

New or little-known Tipulidæ (Diptera). — XXXV. Australasian Species. By CHARLES P. ALEXANDER, Ph.D., F.E.S., Massachusetts Agricultural College, Amherst, Massachusetts, U.S.A.

IN the present paper, further descriptions of Australian and Tasmanian species of the genus *Molophilus* are given. The majority of these species belong to the typical subgroup of the *gracilis* group, the type-form of which (*gracilis*, Skuse) was figured in Part XXXIII. of this series of papers (Ann. & Mag. Nat. Hist. ser. 9, vol. xix. p. 17; 1927). In this subgroup, the male hypopygium is characterized by the unusual development of the individual lobes of the basistyle, the dorsal, ventral, and mesal lobes being variously developed, the two dististyles lying in the notch formed by these lobes. The subgroup is very numerous in species in Australia and Tasmania.

The greater number of the species described herein were collected by Drs. Ferguson, Mackerras, and Tonnoir, to whom the respective types have been returned. Additional material belonging to the University of Queensland was collected by Mr. Hardy, and to the Riksmuseet in Stockholm by Dr. Mjöberg, the latter sent to me through the kind interest of Dr. Sjöstedt. I am further indebted to Dr. Ferguson and Dr. Mackerras for invaluable co-operation in making known the identities of the species of *Molophilus* described by Skuse (1889) and now preserved in the Macleay Collection of the University of Sydney. The writer's sincere thanks are extended to all of the above gentlemen for this aid and co-operation.

Molophilus aciferus, sp. n.

Belongs to the *gracilis* group and subgroup; antennæ short; head dark brown; thorax brown; knobs of halteres yellow; fore tibia (♂) narrowly dilated but not darkened subbasally; male hypopygium with basistyle deeply split into three lobes, the dorso-lateral with setæ virtually to the tip; both dististyles acutely pointed at apices; ædeagus long and slender.

Male.—Length 3.7–4 mm.; wing 4.4–5 mm.

Rostrum and palpi dark brown. Antennæ short, if bent backward not extending far beyond the wing-root; scapal segments pale brown; flagellum dark brown, the segments oval, gradually decreasing in size outwardly, clothed with

a conspicuous, erect, silvery pubescence and black, unilaterally-arranged verticils. Head dull dark brown.

Lateral pretergites narrowly and inconspicuously pale yellow. Mesonotum rather uniformly brown or greyish brown, dull, without markings. Pleura dark brown. Halteres pale at base, the stem clothed with dark setæ, the knobs conspicuously light yellow, clothed with silken yellow setæ. Legs with the coxæ testaceous brown, the trochanters paler; remainder of legs brown, clothed with dark setæ, the tarsi passing into dark brown; fore tibia (δ) near base dilated but not darkened. Wings broad, tinged with brown, the base more yellowish; veins slightly darker than the ground-colour; macrotrichia dark brown, grouped into a dense conspicuous spot at the fork of M , with smaller clusters along the anterior cord and at the fork of M_{3+4} . Venation: vein 2nd A ending about opposite one-fourth the length of M_{3+4} .

Abdomen dark brown, including the hypopygium. Male hypopygium with the basistyle profoundly cut into three lobes, the dististyli borne in the notch; dorso-lateral lobe slender, narrowed to the sub-acute apex, the surface to apex with scattered setæ; ventro-lateral lobe stouter and more clavate, slightly thickened distally, the lateral face with strong scattered setæ, the apex and mesal face with dense long delicate setæ that tend to become retrorse; mesal lobe of basistyle broad and flattened, the apex narrowed. Outer dististyle directed dorsad and mesad, dilated before mid-length and here provided with a few microscopic setulæ, beyond this point curved, in slide-mounts appearing to be bent almost at a right angle, narrowed and blackened to the acute point, the angle of curvature expanded into a wing. Inner dististyle nearly as long but more slender, gradually narrowed distally, the apical fourth or a little less suddenly narrowed into a black, gently curved, needle-like point. \mathcal{A} edeagus pale, slender, in slides extending to the apex of the mesal lobe of the basistyle.

Hab. Tasmania.

Holotype, δ , Hartz Mts., December 10, 1922 (*A. Tonnoir*).

Paratypes, δ , Cradle Valley, altitude 3500 feet, January 24, 1923; δ , Zeehan, February 7, 1923; δ , Mt. Field, December 19, 1922; δ , Eaglehawk Neck, Tasman Peninsula, November 18, 1922 (*A. Tonnoir*).

Molophilus difficilis, sp. n.

Belongs to the *gracilis* group and subgroup; antennæ elongate; male hypopygium with the dorso-lateral lobe of

basistyle produced into a long, slender, glabrous point; mesal lobe low and pointed; outer dististyle moderately long, sinuous, chitinized, at tip suddenly narrowed into a long straight point; inner dististyle obtuse at apex; ædeagus short.

Male.—Length about 4.5 mm.; wing 5.5 mm.; antenna about 3.6 mm.

Rostrum and palpi brownish black. Antennæ brownish black throughout, elongate, as shown by the measurements; flagellar segments elongate-fusiform, with pale outspreading setæ. Head dark, grey pruinose.

Sides of the pronotum obscure yellow. Mesonotum uniformly dark brown, the humeral region not brightened, testaceous as far as the pseudosutural foveæ, thence as a very narrow line to the wing-root; scutellum paler testaceous brown. Pleura brownish black, pruinose. Halteres pale, the knobs pale yellow. Legs with the coxæ brownish testaceous, paler apically; trochanters yellow; remainder of legs dark brown, the femora indistinctly paler at base; fore tibia (♂) slightly swollen sub-basally, but not differently coloured. Wings with a strong brownish tinge, a little darker along the cord, along vein *Rs* and vein *Cu* to the wing-margin; veins darker brown. Venation: *r* on R_{2+3} some distance beyond *r-m*, the basal section of R_{2+3} being subequal to the petiole of cell M_3 ; vein *2nd A* ending just beyond the cephalic end of *m-cu*.

