

purplish, becoming pale green basally. The wings are pale violaceous and more narrow.

This species also differs from *A. violaceus*, described by Bolivar ('Jornal Sciencias Math. Physicas e Naturaes,' Lisboa, ser. ii. tome i. 1889, p. 156), in the absence of black spots from the body and in its pale golden-green coloration. Its smaller size, the absence of the median black stripe on the pronotum, and the absence of black spots from the posterior femora separate it from *A. grammicus* (ibid. p. 157).

August to December. Very common.

Described from twelve males and twenty-four females.

	♂. mm.	♀. mm.
Total length . . . . .	20	25
"    "    pronotum . . . . .	4	6
"    "    tegmina . . . . .	17	23
"    "    hind femora . . . . .	13	14

50. *Eucoptacra gowdeyi*, Uv.

Common. January, February.

51. *Caloptenopsis ferrifer*, Walk.

Very abundant. July.

52. *Thisoicetrus attenuatus*, Uv.

Very abundant. A long series of both sexes was collected. January.

53. *Tylotropidius gracilipes*, Brancs.

Fairly common. August, October, December, January.

54. *Cataloipidius roseus*, Bol.

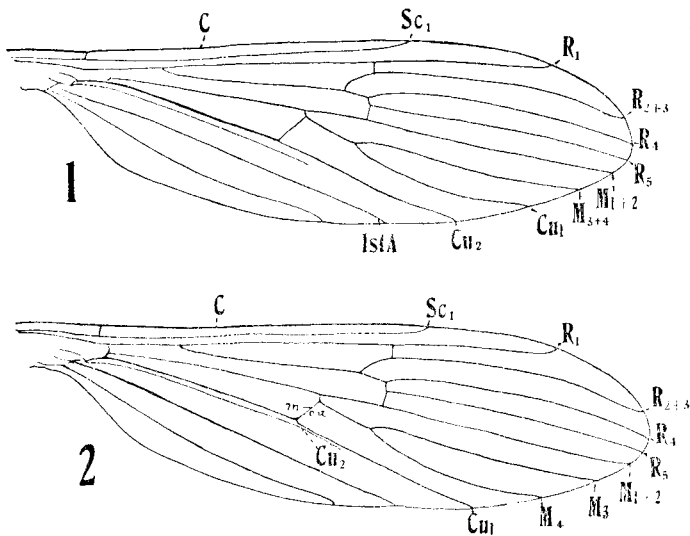
One specimen only. December.

LXXII.—*New or little-known Tipulidæ (Diptera).*—XXVIII.  
*Australasian Species.* By CHARLES P. ALEXANDER, Ph.D.,  
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THE species described at this time are all from New Zealand and belong to the Eriopterine genus *Molophilus*. This group of flies is one of the largest and most involved in the Dominion, approximately 80 species having been made known to date. The various species described herewith were

collected by Messrs. Campbell, Harris, Myers, and Tonnoir, to whom my sincere thanks are extended for kind co-operation in making known the New Zealand crane-fly fauna. The collections made by M. André Tonnoir are especially rich in small and obscure species. The types of M. Tonnoir's novelties have been returned to him and will be deposited in the collections of the Cawthron Institute and Canterbury Museum.

In this paper and others under this title the writer proposes to adopt the Tillyard modification of the Comstock-Needham system of wing-venation (Proc. Linn. Soc. New



Wings of *Molophilus tillyardi*, Alexander, comparing the Comstock-Needham system of wing-venation (fig. 1) with the Tillyard modification of the same (fig. 2). A = anal; C = costa; Cu = cubitus; M = media; R = radius; Sc = subcosta; m-cu = medial-cubital cross-vein.

South Wales, vol. xlv. pp. 535-718, 1919). The differences involved in this change are illustrated in the accompanying text-figures, fig. 1 showing a *Molophilus* venation interpreted according to the Comstock-Needham system, fig. 2 the same wing with the modifications necessitated by the Tillyard interpretation. From these figures it will be seen that the costal, subcostal, and radial fields are the same in the two systems. The vein called the anterior branch of Cubitus (Cu<sub>1</sub>) in the Comstock-Needham system becomes

the posterior branch of media ( $M_4$ ) following the Tillyard modification. The basal deflection of  $Cu_1$  of Comstock and Needham becomes the *m-cu* cross-vein. According to Tillyard, only a single branch of  $Cu$  ( $Cu_1$ ) reaches the margin of the wing in the Tipulidæ, the posterior branch ( $Cu_2$ , fig. 2) being semi-atrophied and lying close behind the main branch of  $Cu$ , in many cases, however, extending to beyond the *m-cu* cross-vein. This latter vein has been considered as being the degenerate first Anal vein by Comstock and later students, but the writer now feels convinced of the correctness of the Tillyard interpretation of this region of the wing.

*Molophilus heteracanthus*, sp. n.

Belongs to the *macrocerus* group; mesonotum light yellowish brown, the præscutum with a broad brown median stripe; *m-cu* at fork of  $M$ ; male hypopygium with the basal dististyle a long, slender, acute spine, bearing a smaller spine on the mesal face near one-third the length.

