
**NEW OR LITTLE-KNOWN TIPULIDÆ
(DIPTERA).—LI. AUSTRALASIAN SPECIES.**

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

THE crane-flies here considered were chiefly taken in Victoria and New South Wales by Mr. F. Erasmus Wilson, to whom the types have been returned. A few other species were taken by Mr. André L. Tonnoir near Canberra, the types to be deposited in the Federal Collection at Canberra, and by Mr. William Heron, the types retained in my personal collection. As in the past, my very sincere thanks are extended to the above entomologists, who are so efficiently increasing our knowledge of the Tipulidæ of Australia.

Macromastix luteisubcostata, sp. n.

Male.—Length about 10–11 mm. ; wing 12·5–14 mm.

Allied to *Macromastix luteicosta* Alexander, differing in the larger size and different coloration of the body and wings.

Frontal prolongation of head more elongate. Mesonotal præscutum with four distinct dark brown stripes on a light grey ground, the intermediate pair separated only by a capillary line of the ground-colour, the stripes

contrasting strongly with the ground. Halteres with the bases of the stems extensively orange. Legs with the femoral bases very narrowly but conspicuously yellow. Wings with the prearcular region, together with cell and vein *Sc*, light yellow; cell *C* infuscated, except at outer end and along vein *Sc*; stigma small, dark brown; longitudinal veins broadly and conspicuously seamed with brown, broadest along vein *Cu*, the darkenings including all longitudinal veins excepting 1st *A*. Venation: R_{1+2} preserved but entirely pale, in position varying from oblique to subtransverse, shorter than R_1 alone. Abdomen entirely dark, the hypopygium brighter. Male hypopygium with the inner dististyle trispinous, its apex cultriform.

Hab. Victoria.

Holotype, ♂, Eltham, May 15, 1927 (*F. E. Wilson*).

Paratopotypes, 2 ♂♂; *paratypes*, 2 ♂♂, Cockatoo, September 18, 1924 (*G. F. Hill*).

Dolichopeza (Dolichopeza) fusc radialis, sp. n.

Allied to *brevifurca*; mesonotal præscutum yellowish grey, with three dark brown stripes, the median one narrowly divided at anterior end; femora obscure yellow, the tips brownish black; remainder of legs brownish black; wings narrow, the ground-colour infumed, with a conspicuous dark brown pattern, including the outer end of the radial field beyond stigma and a narrow but conspicuous apical border; cord and longitudinal veins seamed with brown; pale areas before and beyond stigma small but very conspicuous; arcular region darkened; *m-cu* less than its own length before fork of *M*; male hypopygium with outer dististyle blackened.

Male.—Length about 9.5–10 mm.; wing 10.4×2.4 to 11×2.5 mm.

Female.—Length about 11.5 mm.; wing 9.5×2.3 mm.

Rostrum dark brown; palpi black. Antennæ with the basal segment yellow, remainder of organ brownish black; flagellar segments long-cylindrical, the basal enlargements slight; verticils small but well-distributed on each segment. Head grey, the vertex with a brownish spot.

Pronotum grey, with a median brown spot. Mesonotal præscutum yellowish grey, with three dark brown stripes,

the broader median stripe narrowly split at cephalic end; posterior sclerites of mesonotum grey, the scutum more obscured, the lobes variegated by darker. Pleura grey, the pteropleurite and pleurotergite in cases more reddish grey. Halteres elongate, the knobs dark brown. Legs with the coxæ grey; trochanters brownish yellow; femora obscure yellow, the tips brownish black; tibiæ and tarsi brownish black. Wings narrower than in *brevifurca*, the ground-colour strongly infuscated; stigma and outer radial field dark brown, very conspicuous; a narrow apical seam continues around the wing-margin to vein Cu_1 ; cord and longitudinal veins of outer half of wings narrowly but distinctly bordered by brown; dark seam on *m-cu* relatively narrow and inconspicuous; pale areas before and beyond stigma whitish, very restricted in area but contrasting conspicuously with the ground; arcular region not pale, as in *brevifurca*. Venation: R_2 very short; outer medial forks relatively short, as in *brevifurca*; *m-cu* closer to fork of *M*, a little less than its own length before fork.

Abdomen brownish black, annulated with obscure yellow, the latter colour occupying the central portions of the individual segments. Male hypopygium with the structure of the tergite and styli much as in *brevifurca*; outer dististyle blackened.

Hab. New South Wales.

Holotype, ♂, Sydney, March 10, 1912.

Allotopotype, ♀, March 7, 1909.

Paratype, ♂, Mount Wilson, Blue Mts., October 20–30, 1930 (*F. E. Wilson*).

Although closely allied to *Dolichopeza brevisfurca* Skuse, the present fly is evidently distinct in the diagnostic features listed above. For help in determining the identity of the true *brevifurca*, I express my deep thanks to Messrs. Taylor and Woodhill, of the University of Sydney, for photomicrographs of the male hypopygium of the holotype specimen, now preserved in the Macleay Collections.

Dolichopeza (Dolichopeza) cairnensis, sp. n.

General coloration brown, the præscutum with three slightly darker brown stripes; pleura testaceous-yellow, the anepisternum a trifle darkened; legs black, the

tips of all tarsi whitened; wings yellowish grey, with a restricted darker pattern; male hypopygium with the ædeagus relatively stout, its apex truncated.

Male.—Length about 7.5–8.5 mm.; wing 7.5–8.8 mm.

Frontal prolongation of head light brown; palpi dark brown. Antennæ with scape and pedicel brownish ochreous; flagellum passing into black; flagellar segments elongate-cylindrical. Head brown, the anterior vertex paler.