Abdomen dark brown, including the hypopygium. Male hypopygium with the dorso-lateral lobe of the basistyle produced apically into a slender chitinized point without setæ; ventro-lateral lobe subequal in length but stouter, clavate, the setæ about as in *aciferus*; mesal lobe reduced to a low, conical, setiferous hump. Outer dististyle a slender, chitinized, blackened rod of moderate length, sinuous, the apex abruptly produced laterad into a long, slender, blackened spine that is more than one-third the length of the remainder of the style. Inner dististyle flattened, when viewed laterally, dilated at the outer end. Ædeagus very short and gently curved.

Hab. Tasmania.

Holotype, ♂, probably Hobart, 1924 (*G. H. Hardy*); Collector's No. 353. Type in the University of Queensland Collection.

Paratype, ♂, Mt. Wellington, November 25, 1922 (*A. Tonnoir*). The paratype has been returned to Dr. Tonnoir.

Molophilus exsertus, sp. n.

Belongs to the *gracilis* group and subgroup, most closely related to *M. difficilis*, sp. n.; size smaller, antennæ proportionately shorter; male hypopygium with the style very long and slender, exserted, the outer dististyle pale, the chitinized apical spine less than one-eighth the length of the remainder of the style.

Male.—Length about 3.5 mm.; wing 4.6–4.8 mm.; antenna about 2.4 mm.

Rostrum and palpi brownish black. Antennæ elongate, if bent backward extending to far beyond the base of the abdomen, black throughout; flagellar segments long-fusiform, with conspicuous erect pubescence. Head dark grey.

Pronotum and lateral pretergites conspicuously light sulphur-yellow. Mesonotum dark brown, the humeral region of the præscutum with a small yellow triangle, the lateral margin of the sclerite behind this vaguely and narrowly pale; scutellum obscure reddish brown. Pleura dark brown, sparsely grey pruinose; two small yellow sclerites at wing-base. Halteres yellow, the knobs with silken yellow setæ. Legs with the fore coxæ dark, the other coxæ and trochanters pale; remainder of the legs brownish black, the femoral bases narrowly pale; fore tibia (♂) a trifle dilated near base. Wings with a pale brownish tinge, the base more yellowish; veins darker brown; macrotrichiæ dark brown, the costal and apical fringe long and dense; a dense patch of trichiæ at fork of *M* producing a spot at that point. Venation: *r* on R_{2+3} beyond the level of *r-m*; basal section of R_{2+3} about two-thirds the petiole of cell M_3 ; vein *2nd A* ending about opposite the caudal end of *m-cu*.

Abdomen dark brown, including the conspicuous hypopygium. Male hypopygium with the styli very long and attenuate, conspicuous. Basistyles deeply trifid, the parts very similar to *M. difficilis*, but all more slender and exserted; dorsal lobe of basistyle produced into a glabrous flattened blade; ventral lateral lobe a little longer with delicate retrorse setæ on the ventral face; mesal lobe more elongate-conical than in *difficilis*. Outer dististyle very long and slender, pale throughout, almost straight, very slightly enlarged outwardly, the tip suddenly produced into a small slender black point, this not more than one-eighth the length of the remainder of the style. Inner dististyle shorter, extending caudad about to the level of the longer

lobes of the basistyle, the apex narrowly obtuse, blackened. Ædeagus short, not extending far beyond the base of the mesal lobe of the basistyle.

Hab. Tasmania.

Holotype, ♂, Wilmot, January 8, 1923 (*A. Tonnoir*).

Paratypes, 4 ♂ ♂, Burnie, January 31, 1923 (*A. Tonnoir*).

Molophilus forceps, sp. n.

Belongs to the *gracilis* group and subgroup; general coloration of præscutum reddish brown, darker brown medially; pleura dark brown; head dark brownish grey; male hypopygium with the dorsal lobe of the basistyle lacking; mesal lobe terminating in a long blackened spine that is directed laterad; inner dististyle flattened, terminating in two acute spines, the whole structure appearing pincer-like.

Male.—Length about 3 mm.; wing 4 mm.

Rostrum and palpi black. Antennæ broken. Head dark brownish grey.

Pronotum dark brown. Mesonotal præscutum reddish brown, the humeral region brighter, the median area darker brown; anterior lateral pretergite narrowly sulphur-yellow; remainder of mesonotum light reddish brown, the postnotum darker brown. Pleura shiny dark brown. Halteres pale brown, the base of the stem narrowly yellowish, the knobs darker-coloured. Legs with the coxæ and trochanters brownish testaceous; only a single (middle) leg remains, dark brown, the femora paler at base. Wings with a brownish-yellow tinge, the veins and macrotrichiæ darker brown. Venation: vein 2nd *A* relatively short, ending just before the caudal end of *m-cu*.

Abdomen dark brown. Male hypopygium with the dorsal lobe of the basistyle very reduced or lacking; ventral and mesal lobes well-developed, the ventral lobe moderately stout, fleshy, the usual retrorse to erect setæ sparse but stout; mesal lobe extensive, the apex narrowed, terminating in a slender blackened spine, the tip of which is directly laterad. Dististyle two, occupying the hollow of the basistyle; outer dististyle relatively small, flattened, the apical third more narrowed, with a few weak denticles near the base of the narrowed portion. Inner dististyle a powerful blade that terminates in two long acute spines that are curved gently toward one another, the whole structure appearing pincer-like; outer spine a little longer and more heavily chitinized; inner spine somewhat paler and with

several microscopic punctures near the base, these continued basad on to the broad disk of the style (about 18 in number, the outermost beyond mid-length of the spine). *Ædeagus* of moderate length, a little shorter than the inner dististyle, slender.

Hab. New South Wales.

Holotype, ♂, Blackheath, Blue Mts., altitude 3500 feet, January 26, 1922 (*E. W. Ferguson*); No. 74.

Paratype, ♂, in the Skuse Collection as paratype No. 1 of *Molophilus lucidipennis*, Skuse, labelled "B.M.," probably "Blue Mts."—*Mackerras*.