*Male*.—Length about 3.3 mm.; wing 4.2 mm.

Rostrum and palpi brown. Antennæ of the male elongate, approximately as long as the body; scape brown, the flagellum black; flagellar segments with conspicuous erect verticillate setæ at mid-length of the segments. Head dark brown.

Mesonotum light yellowish brown, the præscutum with a broad, darker brown median stripe; postnotal mediotergite darkened. Pleura dark brown. Halteres pale, the knobs infuscated. Legs with the coxæ and trochanters yellow, the fore coxæ darker; femora yellowish brown, with dark setæ; tibiæ and tarsi dark brown. Wings with a brownish tinge, the veins darker brown; macrotrichiæ brown. Venation: basal section of  $R_{2+3}$  relatively short and arcuated;  $r$  about twice its length beyond the fork of  $Rs$ ;  $R_{4+5}$  approximately in alignment with  $Rs$ ; *m-cu* at the fork of  $M$ ; vein 2nd  $A$  moderately elongate, ending about opposite one-third the length of the petiole of cell  $M_3$ .

Abdomen dark brown throughout. Male hypopygium with the basal dististyle a powerful, blackened, heavily chitinized spine that is dilated at base, thence gradually narrowed to the acute slender tips; at about one-third the length on the mesal face of the dilated portion a short, slender, gently curved spine, with a brush of short setæ in the axil; beyond this spine the style narrows very gradually to the gently curved tip.

*Hab.* New Zealand (North Island).

*Holotype*, ♂, York Bay, Wallington, February 2, 1924  
(*J. G. Myers*).

*Molophilus myersi*, sp. n.

Belongs to the *macrocerus* group; closely related to *M. remotus*, Alexander; basal dististyle of male hypopygium with a conspicuous rounded knob beyond mid-length, the mesal edge of the style densely setiferous, the terminal setæ exceeding the short apical spine.

*Male*.—Length about 3 mm.; wing 4 mm.

Rostrum and palpi brown. Antennæ elongate, as in the group, but not so excessively so as in some species, approximately as long as the body; flagellar segments with slender apical pedicels of moderate length; antennæ brown throughout. Head brown.

Mesonotum light brown, unvariegated, the pleura somewhat more testaceous. Halteres light brown, the knobs passing into dark brown, the extreme base of the stem obscure yellow. Legs with the coxæ and trochanters obscure brownish yellow; femora pale brown with darker setæ; remainder of the legs passing through dark brown to black on the tarsi. Wings with a pale brown tinge, the veins darker brown though still relatively pale, the macrotrichiæ a little darker. Venation: *Rs* in alignment with  $R_{4+5}$ ; vein 2nd *A* relatively long, ending just before the base of cell  $M_3$ , cell 2nd *A* relatively long and narrow.

Abdomen dark brown, clothed with yellow setæ. Male hypopygium approximately as in *M. remotus*, Alexander; basal dististyle shortly beyond mid-length produced into a conspicuous rounded knob, the margin of the style with numerous stout setæ that become very dense on the outer face of this knob, on the inner face replaced by dense delicate yellow setæ; beyond this knob the style continues as a flattened blade that gradually narrows to a short, acute, apical spine, the mesal edge with a dense fringe of black setæ that become long and powerful at the apex of the style, projecting caudad beyond the apical spine.

*Hab.* New Zealand (North Island).

*Holotype*, ♂, York Bay, Wellington, March 1, 1924 (*J. G. Myers*).

This interesting fly is named in honour of the collector, Mr. John Golding Myers, to whom I am greatly indebted for many favours.

*Molophilus subuliferus*, sp. n.

Belongs to the *macrocerus* group; general coloration of thorax brown, the pleura darker; antennæ of male shorter than body; vein *2nd A* long; male hypopygium with the basal dististyle a long, slender, gently curved rod that terminates in a long acute spine, the mesal margin armed with two groups of spinous setæ.

*Male*.—Length about 3·8 mm.; wing 4·8 mm.

Rostrum and palpi dark brown. Antennæ of moderate length, a little longer than the combined head and thorax, dark brown, the basal segment of the scape a trifle paler; flagellar segments swollen, with relatively short terminal pedicels. Head dark brown.

Mesonotum medium brown, the humeral region of the præscutum obscure brownish yellow. Pleura darker brown, shiny. Halteres dark brown, the base of the stem broadly paler. Legs with the coxæ and trochanters yellow; remainder of legs brownish black. Wings strongly tinged with brown, the veins and macrotrichiaë darker brown. Venation:  $R_{4+5}$  a little shorter than the basal section of  $R_{2+3}$ ; vein *2nd A* very long, running generally parallel to vein *1st A*, extending to about opposite the base of cell  $M_3$ .

Abdomen dark brown. Male hypopygium with the basistyles obtuse at apex, mesal face near apex with an obtuse fleshy lobe that is directed nearly cephalad. Outer dististyle small, arcuated, with a tiny blackened tubercle near base, the angle of curvature blackened and provided with short erect setæ. Basal dististyle a long, slender, gently curved rod that terminates in a long acute spine; extreme base of style a little dilated and densely set with microscopic erect setulæ; just before mid-length on the mesal margin a group of conical, erect, slender spines; a long row of smaller black spinose setæ on mesal margin shortly before the apex.