Mesonotum light brown, the præscutum with three slightly darker brown stripes that are but little conspicuous against this ground-colour; each scutal lobe variegated with two dark brown areas. Pleura and pleurotergite pale testaceous-yellow, the ventral anepisternum a trifle darker. Halteres elongate, pale, the knobs brownish black. Legs with the coxæ and trochanters pale testaceous-yellow; femora brown, passing into black at tips, the bases narrowly paler; tibiæ and tarsi black; tips of all tarsi creamy-white, narrowly so on the fore legs, more extensively so on the posterior tarsi where the tips of the basitarsi and succeeding segments are brightened, the outermost segments again darkened. Wings greyish yellow, with a restricted darker pattern; stigma oval, dark brown; relatively broad brown seams on anterior cord and *m-cu*; outer end of cell *Sc*₂ conspicuously darkened, only the base, beyond the stigma, creamy-yellow, veins of medial field narrowly seamed with brown; cells *C* and *Sc* a trifle darker than the ground-colour; pre-stigmal pale area relatively inconspicuous; veins black. Macrotrichia of veins relatively long and conspicuous. Venation: forks of medial field moderately deep; *m-cu* nearly its own length before fork of *M*; vein *2nd A* of moderate length, the cell narrow.

Abdominal tergites chiefly brown, only the lateral portions of the intermediate segments with yellow areas; sternites extensively pale yellow, the incisures narrowly darkened; hypopygium chiefly dark. Male hypopygium with the caudal margin having a very extensive but shallow median notch, the lateral portions produced into short broad lobes that are shallowly emarginate at tips. Outer dististyle a cylindrical fleshy lobe that is conspicuously setiferous. Inner dististyle pale, the

apex obliquely truncated; at near mid-length the style bears a blackened lateral flange or lobe. A conspicuous pale depressed phallosomic plate, its caudal margin gently concave, each lateral angle with a very long powerful seta. Ædeagus more slender than in *subposticata* but still relatively stout, the apex truncated and provided with a subapical ring-like collar.

Hab. Victoria, New South Wales.

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

Paratype, ♂, Mount Victoria, Blue Mts., New South Wales, October 20–30, 1930 (*F. E. Wilson*).

The nearest ally is *Dolichozepe subposticata* Alexander (Victoria), which differs in the details of coloration and, especially, the structure of the male hypopygium. The powerful setæ on the phallosome make the present fly easily recognized.

Dolichozepe (Dolichozepe) cyatheti, sp. n.

General coloration brown, the præscutum with more or less distinct paler stripes; pleura ochreous-yellow, variegated with darker; legs brown; wings cream-coloured, conspicuously clouded with brown; subhyaline areas before and beyond stigma conspicuous; abdomen annulated with obscure yellow and dark brown; male hypopygium with the ædeagus long and slender.

Male.—Length about 6.5–7 mm.; wing 8–8.3 mm.

Female.—Length about 8 mm.; wing 8.5 mm.

Frontal prolongation of head light brown; palpi brownish black. Antennæ with scape and pedicel ochreous; flagellum brownish black; flagellar segments elongate, especially in male. Head brown; front and anterior vertex more yellowish; a small darker group of setæ on either side of the narrowed point of the vertex.

Mesonotum brown, with a very broad median yellowish-brown stripe on præscutum, the lateral stripes less indicated; scutal lobes darker brown, the median region and the scutellum brighter; postnotal mediotergite obscure yellow, darker on either side behind. Pleura chiefly ochreous-yellow, with an extensive darker area on the anepisternum and the dorsopleural region immediately above it; ventral sternopleurite weakly infumed.

Halteres elongate, pale, the knobs infuscated. Legs with the coxæ yellow, the fore coxæ somewhat darker; trochanters yellow; remainder of legs brown, becoming darker outwardly; femoral bases and genua vaguely brightened. Wings cream-coloured, with a conspicuous clouded dusky pattern; stigma large, oval, dark brown; the darkened clouds include most of the radial field beyond cord and somewhat narrower seams along *Cu* and the medial veins; broader clouds on anterior cord and *m-cu*; conspicuous brighter areas before and beyond the stigma; veins dark, paler in the oblitative areas. Venation: medial forks relatively deep; *m-cu* its own length before fork of *M*; vein 2nd *A* of moderate length.

Abdomen conspicuously annulated with obscure yellow and dark brown, the latter bands occupying the caudal portions of the segments but encroaching on the basal portion of the succeeding segment, especially on proximal segments; hypopygium chiefly dark. Male hypopygium with the caudal margin of the tergite produced into two gently rounded lobes, a little broader than the median notch. Outer dististyle a short pale clavate setiferous lobe. Ædeagus unusually long and very slender, not expanded at apex.

Hab. Victoria.

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

Allotopotype, ♀.

Paratypes, a broken ♂, Macedon, in tree-fern gully, March 24, 1929 (*F. E. Wilson*); 1 ♂, 1 ♀, Walhalla, April 1930 (*F. E. Wilson*).

Dolichopeza cyatheti is amply distinct from all other regional species. The general appearance of the male hypopygium is somewhat like that of *D. subposticata* Alexander, but the phallosome and ædeagus are quite distinct.

Dolichopeza (Dolichopeza) subannulipes, sp. n.

Generally similar to *annulipes*; legs black, the genua, narrow tips of all tibiæ, and part of all tarsi, snowy-white; wings tinged with brown, the stigma darker; large and conspicuous cream-coloured areas before and beyond stigma; male hypopygium with the caudal margin of tergite nearly transverse; inner dististyle

expanded outwardly, coarsely toothed, at base with a conspicuous flange; no phallosomic hairy structure as in *annulipes*.

Male.—Length about 8.5 mm.; wing 8.6 mm.

Frontal prolongation of head pale yellowish white; basal segment of palpus whitish, the outer segments darkened, the terminal segment nearly black. Antennæ with the scape white, the pedicel dirty white; flagellum black; flagellar segments elongate-cylindrical, with feebly indicated basal enlargements and verticils that are shorter than the segments. Front and anterior vertex pale yellowish white; remainder of vertex rich brown, darker on anterior portion, so the line demarking the pale colour of the front is unusually abrupt.