Type returned to Dr. Ferguson; paratype in the Macleay Collection.

M. forceps is very different in hypopygial structure from *M. lucidipennis*, Skuse, the two species being confused in the type-series of the latter.

Molophilus horridus, sp. n.

Belongs to the *gracilis* group and subgroup; antennæ short; head light grey; halteres with light yellow knobs; wings with a broad, pale brown cloud along cord; male hypopygium with the dorsal lateral angle of basistyle produced into a slender chitinized spine; outer dististyle a powerful chitinized spine, dilated near mid-length, the lateral margin produced into a shorter curved spine.

Male.—Length about 4–4.2 mm.; wing 5.3–6.1 mm.

Rostrum and palpi brownish black. Antennæ short, if bent backward not extending far beyond the wing-root; antennæ dark brown; flagellar segments oval, clothed with a dense white pubescence and a few longer black setæ. Head light grey.

Pronotum yellow, the lateral pretergites of the same colour, continued narrowly to the wing-root. Mesonotum brown, with a reddish cast, the humeral region of the præscutum a trifle brightened; pseudosutural foveæ elongate, reddish brown; scutellum medially broadly yellowish. Pleura dark brownish grey. Halteres pale, the knobs conspicuously light yellow. Legs with the coxæ and trochanters pale brown; femora brownish yellow, the tips dark brown; tibiæ yellow, the bases and tips narrowly infuscated; fore tibiæ (♂) with a dilated black ring near base; tarsi brownish black. Wings relatively broad, pale brownish yellow, the base and costal region clearer yellow; a broad darker brown cloud along the cord; macrotrichiæ relatively sparse and of moderate length only, dark brown;

veins pale, the prearcular veins, *Sc*, *R*, and *Cu*₁ more yellowish, the veins in the darkened discal area darker brown. Venation: *r* lying shortly beyond the level of *r-m*; basal section of *R*₂₊₃ about one-fifth shorter than the petiole of cell *M*₃; vein 2nd *A* moderately long, extending to shortly beyond the proximal end of *m-cu*.

Abdomen dark brown, including the hypopygium, the longest dististyle more yellowish. Male hypopygium of the general structure of the group, the basistyle trifold; dorso-lateral lobe produced into a slender needle-like point that in a position of rest is directed caudad and then ventrad, but in slides is directed laterad; ventro-lateral lobe very small, the setal arrangement as in the group; mesal lobe a little larger than usual, widened distally to the truncated apex. Outer dististyle a powerful and conspicuous flattened blade that extends out into a strong black spine, the lateral margin of the style just beyond mid-length produced into a smaller curved spine, in some cases this spine more nearly straightened, the margin in the axil feebly denticulate; mesal edge of style nearer base feebly bellied out. Inner dististyle shorter, heavily chitinized, produced into a long slender point, the margin weakly serrulate. *Ædeagus* of moderate length, straight, and rather stout. Ninth tergite with the caudo-lateral angle produced into a small laterally directed point.

Hab. Victoria, Tasmania.

Holotype, ♂, National Park, Tasmania, December 16, 1922 (*A. Tonnoir*).

Paratypes, 2 ♂♂, Sassafras, Dandenong Range, Victoria, altitude 1000 feet, October 21-22, 1922 (*A. Tonnoir*).

Molophilus fergusonianus, sp. n.

Belongs to the *gracilis* group and subgroup; general coloration of præscutum reddish brown, with a darker brown median stripe; scutellum obscure yellow; male hypopygium with the dorsal lobe of the basistyle a long slender spine; ventral lobe very reduced; outer dististyle bifid near apex, the outer margin serrulate; inner dististyle acute at tip, the lateral margin beyond mid-length with a strong lateral spine.

Male.—Length about 5 mm.; wing 6 mm.

Rostrum and palpi black. Antennæ relatively long, if bent backward extending to beyond the wing-root; scapal segments brownish yellow, the flagellar segments black, long-oval, with a conspicuous erect white pubescence in addition to the long verticils. Head light brownish grey.

Pronotum obscure yellow, more greyish dorsally. Lateral pretergites light sulphur-yellow. Mesonotal præscutum reddish brown with a darker brown median stripe; pseudo-sutural foveæ brownish black; scutum dark brown, greyish medially; scutellum obscure yellow; postnotum light brown, sparsely pruinose, the lateral margin of the mediotergite and the dorsal half of the pleurotergite lighter brown. Pleura dark brown, the sternal portions paler. Halteres pale, the knobs light yellow. Legs with the coxæ and trochanters obscure yellow; femora yellow, passing into yellowish brown; tibiæ pale brown, fore tibia (σ) with a conspicuous dark brown swollen ring; tarsi brown. Wings with a faint brown tinge, the veins darker brown; macrotrichia dark brown; a darker brown cloud at fork of *M* and on *m-cu*. Venation: vein 2nd *A* sinuous, ending about opposite mid-length of the obliquely sinuous *m-cu*.

Abdomen light brown, the hypopygium more yellowish. Male hypopygium very different in structure from any species described. Basistyles relatively stout, the dorsal apical portion projecting beyond the bases of the dististyles to form a sort of sheath, the apical portion of this extension of the style glabrous; dorsal spine extremely long, slender, exceeding in length the other elements of the hypopygium, gradually narrowed to the acute tip, the base inserted on a level with the origin of the dististyles; what appears to represent the mesal lobe of the basistyle is very small, slender, terminating in a blackened spine, the outer face of the style with a few scattered setæ, together with more abundant microscopic setulæ; what appears to be the ventral lobe of the basistyle is reduced to a low and blunt but extensive region of the style. Outer dististyle with the basal half pale and semitransparent, hidden beneath the sheathing extension of the basistyle, the exposed distal half entirely blackened, narrowly and gently curved to the acute apex, before the tip with a conspicuous lateral spine; lateral margin of the style microscopically serrulate. Inner dististyle larger, appearing as a powerful blade, more expanded beyond mid-length and here bearing on the lateral margin a powerful smooth spine, the apex beyond this spine blackened, gently curved to the acute tip, the lateral or ventral surface microscopically serrulate. Ædeagus relatively short, not as long as the dististyles.