*Hab.* New Zealand (North Island).

*Holotype*, ♂, Nihotapu, Auckland, February 26, 1923 (*A. Tonnoir*); collector's No. 145 *b*.

*Molophilus porrectus*, sp. n.

Belongs to the *macrocerus* group; general coloration pale brownish testaceous, shiny, without markings; antennæ of male longer than body; wings with  $R_{4+5}$  long; male hypopygium with the basal dististyle a long, slender, unarmed, chitinized rod, the tip acute.

*Male*.—Length about 2·2–2·4 mm.; wing 4–4·2 mm.

*Female*.—Length about 2·5 mm.; wing 3·8 mm.

Rostrum and palpi brown. Antennæ of the male longer than the body, dark brown throughout; flagellar segments with slender terminal pedicels, the dilated portions with conspicuous outspreading verticils. Head dark grey.

Thorax pale brownish testaceous, shiny, the margin of the præscutum fading into yellow. Pleura testaceous-yellow, shiny. Halteres brown, the base of the stem yellow. Legs with the coxæ and trochanters testaceous; remainder of legs pale brown, the segments clothed with dark setæ; terminal segments darker. Wings with a pale grey tinge; veins pale brown; macrotrichia long and dense, brown. Venation:  $R_{4+5}$  in alignment with  $R_s$  and very long, about twice the length of the arcuated basal section of  $R_{2+3}$ ; vein 2nd  $A$  ending some distance before the fork of  $M$ .

Abdomen brown, the hypopygium paler, yellowish brown. Male hypopygium with each basistyle terminating in a conical tooth-like lobe that is blackened at apex. Outer dististyles two, the more lateral a stout, elongate, conical spine; mesal style blackened, gently arcuated, cylindrical, with the apex obtuse. Basal dististyle a long, generally straight, blackened, chitinized rod that is only feebly sinuous, the extreme tip gently curved and acute, the surface of the style without spines or setæ.

*Hab.* New Zealand (North Island).

*Holotype*, ♂, Day's Bay, Wellington, November 29, 1921 (*A. Tonnoir*); collector's No. 144.

*Allotopotype*, ♀.

*Paratopotypes*, 2 ♂♂; *paratype*, ♂, Wellington, December 1, 1921 (*A. Tonnoir*).

*Molophilus tonnoiri*, sp. n.

Belongs to the *multicinctus* group; tibiæ with a single broad white ring; basitarsi white on basal half; wings almost uniformly pale brown.

*Male*.—Length 2·2–2·4 mm.; wing 3·6–3·8 mm.

*Female*.—Length about 2·2 mm.; wing 3·5 mm.

Rostrum and palpi brownish black. Antennæ with the basal segment of the scape ochreous; flagellar segments dark brown with elongate verticils and silvery pubescence. Head ochreous-yellow.

Pronotum yellow. Mesonotal præscutum reddish brown, the lateral margins conspicuously sulphur-yellow; scutum and postnotum darker brown; scutellum a little brighter.

Ventral pleurites dark brown, the dorsal sclerites a little more reddish; dorso-pleural membrane yellowish. Halteres light yellow. Legs with the coxæ and trochanters brownish testaceous; femora dark brown with a narrow whitish ring near two-thirds the length; tibiæ with a broad, conspicuous, white ring on the basal half, this ring a trifle wider than the darkened base; femoral-tibial joint whitish; tarsi dark brown, the proximal half of the basitarsi obscure whitish. Wings with a pale brown tinge, the veins a trifle darker than the ground-colour; macrotrichiæ brown. Venation: *m-cu* nearly perpendicular to *Cu* at origin; venation otherwise about as in *multicinctus*, Edwards.

Abdomen dark brown, the hypopygium a trifle paler. Male hypopygium very similar in structure to *multicinctus*; head of the longest dististyle compact and more nearly globular.

*Hab.* New Zealand (South Island).

*Holotype*, ♂, Mt. Arthur Tableland, Nelson, altitude 4500 feet, December 22, 1921 (*A. Tonnoir*); Collector's No. 169.

*Allotype*, ♀, Waiho, Westland, January 21, 1922 (*A. Tonnoir*).

*Paratopotype*, ♂; *paratypes*, ♂, Nelson, Nelson, November 6, 1923 (*A. Tonnoir*); ♂, Lake Brunner, Westland, February 3, 1922 (*A. Tonnoir*).

This very interesting crane-fly is named in honour of Dr. André Tonnoir, to whom I am deeply indebted for the privilege of studying his extensive collections of New Zealand and Tasmanian Tipulidæ.

#### *Molophilus greyensis*, sp. n.

Belongs to the *terminans* group; most closely allied to *terminans*, Alexander; pleura indistinctly striped with brown; wings tinged with brown, the veins seamed with darker; male hypopygium with the outer dististyle massive, terminating in three spines or spinous lobes.

*Male*.—Length about 4 mm.; wing about 4.4 mm.

Rostrum and palpi dark brown. Antennæ short, dark throughout; flagellar segments oval. Head dark, somewhat paler adjoining the eyes.