Ground-colour of præscutum pale brown, the cephalic portion of the sclerite abruptly paler; three brown stripes, the median one much paler than the dark brown laterals, the latter confluent with a more blackish area that continues ventrad and caudad around the wing-root; scutal lobes extensively dark brown; posterior sclerites of notum extensively darkened. Pleura chiefly whitish, the colour extending from the præscutal humeri ventrad across the pleura; ventral sternopleurite darkened, the anepisternum less evidently so; ventral meron and pleurotergite similarly darkened. Halteres elongate, stem brown with restrictedly brightened base, the knobs blackened. Legs with the fore coxæ extensively dark brown, the middle coxæ darkened on basal half, the posterior coxæ pale; trochanters yellow; femora obscure yellow basally, passing into brownish black outwardly, the tips narrowly but abruptly whitened; tibiæ black, the bases very narrowly, the tips slightly more broadly, whitened, the latter evident on all legs but somewhat more extensively so on posterior tibiæ; basitarsi extensively blackened, the tips and succeeding tarsal segments whitish; terminal tarsal segment blackened. Wings with a brownish tinge, the stigma darker brown, conspicuous; narrow and but little evident dark brown seams on anterior cord and *m-cu*; large and conspicuous cream-coloured areas before and beyond stigma; veins dark brown, yellow in the brightened areas. Venation: outer medial cells somewhat shorter than in *annulipes*; cell 2nd *A* narrower.

Abdominal segments conspicuously annulate with black and yellow, the latter colour involving the central third of the individual segments, the black including both ends of the segments. Male hypopygium with the caudal margin of tergite nearly transverse, the outer lateral angles slightly produced, the median area with a gentle emargination; on ventral surface, on either side, a dark flattened lobe that is densely set with small teeth and tubercles. Outer dististyle small, gently curved, the apex obliquely truncated, the margins without toothing. Inner dististyle relatively short, curved, the base greatly dilated, the margin of this flange slightly blackened and coarsely toothed; outer portion of style slightly expanded and coarsely toothed, before apex on ventral margin with a low blackened flange. No hairy phallosomic lobe as in *annulipes* and allies. Ædeagus a simple blackened rod, narrowed outwardly, the apex pale.

Hab. New South Wales.

Holotype, ♂, Wentworth Falls, Blue Mts., October 20–30, 1930 (*F. E. Wilson*).

The present fly much resembles *Dolichopeza annulipes* Skuse, but from the structure of the male hypopygium is entirely distinct and presumably not very closely allied. *D. annulipes* belongs to a restricted group that includes also *monticola* Skuse and *oresitropa* Alexander, having a conspicuous median phallosomic lobe, more or less emarginate at apex, and provided with long coarse setæ. Such a structure does not occur in the present fly, and the inner dististyle is entirely different in conformation from that of all other described Australian members of the genus.

Limonia (Limonia) inanis, sp. n.

Allied to *saxatilis*; general coloration grey; fore femora with tips black, middle and hind femora with narrower black subterminal rings, all black femoral rings preceded by yellowish annuli; wings whitish with a restricted brown pattern; cell *C* clear; male hypopygium with the caudal margin of tergite with a deep U-shaped notch; rostral spines relatively long, equal to or longer than the prolongation itself, arising close together at near mid-length of the prolongation.

Male.—Length about 6 mm.; wing 7 mm.

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

Rostrum and palpi black. Antennæ black throughout ; flagellar segments subglobular, the outer ones a trifle longer. Head light grey.

Mesonotal præscutum black, with a greyish bloom on sides, more yellowish on central portion and including the usual interspaces ; a relatively narrow dull black median stripe, the lateral stripes short ; interspaces lined more or less distinctly with more blackish streaks ; posterior sclerites of notum pruinose, the scutellum paler grey. Pleura heavily dusted with grey. Halteres small, pale yellow throughout. Legs with the coxæ dark, pruinose ; trochanters yellow ; femora obscure yellow basally, passing into more brownish yellow ; fore femora with a broad black ring that is terminal in position or nearly so, middle and hind femora with a narrow black ring that is distinctly subterminal, being about twice as wide as the yellow apex beyond ; all femora with the black ring preceded by a clear yellow annulus ; tibiæ and basal three tarsal segments obscure yellow, the tips narrowly blackened ; terminal two tarsal segments black. Wings relatively broad, whitish, with a restricted brown pattern of moderate intensity ; cell *C* clear, *Sc* clouded on basal half ; prearcular region pale ; brown clouds at stigma ; origin of *Rs* and tip of *Sc*, this area confluent with a paler cloud in cell *R* beneath *Rs* ; a cloud in cell *R* at mid-length of vein *R* ; cord and outer end of cell 1st *M*₂ narrowly seamed with brown ; a conspicuous wash in outer radial field, involving cells *R*₃ and *R*₅ ; very pale washes along vein *Cu* in cell *M* and in cell 2nd *A* ; veins dark brown, somewhat paler in the ground-areas. Venation : *Sc*₁ ending opposite or just beyond one-third the length of *Rs*, *Sc*₂ a short distance from its tip ; *Rs* and basal section of *R*₄₊₅ in approximate alignment, the inner end of cell *R*₅ not conspicuously arcuated ; *m* more arcuated than basal section of *M*₃ ; *m-cu* at or very close to fork of *M*.

Abdomen brownish black, sparsely pruinose, the incisures paler ; hypopygium yellow. Male hypopygium with the tergite narrowed outwardly, its caudal margin with a deep U-shaped notch, the lateral lobes thus formed relatively narrow, their tips obtuse. Ventral dististyle large and fleshy, the spines of the rostral prolongation elongate, placed at near mid-length of prolongation,

the longest subequal to or exceeding in length the prolongation itself; spines arising close together, the outer more strongly curved and a very little shorter, sessile; inner spine nearly straight, arising from a short enlarged base. Dorsal dististyle strongly curved, the tip darkened. Mesal-apical lobe of gonapophysis darkened, narrow and straight.

Hab. New South Wales.

Holotype, ♂, Blackheath, Blue Mts., October 20–30, 1930 (*F. E. Wilson*).

Allotype, ♀, Hawkesbury R., October 20–30, 1930 (*F. E. Wilson*).

The nearest ally of this fly is *Limonia* (*Limonia*) *saxatilis* (Skuse), which differs especially in the less-distinct wing-pattern and the very different structure of the male hypopygium, notably the scarcely emarginate tergite and the very short, separated, rostral spines. I am transferring the members of the *saxatilis* group (*annulipes* Skuse, *cinctitibia*, sp. n., *gemina* Alexander, *idonea* Alexander, *saxatilis*, and the present fly) to the typical subgenus, basing this action on the length of vein *Sc*, which extends distinctly beyond the origin of *Rs*, in cases to fully one-half the length of the latter. This assignment to *Limonia* may well be disputed, since the structure of the male hypopygium is typical of *Dicranomyia* Stephens.

