

I have been unable to identify this form with any known species from the E. Pacific. The highly developed and characteristic gold tissue on the head and arms is quite unique. I have noticed gold iridescence in other young forms. It seems to be well developed on the dorsal mantle in the ambiguous *Octopus venustus*, Rang, and is possibly indicated in "*Polypus juv.*" (Berry, 1912, p. 289) from Monterey Bay. I have never seen the gold iridescence persisting in any adult, though local patches of iridescent tissue are found, e.g., in *Octopus areolatus*, *ocellatus*, etc. This form, which is obviously still somewhat immature, seems allied to the group of *Octopus pallida* (Robson, l. c. p. 126), and may be near Berry's *Octopus californicus*, from which it differs in various important features. It is to be noted that the latter has been recorded (at least tentatively) from over 1000 fathoms by Berry.

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 BERRY, S. S. 1912. Bull. Bureau Fisheries, Washington, D.C. vol. xxx. (1910), p. 269.

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

In the present report I wish to discuss part of a series of Victorian Eriopterine crane-flies belonging to the great genus *Molophilus*, Curtis. The entire series was taken by my friend, Mr. F. Erasmus Wilson, to whom my deepest thanks are extended and to whom the types have been returned.

Molophilus janus, sp. n.

Belongs to the *plagiatus* group; general coloration brownish grey; head chiefly yellow, the centre of the vertex infuscated; antennæ (♂) of moderate length, extending to shortly beyond the wing-root; segments of legs pale, the tips of the femora and tibiæ narrowly darkened; male hypopygium with the inner dististyle elongate, the base a sinuous pale blade, the distal third narrowed into a curved blackened hook.

Male.—Length about 3.5–4 mm.; wing 4.5–5.2 mm.

Female.—Length about 4.2 mm.; wing 5 mm.

Rostrum and palpi dark brown. Antennæ (σ) of moderate length, if bent backward extending to shortly beyond the wing-root; flagellar segments oval, with a conspicuous erect white pubescence; antennal scape obscure yellow; flagellum dark brown. Anterior vertex, orbits, and occiput yellow, the centre of the vertex extensively brown.

Pronotum dark; anterior lateral pretergites china-white. Mesonotal præscutum with three greyish-brown stripes, the restricted interspaces and lateral margins more buffy; scutal lobes chiefly greyish brown, sparsely variegated with obscure yellow, including the posterior callosities; scutellum obscure yellow; postnotum grey. Pleura chiefly dark greyish brown, the dorso-pleural region pale; dorsal sternopleurite and pteropleurite more reddish brown. Halteres whitish. Legs with the coxæ brownish testaceous; trochanters pale yellow; femora pale yellow, the tips conspicuously blackened; tibiæ pale yellow, the tips narrowly infuscated, the bases more vaguely darkened; fore tibiæ (σ) with a distinct subbasal black ring; tarsi pale brown, passing into black at tips; terminal tarsal segment dilated outwardly, the apex truncate. Wings whitish, the macrotrichia pale brown; veins only a little darker than the ground-colour. Venation: R_2 lying just before the level of $r-m$; petiole of cell M_3 short, about one-half longer than $m-cu$; vein 2nd A long, ending shortly beyond the base of the petiole of cell M_3 .

Abdomen dark brown, the large hypopygium obscure yellow. Male hypopygium with the apical beak of the basistyle very small, triangular. Both dististyles placed close together in the notch of the basistyle. Outer dististyle with the stem relatively slender, gently arcuated, the apex expanded and darkened, the two arms subequal in length, separated from one another by a large notch. Inner dististyle approximately one-third to one-half longer than the outer, appearing as a sinuous, irregular, flattened pale blade, the distal third to fourth narrowed into a curved black hook; margin of style near base conspicuously dilated. Ædeagus long and slender, in slide-mounts extending caudad to the apex of the basistyle.

Hab. Victoria.

Holotype, σ , Bogong High Plains, altitude 5600–6000 feet, January 1928 (*F. E. Wilson*).

Allotopotype, ♀ .

Paratopotypes, 6 σ ♀ , 4 being from the "Little Plain" (see *Ann. & Mag. Nat. Hist.* (10) iii. p. 327, 1929).

Molophilus titania, sp. n.

Belongs to the *plagiatus* group; head dark; antennæ (♂) elongate; general coloration fulvous-yellow, the pleurotergite darkened; legs black, handsomely banded with china-white; wings creamy, indistinctly variegated with pale brown; abdomen yellow, the terminal segments in both sexes blackened.

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

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

Rostrum and palpi black. Antennæ (♂) elongate, if bent backward extending to some distance beyond the base of the abdomen, dark brown, the basal segments more bicolorous, the proximal ends dark, the apices paler; flagellar segments elongate-fusiform, producing a nodulose appearance, each segment provided at widest part with a whorl of long pale verticils. Head chiefly dark brown.