Hab. New South Wales.

Holotype, σ , Sydney, December 2, 1923 (*F. W. Ferguson*); No. 76.

This very distinct fly finds its closest relative in *M. gracilis*, Skuse. The fly is dedicated to the collector, Dr. E. W. Ferguson, to whom I am indebted for invaluable aid in making known the crane-fly fauna of Australia.

Molophilus aphanta, sp. n.

Belongs to the *gracilis* group and subgroup; antennæ short; anterior mesonotum ochreous yellow, darkened behind, the pleura dark brown; halteres with yellow knobs; wings with a faint brownish tinge; male hypopygium with the dorso-lateral lobe of the basistyle short and obtuse; mesal lobe very large and flattened, covered with tiny setæ, the apex acute and blackened; inner dististyle a powerful black arm terminating in a dilated, acutely pointed head.

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

Rostrum and palpi brownish black. Antennæ of moderate length, if bent backward extending about to the wing-root; basal segments pale, the terminal segments of the flagellum passing into brown; flagellar segments with elongate verticils that are from two to three times the length of the segments. Head dark brownish grey.

Mesonotum light ochreous to fulvous-yellow, the scutellum and especially the postnotum darker. Pleura conspicuously dark brown, contrasting with the brighter colour of the mesonotum. Halteres pale at base, the stem with dark setæ, the knobs yellow. Legs with the coxæ and trochanters yellow; femora yellow, with appressed brown setæ that do not affect the colour of the segment; tibiæ brownish yellow, fore tibia (σ) with a slightly swollen subbasal area; tarsi pale brown, only the two terminal segments darker brown. Wings with a faint brown tinge, the wing-base more yellowish; wing-axil a little infuscated; cord vaguely darkened; veins a little darker brown, macrotrichiæ dark brown, moderately long and sparse. Venation: Sc_1 ending some distance beyond r , the latter lying almost in alignment with $r-m$; anal region of wing relatively narrow, the cells narrow and the veins lying close together; vein *2nd A* ending about opposite the cephalic end of $m-cu$.

Abdomen dark brown. Male hypopygium with the basistyle deeply trilobed, the dorsal lobe shortest, broad and obtusely rounded at apex, the surface with large scattered setæ to the tip, the mesal surface with additional delicate erect setulæ; ventral lobe extending further caudad, slender, pale, the mesal face with dense erect or slightly retrorse setæ of different sizes, the lateral face with a few

scattered setæ; mesal lobe very broad and flattened, extending caudad into a small blackened acute point, the surface of the lobe densely covered with delicate setulæ. Outer dististyle relatively slender, directed caudad, the basal two-thirds expanded and paler in colour, the apical third suddenly narrowed into a gently curved black spine. Inner dististyle longer and larger, in a position of rest directed cephalad, slender, gently curved, at the apex dilated slightly, thence narrowed to the acute apex; outer margin of the dilated portion with a tiny appressed tooth. *Ædeagus* relatively long, straight, and slender, yellow, in slides extending caudad to slightly beyond the apex of the mesal lobe.

Hab. Victoria.

Holotype, ♂, Sassafras, Dandenong Range, altitude 1000 feet, October 19, 1922 (*A. Tonnoir*).

Molophilus micracantha, sp. n.

Belongs to the *gracilis* group and subgroup; general coloration dark brown, including the pronotum; halteres with the knobs yellow; wings with a light brown tinge; male hypopygium with the dorsal lobe of the basistyle very small, fleshy; mesal lobe triangularly produced, the apex a short acute spine; outer dististyle simple, the inner style with short lateral spines.

Male.—Length about 3.6 mm.; wing 4.6 mm.

Rostrum and palpi black. Antennæ of moderate length, if bent backward extending about to the wing-root, dark brown throughout; flagellar segments with a dense erect pale pubescence and long, unilaterally arranged, black setæ. Head dark brown.

Pronotum dark brown. Lateral pretergites brownish testaceous, very indistinct. Mesonotum dark brown, the humeral region of the præscutum vaguely brighter; pseudo-sutural foveæ dark; præscutal interspaces with long pale setæ. Pleura dark brown. Halteres with the base of the stem and the knobs light yellow, the central portion of the stem dusky. Legs with the coxæ and trochanters testaceous-yellow; femora brownish testaceous; remainder of legs broken. Wings with a light brown tinge, the veins slightly darker brown; macrotrichiæ dark brown. Venation: *r* lying a short distance beyond the level of *r-m*; vein 2nd *A* ending just beyond the level of the caudal end of *m-cu*, the course of the anal veins generally parallel.

Abdomen dark brown, the hypopygium only a trifle

brighter. Male hypopygium with the dorsal lobe of the basistyle very small, obtuse, and not chitinized; ventral lobe clavate, pale, the mesal face with erect to retrorse setæ and abundant setulæ; mesal lobe conspicuously developed, the mesal face densely setiferous, the apex triangularly produced, terminating in a small, acute, black spine. Outer dististyle a simple rod, the basal half paler and slightly more dilated, the distal half narrowed into a slender black spine that is angularly bent near mid-length, thence running out into a straight acute point. Inner dististyle shorter, appearing as a flattened blade that bears a flattened spine on the outer margin near mid-length, and a pale tooth-like spine on the inner face just before the gently curved apex; outer margin of style between the lateral spine and apex with three or four appressed spinulæ. Ædeagus relatively long and slender, tapering gradually to the very slender apex. Ninth sternite relatively broad, the lateral angles rectangularly rounded.

Hab. Tasmania.

Holotype, ♂, Hartz Mts., December 9, 1922 (*A. Tonnoir*).

Molophilus suavis, sp. n.

Belongs to the *gracilis* group and subgroup; antennæ short; male hypopygium with the dorsal lobe of basistyle produced into an acute curved spine; inner dististyle simple, the outer bifid; ædeagus long and slender.

Male.—Length about 3 mm.; wing 4.5–4.8 mm.