Pronotum dark brown, paler laterally. Mesonotum dark brown, the humeral region and extreme lateral margins paler. Pleura pale brown, with darker brown longitudinal stripes, the dorsal stripe occupying the dorsal sclerites, the ventral stripe the sternopleurite and hypoepimeron.

Halteres white. Legs with the coxæ and trochanters obscure yellow; remainder of the legs obscure brownish yellow, the tips of the femora and tibiæ vaguely darkened; tarsi broken. Wings tinged with brown, the veins darker brown, seamed with fuscous. Venation: petiole of cell  $M_3$  a little shorter than the basal section of  $M_{1+2}$ .

Abdomen brown. Male hypopygium with the dististyles terminal, as in the group; outer style a massive black blade, terminating in a long slender beak, at its base on inner margin with a second appressed spinous lobe, the outer margin of which is weakly spinulose; outer margin of style near mid-length with a stout powerful spine, the margin of the blade distad of this with conspicuous setiferous tubercles. Inner dististyle slender, the basal third dilated, pale brown, the apex long and slender, gently curved, the tip with a few weak denticles.

*Hab.* New Zealand (South Island).

*Holotype*, alcoholic ♂, Mt. Grey, Canterbury, February 23, 1924 (*J. W. Campbell*).

*Paratopotype*, alcoholic ♂; *paratype*, ♂, Purau Creek, Banks Peninsula, Canterbury, February 20, 1922 (*A. Tonnoir*); Collector's No. 178.

*Molophilus curvistylus*, sp. n.

Belongs to the *terminans* group; mesonotum dark brown, the humeral regions of the præscutum brighter; pleura dark brown; male hypopygium with the outer dististyle strongly curved, chitinized; the apex produced into a spine; inner dististyle weakly toothed at apex.

*Male*.—Length about 2.8 mm.; wing 4.5 mm.

*Female*.—Length 3.8 mm.; wing 4.8 mm.

Rostrum and palpi dark brownish black. Antennæ brownish black throughout; flagellar segments oval, with verticils of moderate length. Head dark grey.

Pronotum obscure brownish yellow, darkened laterally. Mesonotal præscutum dark brown, the extreme lateral margins of the sclerite light sulphur-yellow, the humeral triangles brownish yellow; remainder of mesonotum dark brown, the scutellum sometimes a little brighter. Pleura dark brown. Halteres pale yellowish throughout. Legs with the coxæ and trochanters obscure yellow, the bases of the coxæ a trifle darker; femora obscure brownish yellow, with brown trichiæ; tibiæ and tarsi passing into dark brown. Wings with a pale brown tinge, the veins and macrotrichia darker brown; a darker seam on the posterior



cord. Venation: basal section of  $R_{2+3}$  about twice  $R_{4+5}$ ; vein 2nd  $A$  relatively short, ending about opposite the base of  $m-cu$ .

Abdomen dark brown, including the hypopygium. Male hypopygium with the outer dististyle stout, blackened, arcuate, the tip produced into a pointed spine, just before the apex on the outer face with a low crest of acute appressed spinules, the style somewhat resembling the head and neck of a crested bird. Inner dististyle longer, the basal half dilated, the apical half suddenly narrowed, gently arcuated, the apex feebly enlarged and weakly toothed.

*Hab.* New Zealand (South Island).

*Holotype*, ♂, Nelson, Nelson, October 30, 1923 (*A. Tonnoir*); Collector's No. 173.

*Allotopotype*, ♀, December 1921 (*A. Tonnoir*).

*Paratopotypes*, ♂, September 28, 1923 (*A. Tonnoir*); ♂, October 30, 1923 (*A. Tonnoir*); *paratypes*, ♂ ♀, Aniseed Valley, Nelson, March 22, 1922 (*A. Tonnoir*).

#### *Molophilus satyr*, sp. n.

Belongs to the *terminans* group; male hypopygium with the outer dististyle a powerful chitinized structure that is provided with an apical beak and two horns, the whole suggesting the head of a faun.

*Male*.—Length about 3.2 mm.; wing 4 mm.

Rostrum and palpi dark brown. Antennæ dark brown, the flagellar segments oval. Head dark grey.

Pronotum dark brown. Mesonotal præscutum dark brown, the humeral regions a very little paler; remainder of mesonotum dark brown, the sides of the postnotal sclerites paler. Pleura almost black. Halteres pale yellow, the knobs even brighter-coloured. Legs with the coxæ and trochanters ochreous; remainder of legs broken. Wings with a pale brown tinge, indistinctly variegated with darker brown, including seams on the anterior cord, the posterior cord and less distinctly along the sector; veins and macrotrichiæ darker brown. Venation: vein  $R_5$  very thick; vein 2nd  $A$  ending a short distance beyond the base of the petiole of cell  $M_3$ .

Abdomen dark brown, including the hypopygium. Male hypopygium with the outer dististyle a very powerful, heavily blackened structure that suggests the head of a faun; the two horns are nearly as large as the powerful terminal spine; one horn broader, acute at apex, the other horn more slender and delicately toothed at base; behind

these horns a more blunt lobe that is weakly toothed ; outer margin of style immediately distad of the horns weakly toothed. Inner dististyle slender, dilated and brown at base, the apical half strongly narrowed, arcuate, the apex weakly toothed ; surface of style near mid-length with 4-5 microscopic conical spinulæ in a straight row.