Pronotum and anterior lateral pretergites light sulphur-yellow. Mesonotum fulvous-yellow, the humeral region of præscutum sulphur-yellow. Pleura pale yellow, the pleurotergite infuscated. Halteres pale, the knobs light sulphur-yellow. Legs with the coxæ pale yellow; trochanters brownish yellow; femora black, with a conspicuous china-white subterminal ring, this narrower than the black apex, on the middle femora very narrow; tibia black with a broad white medial ring, this broadest on the posterior tibiæ; tarsal segments 1 and 2 white, the tips narrowly blackened; remaining tarsal segments uniformly blackened; a differentiated subbasal ring on fore tibia of male scarcely evident. Wings with the ground-colour creamy, indistinctly variegated with pale brown, this colour including the broad apex, a band along the cord, and clouds on the basal third of the wing; veins pale, slightly darker in the clouded areas; macrotrichia dark. Venation: vein *2nd A* relatively long, ending shortly beyond the origin of the petiole of cell M_3 , the cell narrowed on outer half.

Abdomen yellow, the terminal segments, including the genitalia of both sexes, blackened. Ovipositor with the valves dark horn-colour. Male hypopygium relatively small. Basistyle with the apical beak unusually small and slender. Outer dististyle very short-stemmed, the two arms blackened, subequal in length, the outermost a little stouter and more pointed. Basal dististyle only feebly chitinized, appearing as a short stout lobe, broadest at base, obtuse at apex, the entire surface densely set with long conspicuous setæ.

Phallosomic structure a long-rectangular plate, parallel-sided, the apex obtusely convex. *Ædeagus* elongate, approximately three times the length of the basal dististyle.

Hab. Victoria.

Holotype, ♂, Ben Cairn, near Millgrove, in beech-gully, altitude 2900–3200 feet, February 9, 1929 (*F. E. Wilson*).

Allotopotype, ♀.

Paratopotypes, 3 ♂ ♀.

“ Found at the head of a beech (*Nothofagus Cunninghamii*, Hook. f.) gully where they were found resting on the fronds of low-growing ferns. Within a few yards of their habitat I took a male *Thaumatoperla*.”—*F. E. Wilson*.

Molophilus titania is one of the most beautiful and distinct species of the genus so far discovered.

Molophilus perluteolus, sp. n.

Belongs to the *plagiatus* group; general coloration very pale yellow; antennæ of moderate length only; male hypopygium with the basal dististyle a nearly straight black rod, the tip curved and weakly bidentate.

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

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

Rostrum and palpi pale reddish yellow, the outer segments of the latter darkened. Antennæ (♂) of moderate length, if bent backward extending about to the wing-root; scapal segments reddish yellow; flagellum pale, the segments with long verticils. Head pale yellow.

Thorax entirely pale yellow, unmarked. Halteres and legs pale yellow, the outer tarsal segments weakly infuscated; fore tibiæ (♂) with a narrow, very pale brown subbasal ring. Wings uniformly pale yellow, the veins only a trifle darker. Venation: R_2 lying just beyond the level of $r-m$; vein 2nd A terminating opposite or just before $m-cu$.

Abdomen pale yellow, only the dististyli blackened. Male hypopygium with the beak of the basistyle very stout, blackened, its base surrounded by conspicuous setæ. Outer dististyle with the two arms unequal, the outer more flattened, its margin rounded and microscopically roughened; inner arm acute. Basal dististyle a nearly straight rod, heavily blackened except on basal fourth, the apex curved and weakly bidentate. Phallosomic structure an oval pale plate set with microscopic setulæ. *Ædeagus* elongate, exceeding the basal dististyle.

Hab. Victoria.

Holotype, ♂, Belgrave, in dark fern-gully, March 31, 1929 (F. E. Wilson).

Allotopotype, ♀.

Paratopotypes, 6 ♂ ♀.

Molophilus perluteolus is allied and generally similar to *M. bucerus*, Alexander, differing in its shorter antennæ and structure of the male hypopygium.

Molophilus flavidellus, sp. n.

Belongs to the *plagiatus* group; general coloration pale yellow; antennæ (♂) relatively elongate, the basal segments pale; wings light yellow; vein 2nd *A* ending about opposite one-third the length of the petiole of cell M_3 ; male hypopygium with the basal dististyle a long straight rod that terminates in two or three weak denticles; phallosomic structure a pale oval cushion, its caudal end gently emarginate.

Male.—Length about 3.5–4 mm.; wing 4.2–5.3 mm.

Female.—Length about 4.5 mm.; wing about 6 mm.

Rostrum yellow; palpi light brown. Antennæ (♂) relatively elongate, if bent backward extending to about mid-distance between the origins of wings and halteres, pale yellow, the outer segments slightly darker; flagellar segments with long conspicuous verticils. Head light yellow.

Pronotum reddish yellow, paler laterally. Mesonotal præscutum light reddish yellow, the humeral region and pretergites light sulphur-yellow; scutal lobes reddish yellow, the median region and scutellum paler; postnotum reddish yellow. Pleura pale reddish yellow. Halteres pale, the knobs bright yellow. Legs with the coxæ and trochanters pale yellow; remainder of legs yellow, the outer tarsal segments darkened; fore tibiæ (♂) with a narrow brown subbasal annulus. Wings broad, light yellow, the veins a trifle darker; macrotrichia very pale brown. Venation: petiole of cell M_3 relatively short, about twice *m-cu*; vein 2nd *A* long, ending about opposite one-third the length of the petiole of cell M_3 .

Abdomen yellow, including the hypopygium. Male hypopygium with the beak of the basistyle relatively stout, the tip acute. Outer dististyle with the two arms unequal, the outer longest and more expanded, the inner arm shorter and subacute in lateral aspect. Basal dististyle a long, nearly straight rod, pale on more than the basal two-thirds, the tip darkened; apex of style with two or three weak denticles. Phallosomic structure a pale oval cushion, the

caudal end gently emarginate. Ædeagus long, pale, a little longer than the basal dististyle.