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

Rostrum and palpi brown, the latter darker. Antennæ short, if bent backward scarcely attaining the wing-root; basal segments obscure yellow to brownish yellow; flagellar segments short-oval, brownish testaceous, the terminal segments passing into darker. Head dark brown.

Pronotum obscure yellow. Lateral pretergites narrowly sulphur-yellow. Mesonotal præscutum with three confluent sub-shiny dark brown stripes that virtually cover the sclerite, the humeral triangles yellow, in some individuals the colour continued back along the margin to the wing-root; remainder of mesonotum dark brown. Pleura dark brown, indistinctly striped longitudinally with obscure brownish yellow, the latter including the dorsal portions of the sternopleurite; wing-base conspicuously light yellow. Halteres pale, the knobs obscure yellow, the stem clothed with appressed, somewhat darker setæ. Legs long and slender; coxæ brownish testaceous; trochanters obscure

yellow; femora brownish yellow to pale yellowish brown, the tips passing into darker; ground-colour of the remainder of the femur nearly hidden by dark setæ; tibiæ and tarsi dark brown; fore tarsi longer than either the femur or tibia; middle and hind tarsi shorter than their respective tibiæ. Wings tinged with yellow, the veins slightly darker yellow; macrotrichia brown; a patch of darker trichia on *r-m*. Venation: vein *2nd A* ending a short distance beyond the cephalic end of *m-cu*.

Abdomen brown, the hypopygium paler yellowish brown. Male hypopygium with the basistyle trifid, as in the group; dorsal lobe short, the apex produced caudad into a long, gently curved, black spine, the spines of the two sides almost contiguous or decussate on the median line; ventral lobe longest, obtusely rounded at apex, the outer face with scattered elongate setæ, the mesal face and apex with dense delicate setæ; mesal lobe flattened, the apex obtuse, the margin with a fringe of delicate setulæ, the disk with larger setæ; viewed dorsally, only the narrow edge of this lobe is visible, but in microscopic slides the lobe becomes flattened and its true dimensions shown. Outer dististyle bifid, the two arms blackened, separated from one another by a rounded notch. Inner dististyle a gently curved black spine that narrows gradually to the acute black tip. Ædeagus long and slender. Ovipositor with the tergal valves unusually strongly upcurved, the tips acute, the margins smooth.

Hab. Tasmania.

Holotype, ♂, Cradle Valley, altitude 3500 feet, January 11, 1923 (*A. Tonnoir*).

Allotopotype, ♀, January 26, 1923 (*A. Tonnoir*).

Paratopotypes, 6 ♂♂, January 10-12, January 27, 1923; *paratypes*, 2 ♂♂, Adventure Bay, December 31, 1922 (*A. Tonnoir*).

Molophilus tenuiclavus, sp. n.

Belongs to the *gracilis* group and subgroup; male hypopygium with the dorsal angle of the basistyle a slender chitinized spine; ventral lobe a very slender pale club; only the outer dististyle acute at tip.

Male.—Length about 3.8 mm.; wing 4.4 mm.

Rostrum and palpi brownish black. Antennæ of moderate length, if bent backward extending about to the wing-root; scapal segments light brown; flagellum black, segments oval to long-oval, with a dense pale erect pubescence and

moderately elongate unilaterally arranged verticils. Head grey, the broad vertex more brownish grey, the occipital region more yellowish.

Pronotum yellowish brown. Lateral pretergites narrowly pale yellow. Mesonotal præscutum light brown with two narrow dark brown stripes that are separated from one another by a somewhat narrower line of the ground-colour; scutum brown, the median area broadly more greyish; scutellum pale ochreous; postnotum dark brown. Pleura dark brown, the sternopleurite a trifle paler. Halteres pale yellow. Legs with the coxæ pale brown; trochanters brownish yellow; femora brown, the bases more yellowish, the tips passing into brown; tibiæ brown, fore tibia (δ) with a very conspicuous but concolorous dilated ring; tarsi brown, the terminal segments brownish black. Wings with a greyish tinge, the base slightly more yellow; veins dark brown, the macrotrichiæ even darker; indistinct darker clouds at the cord. Venation: r lying slightly proximad of $r-m$; vein 2nd A moderately elongate, ending just beyond the level of the origin of the petiole of cell M_3 .

Abdomen dark brown, the hypopygium a trifle paler. Male hypopygium with the basistyle large, the three lobes well-developed; dorsal lobe narrowed into a slender chitinized spine; ventral lobe unusually long and slender, appearing as a narrow club, the surface with abundant setulæ and a few setæ, those on the mesal face retrorse, the setæ confined to the distal third of the lobe; mesal lobe broad and flattened. Outer dististyle chitinized, terminating in a sinuous black spine, near mid-length on outer face with a flattened wing. Inner dististyle shorter, a flattened pale blade, the apex terminating in a small dusky knob, the outer margin with abundant microscopic spinulæ that become more numerous at the apex; inner margin before the apex dilated into a flange, with microscopic spinulæ. Ædeagus relatively long, the distal fourth narrowed.

Hab. New South Wales.

Holotype, δ , Narara, November 3, 1921 (*A. Tonnoir*).

Molophilus æquistylus, sp. n.

Belongs to the *gracilis* group and subgroup; general coloration dark brown, the scutellum brightened; halteres yellow; wings with a pale brown tinge, the base narrowly yellowish; abdomen dark brown, the hypopygium paler; male hypopygium with the dististyles simple, approximately equal to one another in size and shape.

Male.—Length 3·8–4 mm. ; wing 4·8 mm.

Female.—Length about 4·5 mm. ; wing about 6 mm.

Rostrum and palpi black. Antennæ black throughout, of moderate length, in the male, if bent backward, extending about to the wing-root; flagellar segments oval with a dense whitish pubescence and relatively short, unilaterally arranged verticils. Head dark brownish grey.