*Hab.* New Zealand (South Island).

*Holotype*, ♂, Nelson, Nelson, November 28, 1923 (*A. Tonnoir*).

*Molophilus bifalcatus*, sp. n.

Belongs to the *terminans* group ; general coloration brownish black ; wings narrow, brown ; male hypopygium with both dististyles relatively small, sickle-shaped, the outer one more strongly curved.

*Male*.—Length 2·8-3 mm. ; wing 3·5 mm.

*Female*.—Length 3·5 mm. ; wing 4 mm.

Rostrum, palpi, and antennæ black ; flagellar segments short oval. Head dark brown.

Mesonotum brownish black, the humeral region a little paler, reddish brown ; anterior margin of præscutum narrowly, and in some cases very indistinctly, sulphur-yellow. Pleura almost black. Halteres with the knobs elongate, sulphur-yellow, the stems more infuscated. Legs with the coxæ and trochanters obscure brownish yellow ; remainder of the legs yellowish brown with dark setæ, the terminal tarsal segments blackened. Wings narrow, brownish, the veins and macrotrichia a little darker brown ; prearcular region a trifle paler than the remainder of the wing. Venation : vein 2nd *A* ending but a short distance beyond the base of the petiole of cell *M*<sub>3</sub>.

Abdomen dark brown throughout. Male hypopygium with the dististyles terminal, as in the group ; both styli are relatively small, arcuated, sickle-shaped, their tips acute ; outer dististyle strongly curved and more blackened, the basal two-thirds thickened, the apex produced into a long, slender, acute point. Inner dististyle more flattened and more gently curved, paler, narrowed gradually to the acute apex ; inner or mesal edge near mid-length with about ten small conical spinulæ that produce a roughened appearance at this point.

*Hab.* New Zealand (South Island).

*Holotype*, ♂, Nelson, Nelson, October 30, 1923 (*A. Tonnoir*) ; Collector's No. 176.

*Allotopotype*, ♀.

*Paratopotypes*, ♂ ♀, October 9–November 28, 1923 (A. Tonnoir); ♂, December 3, 1921; ♂, March 4, 1922 (A. Tonnoir).

*Molophilus reduncus*, sp. n.

Belongs to the *tillyardi* group; allied to *M. repandus*, Alexander; male hypopygium with the basal dististyle a relatively flattened blade, the mesal apical angle produced into a long triangular beak.

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

*Female*.—Length about 4.6 mm.; wing 5.5 mm.

Rostrum and palpi dark brown. Antennæ with the basal segment of the scape obscure ochreous, the remainder of the antenna dark brown; flagellar segments oval with moderately long verticils but without conspicuous pubescence. Head grey.

Pronotum dark brown. Mesonotal præscutum obscure reddish yellow with three brown stripes, the median stripe reaching the anterior margin of the sclerite, nearly confluent behind with the lateral stripes; scutal lobes and the scutellum similarly darkened; postnotal mediotergite reddish brown. Pleura brown, indistinctly variegated with paler, especially on the sternites. Halteres pale brown, the stem darker with the extreme base pale. Legs with the coxæ and trochanters obscure yellowish testaceous; remainder of the legs obscure yellow, the terminal tarsal segments passing into brown, the segments with scattered brown trichiæ. Wings with a strong yellowish tinge; veins *C*, *Sc*, and *R* yellowish, the remaining veins darker, indistinctly seamed with brown, contrasting with the background: macrotrichiæ dark brown. Cells *Sc*<sub>1</sub> and 2nd *R*<sub>1</sub> with numerous macrotrichiæ, especially dense along the costa. Venation: basal section of *R*<sub>2+3</sub> longer than *R*<sub>4+5</sub>; *m-cu* a short distance beyond the fork of *M*; vein 2nd *A* ending at or just beyond mid-length of the petiole of cell *M*<sub>3</sub>. Wings relatively narrow.

Abdomen dark brown, the genital segments in both sexes obscure yellow. Male hypopygium as in the *tillyardi* group; basistyle narrowed apically into a relatively long, blackened, spinous tooth, the mesal margin extending basad as a blackened chitinized ridge, the margin of the longer ridge microscopically serrulate, the shorter ridge with a small blackened spine just before its end. Outer dististyle a flattened black blade with the margin delicately and evenly serrulate, at base of style with two long, slender, black spines, one of which is a trifle more curved than the other.

Basal dististyle a flattened blade, dilated at base, the apical portion broadly flattened, the mesal angle running out into a long, triangular, beak-like portion, the outer angle a small obtuse tooth.

*Hab.* New Zealand (North Island).

*Holotype*, ♂, Khandallah, Wellington, November 30, 1921 (*A. Tonnoir*); Collector's No. 185.

*Allotopotype*, ♀.

*Molophilus pallidulus*, sp. n.

Belongs to the *plagiatus* group; general coloration pale yellow; male hypopygium with the basal dististyle long, slender, curved gently to the apex, the distal half with small appressed spinules.

