

Undescribed crane-flies (Tanyderidae and Tipulidae) in the South Australian museum

C P Alexander

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UNDESCRIBED CRANE-FLIES (TANYDERIDAE AND TIPULIDAE) IN THE SOUTH AUSTRALIAN MUSEUM.

By DR. CHARLES P. ALEXANDER, URBANA, ILLINOIS.

Fig. 335, 336.

THE extensive collections of Australian crane-flies contained in the South Australian Museum have been kindly sent to me for determination by the Board of Governors. A considerable number of new species, distributed in many genera, were found to be included; of these genera, *Orimargula*, *Elephantomyia*, *Ceratocheilus*, *Epiphragma*, *Stibadocerella*, and *Phacelodocera* had never been recorded from the Australasian region. Most of the novelties were from localities in which little or no work had been done on the Tipulidae, such being Tasmania, the Dorrigo Tableland in New South Wales, Lord Howe and Norfolk Islands, and Bathurst and Melville Islands in North Australia. The writer's thanks are due to the various collectors of this unusually valuable series of Australian Tipuloidea, especially to the Museum Entomologist, Mr. Arthur M. Lea, who personally collected most of the material. The types of all the new species have been returned to the South Australian Museum, paratypes of some species represented by more than two individuals being preserved in the writer's collection.

Venation. The wing-venation of the species of crane-flies considered in the present report is interpreted in accordance with the principles of the Comstock-Needham system (fig. 335). The fundamentals of this system are briefly outlined here, the students being referred to more detailed accounts ⁽¹⁾ for additional particulars.

The wing of an insect is composed of membranes traversed by a series of longitudinal veins extending from the base to the outer margin, and bound together at various points by cross-veins and deflections of the longitudinal veins, which form strong fusions at these places. There are six or seven longitudinal

(1) Comstock, John Henry. The Wings of Insects, 1918, p. 1-430.

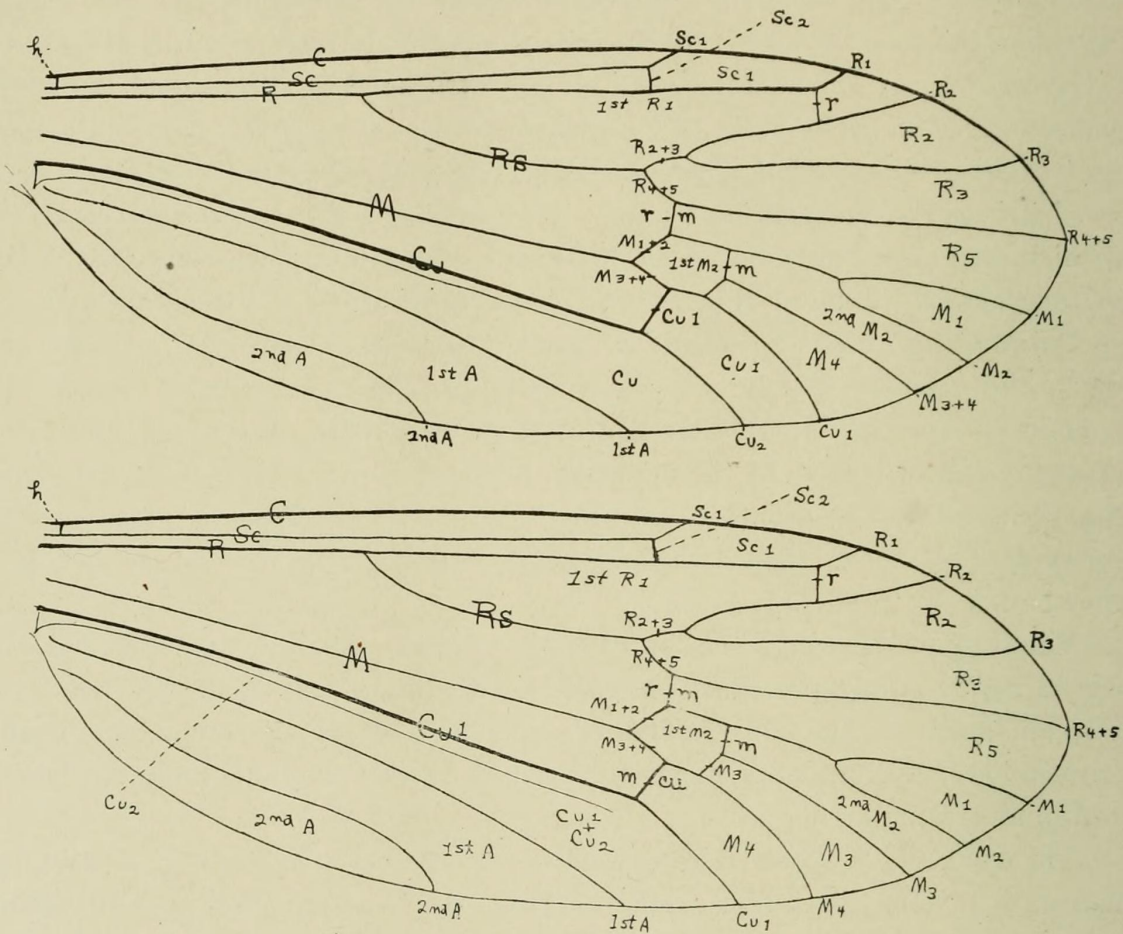
Needham, James George. Report of the entomologic field station conducted at Old Forge, New York, in the summer of 1905. New York State Entomologist. Report 23, 1908, p. 156-248.