Limonia (*Limonia*) *cinctitibia*, sp. n.

Allied to *saxatilis*; general coloration black, pruinose; præscutum silvery, with a median black stripe; halteres pale yellow, the knobs blackened; femora and tibiæ banded with black and yellow; wings whitish, heavily patterned with dark brown, cell *C* almost entirely blackened; abdomen black, pruinose.

Female.—Length about 7.5 mm.; wing 7.6 mm.

Rostrum black, relatively produced, about one-half the remainder of head; palpi black. Antennæ black throughout; flagellar segments subglobular to short-oval. Head grey-pruinose, more yellowish on front; posterior portion of anterior vertex with a brown central spot; narrowest point of vertex about equal in width to diameter of scape.

Mesonotal præscutum heavily covered by a silvery

pruinosity, leaving an intensely blackened median stripe that is more or less divided on posterior two-thirds by a pale vitta; lateral stripes less apparent, visible only in oblique views; posterior sclerites of notum black, sparsely pruinose, most heavily so on the scutellum and mediotergite. Pleura black, pruinose. Halteres pale yellow, the knobs blackened. Legs with the coxæ black, pruinose; trochanters yellow; femora yellow, the tips broadly and conspicuously blackened, preceded by a yellow ring that is about one-half the length of the apex; a second dark femoral ring placed just beyond mid-length of the segment, more distinct on the middle legs than on the posterior pair (fore legs broken); tibiæ chiefly black, conspicuously ringed with yellow, this colour including the extreme base and a broad ring on posterior half, the latter narrower than the black subbasal ring but much wider than the black tip; tarsi black, the proximal end of basitarsi obscure yellow, broadest on posterior legs. Wings with the ground-colour whitish, heavily and conspicuously variegated with dark brown; cell *Sc* beyond *h* entirely darkened, excepting a small spot near *Sc*₂; a series of four dark costal areas, the first at arculus, third at origin of *Rs* and fork of *Sc*, the last including the stigma; basal three areas subquadrate in outline, posteriorly not quite reaching vein *M*; prearcular region white; cord and outer end of cell 1st *M*₂ narrowly seamed with brown; brown washes in centres of outer radial cells, in the medial, cubital, and anal fields becoming more extensive and greyish brown in colour. Venation: *Sc*₁ extending nearly to mid-length of *Rs*, *Sc*₂ at near mid-distance between origin of *Rs* and tip of *Sc*₁; *Rs* angulated and sometimes weakly spurred at origin; free tip of *Sc*₂ very short; inner end of cell *R*₃ arcuated; *m-cu* a short distance before fork of *M*.

Abdomen black, sparsely pruinose; genital segments deep chestnut. Cerci slender, gently upcurved, yellow; hypovalvæ long and straight, horn-yellow, blackened at bases.

Hab. Federal Capitol Territory.

Holotype, ♀, Blundell's, January 7, 1930 (*A. L. Tonnoir*).

The pattern of the tibiæ readily separates the present fly from its near allies, *L. (L.) annulipes* (Skuse),

L. (L.) gemina Alexander, *L. (L.) idonea* Alexander, and *L. (L.) inanis*, sp. n.

Limnophila circumscripta, sp. n.

General coloration grey, the præscutum with three more brownish stripes; head and præscutum with a capillary darker median vitta; tuberculate pits lacking; legs pale brown, the tips of the femora and tibiæ slightly darker; wings whitish, heavily patterned with brown, including a border that completely encircles the wing, slightly narrower on apical portion; cell *M* extensively washed with brown; cell 1st *M*₂ open by atrophy of basal section of *M*₃, producing a pectinate appearance to the outer medial field; male hypopygium with the outer dististyle gradually narrowed to a simple point; ædeagus spiraliform basally; gonapophyses long and slender, gently curved, subtending the ædeagus, the two together appearing lyriform.

Male.—Length about 7 mm.; wing 8.5 mm.

Rostrum grey; palpi black. Antennæ with the scape and pedicel brownish black; flagellum broken. Head light grey, the posterior vertex with a capillary blackish median vitta; narrowest point of vertex fully three times the diameter of scape.

Pronotum massive, brownish grey. Mesonotal præscutum yellowish grey, with indications of three more brownish stripes that are poorly evident against the ground, the median one further divided by a capillary blackish vitta; tuberculate pits lacking; pseudosutural foveæ relatively small, luniform, black; posterior sclerites of notum chiefly dark grey. Pleura brownish grey, the dorsal sclerites slightly darker; dorso-pleural membrane buffy. Halteres relatively long, pale, the knobs weakly darkened. Legs with the coxæ testaceous-yellow; trochanters obscure yellow; remainder of legs chiefly pale brown, the tips of the femora and tibiæ insensibly darker; tarsi passing into black. Wings with the ground-colour whitish, conspicuously patterned with brown, including an uninterrupted dark margin completely encircling the wing, slightly wider on costal portion where both cells *C* and *Sc* are included, much narrower at and near the apex, wider but more diffuse along the posterior border; additional brown clouds at origin of *Rs*, stigma, cord, fork

of M_{1+2} and near outer end of cell R_5 ; conspicuous brown washes in bases of cells R and M and including about the basal two-thirds of cell M beyond the post-arcular darkening; outer end of cell 2nd A and the axilla darkened; veins cream-yellow in the ground, darkened in the clouded areas. Venation: Sc long, Sc_1 ending opposite the fork of Rs , Sc_2 at its tip; Rs elongate, only feebly arcuate at origin; anterior cord in oblique alignment; inner end of cell 1st M_2 lying more basad than cells R_3 or R_5 ; R_{1+2} about twice R_2 alone; R_{2+3+4} subequal to R_{1+2} ; in both wings of type, cell 1st M_2 open by atrophy of basal section of M_3 , so the outer medial field is pectinately branched; $m-cu$ about its own length beyond fork of M .

Abdominal tergites brownish black; sternites more brownish, the basal ones obscure yellow. Male hypopygium with the caudal margin of tergite convexly rounded, the median portion with a small rounded emargination. Outer dististyle a simple rod that narrows gradually to the slender blackened tip, the extreme apex slightly decurved; surface of style with moderately long pale setæ. \AA edeagus spiralfiform at base, the straight distal portion with a linear lacuna. Gonapophyses appearing as slender simple horns that subtend the \AA edeagus, the two together appearing somewhat lyriform.

