat.—New Zealand (South Island).

Holotype, ♂, Kaikoura, Marlborough, February 22nd, 1922 (A. L. Tonnoir).

Paratopotype, ♂.

I take great pleasure in naming this fly in honour of the collector, Mr. André L. Tonnoir, who has added so materially to our knowledge of the Dipterous fauna of Australasia. The male hypopygium provides the most distinctive features of the species.

***Tasiocera diaphana* sp. n.**

Male.—Length, about 3mm. ; wing, 3.9mm.

In coloration, generally similar to *T. tonnoirana* sp. n. Wings with vein $R_2 +_3 +_4$ shorter than the basal section of R_5 . Abdomen brown, including the hypopygium. Male hypopygium (Fig. 7) with the basistyle short and stout, the outer face with long setae. Dististyle relatively small, gradually narrowed to the apex, terminating in a small spine ; mesal face before apex with two small pale teeth ; distal two-thirds of style with scattered punctures. Phallosome appearing as a pale liguliform structure, gradually widened distally, the apical portion very pale and nearly hyaline, the lateral angles broadly rounded, the caudal margin irregularly roughened. Aedeagus with apex strongly decurved. Paired plates relatively slender, somewhat narrower than the space between, gradually narrowed to the obtuse tips, which are feebly divergent. Lateral lobes of tergal region with abundant dense spinous setae.

Habitat.—New Zealand (North Island).

Holotype, ♂, Nihotupu, Auckland, February 25th, 1923 (A. L. Tonnoir).

***Tasiocera divaricata* sp. n.**

General coloration dark brown ; male hypopygium with the dististyle terminal in position, elongate, slender, the chitinized apical third ending in two small divaricate spines ; phallosome with each lateral angle produced into a long acute spine.

Male.—Length, about 2.6mm. ; wing, 4.3-4.4mm.

Female.—Length, about 2.8mm. ; wing, 4.3mm.

Rostrum and palpi pale brown. Antennae as in the genus, in male more than twice the length of body, dark brown throughout. Head dark greyish brown.

Mesonotum dull dark brown. Pleura obscure testaceous yellow. Halteres dark. Legs with the coxae and trochanters testaceous yellow, the remainder of legs brown, with dark setae.

Wings with a strong dusky tinge, the veins slightly darker brown; macrotrichia dark brown. Venation: Vein *2nd A* relatively long, ending opposite the origin of *Rs*.

Abdomen dark brown; hypopygium brownish testaceous. Male hypopygium (Fig. 9) with the basistyle relatively stout. Dististyle terminal in position, relatively long and slender, the base stout, thence narrowed to the heavily sclerotized distal third, terminating in two small divergent spines. Phallosome with the lateral angles produced caudad, their extreme tips slightly laterad, into long acute spines, the median area U-shaped, with only a vague median convexity. Aedeagus stout. A blackened plate of the phallosome bears two slender, feebly divergent rods that are narrower than the deep U-shaped notch between them.

Habitat.—New Zealand (South Island).

Holotype, ♂, Cass, Canterbury, altitude 1,850 feet, November 28th, 1924 (A. L. Tonnoir).

Allotopotype, ♀, February 18th, 1925 (A. L. Tonnoir).

Paratopotype, ♂.

As is almost invariably the case in this genus, the sole diagnostic features rest in the well-defined characters of the male hypopygium.

***Tasiocera semiermis* sp. n.**

Size small (wing under 3.5mm.); male hypopygium with the dististyle terminal in position; phallosome with the lateral lobes obtuse, the median area produced into a low spinous point.

Male.—Length, about 1.8mm.; wing, 3-3.1mm.

Female.—Length, about 2.4mm.; wing, 3.4mm.

Rostrum and palpi brown. Antennae elongate, as in the Old World species of the genus, in male being approximately twice the length of the entire body, dark brown throughout. Head dark brown.

Thoracic dorsum dark brown throughout. Pleura brownish testaceous. Halteres dark. Legs brown, covered with dark brown setae. Wings with a uniform dusky tinge; veins pale brown, the macrotrichia dark brown. Venation: Vein *2nd A* ending a short distance beyond midlength of the space between the origins of *M* and *Rs*.

Abdomen dark brown, the hypopygium paler. Male hypopygium (Fig. 10) with the basistyle relatively stout. Dististyle terminal in position, relatively small, simple, gradually narrowed to the end, which terminates in a single small spine; distal half of style with several microscopic setulae that are more crowded toward the tip. Phallosome with the caudal margin trilobed, the two lateral lobes obtuse, the median area further produced into a

low, depressed, spinous blade. In *T. tridentata* Alexander and *T. triton* Alexander (Fig. 8) all three lobes are spinous. Ovipositor large and powerful, ochreous horn-colour.

Habitat.—New Zealand (South Island).

Holotype, ♂, Goose Bay, Marlborough, February 3rd, 1925 (A. L. Tonnoir).

Allotopotype, ♀.

Paratopotype, ♂, February 2nd, 1925 (A. L. Tonnoir).

The structure of the male hypopygium readily suffices to distinguish the present fly from *Tasiocera diaphana* on the one hand and *T. tridentata* and *T. triton* on the other.

EXPLANATION OF FIGURES.

PLATE LIX.

b = basistyle ; d = dististyle ; p = phallosome.

- Fig. 1.—*Macromastix (Aurotipula) orion* (Hudson) ; male pupa, dorsal aspect of end of abdomen.
 Fig. 2.—The same ; male pupa, ventral aspect of end of abdomen.
 Fig. 3.—The same ; male pupa, pronotal breathing horn.
 Fig. 4.—*Harrisomyia terebrella* sp. n. ; wing.
 Fig. 5.—The same ; ovipositor.
 Fig. 6. *Tasiocera tonnoirana* sp. n. ; male hypopygium.
 Fig. 7.—*Tasiocera diaphana* sp. n. ; male hypopygium.
 Fig. 8.—*Tasiocera triton* Alexander ; male hypopygium.
 Fig. 9.—*Tasiocera divaricata* sp. n. ; male hypopygium.
 Fig. 10.—*Tasiocera semiermis* sp. n. ; male hypopygium.
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