Alexander, Charles Paul. The Crane-flies of New York. Cornell University Agricultural Experiment Station. Memoir 25, 1919, p. 860-869.

veins, named respectively from the front or anterior margin backward, Costa (C), Subcosta (Sc), Radius (R), Media (M), Cubitus (Cu), and the Anal veins. The longitudinal veins are always indicated by capital letters, followed by sub-numerals to indicate the number of the branch.

Costa (C) forms the anterior margin of the wing and is unbranched.

Subcosta (Sc) is a weak vein lying between costa and radius, forked once, usually near its tip, the anterior branch (Sc¹) connecting with costa, the posterior branch (Sc²) connecting with radius. Sc² tends to migrate toward the wing-base and simulates a crossvein.



Wing-Venation of *Gynoplstia*, sp.

Fig. 335 (upper). Interpreted according to the Comstock-Needham system.

Fig. 336 (lower). Interpreted as modified by Tillyard.

A=anal veins.

C=costa.

Cu=cubitus

M=media.

R=radius.

Sc=subcosta.

h=humeral crossvein.

m=medial crossvein.

m-cu=medial-cubital crossvein.

r=radial crossvein.

r-m=radial-medial crossvein.

Rs=radial sector,

Radius (R) is typically five-branched. The principal branch (R^1) runs parallel to the anterior margin, at about mid-length giving off a strong branch, the radial sector (Rs) or praefurca, which, in turn, is dichotomously twice forked. In most Tipulidae, the two posterior branches, R^4 and R^5 , are fused into a single branch, R^{4+5} .

Media (M) occupies the median area of the wing. Its behaviour is like that of the radial sector, being dichotomously twice forked. The upper fork carries the branches M^1 and M^2 , the lower fork carries the branches M^3 and M^4 . In the system used, M^3 and M^4 are interpreted as being fused, M^{3+4} , or, for convenience, M^3 alone in the Limnobiinae.

Cubitus (Cu) is a powerful vein lying between media and the first anal vein; it is forked once, the anterior branch (Cu^1) being united with the posterior branch of media either by direct fusion or by the short medial-cubital (m-cu) crossvein.

Behind cubitus are one or two simple veins, the anal veins (A).

There are five primary cross-veins, which are indicated by small letters: the humeral (h), in the base of cell C; radial (r), in cell R^1 , connecting R^1 with either R^{2+3} or R^2 alone; radial-median (r-m), connecting the posterior branch of radius with the anterior branch of media; medial (m), connecting the upper fork of media with the posterior fork, and, if present, closing the discal cell (first M^2); medial-cubital (m-cu) is present only in the generalized forms, being obliterated by the fusion of the anterior branch of Cu on the anterior branch or trunk of M.

The cells of the wing take their name from the veins immediately before or in front of them, as indicated by the accompanying figures. In the case of fused veins, the cell takes its name from the last element of the fusion.

Recently Dr. Tillyard⁽²⁾ proposed an important modification of the Comstock-Needham system. This modification involves the medial and cubital fields, the principal features being shown on fig. 336. According to this interpretation, which, in the writer's opinion, is very probably the correct one, media is considered as having four persistent branches, M^3 and M^4 being separate; the latter branch corresponding to the branch Cu^1 of the Comstock-Needham system. Cubitus is interpreted by Tillyard as having but a single primary branch, C^1 corresponding to Cu^2 of the Comstock-Needham system. In the Panorpid Complex, Tillyard holds that cubitus forks close to the wing-base, the posterior branch, Cu^2 being semiatrophied and lying close behind the primary branch of cubitus.