Hab. New South Wales.

Holotype, ♂, Megalong Valley, October 20–30, 1930 (*F. E. Wilson*).

The general appearance of this handsome fly is most like species such as *Limnophila cumberlandensis* Alexander, *L. intonsa* Alexander, *L. recta* Alexander, and *L. serena* Alexander, yet amply distinct in the continuous dark marginal pattern of the wings and the structure of the male hypopygium. The open cell 1st M_2 , if a constant character, would readily separate this fly from all other known members of the genus.

Limnophila clavigera, sp. n.

Allied to *intonsa*; general coloration grey, the præscutum with three darker grey stripes; a capillary median brown vitta extending from posterior portion of præscutum across the scutum and scutellum; halteres

and legs yellow; wings yellowish, variegated with brown, including a darkening in the outer radial cells; male hypopygium with the outer dististyle conspicuously dilated on outer half, at near mid-length with a group of long conspicuous setæ; apical portion of inner dististyle long and slender.

Male.—Length about 7 mm.; wing 7 mm.

Female.—Length about 9 mm.; wing 9 mm.

Rostrum grey; palpi black. Antennæ with the scape brown, grey-pruinose; pedicel dark brown; flagellum broken. Head grey.

Mesonotum light ashy grey, the præscutum with three darker grey stripes, the median stripe on posterior portion of sclerite becoming darker brown and much narrower, crossing the suture and occupying the mid-line of the scutum and scutellum; scutal lobes variegated with dark grey. Pleura grey, the dorso-pleural region a little more buffy. Halteres pale yellow throughout. Legs with the coxæ and trochanters yellow, the bases of the former a trifle more greyish; remainder of legs yellow, the outer tarsal segments darker. Wings yellowish, variegated with brown, the latter including all of cell *C* excepting the pale yellow ends, the brown colour darker and more evident in the female; stigma and outer ends of cells R_2 and R_3 abruptly dark brown; other dark spots in extreme bases of cells *R* and *M*, at origin of *Rs*, along cord and outer end of cell 1st M_2 , and as marginal spots at ends of veins M_3 to 2nd *A*, inclusive, being small and but little evident on 1st *A*; a brown cloud in outer end of cell *R* beneath *Rs*; veins yellow, darker in the clouded areas. Venation: Sc_1 ending opposite fork of *Rs* or nearly so, Sc_2 not far from its tip; *Rs* weakly angulated at origin; R_{2+3} angulated and spurred shortly beyond origin; cell M_1 a trifle shorter than its petiole; *m-cu* just before mid-length of cell 1st M_2 .

Abdominal tergites dark brown, grey-pruinose; basal sternites obscure yellow, darker brown laterally, the outer segments more uniformly darkened. Male hypopygium with the outer dististyle of the general type of *intonsa* but with the distal half greatly dilated, the apical beak-like portion short and inconspicuous; the elongate setæ of *intonsa* are here represented by a group of 20–22

setæ at near mid-length of the style ; beyond this point on opposite face, a linear series of about 10 smaller setæ. Inner dististyle with the narrowed apical portion unusually long and slender, at the base with a small tubercle bearing about 6 or 7 longer setæ. Interbases appearing as dusky obtuse lobes. Gonapophyses terminating in a single spinous point.

Hab. New South Wales.

Holotype, ♂, Blackheath, Blue Mts., October 20–30, 1930 (*F. E. Wilson*).

Allotype, ♀, Megalong Valley, October 20–30, 1930 (*F. E. Wilson*).

The only generally similar species is *Limnophila intonsa* Alexander (Victoria–Tasmania), which is most readily told by the structure of the male hypopygium, especially the very differently constructed dististyles.

Limnophila otwayensis, sp. n.

Belongs to the *pilosipennis* group ; allied to *referta* ; general coloration dark brown ; wings with veins R_3 and R_4 strongly divergent, so cell R_3 at margin is about twice as wide as cell R_2 ; cell M_1 small ; male hypopygium with the caudal margin of tergite evenly convex.

Male.—Length about 5.5 mm. ; wing 6 mm. ; antenna about 2.5 mm.

Rostrum and palpi dark brown. Antennæ (♂) relatively long, nearly one-half the length of body, dark brown throughout ; flagellar segments subcylindrical, clothed with a short erect pubescence and with scattered verticils that are shorter than the segments ; terminal segment reduced in size. Head dull brown.

Mesonotum dark brown ; tuberculate pits and pseudo-sutural foveæ lacking. Pleura dark brown. Halteres relatively long and slender, pale, the knobs infuscated. Legs with the coxæ and trochanters obscure yellow ; remainder of legs dark brown, the terminal tarsal segments blackened ; femoral bases restrictedly brightened. Wings with a strong brownish tinge, unmarked except for the oval brown stigma ; veins dark brown. Macrotrichia in central portion of outer ends of cells R_3 to M_3 , inclusive. Venation : Sc_1 ending opposite $r-m$, Sc_2 not far from its tip ; R_{1+2} a little shorter than R_{2+3+4} ; R_3 and R_4 widely divergent, cell R_2 at margin about one-half as

wide as cell R_3 ; vein R_4 gently sinuous; cell M_1 small, less than one-half its petiole; $m-cu$ at mid-length of the rectangular cell 1st M_2 .

Abdomen dark brown. Male hypopygium with the caudal margin of tergite evenly convex. Outer dististyle slender, heavily blackened throughout, the apex bidentate; outer spine smaller and weaker; style with numerous coarse setæ except on outer face. Gonapophyses terminating in a long, slender, beak-like portion, somewhat resembling the head of a curlew. Ædeagus long and slender, twisted on basal portion.

Hab. Victoria.

Holotype, ♂, Crowe's, Otway Peninsula, January 10–20, 1932 (*F. E. Wilson*).

Limnophila otwayensis is most nearly allied to *L. referta* Alexander and *L. subcylindrica* Alexander in the elongate antennæ of the male, in conjunction with the apically hairy wings and presence of cell M_1 . The venation of the radial field, especially the strongly divergent veins R_3 and R_4 , readily separates the species.

Limnophila pallidistyla, sp. n.