Hab. Victoria.

Holotype, ♂, Ben Cairn, near Millgrove, in beech-gully, altitude 2900–3200 feet, February 1929 (*F. E. Wilson*).

Allotopotype, ♀.

Paratopotype, ♂; *paratypes*, 2 ♂♂, Belgrave, in dark fern-gully, March 31, 1929 (*F. E. Wilson*).

Molophilus flavidellus is generally similar to *M. bucerus*, Alexander, differing especially in the structure of the male hypopygium.

Molophilus arcuarius, sp. n.

Belongs to the *plagiatus* group; general coloration fulvous to yellow; halteres and legs yellow, the terminal tarsal segments infuscated; wings yellow; male hypopygium with the basal dististyle a simple, gently arcuated rod that narrows to an acute point, the surface roughened, on lower face before apex forming a series of blunt teeth; phallosomic structure glabrous, widened outwardly, the caudal margin gently emarginate.

Male.—Length about 3.8 mm.; wing 5–5.2 mm.

Rostrum and palpi dark brown. Antennæ (♂) of moderate length, if bent backward extending to slightly beyond the origin of the wings; basal segments pale, the outer segments darker; flagellar segments with a very long erect white pubescence. Head yellow.

Pronotum brownish medially, obscure yellow behind; anterior lateral pretergites yellowish white. Mesonotum fulvous to obscure yellow, the pleura a little more testaceous. Halteres pale yellow. Legs with the coxæ and trochanters pale yellow; remainder of legs yellow, the outer tarsal segments infuscated; fore tibiæ (♂) with a rather extensive but little distinct pale brown subbasal enlargement. Wings yellow, the veins darker yellow; macrotrichia pale brown. Venation: R_2 nearly in alignment with $r-m$; vein 2nd A relatively long, ending about opposite mid-length of the petiole of cell M_3 .

Abdomen brownish yellow, including the hypopygium; tergites variegated laterally with darker brown. Male hypopygium with the beak of the basistyle slender, blackened. Outer dististyle with the stem slender, the arms large and conspicuous, both obtuse at tips. Basal dististyle a simple, gently arcuated rod that narrows to an acute tip, the basal third pale, the remainder dark; surface microscopically

roughened, before the apex on the inner face more accentuated into a comb of blunt teeth. Phallosomic structure pale, widened outwardly, the caudal margin gently emarginate, the surface entirely glabrous. *Ædeagus* straight, moderately long, slightly exceeding the basal dististyle.

Hab. Victoria.

Holotype, ♂, Ben Cairn, near Millgrove, in beech-gully, altitude 2900–3200 feet, February 9, 1929 (*F. E. Wilson*).

Paratopotypes, 2 ♂ ♂.

Molophilus arcuarius is readily told from the other similar regional pallid species by the structure of the hypopygium, especially the basal dististyle and phallosomic structure.

Molophilus strix, sp. n.

Belongs to the *plagiatus* group, *annulipes* subgroup; head ochreous; antennæ of moderate length; mesonotal præscutum with four brown stripes, the humeral region yellow; halteres with the knobs darkened; wings narrow, the veins seamed with brown; male hypopygium with the inner dististyle long, slender, the long straight apical point bent at a right angle to the remainder of the style; ventral lobe of basistyle without an apical beak, but provided with a dense brush of setæ.

Male.—Length about 3.4–4 mm.; wing 4.2 × 1 to 5 × 1.15 mm.

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

Rostrum and palpi black. Antennæ of moderate length, if bent backward extending approximately to the wing-root; dark brown; flagellar segments long-oval, with a dense erect white pubescence; each segment with a long, unilaterally arranged verticil. Head ochreous, the centre of the vertex vaguely darkened.

Pronotum above pale brown. Anterior lateral pretergites pale whitish yellow. Mesonotal præscutum with four nearly confluent brown stripes, the humeral region pale yellow, the lateral margins less conspicuously so; pseudosutural foveæ and tuberculate pits black; scutum and scutellum grey, the scutal lobes variegated with dark brown; postnotum greyish brown. Pleura dark brown, narrowly striped longitudinally with obscure yellow; dorso-pleural region dark. Halteres yellow, the knobs infuscated. Legs with the coxæ and trochanters pale testaceous; femora brown, paler basally, with a barely evident pale subapical ring; tibiæ brown, fore tibiæ (♂) with a dilated but scarcely darker subbasal ring; tarsi dark, but clothed with abundant yellow setæ to

produce a whitish appearance. Wings narrow, with a brown tinge, especially noticeable as seams to the veins, the axillary region similarly darkened; a small darkened area in cell *Sc* near base, as in the subgroup; veins and macrotrichia dark brown. Venation: petiole of cell M_3 approximately twice the length of the oblique, gently arcuated *m-cu*; vein *2nd A* relatively short, ending before the level of the caudal end of *m-cu*; cell *2nd A* narrow.