(2) Tillyard, R. J. The Panorpid Complex. Part 3: The Wing-Venation. Proc. Linn. Soc. N.S. Wales, xlv, 1919, p. 533-718.

FAMILY TANYDERIDAE.

TANYDERUS Philippi, 1865.

The genus *Tanyderus* includes eight described species, of which four are from the Australasian Region, although none had previously been discovered in Australia or Tasmania. The distinctions between *Tanyderus* and *Protoplasa* become less clearly defined with the constant accession of new forms, and it may become necessary to unite the two genera. In this latter case, the family name would become Macrochilidae or Protoplasidae.

TANYDERUS AUSTRALIENSIS sp. nov.

Mouth-parts much longer than the head; antennae with fifteen segments; general colouration dark brown; wings hyaline with three dark brown cross-bands; veins conspicuously hairy; a supernumerary cross-vein in cell R⁴.

♀ Length, about 9 mm.; wing, 11 mm.; rostrum alone, 1.4 mm.

Mouth-parts conspicuous, produced into elongate stylets that are about twice as long as the head; palpi dark brown, elongate, subtending the blade-like parts. Antennae with only fifteen segments; scapal segments dark brown; flagellar segments cylindrical, gradually decreasing in length from the basal to the terminal; verticils inconspicuous, those on the terminal segments slightly longer. Front slightly produced, dark brown, sparsely pruinose; vertex black, grey pruinose. Pronotum short, as in *T. beckeri* Riedel. Mesothorax discoloured, brown, the median area of the praescutum darker brown. Pleura brown, indistinctly variegated with darker. Halteres yellow, the knobs abruptly dark brown. Legs with the coxae and trochanters dark brown; femora yellow, the tips broadly dark brown; tibiae brownish-yellow, the extreme bases and tips dark brown; tarsi light reddish-brown; legs short and comparatively hairy. Wings hyaline with three broad dark brown cross-bands; one basal; the second occupying the general level of the cord; the third band occupies the wing-apex; the basal area extends to the origin of Rs and to about one-third the length of cell second A, there being a quadrate hyaline area in cell R near the base; the second area is broadest at the anterior margin, extending very obliquely basad to include the apical third of cell second A; there are small hyaline areas along the costal margin of this band in cells C and Sc, before and just beyond the union of Sc² with R; the third or apical band includes the outer ends of cells Sc¹ and R¹; all but a small basal portion of R²; the outer third of R³; the outer two-fifths of R⁴, this latter, however, interrupted by a conspicuous rectangular hyaline area before the end of the cell; more than the distal half of cell R⁵ is darkened; the outer ends of cells first M², M³ and Cu¹ are darkened, and all of cells M¹ and second M²

excepting a small hyaline area which occupies the base of M^1 and covers the middle of cell second M^2 ; anal angle yellowish; veins dark brown, more yellowish in the hyaline areas. Venation: Sc^1 lacking; Sc^2 ending in R before the level of the outer end of cell first M^2 ; the tip of Sc^2 , after fusing with R for a distance about its own length, breaks away and appears as a conspicuous oblique vein provided with macrotrichiae; origin of Rs far back near the wing-base, R before this origin being only about one-half of Rs; cell first M^2 very long and narrow, lying far out in the membrane, vein M^3 beyond it being less than one-half the length of cell first M^2 ; basal deflection of M^2 much longer than m; anal vein short and straight, cell A being relatively narrow; a single supernumerary cross-vein situated in cell R^4 some distance beyond the level of the fork of R^{2+3} ; veins provided with long, conspicuous macrotrichiae. Abdomen discoloured; apical half of the tergites darker and more glabrous than the basal half. Valves of the ovipositor orange.

Hab. Tasmania: Southport. Type, I. 12134.

FAMILY TIPULIDAE.

DICRANOMYIA Stephens, 1829.

DICRANOMYIA PUNCTIPENNIS OCCIDENTALIS sub. sp. nov.

♂ Length, about 5.8 mm.; wing, 8 mm. ♀ Length, 8 mm.; wing, 9.3 mm.