*Male*.—Length about 2.6 mm.; wing 3.6 mm.

*Female*.—Length about 2.8 mm.; wing 3.8 mm.

Rostrum and palpi pale brown. Antennæ short, pale testaceous-brown, the outer segments somewhat darker; flagellar segments oval, with conspicuous elongate verticils. Head dark yellow.

Mesonotum reddish yellow without evident darker markings; lateral margins and humeral region of the præ-cutum more sulphur-yellow. Pleura pale yellow. Halteres yellow. Legs with the coxæ and trochanters testaceous-yellow; femora and tibiæ yellow, the terminal tarsal segments passing into brown. Wings tinged with pale yellow, the veins darker yellow; macrotrichia very pale yellowish brown.

Venation: vein 2nd *A* ending approximately opposite *m-cu*.

Abdomen yellow, including the hypopygium. Male hypopygium generally similar in structure to *M. morosus*, Alexander. Basistyle terminating in a relatively slender blackened point. Outer dististyle large, widely forked, the lateral arm expanded into a fan-shaped structure, the mesal arm weakly pointed. Basal dististyle long and slender, tapering gradually to the apex, curved gently mesad; about the apical half is blackened, the surface with scattered appressed spinulae that become larger outwardly, the style terminating in two longer and more slender spines.

*Hab.* New Zealand (both Islands).

*Holotype*, ♂, Khandallah, Wellington, November 30, 1921 (*A. Tonnoir*); Collector's No. 150.

*Allotopotype*, ♀, pinned with the type.

*Paratopotypes*, ♂ ♀; *paratype*, ♂, Nelson, Nelson, November 6, 1923 (*A. Tonnoir*).

*Molophilus curtivena*, sp. n.

Belongs to the *plagiatus* group; antennæ of male short; wings relatively narrow, yellowish, the veins a little darker; vein *2nd A* short; male hypopygium with the beak of the basistyle relatively stout; basal dististyle a straight, sparsely spinous rod.

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

Rostrum testaceous-brown; palpi brown. Antennæ short, brown throughout; flagellar segments oval with relatively long verticils and an erect pale pubescence. Head pale testaceous-brown.

Mesonotum pale testaceous-yellow, without markings, the extreme margin of the præscutum whitish yellow. Pleura light yellow. Halteres pale, the setal covering a little darker. Legs with the coxæ and trochanters testaceous-yellow; femora and tibiæ pale brown with darker setæ; tarsi passing into brown. Wings tinged with yellow; the veins darker yellow, clothed with moderately long brown macrotrichiæ. Wings relatively narrow, especially on the basal half. Venation: anal veins short; vein *1st A* ending about opposite mid-length of the petiole of cell  $M_3$ ; vein *2nd A* ending some distance before *m-cu*.

Abdomen pale brown. Male hypopygium with the terminal beak of the basistyle relatively stout and high, compressed, the tip acute. Outer dististyle with the stem relatively long and slender, the mesal arm short, subacute, the lateral arm widely expanded, the apical margin smooth. Basal dististyle a straight, relatively stout, pale brown rod that is weakly and sparsely spinous on the distal half, the spines acute, appressed and more crowded at apex. *Ædeagus* of moderate length, straight, beyond the enlarged base about one-fourth longer than the basal dististyle.

*Hab.* New Zealand (South Island).

*Holotype*, ♂, Mt. Arthur Tableland, Nelson, altitude 4500 feet, December 21, 1921 (*A. Tonnoir*); Collector's No. 152.

*Paratopotype*, ♂; Collector's No. 153.

*Molophilus macrophallus*, sp. n.

Belongs to the *plagiatus* group; antennæ of the male long, extending to beyond the base of the halteres; wings greyish subhyaline, the base more yellowish; vein *2nd A* short; male hypopygium with the *ædeagus* long, sinuous, nearly twice the basal dististyle.

*Male*.—Length about 2.6 mm. ; wing 3.9 mm.

Rostrum yellow ; palpi dark brown. Antennæ unusually elongate for a member of the *plagiatus* group, if bent backwards extending to beyond the base of the halteres ; scapal segments brownish yellow, the flagellar segments uniformly dark brown ; flagellar segments elongate-oval to fusiform, with a conspicuous erect pale pubescence. Head dark brown.

Pronotum obscure brownish yellow, darker medially. Mesonotal præscutum brown, the humeral region obscure yellow ; scutal lobes brown ; remainder of mesonotum more testaceous-brown. Pleura testaceous-yellow. Halteres pale, the stem a trifle darker than the knobs. Legs with the coxæ and trochanters yellowish testaceous ; remainder of legs brownish testaceous with dark setæ ; terminal tarsal segments dark brown. Wings greyish subhyaline, the basal quarter more yellowish ; veins slightly darker ; macrotrichiæ dark brown. Venation : *r* nearly in alignment with the basal deflection of  $R_5$  ; basal section of  $R_{2+3}$  arcuated, longer than  $R_{4+5}$  ; *m-cu* a short distance beyond the fork of *M* ; vein 2nd *A* short, ending some distance before *m-cu*.