Pronotum light yellow, the median area infuscated. Anterior lateral pretergites light sulphur-yellow, the posterior pretergites more obscure. Mesonotum dark brown, the pseudosutural foveæ shiny black; humeral region of præscutum restrictedly brightened; posterior lateral angles of the scutal lobes obscure reddish yellow; scutellum yellowish to obscure ochreous. Pleura dark brownish grey, the dorso-pleural membrane dark. Halteres yellow, the knobs brighter. Legs with the coxæ and trochanters obscure yellow, the fore coxæ darker; femora brown, the bases paler; tibiæ and tarsi brownish black. Wings with a pale brownish tinge, the base narrowly yellow; veins and macrotrichia darker brown; stigmal region narrowly darkened. Venation: *r* some distance beyond the level of *r-m*, the basal section of R_{2+3} being fully twice R_{4+5} ; vein 2nd *A* relatively short, ending about opposite the caudal end of *m-cu*.

Abdomen dark brown, the hypopygium paler. Male hypopygium with the dorsal and ventral lobes of the basistyle relatively slender, the dorsal lobe a straight needle-like spine, the ventral lobe clavate, slender, the head slightly dilated and provided with retrorse setæ. The dististyles are generally similar to one another in shape and size, appearing as simple unbranched rods, the apex of each bent into a small curved point or spine, the outer style more obtuse at apex. *Ædeagus* relatively elongate, longer than the dististyles. Ninth sternite broad, the lateral angles rectangular, produced into small tubercles, these angles glabrous, the caudo-median area of the tergite a little convex and with numerous small setæ. Ovipositor with the bases of the valves blackened, the tergal valves light yellow.

Hab. Victoria, Tasmania.

Holotype, ♂, Burnie, Tasmania, October 27, 1922 (*A. Tonnoir*).

Allotopotype, ♀, October 25, 1922.

Paratopotypes, 1 ♂, 1 ♀, January 11–31, 1923 (*A. Tonnoir*); *paratypes*, ♂, National Park, Tasmania, December 16, 1922 (*A. Tonnoir*); ♀, Hobart, Tasmania, January

3, 1923 (*A. Tonnoir*); ♂, Lower Tarwin, Victoria, November 22, 1925 (*G. F. Hill*), in the National Museum of Victoria.

Molophilus setulistylus, sp. n.

Belongs to the *gracilis* group and subgroup; general coloration dark brown, the pleura more pruinose; scutellum obscure yellow; male hypopygium with the dorsal lobe of the basistyle a long slender spine; dististyles approximately equal in length and general shape, the outer slightly broader, its disk with abundant microscopic setulæ.

Male.—Length about 3·8–4 mm.; wing 5·4 mm.

Female.—Length about 5–5·3 mm.; wing 5·5–6·3 mm.

Rostrum and palpi black. Antennæ of moderate length, if bent backward scarcely attaining the wing-root, the scapal segments reddish brown, the flagellum black; flagellar segments oval, the verticils and white pubescence conspicuous. Head grey.

Pronotum yellow above, the sides abruptly dark brown. Lateral pretergites restrictedly clear sulphur-yellow, sometimes interrupted behind the pseudosutural foveæ. Mesonotum dark brown, the median area of the præscutum a trifle darker than the sides; pseudosutural foveæ black; humeral regions of præscutum very restrictedly obscure yellow, the lateral margins pruinose; scutum dark brown, the posterior lateral callosities obscure yellowish; scutellum obscure yellow, darker basally; postnotum dark greyish brown. Pleura concolorous with the postnotum. Halteres with the stem pale, the knobs light yellow. Legs with the coxæ and trochanters reddish brown; remainder of legs dark brownish black, the femoral bases narrowly paler; fore tibial ring (♂) dilated, but scarcely darker than the ground-colour. Wings with a dusky tinge, the veins and macrotrichia dark brown. Venation: vein 2nd *A* relatively short, ending about opposite the caudal end of *m-cu*.

Abdomen dark greyish brown, with yellow setæ; hypopygium more reddish brown. Male hypopygium with the dorsal and ventral lobes of the basistyle well-developed, the mesal lobe less distinctly so; dorsal lobe a long slender black spine arising from the mesal apical angle of a small fleshy lobe; ventral lobe about as long as the dististyles, clavate, the mesal face with the usual retrorse to subretrorse setæ, these relatively slender and interspersed with more delicate setulæ; mesal lobe low, the apical portion narrowed into a

cylindrical lobe that is directed laterad. Outer dististyle broader than the inner, the basal two-thirds expanded into a blade, the surface of which is provided with abundant microscopic setulæ, apical fourth of style narrowed into a stout gently curved black rod, the tip subacute. Inner dististyle of approximately the same length as the outer, but more slender, the base a little expanded, the apical fourth of the style narrowed into a straight acute black spine. *Ædeagus* longer than the dististyle.

Hab. New South Wales.

Holotype, ♂, Fish River, Blue Mts., March 25, 1923 (*E. W. Ferguson*); No. 78.

Allotopotype, ♀.

Paratopotype, ♂; *paratypes*, 1 ♂, 1 ♀, Blackheath, Blue Mts., altitude 3500 feet, April 1, 1922 (*E. W. Ferguson*).

M. setulistylus is most closely related to the more southern *M. æquistylus*, sp. n., differing in the broader outer dististyle with abundant setulæ on its disk.

Molophilus scaber, sp. n.

Belongs to the *gracilis* group and subgroup; general coloration brownish black, the humeral region of the præscutum, knobs of the halteres, and the coxæ brighter; male hypopygium with the mesal lobe of the basistyle produced into a small needle-like spine; inner dististyle sinuous, the apex beneath microscopically roughened and conspicuously setiferous.

Male.—Length about 3·5–4·2 mm.; wing 4·6–5·8 mm.

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

Rostrum and palpi brownish black. Antennæ of moderate length, in the male, if bent backward, extending to some distance beyond the wing-root; basal segments brownish testaceous, the remaining segments uniformly dark brown, with conspicuous black setæ and verticils. Head black.

