

NEW OR LITTLE-KNOWN TIPULIDAE (DIPTERA).
CXI. ORIENTAL-AUSTRALASIAN SPECIES.*

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IN continuing the consideration of the crane-flies of the Third Archbold Expedition to the Snow Mountains of Netherlands New Guinea, I am here discussing a series belonging to the tribe Eriopterini, chiefly belonging to the great genus *Molophilus* Curtis. This genus, vastly developed in the southern hemisphere, has proved to be one of the largest groups of these flies in the Papuan fauna. As before I am particularly indebted to Dr. M. A. Lieftinck for the privilege of retaining the types of certain species in my personal collection.

Molophilus (Molophilus) turritus, sp. n.

Belongs to the *plagiatus* group: general coloration pale yellow; antennæ short; halteres and legs yellow; wings yellow, vein *Cu* slightly seamed with darker; male hypopygium with the basal dististyle a flattened plate, at apex produced into two arms, the outer a short acute spine, inner arm longer, blackened and toothed at apex; phallosome an oval setiferous plate.

Male.—Length about 4.4–5 mm.; wing 5.5–6 mm.; antenna 1–1.2 mm.

Female.—Length about 4.5–5 mm.; wing 5.5–7 mm.

Rostrum yellow; palpi brownish-black. Antennæ with scape yellow, pedicel a little darker, flagellum pale brown; flagellar segments oval to long oval, terminal segment about one-half the penultimate; verticils of the proximal flagellar segments long and conspicuous, exceeding the segments, on the outer segments short and inconspicuous. Head yellow.

Thorax uniformly yellow, pretergites more whitened. Halteres and legs yellow, terminal tarsal segments darkened. Wings yellow, usually with a darkened seam along vein *Cu*, in cases this is less evident; veins pale, difficult to see against the ground; macrotrichia light brown. Venation: *r-m* before level of R_2 ; petiole of cell M_3 nearly twice *m-cu*; vein *2nd A* long and sinuous, ending about opposite *m-cu*.

Abdomen, including hypopygium, yellow, styli darkened. Male hypopygium (fig. 1) with the beak of the basistyle, *b*, relatively slender, blackened, outer half of style with unusually long yellow setæ. Outer dististyle, *d*, bifid, arms unequal, the longer outer arm weakly spatulate, tip microscopically setuliferous; basal style distinctive, a flattened plate, at apex produced into two arms, the outer a short acute spine, inner arm longer, its apex blackened and toothed, including a single stronger erect spine. Phallosome, *p*, an elongate oval plate, provided with abundant long pale setæ. *Æ*deagus long and slender.

* Contribution from the Entomological Laboratory, University of Massachusetts.

Holotype, ♂, Scree Valley Camp, altitude 3,800 metres, September 14, 1938 (*Toxopeus*). *Allotopotype*, ♀, pinned in copula with type. *Paratopotypes*, ♂♀, September 14–22, 1938 ; *paratypes*, 1 ♀, Lake Habbema, altitude 3,250 metres, August 2, 1938 ; 2 ♀♀, East of Mount Wilhelmina, altitude 3,600 metres, August 31–September 8, 1938 (*Toxopeus*).

Molophilus (Molophilus) turritus was the most abundant of several generally similar yellow species of the *plagiatus* group found by *Toxopeus* at high altitudes in the Snow Mountains. Others described at this time include *M. (M.) habbema*, *M. (M.) intactus*, and *M. (M.) lieftincki*, all most readily separated by the structure of the male hypopygium.

Molophilus (Molophilus) ctenistes, sp. n.

Belongs to the *plagiatus* group ; general coloration of mesonotal præscutum and scutum light brown, posterior sclerites and pleura chiefly darker ; legs yellow, outer tarsal segments darker ; wings light yellow, veins slightly darker ; male hypopygium with beak of ventral lobe of basistyle very small and weak ; both dististyles bifid, basal style with inner arm a slender spine, the outer blade broader, apex microscopically denticulate.

Male.—Length about 5.5 mm. ; wing 7 mm. ; antenna about 1 mm.

Female.—Length about 5.5 mm. ; wing 8 mm.

Rostrum brown, palpi black. Antennæ moderately long, scape and pedicel yellow, flagellum brownish-black ; flagellar segments elongate, verticils long, the normal pale vestiture very short. Head light brown.

Pronotum brown. Mesonotal præscutum and scutum chiefly light brown, central region more yellowed, lateral borders light grey pruinose, scutal lobes slightly darker ; scutellum dark brown, parascutella reddish-yellow ; postnotum darker brown, the dorsal pleurotergite more brownish-yellow. Pleura light brown in front, posterior sclerites darker, including the pteropleurite and meron ; metapleura yellowed. Halteres yellow, knobs slightly darker. Legs with coxæ and trochanters light yellow ; femora light brown, tibiæ and basitarsi more yellowed, outer tarsal segments brownish-black. Wings light yellow, veins slightly darker, trichia light brown. Costal fringe long, especially basally. Venation : R_2 lying shortly beyond level of $r-m$; petiole of cell M_3 somewhat less than twice $m-cu$; vein 2nd A ending about opposite cephalic end of $m-cu$.

Abdomen brown, sternites somewhat paler. Male hypopygium (fig. 2) with beak of ventral lobe of basistyle, b , very small and weak, only slightly darkened, the lobe with long yellow setæ. Outer dististyle, d , broad-based, apex unequally bifid, outer arm longer, inner slender ; basal style short-based, forking into two unequal arms, including a longer inner spine and a shorter, broader flattened blade, its apex microscopically denticulate, with two stouter spines before tip, these erect to slightly recurved. Phallosome, p , suboval, apex nearly truncate, surface with abundant setæ. Ædeagus short, about as long as either dististyle.