Close to *nocticolor* Alexander in the general dark grey coloration and short antennæ, differing most evidently in the structure of the male hypopygium.

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

General coloration dark brownish grey, including the head and thorax, the præscutum without stripes. Halteres pale, the knobs infuscated. Legs with the coxæ obscure testaceous; remainder of legs black, the femoral bases restrictedly obscure yellow. Wings with a brownish tinge, the oval stigma slightly darker brown; veins dark brown. Macrotrichia in outer ends of cells relatively sparse and restricted. Venation as in *nocticolor*.

Abdomen brownish black, the basistyles of the hypopygium conspicuously pale. Male hypopygium much as in *nocticolor*, but the phallosome distinct, the ædeagus elongate, with a weakly spiraliform penis. Gonapophyses small, only gently curved, the tips simple.

Hab. Victoria.

Holotype, ♂, mountains above Warburton, April 1931 (*F. E. Wilson*).

Limnophila reniformis, sp. n.

General coloration of thorax yellowish brown; antennæ 15-segmented; verticils exceeding the segments; tibiæ and tarsi black; wings unusually narrow; no macrotrichia in cells of wing; Sc_1 shorter than $m-cu$; R_{2+3+4} two or more times the basal section of R_5 ; veins R_3 and R_4 at outer ends rather strongly divergent, cell R_3 at margin being fully twice cell R_2 ; male hypopygium with the outer dististyle bidentate at apex; ædeagus on distal half compressed-reniform.

Male.—Length about 4.2–4.5 mm.; wing 4×0.9 to 5×1 mm.

Female.—Length about 5 mm.; wing 4.8×1 mm.

Rostrum very short, brown; palpi short, brownish black. Antennæ only 15-segmented; scape and pedicel light brown; flagellum brownish black; flagellar segments cylindrical, the verticils exceeding the segments; terminal segment about one-fourth longer than the penultimate. Head opaque grey.

Mesonotum light yellowish brown; pseudosutural foveæ blackish; tuberculate pits lacking. Pleura pale brownish yellow. Halteres relatively long, pale, the knobs weakly infuscated. Legs with the coxæ and trochanters testaceous-yellow; femora dark brown, brightened basally; tibiæ and tarsi black. Wings unusually narrow, tinged with brown, the stigma a very little darker; veins brown. No macrotrichia in cells of wing. Venation: Sc_1 ending a short distance before fork of R_s , Sc_2 not far from its tip, Sc_1 shorter than $m-cu$; R_{2+3+4} two or more times the basal section of R_5 , in alignment with R_s ; veins R_3 and R_4 diverging rather strongly at outer ends, cell R_3 at margin being fully twice cell R_2 ; R_2 subequal to R_{1+2} ; $r-m$ gently arcuated; $m-cu$ more than its own length beyond the fork of M . The allotype has one wing with cell 1st M_2 open by the atrophy of basal section of M_3 .

Abdominal tergites light brown, the lateral margins blackened; basal sternites clearer yellow; subterminal segments more uniformly darkened; genitalia of male, excepting the outer dististyle, pale. Male hypopygium with the outer dististyle conspicuously hairy; apex distinctly and almost evenly bidentate, the two teeth separated by a deep V-shaped notch. Ædeagus on

distal half appearing as a compressed kidney-shaped structure.

Hab. New South Wales.

Holotype, ♂, Blackheath, Blue Mts., October 20–30, 1930 (*F. E. Wilson*).

Allotype, ♀, Wentworth Falls, Blue Mts., October 20–30, 1930 (*F. E. Wilson*).

Paratype, ♂, with the allotype.

The only species with which the present fly can be confused is *Limnophila levidensis* Skuse, which has the details of venation distinct, notably the position of Sc_2 , length of R_{2+3+4} , width of cell R_3 at margin, and other characters. A photograph of the male hypopygium of *levidensis*, based on the holotype specimen and kindly sent to me by Messrs. Taylor and Woodhill, shows the tip of the outer dististyle to be a simple point and the ædeagus not compressed.

Gynoplistia (Paralimnophila) albofasciata, sp. n.

General coloration grey, the præscutum with three entire dark brown stripes; antennæ (♀) 17-segmented, the scape and pedicel pale; legs chiefly black, the genua not brightened; tibiæ entirely black; all tarsi chiefly white; wings whitish-cream colour, transversely banded with dark brown, the latter including the wing-tip, the former a broad complete fascia beyond cord.

Female.—Length about 15.5 mm.; wing 11.5 mm.

Rostrum grey; palpi dark brown. Antennæ (♀) 17-segmented, the formula being 2+5+10; scape and pedicel reddish brown, flagellum brownish black; longest pectination (on basal flagellar segment) much shorter than the segment itself. Head brownish grey, the front and orbits light grey; posterior vertex with indications of a still darker brown median vitta.

Mesonotal præscutum grey, with three conspicuous dark brown stripes, the median one broad and not attaining the suture; humeral region tinged with yellow; pseudosutural foveæ large and conspicuous, black; posterior sclerites of notum grey, the scutal lobes and scutellum infuscated; mediotergite with a narrow dark brown median vitta. Pleura light grey, striped longitudinally with darker grey, the latter including a dorsal area on ventral anepisternum and ventral propleura,

and the ventral sternopleurite. Halteres yellow, the knobs brownish black. Legs with the coxæ obscure yellow, sparsely pruinose; trochanters yellow; femora yellow basally, the apices broadly blackened, more extensively so on the fore legs where about the distal two-thirds is included, most narrowly on the posterior femora where only about the distal fifth is blackened; tibiæ and proximal portion of basitarsi black, the outer third of latter and the succeeding segments white; last tarsal segment darkened. Wings whitish-cream colour, conspicuously variegated by dark brown in a transverse fasciate pattern, the dark colour including the broad wing-tip, that is even more intensely darkened at tip of vein R_3 and fork of M_{1+2} ; a complete dark band at cord that leaves the centre of cell 1st M_2 pale; a dark cloud at origin of R_s ; basad of cord, dark areas include all of cell C , base of cell Sc , an invasion from the latter into cell R at near one-third the length of the latter; longitudinal washes along vein Cu and outer half of M , all of cell Cu_1 , and clouds in base of cell Cu_2 and outer ends of both anal cells; the specific name is derived from the broad band of the ground-colour that completely traverses the wing beyond the cord; veins pale, dark in the infuscated regions. Venation: $m-cu$ at near mid-length of the relatively small cell 1st M_2 .