Pronotum dusky above, obscure yellow laterally. Anterior lateral pretergites sulphur-yellow. Mesonotum shiny brownish black, the humeral region of the præscutum shiny fulvous-yellow, the colour extended backward along the lateral margin almost to the wing-root, becoming narrower and more infuscated behind. In the allotype female, the whole præscutum is of a paler brown than the remainder of the body. Pleura black. Halteres pale brown, the base of the stem paler, the knobs light yellow. Legs with the coxæ and trochanters testaceous-yellow; femora brown, densely covered with appressed black setæ; remainder of

legs dark brown ; no evident tibial ring in the male. Wings with a strong dusky tinge, the veins darker brown ; macrotrichiaë black, a few in the stigmal region and on the petiole of cell M_3 more yellowish. Venation : vein 2nd A ending shortly beyond the origin of the petiole of cell M_3 .

Abdomen brownish black, including the hypopygium. Male hypopygium with the basistyles relatively large, the ventral lobe very long and slender, approximately as long as the longest dististyle, the mesal face with delicate erect to retrorse setæ ; outer face of style with fewer long coarse setæ ; mesal lobe extensively flattened, obtusely rounded, its ventral portion produced caudad into a long, very slender, sinuous, black spine, the basal half a little dilated, thence prolonged into a needle-like point. Both dististyles arise close together at the base of the ventral lobe of the basistyle. Outer dististyle chitinized nearly to the base ; long and slender, the arms unequal, the outer arm much longer than the short, thumb-like, mesal arm ; mesal face of style near base with a spinous projection. Inner or basal dististyle a little longer than the outer, entirely blackened, appearing as a slender sinuous rod, cylindrical, the apex a little dilated into a spear-like head ; upper or outer surface of this head with long setæ, the lower surface with about ten to twelve roughened teeth and numerous short setæ. *Ædeagus* relatively long and slender, narrowed to the tip, approximately as long as the inner dististyle. Ovipositor with the valves very long and slender, the tergal valves yellowish horn-colour.

Hab. New South Wales.

Holotype, ♂, Blackheath, Blue Mts., altitude 3500 feet, April 13, 1922 (*E. W. Ferguson*) ; No. 79.

Allotype, ♀, French's Forest, near Sydney, July 15, 1923 (*I. M. Mackerras*).

Dr. Ferguson and Dr. Mackerras both note that the present is "very close to *M. helmsi*, Skuse, but the dististyles longer and more slender."

Molophilus tripectinatus, sp. n.

Belongs to the *gracilis* group and subgroup ; general coloration dark brown, the scutellum slightly tinged with yellow ; wings with a faint brownish tinge ; male hypopygium with the outer dististyle profoundly bifid, the outer arm expanded into a pale fan-like lobe ; inner dististyle a clavate lobe, before the apex with three heavily blackened teeth.

Male.—Length about 3·2 mm.; wing 4·5 mm.

Rostrum and palpi brownish black. Antennal scape dark brown, the flagellum broken. Head dark brown, grey pruinose.

Pronotum dark brown medially, light yellow laterally. Lateral pretergites light sulphur-yellow. Mesonotum dark brown, the præscutal region a little brighter; scutellum with a slight yellowish tinge. Pleura dark brown. Halteres with the stem dusky, the knobs obscure yellow. Legs with the coxæ and trochanters brownish yellow; remainder of the legs dark brown, the femoral bases broadly yellowish; front legs broken. Wings with a faint brownish tinge, the veins and macrotrichiaë darker brown. Venation: vein 2nd *A* of moderate length, ending a short distance beyond the origin of the petiole of cell M_3 .

Abdomen dark brown. Male hypopygium with the basistyles relatively large, the lobes short; mesal lobe very broad, the ventral apical angle produced into a small obtuse fleshy lobe; ventral lobe relatively slender, the mesal face on apical third with numerous coarse erect to feebly retrorse setæ; no distinct dorsal lobe. Dististyles appearing nearly apical in position, due to the shortness of the lobes of the basistyle; outer style divided almost to its base, the outer arm expanded into a broad pale flattened fan-like lobe, the inner arm a stout blackened lobe, the apex obtuse. Inner dististyle a little longer, slightly dilated outwardly, the inner apical angle a trifle produced; before the apex on the mesal face with a small black plate bearing three subequal black teeth; lateral region of the style with conspicuous appressed silken setæ. *Ædeagus* relatively long and slender, about one-half longer than the longest dististyle.

Hab. New South Wales.

Holotype, ♂, Sydney, September 16, 1923 (*E. W. Ferguson*); No. 70.

. *Molophilus tristylus*, sp. n.

Belongs to the *gracilis* group and subgroup; general coloration dark grey, the scutellum yellowish; male hypopygium with the outer dististyle divided to the very base, so there appear to be three dististyles; ventral lobe of the basistyle with an acute spine on mesal face.

Male.—Length about 3 mm.; wing 4·5 mm.

Rostrum and palpi black. Antennæ of moderate length, if bent backward extending to shortly beyond the wing-root,

dark brown throughout; flagellar segments oval, with a long, conspicuous, white pubescence; verticils elongate. Head light grey.

Pronotum obscure brownish yellow, darker laterally. Lateral pretergites light yellow. Mesonotal præscutum brown, the lateral margins clear grey; pseudosutural foveæ dark brown; scutum grey; the lobes more infuscated; scutellum conspicuously yellowish; postnotum grey. Pleura dark grey. Halteres pale, the knobs dark brown. Legs with the coxæ and trochanters reddish; femora brown with the bases a little paler; tibiæ brown, the tips blackened; fore tibia (δ) with a conspicuous dilated black ring; tarsi black. Wings with a yellowish tinge, the veins yellowish brown, the macrotrichiæ brown. Venation: vein 2nd *A* ending just beyond the base of the petiole of cell *M*₃.