Abdomen dark brown, including the hypopygium. Male hypopygium with the ventral lobes of the basistyle relatively slender, bearing at tip a dense brush of long yellow setæ, but not otherwise armed. Both dististyles placed close together. Outer dististyle shorter, the stem long and slender, pale, the two arms tumid, blackened, the outer arm obtuse, the inner arm more pointed. Inner dististyle longer, slender, sinuous, the apex bent nearly at a right angle and produced into a long, straight, acute point; just before this apical point, on outer face, with a small appressed spine. Phallosomic structure a very broad pale cushion. *Ædeagus* long and slender, a little shorter than the inner dististyle.

Hab. Victoria.

Holotype, ♂, Melton, May 27, 1928 (*F. E. Wilson*).

Allotype, ♀, Clarkefield, September 27, 1928 (*F. E. Wilson*).

Paratopotype, ♂; *paratypes*, 2 ♀ ♀, Quantong, September 3, 1928 (*A. D. Selby*); 6 ♂ ♀, with the allotype.

Despite the lack of an apical beak on the ventral lobe of the basistyle of the hypopygium, there can be little doubt that the present species is correctly placed in the *annulipes* subgroup.

Molophilus alpicola, sp. n.

Belongs to the *gracilis* group, *ruficollis* subgroup; antennæ short; mesonotal præscutum light reddish brown, the postnotum and pleura dark brown; halteres pale yellow; legs yellow, the tips of the femora and tibiæ narrowly infuscated; fore tibiæ (♂) with a conspicuous subbasal black ring; wings greyish, the cord conspicuously seamed with brown; male hypopygium with the basal dististyle a simple, powerful, blackened structure, the apex curved into a long stout spine.

Male.—Length about 4.8 mm.; wing about 5.4 mm.

Rostrum and palpi dark brown. Antennæ of moderate length, if bent backward ending a little before the wing-root,

dark brown throughout; flagellar segments long-cylindrical, the lower face of each slightly more protuberant, the outer face with verticils of moderate length. Head dark grey.

Pronotum dark brown; anterior lateral pretergites yellow. Mesonotum light reddish brown, the humeral region and lateral margins obscure yellow; posterior lateral callosities of scutal lobes and the scutellum obscure yellow; postnotum dark brown, sparsely pruinose. Pleura dark brown, the ventral sternopleurite more yellowish; pleurotergite chiefly pale and densely set with long pale setæ that arise from dark setigerous punctures. Halteres pale yellow. Legs with the coxæ yellowish testaceous; trochanters yellow; femora yellow, the tips narrowly infuscated; tibiæ yellow, the tips very narrowly and vaguely darkened; fore tibiæ (σ) with a narrow black subbasal ring at slightly more than its own length beyond the base; basitarsi yellow, the tips and remainder of tarsi passing into black. Wings of the type broken, one entirely lost, the other broken beyond the cord; general coloration greyish, the stigmal region more yellowish; a large and conspicuous dusky cloud on the anterior cord, together with a narrower and less evident darkening on the posterior cord; veins light yellow, darker in the infuscated areas. Venation: R_2 lying a short distance beyond the level of $r-m$: petiole of cell M_3 relatively short, about one-half longer than $m-cu$; vein 2nd A elongate, gently sinuous, ending about opposite the fork of M_{3+4} .

Abdomen dark brown, including the hypopygium. Male hypopygium very short and broad. Ninth tergite with the caudal margin convexly rounded and here with a median group of setæ. Basistyle short and stout, the ventral lobe broad, densely provided with coarse setæ. Outer dististyle with the stem very slender, bearing a small lobule at base; distal half of style expanded into a blade that splits into two arms; outer arm slender, gently sinuous; inner arm with the basal half expanded into a conspicuous flange, the distal half slender. Basal dististyle a simple powerful blackened structure, the base stout, the apical third bent at more than a right angle into a long stout spine. No distinct phallosomic structure is apparent. \mathcal{A} edeagus long and slender, the basal third with conspicuous lateral flanges, the distal portion slender, in slide-mounts extending to beyond the level of the apex of the basal dististyle.

Hab. Victoria.

Holotype, σ , Bogong High Plains, altitude 5600-6000 feet, January 1928 (*F. E. Wilson*).

Molophilus chloris, sp. n.

Belongs to the *gracilis* group, *ruficollis* subgroup; general coloration dark brown, the præscutum laterally more yellowish; femora dark brown, with a vague diffuse pale subterminal ring; wings greying, with a darker seam along the cord; male hypopygium with the inner dististyle a short, stout, blackened rod, more or less flask-shaped, at and near apex with two small spines.

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

Rostrum and palpi black. Antennæ with the basal segments black, the flagellum broken. Head dark brown.

Mesonotal præscutum broadly dark brown medially, paling to ochreous-yellow on sides; humeral region and anterior lateral pretergites very pale yellow; scutal lobes darkened; scutellum brown, more yellowish caudally; postnotal mediotergite brownish black, more obscure laterally behind. Pleura chiefly dark brown, vaguely marked with paler. Halteres pale. Legs with the coxæ and trochanters obscure yellow; femora chiefly dark brown, with a vague and diffuse yellow subterminal ring; tibiæ dark brown; tarsi black. Wings greyish, the prearcular region more yellowish; a conspicuous greyish-brown seam along the cord, extending from the stigma to Cu_1 ; less distinct cloudings in cell *2nd A* and along the distal section of Cu_1 ; macrotrichia black. Venation: R_{2+3} about one-half longer than the basal section of R_5 ; vein *2nd A* elongate, gently sinuous, extending to opposite or beyond mid-length of the petiole of cell M_3 .