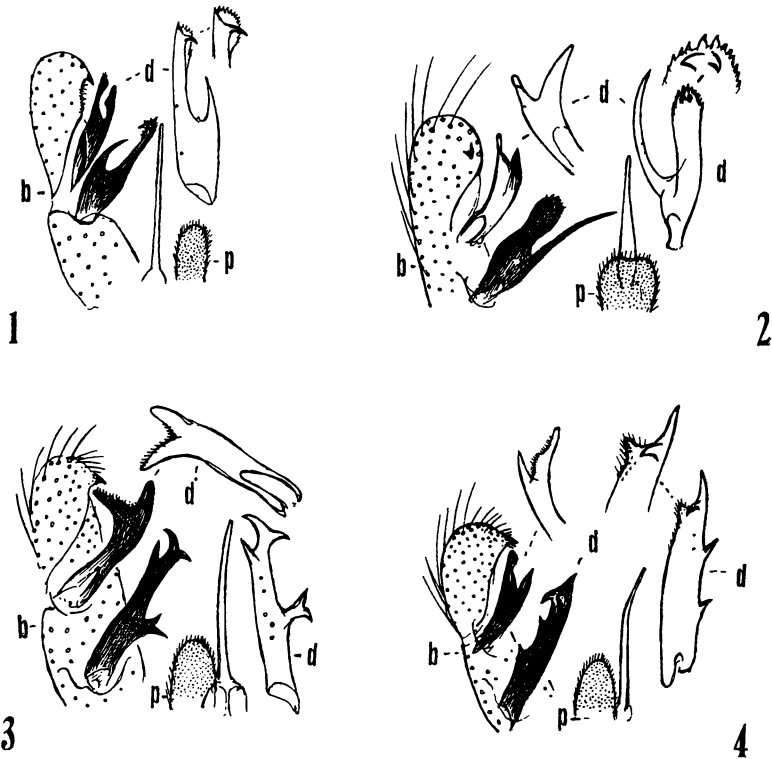
Holotype, ♂, Scree Valley Camp, altitude 3,800 metres, September 19, 1938 (*Toxopeus*). *Allotopotype*, ♀, September 14, 1938.

Readily told from other members of the *plagiatus* group by the structure of the male hypopygium, especially the basal dististyle.

Molophilus (Molophilus) habbema, sp. n.

Belongs to the *plagiatus* group; general coloration reddish-yellow, ventral pleurites clearer yellow; rostrum, halteres and legs yellow; wings light yellow, veins darker yellow; male hypopygium with the basal dististyle a straight blackened rod that bears a total of five points; phallosome a narrow oval setiferous plate.

Figs. 1-4.



1. *Molophilus (Molophilus) turritus*, sp. n.; male hypopygium. 2. *Molophilus (Molophilus) ctenistes*, sp. n.; male hypopygium. 3. *Molophilus (Molophilus) habbema*, sp. n.; male hypopygium. 4. *Molophilus (Molophilus) intactus*, sp. n.; male hypopygium. (Symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *p*, phallosome).

Male.—Length about 5 mm.; wing 6.5 mm.; antenna about 0.9 mm.

Rostrum light yellow; palpi dark brown. Antennæ relatively short; basal segments pale yellow, remaining segments brownish-yellow; flagellar segments long, shorter than the verticils. Head fulvous yellow.

Pronotum yellowish-brown. Mesonotum reddish-yellow, sparsely pruinose; pseudosutural foveæ reddened. Pleura reddish-yellow, clearer yellow below. Halteres yellow. Legs with coxæ and trochanters yellow; remainder of legs yellow, outer tarsal segments dark brown. Wings light yellow, veins more saturated yellow; trichia light yellow. Venation: R_2 immediately beyond level of $r-m$; petiole of cell M_3 unusually short, about one-third longer than the very oblique $m-cu$; vein 2nd A ending about opposite cephalic end of $m-cu$.

Abdomen brownish-yellow. Male hypopygium (fig. 3) with beak of ventral lobe of basistyle, b , very small, darkened. Outer dististyle with arms conspicuous, the longer with inner margin densely setuliferous, outer arm glabrous; basal style distinctive, appearing as a straight blackened rod, bearing a total of five points, including a short lateral arm that terminates in two points, an apical arm ending in two unequal points, and a subterminal straight spine; a few scattered setigerous tubercles on style but without setæ. Phallosome, p , a narrow oval yellow plate with abundant setæ. Ædeagus relatively long and slender.

Holotype, ♂, Lake Habbema, altitude 3,225 metres, July 29, 1938 (*Toxopeus*); Alexander Collection.

Molophilus (Molophilus) habbema is readily told from related regional members of the *plagiatus* group by the hypopygial structure, especially the distinctive basal dististyle. The most similar of such species is the more yellowed *M. (M.) intactus*, sp. n.

Molophilus (Molophilus) intactus, sp. n.

Belongs to the *plagiatus* group; general coloration of head and thorax yellow; legs light brown; wings pale yellow, veins very slightly more darkened but difficult to distinguish, trichia very pale brown; male hypopygium with basal dististyle a straight rod terminating in an acute spine, before tip with a recurved spine and a setuliferous tubercle, with small lateral spines at about one-third and two-thirds the length.

Male.—Length about 5 mm.; wing 6 mm.; antenna about 0.9 mm.

Rostrum yellow, palpi brownish-black. Antennæ short; scape yellow, pedicel brownish-yellow, flagellum brownish-black; flagellar segments long-oval, shorter than the verticils, normal vestiture short. Head yellow.

Thorax light yellow, præscutum with clearer yellow intermediate stripes that are separated by a capillary dusky line; posterior thoracic pleura more reddish yellow. Halteres yellow. Legs with coxæ and trochanters light yellow; remainder of legs light brown, outer tarsal segments darker brown. Wings pale yellow, veins very slightly more darkened, difficult to distinguish, trichia very pale brown. Venation: R_2 lying just beyond level of $r-m$; petiole of cell M_3 nearly three times $m-cu$.