Abdomen chiefly dark brownish grey, the sternites lighter ashy-grey; sides of sternites narrowly yellow; pleural membrane dark. Ovipositor with the long straight valves reddish horn-colour.

Hab. New South Wales.

Holotype, ♀, Dorrigo, Dorrigo, altitude about 2000 feet, January 15, 1933 (*W. Heron*).

The wing-pattern is entirely different from the now numerous Australian species of *Paralimnophila*, having the genua unbrightened and the tarsi chiefly white. In the nature of the wing-pattern the fly is most generally similar to *G. (P.) uncinata* Alexander (Tasmania), which has the tibiæ conspicuously ringed near base with yellow, and to *G. (P.) victoria* Alexander (Victoria), which has the tarsi entirely blackened.

Gynoplistia (Paralimnophila) guttulicosta, sp. n.

Mesonotum chiefly light reddish brown, the thoracic pleura abruptly black; legs with the femora brownish

yellow, deepening to a pale brown ring before the narrow yellowish-white apex; tarsi white; wings with a strong yellowish tinge, with numerous pale brown dots in almost all the cells; a series of about a dozen more or less confluent spots in cell *C*, some of these enclosing weak spurs of cross-veins.

Female.—Length about 10–13 mm.; wing 10–12 mm.

Rostrum and palpi black. Antennæ with the scape and pedicel light yellow; flagellum broken. Head dark-coloured, grey-pruinose.

Pronotum and mesonotum chiefly a very light reddish brown, this colour including four præscutal stripes that are narrowly and interruptedly margined with dark brown; humeral and lateral portions of præscutum more greyish brown; pseudosutural foveæ pale, almost concolorous with the background; posterior sclerites of notum with an interrupted capillary brown median vitta. Pleura abruptly deep velvety-black, including the cervical sclerites, propleura, mesopleura, and the pleurotergite, excepting about the dorsal fifth, which is abruptly reddish brown. Halteres light brown, the knobs darker. Legs with the coxæ pale yellow, the fore coxæ with the basal half blackened; trochanters pale yellow; femora brownish yellow, deepening to a pale brown ring before tip, the apex narrowly yellowish white; tibiæ brownish yellow, the tips narrowly dark brown; tarsi dirty white. Wings with a strong yellow tinge; stigma oval, dark brown; an abundant pale brown dotted pattern over the wing-disc, including a series of from 12–14 areas in cell *C* between arculus and *Sc*₁; cell *Sc* unmarked except at *Sc*₂; other cells of wing, excepting *R*₁, *R*₂, and the outer medial field with scattered areas in centres of cells; veins yellow, a little darker in the clouded areas. In the smaller paratype the costal dots are so abundant as to almost completely suffuse the cell. Venation: a series of very weak spurs in cell *C*; *Rs* longer than its anterior branch; *m-cu* beyond one-third the length of cell 1st *M*₂. In both wings of holotype vein *M*, at about four-fifths the length sends a spur into cell *R*.

Abdomen chiefly dark brown, the sternites a little variegated with brighter.

Hab. New South Wales.

Holotype, ♀, Dorrigo, Dorrigo, October 14, 1931 (*W. Heron*).

Paratopotype, ♀, February 23, 1933 (*W. Heron*).

Gynoplistia (Paralimnophila) guttulicosta is very different from the other described members of the subgenus, with the exception of *G. (P.) mystica* Alexander. It is distinguished by the very abundant dotted pattern of the wings and the costal spotted and clouded arrangement with weak traces of spurs and veinlets jutting into the cell.

Gynoplistia (Gynoplistia) laticincta, sp. n.

Belongs to the *viridithorax* group; mesonotum greenish black, with transverse striolæ, as in the group; knobs of halteres dark brown; femora yellow, with about the distal fifth of each segment black; posterior tibiæ with a broad pale yellow ring on posterior half, the tip narrowly darkened; wings subimmaculate, weakly washed with brown; abdomen orange-yellow, with segments one and seven to nine black; male hypopygium with outer dististyle small, glabrous, narrowed to the subacute tip.

Male.—Length about 12 mm.; wing 9 mm.

Rostrum and palpi black. Antennæ with scape light brown, blackened apically; remainder of organ black; number of segments uncertain, as the outermost segments are broken, but there are 12 branched segments preserved, with the possibility of there being still others; longest branch less than one-third the entire organ, being conspicuously shorter than in *flavofemorata*. Head shiny blue-black, with a chestnut post-antennal spot.

Pronotum and mesonotum greenish black, the usual præscutal stripes and scutal lobes with conspicuous transverse striolæ, as in the group; median stripe further divided by a weak carina; postnotum more coarsely striate. Pleura covered with a dense grey pubescence, involving all the sclerites, but not the pleurotergite. Halteres light brown, the knobs dark brown. Legs with the coxæ grey-pruinose; trochanters black; femora yellow, the tips narrowly but conspicuously black, the amount subequal on all legs, involving about the distal fifth of the segment; tibiæ brownish black, the posterior tibiæ with a broad pale yellow ring involving the entire outer half with the exception of the narrow darkened

apex; tarsi black. Wings nearly immaculate, weakly washed with brown, appearing as vague clouds along veins *M* and *Cu*, and less distinctly at wing-tip; stigma elongate-oval, dark brown; prearcular area light yellow; veins brownish black. Macrotrichia on vein *R*₃ for almost the entire length. Venation: *r-m* not shortened, subequal to *m*; cell 1st *M*₂ rectangular, the two ends about equal in length.

Abdomen with basal segment black; succeeding segments orange-yellow; segments 7 to 9, including hypopygium, black. Male hypopygium with the outer dististyle small, entirely glabrous, dark-coloured throughout; relatively narrow, tapering to the subacute tip; in *flavofemorata* oval, the apex broadly obtuse. Gonapophyses extended into simple straight spines.

Hab. New South Wales.

Holotype, ♂, Wentworth Falls, Blue Mts., October 20–30, 1930 (*F. E. Wilson*).