Abdomen black, including the hypopygium. Male hypopygium with the basistyle short and stout, the ventral lobe short and broad, with conspicuous setæ. Both dististyles arising close together in the notch of the basistyle; outer dististyle longest, appearing as an angularly curved flattened blade that divides at apex into two long beak-like blades, both flattened and obtuse at tips. Inner dististyle short and stout, more or less flask-shaped, blackened, nearly straight, tapering gradually to the acute curved tip; before tip with a small lateral spine. Phallosome a pale depressed plate, with elongate darkened blades on either side. Ædeagus relatively short and stout, very wide at base.

Hab. Victoria.

Holotype, ♂, Belgrave, in dark fern-gully, January 13, 1929 (*F. E. Wilson*).

This very distinct species is named in honour of Miss Barbara Chloris Wilson, eldest daughter of F. Erasmus Wilson.

Molophilus tasioceroides, sp. n.

Belongs to the *gracilis* group, *ruficollis* subgroup; antennæ (δ) longer than the body; wings relatively narrow, tinged with dusky; male hypopygium with the inner dististyle shorter than the outer, extended into an acute straight spine; phallosomic structure heavily blackened, terminating in a small comb of from four to six teeth.

Male.—Length about 4–4.2 mm.; wing 4.8–5 mm.; antenna about 4.5–4.6 mm.

Rostrum and palpi black. Antennæ (δ) longer than the body; second scapal segment obscure yellow, the remainder of the organ black; flagellar segments elongate-cylindrical, with conspicuous erect verticils. Head dark greyish brown.

Mesonotum almost uniformly dark brown; humeral region of præscutum obscurely brightened; scutellum a little paler. Pleura testaceous-brown, the pteropleurite more yellowish. Halteres long, obscure yellow, the knobs infuscated. Legs with the coxæ and trochanters yellowish testaceous; femora yellowish brown, with dark setæ, the outer segments of the leg becoming darker brown. Wings relatively narrow, tinged with dusky, some of the veins narrowly seamed with still darker brown; veins brown, the macrotrichia darker. Venation: vein 2nd *A* relatively short, ending some distance before the transverse *m-cu*.

Abdomen dark brown, including the hypopygium. Male hypopygium with the ninth tergite conspicuous, deeply emarginate, the lobes densely set with spinous setæ. Basistyle with the ventral lobe elongate, relatively slender. Both dististyles arising close together, the outer style very large, its stem short and stout, the two arms conspicuously unequal in size; outer arm considerably longer than the stem, flattened; inner arm about one-half this length, the tip obtuse. Inner dististyle shorter than the outer, appearing as a simple rod that terminates in an acute straight spine; at near mid-length the style is expanded into a flange that bears about four setigerous punctures, in addition to a dense cushion of small erect setæ on face of expanded portion of style. Phallosomic structure heavily blackened, terminating in a small crown of from four to six teeth, these varying from short to longer. *Ædeagus* slender, pale yellow, subtended by a flange on its basal three-fourths.

Hab. Victoria.

Holotype, δ , Belgrave, in dark fern-gully, altitude 900 feet, June 4, 1928 (*F. E. Wilson*).

Paratopotypes, 5 ♂ ♂.

Molophilus tasiocerooides bears a rather conspicuous resemblance to a large species of *Tasiocera*.

Molophilus extricatus, sp. n.

Belongs to the *gracilis* group and subgroup; general coloration reddish brown; head dark grey, the posterior orbits more yellowish; wings greyish yellow, the macrotrichia brown; abdominal tergites dark brown, the hypopygium brighter; male hypopygium with the dorsal lobe of basistyle stout, setiferous to the obliquely truncated apex; outer dististyle attached laterally, the mesal end bifid by a lateral pale spine; inner dististyle bearing a similar lateral spine at near three-fifths its length.

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

Rostrum and palpi dark brown. Antennæ dark brown throughout, of moderate length (♂), if bent backward extending about to the wing-root. Head with the disk of the vertex extensively dark grey, the posterior orbits and occipital region very restrictedly yellow.

Pronotum reddish grey, the lateral pretergites narrowly light sulphur-yellow. Mesonotal præscutum reddish brown, with a very sparse pruinosity; pseudosutural foveæ pale; scutum dark, the posterior callosities obscure yellow; scutellum obscure yellow; postnotum dark. Pleura reddish brown, very sparsely pruinose, the dorsal pleurites darker. Halteres pale yellow. Legs with the coxæ and trochanters yellowish testaceous; femora dark brown, the bases more obscure yellow; tibiæ light brown, the tips darker; tarsi passing into black; fore tibiæ (♂) with a distinct dilated subbasal ring that is a little darker than the ground-colour. Wings with a greyish-yellow suffusion, brighter yellow at base and in costal region; veins darker than the ground-colour; macrotrichia brown, relatively long and conspicuous, somewhat brighter along the costa. Venation: R_2 lying shortly beyond the level of $r-m$; vein *2nd A* elongate, extending to about opposite one-third the length of the petiole of cell M_3 .