Abdomen brown, the hypopygium more yellowed. Male hypopygium (fig. 4) with beak of ventral lobe of basistyle, b , small and slender. Outer

dististyle, *d*, shallowly and unequally bifid, the longer outer arm with apex obtuse, margin with microscopic setulæ ; basal style a straight rod that terminates in an acute spine, with a further strong recurved spine before apex ; on face of style a subapical setuliferous tubercle, with other setulæ near its base ; two small lateral spines, placed respectively at near one-third and two-thirds the length of style. Phallosome, *p*, narrowly oval, tip obtuse, surface with abundant delicate pale setulæ. Ædeagus about equal in length to the basal dististyle, its outer sixth more narrowed.

Holotype, ♂, Scree Valley Camp, altitude 3,800 metres, September 22, 1938 (*Toxopeus*) ; Alexander Collection.

Molophilus (Molophilus) intactus is allied to *M. (M.) turritus*, sp. n., and other species described at this time, being most readily told by the structure of the male hypopygium, especially the basal dististyle. The most similar species is *M. (M.) habbema*, sp. n.

Molophilus (Molophilus) fustiferus, sp. n.

Belongs to the *plagiatus* group ; general coloration of thorax brownish-grey ; antennæ short ; legs brownish-yellow ; wings light yellow, including the veins ; male hypopygium with the basal dististyle a powerful blackened rod, near apex with three strong points ; outer style short, unequally bispinous ; phallosomic plate narrowly oval, with abundant long setæ.

Male.—Length about 4.5 mm. ; wing 5.5 mm. ; antenna about 0.9 mm.

Rostrum brown, palpi dark brown. Antennæ relatively short ; scape pale brown, remainder more brownish-yellow ; flagellar segments long-oval, shorter than the verticils, normal setæ pale. Head light brown, with a greyish cast.

Pronotum brownish-yellow ; pretergites light yellow. Mesonotum almost uniformly brownish-grey, pseudosutural foveæ darker brown ; lateral præscutal borders and pleura somewhat more reddened, especially the meron. Halteres light yellow. Legs with coxæ and trochanters yellow ; remainder of legs brownish-yellow. Wings light yellow, including the veins ; vestiture light brown. Venation ; R_2 lying nearly opposite *r-m* ; petiole of cell M_3 approximately twice the slightly oblique *m-cu* ; vein *2nd A* ending distinctly beyond *m-cu*.

Abdomen, including hypopygium, dark brown. Male hypopygium (fig. 5) with beak of ventral lobe of basistyle, *b*, small and weak. Outer dististyle, *d*, short, unequally bispinous, the longer outer arm with microscopic blackened setulæ ; basal style a powerful blackened rod, near apex with three strong points, as shown. Phallosome, *p*, a narrowly oval plate provided with abundant long setæ, the more basal and discal ones smaller. Ædeagus pale, shorter than the basal dististyle, gradually narrowed to an acute point.

Holotype, ♂, Letterbox Camp, east of Mount Wilhelmina, altitude 3,600 metres, September 5, 1938 (*Toxopeus*) ; Alexander Collection.

Molophilus (Molophilus) fustiferus is readily told from all other regional members of the *plagiatus* group by the structure of the male hypopygium, especially the macelike basal dististyle.

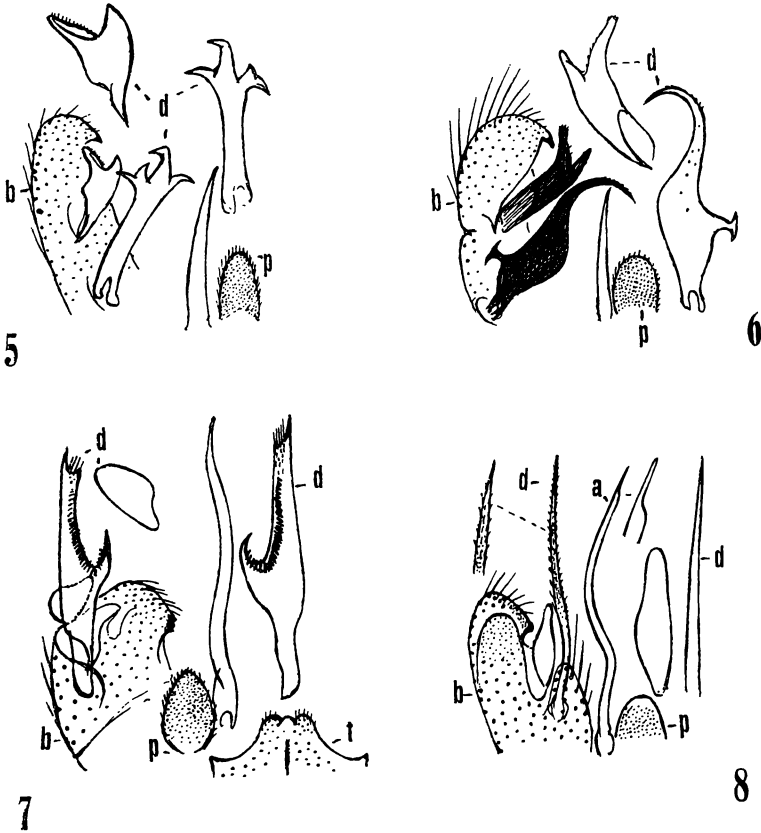
Molophilus (Molophilus) lieftincki, sp. n.

Belongs to the *plagiatus* group ; size relatively large (wing about 7 mm.) ; general coloration of thorax yellow ; legs brownish-yellow ; wings very pale yellow, veins slightly darker, inconspicuous ; male hypopygium with basal dististyle an elongate blade, outer half curved, gradually narrowed to an acute point, surface with microscopic appressed denticles ; margin of style near base with a slender arm that terminates in two divaricate spines.

Male.—Length about 4.5–4.7 mm. ; wing 6.8–7 mm. ; antenna about 1.3–1.4 mm.

Female.—Length about 5.5 mm. ; wing 7 mm.

Figs. 5–8.