Abdomen dark brown, heavily grey pruinose; hypopygium dark reddish brown. Male hypopygium with the basistyle complicated in structure, with four short lobes; ventral lobe relatively short, clavate, the mesal margin before the apex with a conspicuous spine that is directed basad, the face of the style with additional setæ that are erect and subretorse; dorsal lobe shorter, subacute, weakly chitinized; mesal lobes two, both fleshy, one very extensive, the second more conically produced and with large conspicuous setæ. Dististyles two, but the outer one so deeply divided that there appear to be three; outer dististyle divided to the very base, the arms divergent, one directed ventrad, irregularly split at apex, the arms complicated, the outer more slender, strongly recurved near mid-length, the inner arm blackened, flattened, the surface somewhat fluted; dorsal arm of the outer dististyle a simple sinuous rod, a little enlarged just beyond mid-length, thence narrowed to the acute blackened tip. Basal or inner dististyle a simple chitinized rod, the basal two-thirds straight, the distal third gently curved to the acute blackened tip, before the apex on the outer face with several appressed spinulæ. Ædeagus longer than the basal dististyle.

Hab. New South Wales.

Holotype, δ , Bulli, August 25, 1923 (*E. W. Ferguson*); No. 75.

Paratopotype, δ .

Molophilus mjöbergi, sp. n.

Belongs to the *gracilis* group, *ruficollis* subgroup; general coloration pale yellowish brown, the pronotum

and humeri brighter yellow; legs brownish black; male hypopygium with the basistyles very short and stout, the dististyles unusually long and slender, the inner entirely blackened, simple, sinuous to the acute apex.

Male.—Length about 2·8 mm.; wing 3·4 mm.

Rostrum and palpi dark brown. Antennæ moderately long, if bent backward extending to slightly beyond the wing-root, the scapal segments yellowish testaceous, the flagellar segments dark brown, elongate-oval, with a long pale erect pubescence, in addition to the conspicuous verticils. Head discoloured in the unique type, apparently dark-coloured.

Pronotum and humeral region of the præscutum light yellow, the remainder of the mesonotal præscutum light yellowish brown, without markings; scutellum and posterior lateral region of the scutum a little darker; lateral pretergites a trifle brighter yellow than the pronotum. Pleura reddish yellow. Halteres orange-yellow. Legs with the coxæ and trochanters yellowish testaceous; remainder of the legs brownish black; fore legs broken. Wings with a slight greyish tinge, the basal and costal portions more yellowish; veins slightly darker than the ground-colour; macrotrichiæ dark brown, conspicuous, grouped along the cord to form an indistinct cross-band of dark hairs. Venation: vein *2nd A* relatively short, ending about opposite the posterior end of the oblique *m-cu*.

Abdomen brown, the hypopygium more yellowish. Male hypopygium with the basistyles very short and stout, much broader than long, the ventral lobe best developed, setiferous, the usual retrorse setæ relatively large and coarse; mesal lobe small, feebly chitinized; dorsal lobe not developed. Dististyles very long and slender, the outer style entirely pale, the extreme base a little enlarged, the stem arcuated, very slender, the apex expanded into a bifid blade, the outer arm largest, nearly hyaline. Inner dististyle even longer than the outer, appearing as an entirely blackened, simple, flattened, strongly sinuous, ribbon-like blade, the apex acute. *Ædeagus* shorter than the inner dististyle.

Hab. N. Queensland.

Holotype, ♂, Malanda, altitude 2400 feet (*Eric Mjöberg*); No. 100.

Type in the collection of the Riksmuseets, Stockholm. This interesting fly is named in honour of Dr. Eric Mjöberg, who has added much to our knowledge of the Tipulidæ of Australia and Borneo.

Molophilus prælatus, sp. n.

Belongs to the *gracilis* group, *ruficollis* subgroup; size large (wing, ♂, 6.5 mm.); general coloration pale reddish brown; wings yellowish; male hypopygium with the outer dististyle sickle-shaped, the lateral margin with about fifteen appressed spinulæ; gonapophyses forming a median chitinized structure that terminates in two divaricate hooks.

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

Rostrum and palpi brown. Antennæ relatively short, brown throughout, the flagellar segments subcylindrical, with dense black setæ. Head brown, the anterior vertex obscure fulvous, the posterior vertex with numerous yellow and a few stouter black setæ.

Lateral pretergites testaceous-yellow. Mesonotal præscutum obscure reddish brown, the humeral region vaguely paler; lateral præscutal stripes very vaguely indicated; remainder of the mesonotum reddish brown, the centres of the scutal lobes darker. Pleura pale brownish testaceous, immaculate. Halteres pale, the knobs of the unique type destroyed by Psocids. Legs with the coxæ brownish testaceous; trochanters more yellowish; remainder of the legs obscure yellow, with appressed brown setæ that tend to obscure the ground-colour, especially of the femora; terminal tarsal segments infuscated; no dilated ring on fore tibia of the male: fore femora shorter than the tibiæ, but the middle femora slightly exceeding the tibiæ. Wings with a strong yellowish tinge, the veins darker yellow. Venation: *m-cu* shortly beyond the fork of *M*; vein *2nd A* elongate, strongly arcuated, ending near mid-length of the petiole of cell *M*₃.

Abdomen dark brown, the hypopygium more yellowish. Male hypopygium short and compact. Basistyles with the ventral lobe relatively short and stout, the apex obtusely rounded, the mesal face with long, dense, yellow setæ; dorsal and mesal lobes of basistyle short and obtuse, but indicated. Outer dististyle a powerful black sickle-shaped rod, the base enlarged, the stem strongly curved to the long, black apical spine, the lateral margin with about fifteen small appressed spinulæ. Inner dististyle of approximately the same length as the outer, but more slender basally and bent in the opposite direction, the apex a strongly curved hook-like spine, separated by a small circular notch from a flange-like expansion on the inner face of the style. *Ædeagus* relatively short, about as long as the dististyles, slender, the basal two-thirds subtended by a pale wing on either side.

What would appear from its position to represent gonapophyses is a heavily blackened median structure, the base broadest, narrowed to the apex which terminates in two powerful divaricate hooks, directed laterad, the apical notch thus formed V-shaped, provided with a few small setæ.

Hab. New South Wales.

Holotype, ♂, Blackheath, Blue Mts., altitude 3500 feet, January 26, 1922 (*E. W. Ferguson*) ; No. 66.