Abdomen dark brown, the caudal margins of the sternites very narrowly ringed with yellow; hypopygium brighter, more brownish yellow. Male hypopygium with the dorsal lobe of the basistyle produced caudad into a stout lobe that is setiferous to the apex, the latter obliquely truncated; ventral lobe small, with scattered retrorse spinous setæ; mesal lobe broadly flattened, the apex obtuse. Outer

dististyle of the same peculiar form as in *flavocingulatus*, being attached laterally, the mesal end appearing as a flattened blade that terminates in a blackened spine; before apex on lateral margin bearing a long, gently curved, pale spine; lateral end of style produced into a long, straight, black spine, the outer margin with abundant appressed spinulæ. Inner dististyle longer, appearing as a sinuous flattened rod, at near three-fifths its length bearing a conspicuous black lateral spine; apex of style microscopically spinulose. *Ædeagus* long and slender.

Hab. Victoria.

Holotype, ♂, Bogong High Plains, altitude 5600–6000 feet, January 1928 (*F. E. Wilson*).

Paratopotype, ♂.

The relationship of *M. extricatus* to *flavocingulatus*, Alexander (New South Wales), is marked, but the two are readily separated by the structure of the hypopygium.

Molophilus grampianus, sp. n.

Belongs to the *gracilis* group and subgroup; most nearly allied to *M. tristylus*; male hypopygium with the ventral lobe of basistyle not ending in a spine; all dististyles and branches shorter and of different conformation, especially the two branches of the outer dististyle.

Male.—Length about 3.2 mm.; wing 4.2 mm.

Rostrum and palpi black. Antennæ (♂) relatively long, if bent backward extending about to the wing-root; antennæ black, the flagellar segments fusiform, with a conspicuous erect white pubescence. Head dark grey, the anterior vertex somewhat more ochreous.

Pronotum dark, the posterior portion more whitish, Lateral pretergites conspicuously pale sulphur-yellow to whitish yellow. Mesonotal præscutum and scutal lobes uniformly dark greyish brown, the tuberculate pits and pseudosutural foveæ dark; median area of scutum and base of scutellum medially light grey, the remainder of scutellum brownish yellow; postnotum brownish black, sparsely pruinose. Pleura dark grey. Halteres dirty white, the knobs very weakly infuscated. Legs with the coxæ brownish yellow, darker basally; trochanters obscure yellow; femora brownish black, the bases restrictedly brighter; tibiæ dark brown, the tips blackened; fore tibiæ (♂) with an enlarged black subbasal ring; tarsi black. Wings yellowish grey, the prearcular and costal regions light yellow; veins pale brown; macrotrichia darker brown. Venation: *R*₂ lying some distance beyond the level of *r-m*; *m-cu* very oblique, gently

sinuous, about one-half the petiole of cell M_3 ; vein *2nd A* long and only gently sinuous, ending just beyond the level of the caudal end of *m-cu*.

Abdomen brownish black, pruinose; hypopygium more brownish yellow. Male hypopygium with the lobes of the basistyle poorly developed, low and obtuse, none spinous; ventral lobe small, the stem narrower than the oblique head, the latter with the cephalic angle not produced into a spine, as in *tristylus*, at most with a small setiferous tubercle. Outer dististyle even more profoundly divided than in *tristylus*, appearing as two distinct styles; outer arm shorter and less sinuous than in *tristylus*, the inner arm with the stem shorter, the apical branches widely separated, tong-like. Inner dististyle more slender than in *tristylus*, the apex suddenly narrowed, blackened, and microscopically serrulate; outer margin at near mid-length with a series of microscopic spinulæ. Ædeagus relatively long and slender, subtended by lateral wings or flanges.

Hab. Victoria.

Holotype, ♂, Grampians, October 1928 (*F. E. Wilson*).

Molophilus grampianus is allied to *M. tristylus*, Alexander (New South Wales), but is readily told by the details of structure of the male hypopygium.

Molophilus spiculistylatus, sp. n.

Belongs to the *gracilis* group and subgroup; most closely allied to *M. difficilis*, Alexander (Tasmania), differing especially in the details of structure of the male hypopygium.

Male.—Length about 4.6 mm.; wing 5.5 mm.

Antennæ black. Lateral pretergites conspicuously light sulphur-yellow. Humeral region of præscutum paler than the disk; scutellum conspicuously dark orange-yellow. Wings with R_s and R_{2+3} shorter; R_{4+5} only a little more than one-half *m-cu*; vein *2nd A* shorter, ending opposite the caudal end of vein *m-cu*. Male hypopygium with the glabrous apex of the dorsal lobe of the basistyle longer and somewhat more slender. Outer dististyle with the apical spine arising from a blackened apical cap. Inner dististyle with the extreme apex densely set with microscopic spiculæ to produce a mace-like appearance.

Hab. Victoria.

Holotype, ♂, Bogong High Plains, altitude 5600–6000 feet, January 1928 (*F. E. Wilson*).

It is possible that the present form deserves only sub-specific rank under *difficilis*.

Molophilus grandidentatus, sp. n.

Belongs to the *gracilis* group and subgroup; most closely allied to *M. aphantia*, Alexander (Victoria), differing especially in the details of structure of the male hypopygium.

Antennal verticils unusually elongate. The yellow mesonotum contrasts conspicuously with the darkened pleura. Male hypopygium with the inner dististyle shaped about as in *aphanta*, the basal half more blackened and provided on outer margin with two or three powerful black spines; the dilated apex on outer margin with several microscopic appressed spinulæ.

Hab. Victoria.