5. *Molophilus (Molophilus) fustiferus*, sp. n. ; male hypopygium. 6. *Molophilus (Molophilus) lieftincki*, sp. n. ; male hypopygium. 7. *Molophilus (Molophilus) toxopeanus*, sp. n. ; male hypopygium. 8. *Molophilus (Molophilus) stylopappus*, sp. n. ; male hypopygium. (Symbols : a, aedeagus ; b, basistyle ; d, dististyle ; p, phallosome ; t, tergite).

Rostrum and palpi brownish-black. Antennæ moderately long ; scape yellow, remaining segments light brown ; flagellar segments long, slightly exceeding the verticils, pale normal setæ relatively short. Head buffy, somewhat darker behind.

Pronotum and pretergites yellowed. Mesonotum light reddish-brown, slightly pruinose, humeral region yellowed ; posterior sclerites of notum and dorsal pleurites weakly infuscated, ventral pleurites extensively light yellow. Halteres yellow. Legs with coxæ and trochanters yellow ; remainder of legs brownish-yellow, bases of posterior femora clearer yellow, terminal tarsal segments brownish-black. Wings very pale yellow, veins slightly darker, inconspicuous ; trichia delicate, pale brown. Venation : R_2 lying just beyond level of $r-m$; petiole of cell M_3 about twice the oblique $m-cu$; vein $2nd\ A$ relatively long, ending shortly beyond $m-cu$.

Abdomen light brown, base of hypopygium yellow, ventral lobe dusky. Male hypopygium (fig. 6) with beak of ventral lobe of basistyle, b , slender, stouter at base. Outer dististyle, d , stout, unequally bifid, outer arm longer, its apex microscopically denticulate, inner arm darkened, apex narrowly obtuse ; basal style distinctive, appearing as an elongate blade, outer half curved, narrowed gradually into an acute point, outer surface with microscopic appressed denticles and scattered punctures ; margin shortly beyond base with a slender arm that terminates in two acute divaricate spines, their angle about 180° . Phallosome, p , oval, tip obtuse, surface with abundant long pale setæ. $\text{\AA}edeagus$ relatively short, a little less than the basal dististyle.

Holotype, ♂, Letterbox Camp, east of Mount Wilhelmina, altitude 3,560 metres, September 12, 1938 (*Toxopeus*). *Allotopotype*, ♀. *Paratype*, ♂, Scree Valley Camp, altitude 3,800 metres, September 15, 1938 (*Toxopeus*).

I take great pleasure in dedicating this distinct fly to Dr. M. A. Lieftinck, distinguished authority on the Indonesian Neuropteroid fauna. The species is quite different from all other high mountain members of the *plagiatus* group in the structure of the male hypopygium, particularly the very distinctive basal dististyle.

Molophilus (Molophilus) toxopeanus, sp. n.

Belongs to the *plagiatus* group ; general coloration black ; halteres brownish-black ; wings strongly darkened ; male hypopygium with apical margin of tergite unequally trilobed ; beak of basistyle stout, bispinous or trispinous ; basal dististyle a powerful rod, bearing a strong spine on mesal face beyond base, surface of style with abundant blackened setæ.

Male.—Length about 3.2–3.4 mm. ; wing 4–4.2 mm. ; antenna about 0.85–1 mm.

Rostrum and palpi black. Antennæ black, relatively long ; flagellar segments long-oval, outer segments smaller ; verticils very long, normal vestiture short and inconspicuous. Head brownish-black.

Pronotum obscure brownish-yellow to light brown. Mesothorax black, præscutum more polished. Halteres brownish-black. Legs with coxæ and trochanters reddish-brown, fore pair darker; fore legs blackened, remaining legs with femoral bases slightly paler. Wings strongly darkened; a whitened streak along veins M and M_{1+2} ; veins and trichia brown. Venation: R_2 lying opposite or slightly before level of $r-m$; petiole of cell M_3 variable in length, from about one and one-half to nearly three times $m-cu$; vein $2nd A$ ending just before level of posterior end of $m-cu$.

Abdomen, including hypopygium, black. Male hypopygium (fig. 7) with posterior border of tergite, t , narrowed and produced, its apex unequally trilobed, lateral angles of tergite nearly acute. Basistyle, b , very short and stout, the mesal-apical angle produced into a broad blackened point that is indistinctly bispinous or trispinous. Dististyles, d , very unequal; outer style a small suboval lobe; basal style distinctive, appearing as a stout straight rod that narrows outwardly, its outer angle abruptly narrowed into a spine, internally with a few setæ; beyond base of style on mesal edge with a subappressed black spine, with abundant blackened setæ in its axil and on face of style. Phallosome, p , oval, narrowly obtuse at tip, surface with microscopic setulæ. Ædeagus, a , very long, exceeding the basal dististyle in length, apex suddenly narrowed.

Holotype, ♂, Rattan Camp, altitude 1,150 metres, February 13, 1939 (*Toxopeus*). *Paratopotypes*, 10 ♂♂.

This very distinct species is named for the collector, Dr. Lambertus Johannes Toxopeus. It is entirely different from other regional species having the body black and halteres darkened, by the structure of the male hypopygium, especially the basal dististyle.

Molophilus (Molophilus) stylopappus, sp. n.

Belongs to the *plagiatus* group; allied to *triepiurus*; general coloration dark brown; legs brownish-yellow; male hypopygium with two unequal dististyles, the inner style a long nearly straight rod, its surface with abundant setæ; apex of ædeagus narrowed into a slender point.

Male.—Length about 4.5–5.5 mm.; wing 5.5–7 mm.; antenna about 0.9–1 mm.

Female.—Length about 5.5–6 mm.; wing 7–7.5 mm.

Rostrum and palpi black. Antennæ broken. Head dark brown.