Abdomen brown, the hypopygium a trifle more yellowish. Male hypopygium with the terminal beak of the basistyle relatively long and slender, chitinized. Outer dististyle large, the basal stem unusually stout, mesal arm relatively blunt at apex ; lateral arm dilated, the margins nearly smooth. Basal dististyle a moderately long, stout lobe, gently narrowed to the blunt apex, the style infuscated throughout its length, the surface with low appressed teeth that become more numerous and crowded near the apex ; mesal edge of style with three spinous setæ, one near one-quarter of the length, one beyond mid-length, and the third just beyond three-fourths the length. *Ædeagus* very long and slender, gently sinuous, narrowed to the tip, a little less than twice the basal dististyle.

*Hab.* New Zealand (South Island).

*Holotype*, ♂, Mt. Arthur Tableland, Nelson, altitude 4500 feet, December 21, 1921 (*A. Tonnoir*) ; Collector's No. 151.

*Molophilus pediformis*, sp. n.

Belongs to the *plagiatus* group ; general coloration obscure brownish yellow, the thoracic dorsum marked with brown ; pleura and postnotum darker brown ; male hypopygium with the basal dististyle a foot-shaped chitinized rod.

*Male*.—Length about 3.5 mm. ; wing 4.3 mm.

Rostrum and palpi dark brown. Antennæ relatively short, dark brown throughout; flagellar segments oval with long second verticils and a long, pale, erect pubescence. Head ochreous-brown, the centre of the vertex somewhat darker.

Pronotum obscure yellow, the lateral margins more infuscated. Mesonotal præscutum reddish brown, the humeral region and extreme lateral margins of the sclerite more yellowish, the disk with three ill-defined darker brown stripes, the scutal lobes similarly darker brown; postnotal mediotergite darker brown. Pleura dark reddish brown. Halteres yellow. Legs with the coxæ and trochanters testaceous-yellow: femora and tibiæ generally yellow, the vestiture of brown setæ scarcely concealing the ground-colour; tarsi passing into brown. Wings with a faint brown tinge, the veins and trichiæ darker brown. Venation: vein 2nd *A* relatively elongate, ending just before mid-length of the petiole of cell *M*<sub>3</sub>.

Abdomen dark brown, the hypopygium yellowish. Male hypopygium with the terminal hook of the basistyle relatively deep, flattened, the outer cephalic angle a little produced; one style of the unique type has an indentation near the base of this beak to produce a small basal tooth. Outer dististyle elongate, the mesal arm obtuse at apex, the lateral arm only moderately expanded. Basal dististyle a relatively long rod, the base enlarged, the apex gradually narrowed, just before the tip deflected laterad to form a foot-shaped or beak-like portion; basal half of style pale, the apical half blackened; a few small erect setæ just before the broad acute apex, both on upper and lower margins.

*Hab.* New Zealand (South Island).

*Holotype*, ♂, Nelson, Nelson, November 14, 1923 (*A. Tonnoir*); Collector's No. 160 *b*.

The general appearance of this fly is very like *M. morosus*, Alexander, and *M. submorosus*, Alexander, but the structure of the male hypopygium is very different.

#### *Molophilus pugnae*, sp. n.

Belongs to the *plagiatus* group; antennæ with elongate verticils and setæ; general coloration obscure yellow; wings tinged with grey; male hypopygium with the basal dististyle a nearly straight rod that is expanded into a head that terminates in a long conical tooth; at base of cone a collar-like ridge bearing a powerful, gently curved, black spine.

*Male*.—Length about 2.5 mm.; wing 2.6 mm.

Rostrum and palpi brown. Antennæ brown, relatively short, the flagellar segments oval, clothed with long conspicuous verticils and an elongate, erect, white pubescence. Head brown.

Pronotum narrowly infuscated. Mesonotum obscure fulvous-yellow, without markings, the posterior sclerites and pleura more testaceous-yellow. Halteres pale, the knobs light yellow. Legs with the coxæ and trochanters yellow; remainder of legs obscure yellow, the tarsi passing into brown. Wings moderately broad, with a greyish tinge; veins pale; the costal fringe short but dense, yellowish; remaining macrotrichiæ dark brown; anal fringe long. Venation:  $R_{2+3}$  with the basal section strongly arcuated, longer than the basal section of  $R_{4+5}$ ; vein 2nd  $A$  ending shortly beyond the origin of the petiole of cell  $M_3$ .

Abdomen brown. Male hypopygium with the basistyle terminating in a relatively stout pale brown beak, the outer margin curved, the inner edge nearly straight. Outer dististyle elongate, the stem unusually long, the mesal arm acute, the lateral arm obtuse at apex but not strongly expanded. Basal dististyle a rather short but stout chitinized rod, narrow at base, suddenly expanded near two-thirds the length into a head, surrounded by a narrow chitinized collar, beyond which the apex narrows to an obtuse cone; mesal face of the collar produced laterad and slightly caudad into a powerful, black, feebly curved, chitinized spine, its tip acute.

*Hab.* New Zealand (South Island).

*Holotype*, ♂, Reefton, Nelson, January 13, 1922 (*A. Tonnoir*); Collector's No. 147.