Holotype, ♂, Belgrave, in dark fern-gully, January 13, 1929 (*F. E. Wilson*).

Paratopotypes, ♂, in poor condition, June 4, 1928 (*F. E. Wilson*); 1 ♂, March 3, 1929 (*T. H. Tregellas*); ♂♂, March 31, 1929 (*F. E. Wilson*).

Molophilus truncatus, sp. n.

Belongs to the *gracilis* group and subgroup; most closely allied to *M. tenuiclavus*, Alexander (New South Wales), differing especially in the details of structure of the male hypopygium.

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

Female.—Length about 5 mm.; wing 5·8 mm.

Antennæ with the scapal segments only a trifle brighter than the flagellum. Head uniformly yellowish grey. Mesonotal scutellum only vaguely brightened. Ring of fore tibiæ (♂) black, contrasting strongly with the light brown of the remainder of the segment. Wings whitish subhyaline, with a conspicuous brown pattern, including broad seams on the anterior cord, posterior cord, along veins R_5 and Cu , and in the axillary region; veins pale, dark brown in the clouded areas. Macrotrichia dark. Venation: R_2 lying opposite or just beyond $r-m$; vein 2nd A ending opposite $m-cu$. Male hypopygium with the dorsal spine of the basistyle stouter; ventral lobe as in *tenuiclavus*. Outer dististyle as in *tenuiclavus*. Inner dististyle a flattened pale blade, the apex truncated, the outer margin with several conspicuous serrations, the inner margin produced into a conspicuous flange, the margin of which is toothed.

Hab. Victoria.

Holotype, ♂, Melton, May 27, 1928 (*F. E. Wilson*).

Allotype, ♀, Clarkefield, September 27, 1928 (*F. E. Wilson*).

Paratopotype, ♂; *paratypes*, 8 ♂♂, with the allotype.

Molophilus phyllis, sp. n.

Belongs to the *pervagatus* group; general coloration brownish black; antennæ (♂) short; legs brownish black, unvariegated; wings with a strong brown tinge, the veins seamed with darker; male hypopygium with the outer basal dististyle a blackened rod, strongly curved at mid-length, thence extended into a long straight point; outer margin at base with a series of tuberculate spines.

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

Rostrum and palpi black. Antennæ (♂) short, if bent backward ending far before the wing-root, black throughout; flagellar segments short-cylindrical, with verticils that greatly exceed the segments. Head brownish black.

Thorax entirely brownish black, only the very restricted anterior lateral pretergites before the level of the pseudosutural foveæ narrowly yellowish white. Halteres whitish, the knobs dirty yellow. Legs with the coxæ yellowish brown, the fore coxæ somewhat darker; trochanters obscure yellow; remainder of legs brownish black, unvariegated. Wings with a strong brown tinge, the veins seamed with still darker brown, restricting the ground-colour to pale streaks in the centres of the cells; stigmal region darkened; veins dark brown. Venation: vein 2nd *A* relatively short, only gently sinuous, ending before the level of the transverse *m-cu*.

Abdomen black, the hypopygium a trifle paler. Male hypopygium with the basistyle relatively stout, terminating in a small, straight, densely setiferous lobe. Outer dististyle entirely blackened, broadly expanded at base, the apex narrowed into a flattened beak-like portion. Outer basal dististyle a blackened rod, strongly swollen on basal half, curved at a right angle at near mid-length, thence narrowed gradually to an acute straight spine; on outer margin of basal half a series of small but conspicuous tuberculate spines; surface of style densely set with circular squamæ that become more elongate toward apex of style. Inner basal dististyle shorter, appearing as a flattened, somewhat twisted blade, the tip obtuse; before apex on outer margin with a weak appressed spine. Phallosomic structure chitinized, obtusely rounded at apex. *Ædeagus* elongate.

Hab. Victoria.

Holotype, ♂, Grampians, in tree-fern gully, October 1928 (*F. E. Wilson*).

Molophilus phyllis is amply distinct from all described members of the *pervagatus* group. I take great pleasure

in dedicating the species to Miss Phyllis Estelle Wilson, second daughter of F. Erasmus Wilson.

Molophilus chrysopterus, sp. n.

Belongs to the *pervagatus* group; general coloration light yellowish brown; head yellow, the centre of the vertex restrictedly darkened; halteres light yellow; femora obscure yellow, the tips broadly blackened; fore tibiæ (δ) with a blackened subbasal ring; wings bright yellow, the macrotrichia darker; male hypopygium with the outer dististyle unusually long and slender.

Male.—Length about 4.2–4.4 mm.; wing 5–5.3 mm.

Female.—Length about 5 mm.; wing about 5.5 mm.

Rostrum and palpi black. Antennæ (δ) of moderate length, if bent backward extending about to the wing-root; first scapal segment light yellow, second segment pale brown; flagellum dark brown, the segments oval. Head yellow, the centre of the vertex restrictedly greyish brown.