Pronotum and lateral pretergites restrictedly yellow. Mesonotum and pleura almost uniformly dark brown, surface sparsely pruinose. Halteres obscure yellow. Legs with coxæ and trochanters light yellowish-brown; remainder of legs brownish-yellow, outer tarsal segments blackened; leg vestiture short. Wings brownish-yellow, veins somewhat darker; trichia brown, costal fringe relatively long. Venation: R_2 lying immediately beyond level of $r-m$; petiole of cell M_3 about two and one-half times $m-cu$; vein $2nd A$ ending shortly beyond level of $m-cu$.

Abdomen, including hypopygium, dark brown. Male hypopygium (fig. 8) with ventral lobe of basistyle, *b*, large, with coarse setæ, beak relatively slender but produced cephalad as a sclerotized ridge; apex of style near beak with dense short setæ; dorsal lobe small, with long setæ; mesal lobe broadly obtuse, with very small and delicate setulæ, the margin more sclerotized, glabrous. Dististyles, *d*, very unequal, the outer small, glabrous, shaped like a bowling pin, tip obtuse; the larger inner style a long nearly straight rod, about twice as long as the basistyle, narrowed very gradually to an acute point, surface with delicate setulæ almost to the base, these hairs not from setigerous punctures, a very few larger setigerous punctures present. Phallosome, *p*, an oval plate, its disk with sparse setulæ. Ædeagus, *a*, pale, long and slender, subequal in length and diameter to the longer dististyle, sinuously bent on basal half, apex narrowed into a slender point.

Holotype, ♂, Letterbox Camp, east of Mount Wilhelmina, altitude 3,600 metres, September 7, 1938 (*Toxopeus*). Allotopotype, ♀, with the type. *Paratopotypes*, 2♂♂, 1 ♀, August 30—September 4, 1938. *Paratypes*, 2 ♂♂, Scree Valley Camp, altitude 3,800 metres, September 24–27, 1938 (*Toxopeus*).

The most similarly described regional species is *Molophilus* (*Molophilus*) *triepiurus* Alexander, which differs evidently in the structure of the male hypopygium, particularly both dististyles. In the present fly the long abundant setulæ on the inner style provide an important character for defining the species.

Molophilus (*Molophilus*) *protervus*, sp. n.

Belongs to the *plagiatus* group, allied to *longicornis*; general coloration of thorax yellow to brownish-yellow; antennæ of male elongate, flagellar segments nodulose, their dilated bases with very long outspreading setæ head and abdomen dark brown; knobs of halteres darkened; male hypopygium with beak of basistyle long and slender; inner dististyle a slender spinelike rod; phallosome distinctive, heavily blackened, terminating in a long curved black spine.

Male.—Length about 3.3–3.5 mm.; wing 4.4–2 mm.; antenna about 2.3–2.5 mm.

Rostrum and palpi black. Antennæ of male elongate, approximately two-thirds the body; scape and pedicel pale brown, flagellum light brown, apices paler; intermediate flagellar segments long-oval, tapering outwardly into slender necks, the dilated part with very long outspreading setæ, the longest approximately twice the segments. Head dark brownish-grey.

Pronotum light brown. Mesonotum brownish-yellow, pleura pale yellow, in the paratype coloration paler throughout. Halteres with stem dusky, light yellow at base, knob dark brown. Legs with coxæ and trochanters light yellow; femora dusky, the colour produced by darker vestiture, tibiæ more brownish-yellow, tarsi dark brown. Wings faintly darkened, costal border more evidently so; veins and trichia brown, the

latter long and conspicuous. Venation : R_2 lying nearly opposite $r-m$; petiole of cell M_3 almost three times $m-cu$; vein $2nd\ A$ ending about opposite $m-cu$.

Abdomen dark brown. Male hypopygium (fig. 9) with beak of ventral lobe of basistyle, b , long and slender, blackened. Outer dististyle, d , unequally bifid, outer arm slender, fingerlike, inner broader, apex subtruncate, with a small nearly terminal flange or tubercle ; inner style subequal in length, appearing as a slender spinelike rod, apex narrowly darkened, acute, before tip with two punctures that bear microscopic setæ. Phallosome, p , distinctive, black, appearing as an oval lobe, at apex farther produced into a long curved black spine, at its base with a small blackened point ; central area of phallosomic mass apparently produced into a low flange, the area with microscopic setulæ. \mathcal{A} edeagus long and slender, pale, tip darkened, the organ about one-half longer than the inner dististyle.

Holotype, ♂, Sigi Camp, along Sigi River, altitude 1,500 metres, February 26, 1939 (*Toxopeus*) ; Leiden Museum. *Paratype*, ♂, Mount Dayman, Maneau Range, Papua, Station 5, altitude 1,550 metres, June-July 1953 (*G. M. Tate*) ; American Museum of Natural History.

Molophilus (Molophilus) protervus is quite distinct from all other regional members of the *plagiatus* group, being more nearly allied to certain Australian species such as *M. (M.) longicornis* Skuse and relatives. An account of the Papuan crane-flies taken on the Fourth Archbold Expedition has been given in another paper*.

Molophilus (Molophilus) archboldeanus, sp. n.

Belongs to the *gracilis* group and subgroup ; general coloration of thorax and abdomen dark brown ; antennæ relatively long ; halteres and legs yellow, outer tarsal segments black ; wings yellow, veins darker ; male hypopygium with ventral lobe of basistyle broad, its apex truncated, mesal margin with a powerful spine ; both dististyles basal in position, subequal in length and diameter ; phallosomic plate glabrous.

Male.—Length about 4.5–5 mm. ; wing 5.2–6 mm. ; antenna about 1.5–1.7 mm.

Rostrum and palpi brownish-black to black. Antennæ relatively long ; scape and pedicel light brown, flagellum brownish-yellow to light brown ; flagellar segments long-oval, with very long pale setæ and still longer black unilaterally arranged verticils. Head light brown.