The only species with which the present fly may be confused are *Gynoplistia* (*Gynoplistia*) *eburneocincta* Alexander and *G. (G.) flavofemorata* Alexander. The yellow femora, with narrowly blackened tips having the amount subequal on all legs, separate the fly from these relatives. The present species further differs from *flavofemorata* in the narrow outer dististyle of the hypopygium.

Rhabdomastix (Sacandaga) wilsoniana, sp. n.

General coloration buffy-yellow, the præscutum with four blackish stripes; knobs of halteres darkened; legs yellow; wings whitish subhyaline, with a heavy brown pattern; vein *R*₃ erect or even bent slightly basad; anal field wide; abdominal segments bicolorous.

Male.—Length about 4.3 mm.; wing 5 mm.

Rostrum and palpi brownish black. Antennæ (♂) short, as in the subgenus, if bent backward not attaining the wing-root; scapal segment and pedicel dark brown; flagellum pale testaceous-yellow, the outer segments passing into dark brown; flagellar verticils elongate, exceeding the segments. Head yellowish grey, the centre of posterior vertex extensively darkened.

Mesonotal præscutum buffy-yellow, with four blackish stripes that are more or less concealed beneath a grey

bloom; pseudosutural foveæ black; tuberculate pits cephalic in position, black; scutum buffy, the lobes variegated by greyish black; scutellum grey, with a narrow dark median spot at base; mediotergite grey. Pleura blackish, variegated with paler on the dorso-pleural region and across the sternopleurite and meron, the whole surface pruinose; extreme mid-ventral region pale yellow. Halteres pale yellow, the knobs infuscated. Legs with the coxæ and trochanters yellowish testaceous; fore and middle trochanters much longer than the posterior; remainder of legs yellow, the terminal tarsal segments blackened. Wings whitish subhyaline, with a heavy brown pattern, including clouds at origin of R_s ; Sc_2 ; stigma; a seam on R_3 ; narrow seams along cord, outer end of cell 1st M_2 , and as washes along the longitudinal veins beyond cord; wing-tip conspicuously infumed, deepest in the radial field; broken clouds in cells 1st A and 2nd A , and as a seam on the latter vein, deepest at tip; veins pale, darker in the clouded areas. Venation: Sc_1 ending about opposite mid-length of R_s , Sc_2 at its tip; R_3 transverse or bent slightly basad, the distance on costa between R_{1+2} and R_3 nearly equal to the latter; veins issuing from cell 1st M_2 gently arched; $m-cu$ at about one-third the length of cell 1st M_2 ; anal cells wide, especially 1st A ; vein 2nd A curved strongly to the anal margin.

Abdominal tergites bicolorous, the segments brownish black, their caudal margins narrowly obscure yellow; basal sternites more variegated with yellow; eighth and ninth segments brownish black, the basistyles of the hypopygium conspicuously light yellow. Male hypopygium with the outer dististyle short and stout, the usual appressed spines extending to the base of the style on outer face. Gonapophyses with the head widely expanded.

Hab. New South Wales.

Holotype, ♂, Jenolan Caves, Blue Mts., October 20–30, 1930 (*F. E. Wilson*).

Rhabdomastix (Sacandaga) wilsoniana is another of the very distinct crane-flies discovered by my colleague, Mr. F. Erasmus Wilson, after whom the species is named. This fly and the one next described are the only species of the subgenus *Sacandaga* to be described from Australia,

although rather numerous species are found in New Zealand and still others in Eastern Asia.

Rhabdomastix (Sacandaga) tonnoirana, sp. n.

Close to *wilsoniana*; wing-pattern pale greyish brown, including major areas at origin of *Rs* and at tips of veins *Sc*₁, *R*₁₊₂, *R*₃, and *R*₄, with other washes elsewhere on disc, but without a broad suffusion at wing-tip; cell 1st *M*₂ nearly as long as vein *M*₁₊₂ beyond it; *m* much shorter than the basal section of *M*₃.

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

Rostrum and palpi black. Antennæ with the basal segments pale brown; flagellum brownish black, with elongate verticils; outer flagellar segments broken. Head yellowish grey, the centre of the vertex a trifle infuscated.

Mesonotal præscutum obscure yellow-pollinose, with four little-evident greyish-brown stripes; pseudosutural foveæ and tuberculate pits black, conspicuous; posterior sclerites of mesonotum grey, the centres of the scutal lobes infuscated; a very ill-defined capillary dark vitta on median region of scutum. Pleura grey. Halteres pale, the knobs infuscated. Legs with the coxæ and trochanters yellow; remainder of legs obscure yellow, only the outer tarsal segments darkened. Wings with the ground-colour greyish, with a greyish-brown pattern, including large areas at arculus; origin of *Rs*; *Sc*₁; and at tips of *R*₁₊₂, *R*₃, and *R*₄; narrower and less distinct seams along cord, outer end of cell 1st *M*₂, and along vein 2nd *A*; extreme wing-tip in cells *R*₄ and *R*₅ darkened; vague linear streaks in cells *M* and 1st *A*; veins yellowish brown, more infuscated in the clouded areas. Venation: *Sc*₁ ending about opposite three-fifths the length of the long *Rs*; *R*₃ vertical, the distance on costa between *R*₁₊₂ and *R*₃ nearly twice the latter vein; cell 1st *M*₂ elongate, the second section of *M*₁₊₂ only a little shorter than the distal section; *m* a little more than one-half the basal section of *M*₃; *m-cu* about one-third its length beyond the fork of *M*.

Abdomen chiefly dark brown, the incisures of the segments obscure yellow. Ovipositor with the valves short and only feebly sclerotized, the cerci hairy to tips.

Hab. Federal Capitol Territory.

Holotype, ♀, Cotter River, October 26, 1930 (A. L. Tonnoir).

I take very sincere pleasure in naming this interesting *Rhabdomastix* in honour of the collector, M. André L. Tonnoir. Although close to *wilsoniana*, sp. n., I must regard the present insect as being distinct. The wing-pattern of the species, though generally similar to *wilsoniana*, is much paler and differently distributed, the wing-tip being almost clear, while the details of venation are likewise distinct. The trichia of the veins are more numerous in *wilsoniana* than in the present form, there being almost complete series on veins R_4 and M_4 .