*Paratypes*, 2 ♂♂, Waiho, Westland, January 30, 1922 (*A. Tonnoir*); Collector's No. 181.

*Molophilus harrisianus*, sp. n.

Belongs to the *plagiatus* group; general coloration pale reddish brown, the postnotum and pleura darker, more testaceous-brown; male hypopygium with the basal dististyle a powerful, gently curved rod that terminates in a long slender spine, with a second spine on outer face near three-fourths the length.

*Male*.—Length about 3.3 mm.; wing 3.5 mm.

Rostrum yellowish testaceous, the palpi dark brown. Antennæ short, testaceous, the terminal segments a little darker. Head pale.

Pronotum sulphur-yellow. Mesonotal præscutum reddish



brown, the humeral region and narrow lateral margins sulphur-yellow; scutal lobes pale reddish brown; scutellum testaceous-brown, pale posteriorly and beneath; postnotum testaceous-brown. Pleura testaceous-brown, the dorso-pleural region paler. Halteres pale, the knobs broken. Legs with the coxæ and trochanters yellow; femora and tibiæ yellow with appressed darker setæ; terminal tarsal segments passing into brown. Wings greyish yellow, the base and costal region clearer yellow; veins pale yellow, not clearly defined against the ground-colour; macrotrichiæ brown. Venation: vein 2nd *A* elongate, ending just before mid-length of the petiole of cell *M*<sub>3</sub>.

Abdomen brown, the hypopygium somewhat brighter. Male hypopygium with the basistyle terminating in a slender, acute, chitinized point, directed mesad and slightly cephalad. Outer dististyle bifid at apex, the mesal arm subacute, the lateral arm broadly expanded. Basal dististyle a powerful chitinized rod that is heavily blackened on outer half, gently curved and narrowed to the acute, mesally directed apical spine; at or near three-fourths the length on the outer face with a conspicuous acute spine; between this latter spine and the long apex are several subappressed spinulæ. *Ædeagus* long and slender, about equal in length to the basal dististyle.

*Hab.* New Zealand (both Islands).

*Holotype*, ♂, Mt. Ruapehu, Wellington, altitude 4000–4500 feet, January 20, 1924 (*T. R. Harris*).

*Paratypes*, ♂, Mt. Arthur Tableland, Nelson, altitude 4500 feet, December 21, 1921 (*A. Tonnoir*); Collector's No. 154; ♂, Waiho, Westland, January 30, 1922 (*A. Tonnoir*).

This interesting mountain-species is named in honour of the collector of the holotype, Mr. Thomas Robert Harris, to whose capable collecting our knowledge of the Tipulidæ of New Zealand is largely due.

*Molophilus* (?) *ænigmaticus*, sp. n.

General coloration testaceous-brown; wings cuneiformly narrowed, the anal angle reduced; *R*<sub>2+3</sub> rectangular at origin; cell 1st *M*<sub>2</sub> elongate, closed; *m-cu* its own length beyond the fork of *M*; vein 2nd *A* short.

*Female*.—Length about 1.6 mm.; wing 2.6 mm.

Rostrum and palpi testaceous-brown. Antennæ short, brown throughout, about as long as the thorax; flagellar segments oval with moderately long verticils. Head testaceous.

Thorax of a uniform pale testaceous-brown, rather shiny, without distinct markings. Halteres brown, the knobs darker. Legs with the coxæ and trochanters obscure testaceous-yellow; remainder of legs pale brown, clothed with appressed dark setæ. Wings with a pale brown tinge, the veins and macrotrichiæ a little darker; wings strongly subcuneiformly narrowed, the anal area thus being greatly restricted. Venation:  $Sc_1$  ending about opposite the proximal end of  $r$ ;  $R_{2+3}$  rectangular at origin, the basal section a little shorter than  $R_{4+5}$ ;  $r$  oblique in position; cell 1st  $M_2$  closed by the retention of  $m$ , the latter less than one-half the arcuated outer deflection of  $M_3$ ; cell 1st  $M_2$  elongate, the proximal end lying far basad of the other elements of the cord;  $m-cu$  about its own length beyond the fork of  $M$ ; veins beyond cell 1st  $M_2$  elongate; vein 2nd  $A$  short, extending to opposite the origin of  $Rs$ .

Abdomen brown, the sternites paler. Ovipositor large and powerful, the valves all well developed; tergal valves rather strongly upcurved, the tips acute.

*Hab.* New Zealand (South Island).

*Holotype*, ♀, Dun Mt., Nelson, altitude 3000 feet, January 5-7, 1922 (*A. Tonnoir*); Collector's No. 161.

*Paratopotype*, sex ?, a broken individual.

The generic position of this tiny fly is somewhat in doubt. Vein 2nd  $A$  is very short, as in the genus *Tasiocera*, but the structure of the antennæ excludes the present species from the latter genus.

LXXIII.—*Some Cheilostomatous Bryozoa from Oran (Algiers)*. By ARTHUR WM. WATERS, F.L.S., F.G.S.

[Plate XXXVI.]

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Most of the drawings and descriptions were made some years ago, as I was then hoping to complete a description