Pronotum brown, sides of scutellum obscure yellow. Mesonotum almost uniformly dark brown, surface slightly pruinose, especially on sides ; posterior sclerites and pleura darker brown. Halteres yellow. Legs with coxæ and trochanters dark brown ; remainder of legs yellow, outer tarsal segments black. Wings yellow, with extensive dusky clouds over anterior cord, $m-cu$ and in cell M ; veins slightly darker yellow. Venation : R_2 opposite or just beyond level of $r-m$; petiole of cell M_3

* Amer. Mus. Novitates 1963 : 1–24, 22 figs. ; 1960.

short, less than one-half longer than *m-cu* ; vein 2nd *A* long, ending slightly beyond *m-cu*.

Abdomen dark brown, hypopygium slightly more yellowed. Male hypopygium (fig. 10) with ventral lobe of basistyle, *b*, broad, the apex truncate ; mesal margin beyond midlength produced into a long gently curved spine, margin with two strong setæ. Dististyles, *d*, placed far basad, arising close together, subequal in length, both pointed at tips ; one style more slender, glabrous, blackened outwardly, second style slightly dilated at near midlength, with about six setigerous punctures near tip. Phallosomic plate, *p*, glabrous, oval, slightly narrowed to the obtuse tip. Ædeagus relatively short, slender, about two-thirds as long as the dististyles.

Holotype, ♂, Mist Camp, Idenburg River, altitude 1,800 metres, December 25, 1938 (*Toxopeus*). *Paratype*, ♂, Moss Forest Camp, altitude 2,700 metres, October 10, 1938 (*Toxopeus*).

I take pleasure in dedicating this distinct fly to Mr. Richard Archbold, leader and sponsor of the six Archbold Expeditions to New Guinea. The species is entirely different from all others so far made known in the structure of the male hypopygium, particularly the basistyle and both dististyles.

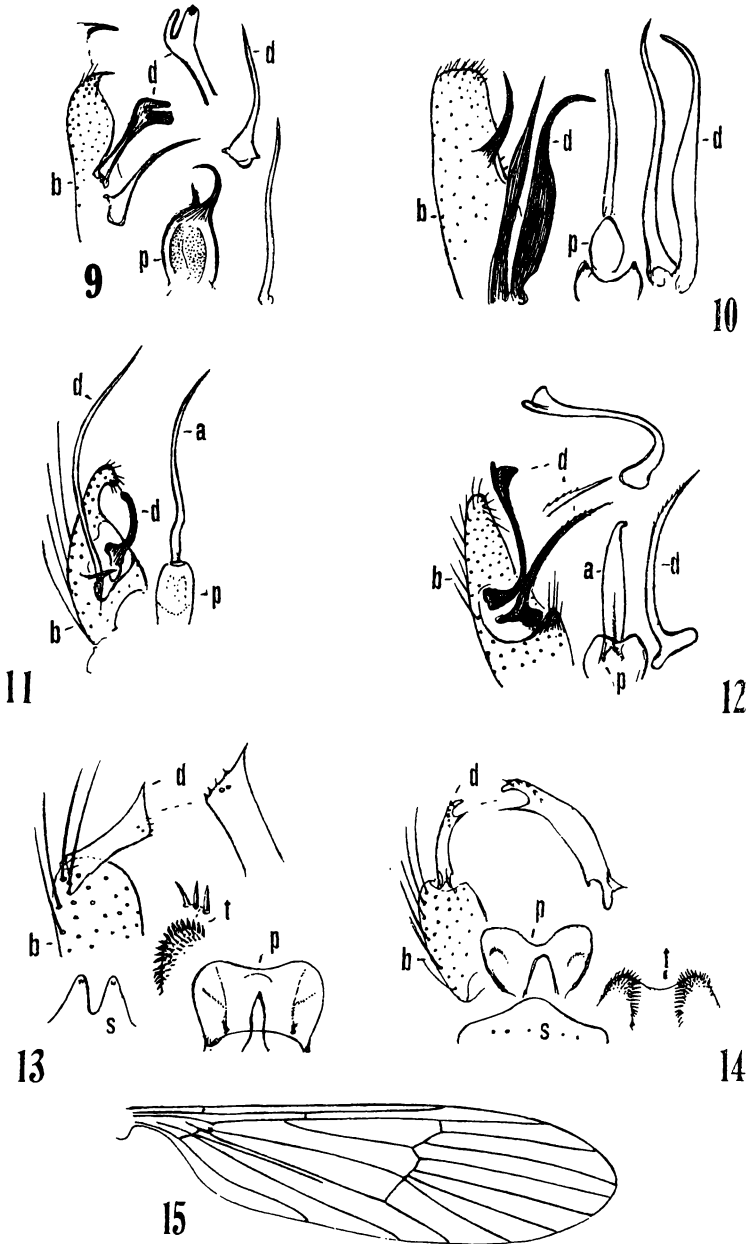
Molophilus (Molophilus) perhirtipes, sp. n.

Belongs to the *gracilis* group, *ruficollis* subgroup ; general coloration of mesonotum dark brown, the humeral region of præscutum yellowed, scutal lobes more darkened ; legs dark brown, the segments with unusually long outspreading setæ, additional to the shorter appressed normal ones ; wings with a strong blackish tinge ; male hypopygium with ventral lobe of basistyle slender, dorsal lobe a small spine ; outer dististyle a simple slender arm ; basal dististyle and ædeagus appearing as unusually long and slender simple rods, narrowed to the acute tips ; phallosomic plate setuliferous.

Male.—Length about 4.6 mm. ; wing 5 mm.

Head broken. Pronotum brown, pretergites yellow. Mesonotal præscutum chiefly dark brown, paler near the suture, humeral region yellowed ; scutal lobes more darkened, central region more brownish-yellow ; scutellum brown, postnotum dark brown. Pleura dark brown, including the dorsopleural membrane. Halteres with stem dark brown, narrowly paler at base, knob obscure yellow. Legs with the coxæ and trochanters testaceous yellow, fore coxæ somewhat paler ; remainder of legs dark brown ; segments with unusually long scattered outspreading setæ, additional to the normal setæ, longest on the formora where they exceed twice the diameter of the segment. Wings with a strong blackish tinge, veins and macrotrichia still darker. Venation : R_2 lying a short distance beyond level of *r-m* ; petiole of cell M_3 about three times *m-cu* ; vein 2nd *A* only moderately sinuous, ending nearly opposite the cephalic end of *m-cu*.