Pronotum buffy, the anterior lateral pretergites very pale yellow. Mesonotal præscutum almost uniformly light brown, the humeral region and interspaces brighter; scutum brown, the cephalic median and posterior lateral portions of the lobes more yellowish; scutellum obscure yellow; postnotum darker brown. Pleura obscure yellow, the dorsal pleurites with a conspicuous dark brown longitudinal stripe; dorso-pleural region more yellowish. Halteres light yellow. Legs with the coxæ and trochanters yellowish testaceous; fore and middle femora with the basal half obscure yellow, the distal half passing into brownish black; posterior femora obscure yellow, the tips narrowly blackened; tibiæ brownish yellow, the tips narrowly infuscated; fore tibiæ (δ) with a subbasal blackened ring; tarsi brown, passing into black outwardly. Wings with a bright yellow ground-colour, the veins darker yellow; macrotrichia light brown, the costal fringe and a series along the cord darker brown. Venation: R_2 lying some distance beyond the level of $r-m$; petiole of cell M_3 a little less than twice $m-cu$; vein 2nd A moderately elongate, ending opposite the base of the petiole of cell M_8 .

Abdomen dark brown, the posterior margins of the segments obscure yellow; hypopygium obscure reddish brown. Male hypopygium with the apex of the basistyle narrowed into a slender fleshy lobe. Outer dististyle unusually elongate for a member of this group, the base of the head expanded and produced into a blunt tooth, the lower angle further produced into an elongate darkened gently

curved rod. Outer basal dististyle a slender pale rod, gradually narrowed outwardly, terminating in a long acute spine, the surface of the style with conspicuous appressed spines, longer and more evident near the base of the terminal spine. Inner basal dististyle about as long as the outer, but a little broader, appearing as a gently sinuous ribbon-like structure that gradually narrows into an acute spine. *Ædeagus* elongate, relatively wide.

Hab. Victoria.

Holotype, ♂, Bogong High Plains, altitude 5600–6000 feet, January 1928 (*F. E. Wilson*).

Allotopotype, ♀.

Paratopotypes, 8 ♂ ♀.

Molophilus decinctus, sp. n.

Belongs to the *pervagatus* group; closely allied to *M. chrysopterus*, sp. n., differing especially in the lack of a blackened subbasal ring on the fore tibia of the male and in the details of structure of the male hypopygium.

Male.—Length about 3.2–3.5 mm.; wing 4–4.4 mm.

Rostrum and palpi brownish black. Antennæ (♂) relatively elongate, if bent backward extending to shortly beyond the wing-root; scapal segments yellow; flagellum dark brown, the incisures restrictedly pale. Head yellowish brown.

Mesonotal præscutum pale reddish brown, the humeral and broad lateral regions paling into yellow; remainder of mesonotum pale yellow, the postnotum darkened posteriorly. Pleura pale testaceous-yellow. Halteres relatively long, pale yellow. Legs with the fore coxæ brownish testaceous, the remaining coxæ yellow; trochanters yellow; femora obscure yellow, clothed with brown setæ, the tips scarcely darkened; tibiæ pale brown, the fore tibiæ with a scarcely evident subbasal ring that is not blackened; tarsi brownish black. Wings with a pale yellow suffusion, the veins darker yellow; macrotrichia brown. Venation: R_2 lying shortly beyond the level of $r-m$; vein $2nd\ A$ ending about opposite the cephalic end of $m-cu$.

Abdomen pale yellowish brown, the hypopygium obscure yellow. Male hypopygium with the outer dististyle having the head stout, simple, the apex depressed to the thickened margin, forming a flattened beak-like portion. Outer basal dististyle slender, strongly curved, narrowed outwardly, terminating in a long straight spine; just before the base of

this spine with a few appressed spinulæ; in the paratype with a few more basal spiculæ. Inner basal dististyle stouter than in *chrysopterus*, appearing as a flattened sinuous ribbon-like structure that gradually narrows to an acute terminal spine.

Hab. Victoria.

Holotype, ♂, Bogong High Plains, altitude 5600–6000 feet, January 1928 (*F. E. Wilson*).

Paratopotype, ♂, Tarn B.

XL—*Contributions to a Study of the British Species of Machilidæ.* — III. *The Genus Petrobius, Leach.* By H. WOMERSLEY, A.L.S., F.E.S.

THE generic name *Petrobius* was first established by Leach in 1809 for *P. maritimus*.

In 1904 Prof. Silvestri defined the genus more fully, and separated it from the rest of the Machilidæ as follows:—

- “Abdominal segments 2–5 or 2–6 with two pairs of abdominal segments. [Machilis. Genera *Petrobius* and
 Male with paired genital appendages on the ninth abdominal segment only, shorter than the penis. Penis long Gen. *Petrobius*, type [*P. maritimus*, Leach.”

In 1911, in a study of the North American Machilidæ, he described several species of *Petrobius* and placed them in a new subgenus, *Pedetontas*, which he defined thus:—

- “Eighth subcoxæ in male produced into prominent rounded lobes. Genital appendages not annulated. Penis long, reaching beyond tip of ninth segment [s. str. Subgen. *Petrobius*,
 Eighth subcoxæ in male not produced. Genital appendages annulated. Penis very short, not reaching tip of ninth segment. Subgen. *Pedetontas*, nov., type *P. californicus*, sp. n.”

In 1913 Dr. G. H. Carpenter published a detailed description of a common Irish and British species, which he regarded as *P. maritimus*, Leach. In the same year he diagnosed a new Irish species, *P. brevistylis*, which differed from *maritimus* chiefly in that the subcoxæ of the eighth abdominal segment in the male were produced into rounded lobes. In this character, Dr. Carpenter indicated that the species he took for *P. maritimus* of Leach was not the one given by Silvestri as the type of his subgenus *Petrobius*,