Figs. 9-15.



9. *Molophilus (Molophilus) protervus*, sp. n.; male hypopygium. 10. *Molophilus (Molophilus) archboldeanus*, sp. n.; male hypopygium. 11. *Molophilus (Molophilus) perhirtipes*, sp. n.; male hypopygium. 12. *Molophilus (Molophilus) promeces*, sp. n.; male hypopygium. 13. *Tasiocera (Tasiocera) apheles*, sp. n.; male hypopygium. 14. *Tasiocera (Tasiocera) wilhelminae*, sp. n.; male hypopygium. 15. *Amphineurus (Amphineurus) volucclus*, sp. n.; venation. (Symbols: a. aedeagus;

Abdomen, including hypopygium, black. Male hypopygium (fig. 11) with ventral lobe of basistyle, *b*, slender, fleshy, its apex a trifle more expanded and decurved, provided with setæ of moderate length; dorsal lobe of style represented by an acute spine; surface of style with several setæ of unusual length, the longest nearly two-thirds as long as the style. Outer dististyle, *d*, a simple slender arm or rod from a more expanded base; basal style a simple rod of unusual length, very gradually narrowed into an acute spine, the outer part with microscopic setæ that are more concentrated outwardly before the spine. Phallosome, *p*, subrectangular in outline, apex very obtuse to subtruncate, surface with abundant microscopic setulæ, lacking on the lateral cephalic portion. Ædeagus, *a*, unusually long and slender, having nearly the same length and diameter as the basal dististyle.

Holotype, ♂, Sigi Camp, along Sigi River, altitude 1,500 metres, February 25, 1939 (*Toxopeus*); Alexander Collection.

The most similar species is *Molophilus (Molophilus) belone* Alexander, of North-east New Guinea, which differs especially in details of structure of the male hypopygium.

Molophilus (Molophilus) promeces, sp. n.

Belongs to the *gracilis* group, *ruficollis* subgroup; general coloration dark brown; halteres yellowed; wings pale brown, vaguely clouded with darker; male hypopygium with ventral lobe of basistyle long and relatively slender, with sparse setæ, dorsal lobe small, darkened; dististyles arising close together, outer style long and slender, unequally bifid at tip, inner arm a broad subtriangular blade; inner style simple, very gradually narrowed to a point, outer surface of distal third with microscopic appressed spinules; phallosome glabrous, apex shallowly emarginate.

Male.—Length about 3 mm.; wing 3.8 mm.; antenna about 0.7 mm.

Rostrum and palpi black. Antennæ relatively short; scape and pedicel pale basally, tips darker, flagellum darkened; basal flagellar segments suboval, outer ones more elongate, verticils very long. Head buffy brown behind, darker brown in front, with long black setæ.

Pronotum dark brown, testaceous yellow above and on the pretergites. Mesonotum almost uniformly dark brown, humeral region of præscutum vaguely more reddened, pleura dark brown. Halteres yellow, knobs vaguely more darkened. Legs with coxæ medium brown, trochanters more yellowed; remainder of legs brown. Wings pale brown, vaguely clouded with darker, prearcular and costal fields more yellowed; veins brownish-yellow, trichia light brown. Venation: R_2 lying beyond level of *r-m*; petiole of cell M_3 short, about one-half longer than *m-cu*; vein 2nd *A* ending about opposite posterior end of *m-cu*.

Abdomen, including hypopygium, dark brown. Male hypopygium (fig. 12) with ventral lobe of basistyle, *b*, long and relatively slender, with sparse long setæ; dorsal lobe small, darkened, triangular, tipped

with a few long setæ. Dististyles, *d*, arising relatively close together ; outer style long and slender, strongly curved beyond base, outer two-thirds straight, tip unequally bifid ; outer arm a slender point, inner arm a broad subtriangular blade ; inner style approximately as long, appearing as a slender simple rod from a dilated base, narrowed very gradually into a long point, outer surface of distal third with microscopic appressed punctures. Phallosome, *p*, glabrous, apex with a shallow U-shaped emargination. Ædeagus, *a*, short and stout, basal half more darkened.

Holotype, ♂, Mist Camp, Idenburg River, altitude 1,800 metres, January 6, 1939 (*Toxopeus*) ; Alexander Collection.

Molophilus (Molophilus) promeces is quite distinct from other regional members of the group, including *M. (M.) kokodanus* Alexander, in the structure of the male hypopygium, particularly the dististyles and phallosome.

Tasiocera (Tasiocera) apheles, sp. n.

Size small (wing of male about 4 mm.) ; general coloration brown, abdomen darker ; antennæ with outer flagellar segments weakly pedicellate ; wings strongly narrowed on proximal third, anal angle lacking ; R_{2+3+4} only slightly longer than basal section of R_5 , cell M_2 open by atrophy of basal section of M_3 , vein 2nd *A* lacking ; male hypopygium with lateral tergal armature spinoid ; dististyle terminal, appearing as a simple elongate blade, its outer apical angle produced into an acute spine ; phallosome broad, posterior border gently emarginate, with a low median emargination.

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

Rostrum brown ; palpi brownish-black. Antennæ elongate, subequal in length ; black ; basal flagellar segments subcylindrical, outer segments more enlarged basally, tapering gradually into slender necks, the dilated parts with outspreading verticils. Head dark brown.

Mesonotum brown, pleura somewhat paler. Halteres long and caplike, gradually widening into the more darkened knobs. Legs with tæ and trochanters brown ; remainder of legs brownish-black. Wings strongly narrowed on proximal third, anal angle lacking ; general coloration pale brown, veins darker, trichia dark brown. Venation ; R_{2+3+4} only slightly longer than basal section of R_5 ; *r-m* long, arcuated ; cell M_2 open by atrophy of basal section of M_3 ; vein 2nd *A* lacking or fused to the anal border.

Abdomen, including hypopygium, brownish-black. Male hypopygium (fig. 13) badly damaged, the parts as mounted on a microscope slide about as figured. Tergite, *t*, with lateral armature strongly spinoid. Dististyle, *b*, with stout apical setæ. Dististyle, *d*, distinctive, terminal in position, appearing as a simple elongate blade, the outer apical angle produced into an acute spine ; remainder of outer border with microscopic punctures. Phallosome, *p*, broad, posterior border gently emarginate, with a low median elevation. What seems to be the sternites appears as two narrow lobes separated by a subequal emargination.

Holotype, ♂, Letterbox Camp, east of Mount Wilhelmina, altitude 3,600 metres, September 4, 1938 (*Toxopeus*); Alexander Collection.

Tasiocera (Tasiocera) apheles is readily told from the three species known from New Guinea by the structure of the male hypopygium, especially the dististyle.

Tasiocera (Tasiocera) wilhelminae, sp. n.

General coloration brown, abdomen brownish-black; antennæ of male approximately as long as body, flagellar segments not strongly nodulose at base; legs dark brown; wings with *r-m* strongly arcuated to weakly angulated; male hypopygium with the dististyle terminal, its outer apical angle narrowed, lower margin before tip with an acute spine.

Male.—Length about 3.2–3.4 mm.; wing 5–5.8 mm.; antenna about 2.8–3 mm.

Rostrum and palpi black. Antennæ brownish-black; flagellar segments very long but not strongly nodulose at base, verticils outspreading, subequal in length to the segments. Head dark brown.

Thorax brown. Halteres unusually long, about equal to the thorax, stem broad widening gradually into the knob. Legs with coxæ brown; trochanters testaceous brown; remainder of legs brown. Wings faintly tinged with grey; veins light brown; trichia dark brown. Venation: Basal section of R_5 transverse, about one-third R_{2+3+4} ; *r-m* strongly arcuated to weakly angulated; *m-cu* nearly one-half the basal section of M_{3+4} .

Abdomen brownish-black. Male hypopygium (fig. 14) with the tergite, *t*, shallowly emarginate, lateral lobes low, with a concentration of setæ, these more sparse black from the tip. Dististyle, *d*, terminal, about two-thirds as long as the basistyle, parallel-sided, the outer apical angle suddenly narrowed; lower margin with an acute spine; surface of apex, including the outer lobe, with a series of about five small tubercles. Phallosome, *p*, pale, very broad, apex shallowly emarginate, lateral lobes broad.

Holotype, ♂, Scree Valley Camp, foot of Mount Wilhelmina, altitude 3,800 metres, September 22, 1938 (*Toxopeus*). *Paratopotype*, ♂.

Tasiocera (Tasiocera) wilhelminae is one of the larger known species of the genus. It differs from other regional forms, including *T. (T.) papuana* Alexander, by the structure of the male hypopygium, particularly the dististyle.

Amphineurus (Amphineurus) polycyclus, sp. n.

General coloration of thorax brownish-yellow, præscutum blackened sublaterally; antennæ black, relatively long; femora yellow, base darkened, outer two-thirds with three narrow darkened rings, the last terminal; wings brownish-yellow, with patches of blackened trichia to produce a mottled appearance; abdominal tergites brownish-yellow, sternites and genital segment clearer yellow.

Female.—Length about 3.5–3.8 mm. ; wing 4–4.8 mm.

Rostrum and palpi black. Antennæ black, relatively long for the female sex and indicating an even longer organ in the male ; flagellar segments long, a little shorter than the verticils. Head blackened, very sparsely pruinose.

Pronotum and cervical region yellow testaceous. Mesonotal præscutum with disk brownish-yellow, sublaterally with a blackened mark that crosses the suture onto sides of the scutal lobes ; humeral region testaceous yellow ; scutal lobes dark brown, scutellum paler, parascutella darker ; postnotum reddened. Pleura brownish-yellow, with blackened areas on propleura, mesepisternum and pteropleurite, producing a broken longitudinal stripe ; meron and metapleura brownish-yellow. Halteres yellow, outer part of stem weakly darkened. Legs with coxæ and trochanters obscure yellow ; femora conspicuously banded with yellow and dark brown, the dark colour including more than the proximal third, with three further narrow rings, the last terminal, these rings more extensive than the pale interspaces ; tibiæ brownish-yellow, tips narrowly more darkened ; tarsi dark brown. Wings (fig. 15) with the ground brownish-yellow, with patches of blackened trichia on veins and in the cells, producing a mottled appearance ; veins brownish-yellow, R_5 darker. Venation : R_2 , R_{2+3} , R_{2+3+4} , basal section of R_5 and $r-m$ all short and subequal in length ; $r-m$ and basal section of M_{1+2} shorter, subequal ; in type *m-cu* at fork of M , in paratype some distance before.

Abdominal tergites brownish-black, variegated with brownish-yellow ; sternites and genital segment clearer yellow. Ovipositor with both cerci and hypovalvæ short, the former upcurved, narrowed very gradually to the acute tips ; hypovalvæ much broader, tips obtusely rounded.

Holotype, ♀, Mist Camp, Idenburg River, altitude 1,800 metres, January 12, 1939 (*Toxopeus*) ; Alexander Collection. *Paratype*, ♀, North slope of Mount Dayman, Maneau Range, Papua, altitude 1,550 metres, June 30–July 13, 1953 (*G. M. Tate*) ; American Museum of Natural History.

The genus *Amphineurus* Skuse is represented by abundant species in Australia and New Zealand and likewise in southern South America. *Amphineurus* (*Amphineurus*) *polycychus* is the first record of occurrence in New Guinea. In the absence of the male sex the fly is best distinguished from other somewhat similar species in South-eastern Australia by the pattern of the legs.