Closely resembling typical *D. punctipennis* Skuse (South-eastern Australia), differing as follows:

Median praescutal stripe very narrowly and indistinctly split by a capillary pale line. Legs with the femora dark brown, only the bases narrowly brightened. Wings with the dark clouds on the radial and cubital forks scarcely apparent, the veins being dark brown throughout. Venation: Sc^1 shorter than r-m. Abdomen dark brown, the sternites a little paler.

Hab. Western Australia: Warren River (W. D. Dodd). Type, I. 12135.

DICRANOMYIA INHONORA sp. nov.

General colouration grey, the praescutum with three brown stripes; fore femora yellow, the tips broadly blackened; middle and hind femora with an indistinct subterminal brown ring; wings whitish-subhyaline, with three conspicuous brown blotches along vein R before the stigma, these areas about as extensive as the interspaces.

♂ Length, 7 mm.; wing, 8.8 mm. ♀ Length, 6.5–8 mm.; wing, 8–9 mm.

Rostrum and palpi dark brown. Antennae dark brown; flagellar segments submoniliform. Head light grey. Mesonotal praescutum light grey with three dark brown stripes, the median stripe broad and conspicuous; scutal lobes brown;

remainder of the mesonotum grey. Pleura heavily grey-pruinose, brighter ventrally. Halteres short, pale. Legs with the coxae dark, sparsely pruinose; trochanters reddish-yellow; femora yellow, the tips of the fore femora broadly dark brown, on the other femora with a narrow subterminal ring instead of the dark apex; tibiae brownish-yellow, the tips narrowly darkened; tarsi brown, the terminal segments larger. Wings whitish subhyaline; stigma oval, greyish-brown; three conspicuous brown clouds along R before the stigma, the first at h, the third at the origin of Rs and the tip of Sc, these dark marks subequal in extent to the pale interspaces; paler grey clouds along the cord and outer end of cell first M^2 ; tips of the anal veins and near midlength of vein first A clouded; veins dark brown in the infuscated areas, more yellowish elsewhere. Venation: Sc short, Sc^1 ending a short distance beyond the origin of Rs, Sc^2 at the tip of Sc^1 ; Rs about twice the deflection of R^{4+5} ; cell first M^2 subquadrate; basal deflection of Cu^1 before the fork of M; anal angle rather prominent. Abdomen dark brown, pruinose; sternites more yellowish, the subterminal sternites infuscated.

Hab. South Australia: Port Lincoln; Tasmania: King Island; Lord Howe Island (A. M. Lea). Type, I. 12136.

D. inhonora is apparently most closely related to *D. obscura* Skuse.

DICRANOMYIA BREVIRAMA sp. nov.

Head and rostrum brownish-yellow; antennal scape brownish-yellow, the flagellum dark brown; wings yellowish; Sc short, cell first M^2 closed; abdominal tergites dark brown, the caudal margins narrowly pale.

♀ Length, 6 mm.; wing, 7.2 mm.

Rostrum and palpi light brownish-yellow. Antennal scape brownish-yellow; flagellum dark brown, the segments oval. Head brownish-yellow. Mesonotal praescutum yellow with a reddish sublateral stripe on either side; scutal lobes a little darker than the remainder of the scutum; scutellum yellowish, a little darker medially at the base; postnotum reddish medially, more yellowish laterally. Pleura reddish-yellow, very sparsely pruinose, the propleura clearer yellow. Halteres yellow, the knobs brown. Legs with the coxae obscure yellow; trochanters yellow, remainder of the legs pale brownish-testaceous. Wings with a light yellowish suffusion, a little darker along the costal margin; stigma indistinct; veins brownish-yellow. Venation: Sc short, Sc^1 ending immediately before the origin of Rs, Sc^2 some distance from the tip of Sc^1 , the latter alone being nearly as long as the basal deflection of Cu^1 ; Rs short, strongly arcuated, a little longer than the slightly less arcuated basal deflection of R^{4+5} ; cell first M^2 rectangular, m about one-half the outer deflection of M^3 ; basal deflection of Cu^1 at the fork of M. Abdominal tergites dark brown, the caudal margins of the segments

narrowly yellowish; dorsal shield of the ovipositor dark brown; sternites obscure yellow. Ovipositor with the valves very small, the tergal valves upcurved, acute at the tips.

Hab. Lord Howe Island (A. M. Lea). Type, I. 12137.

D. brevirama is nearly related to *D. auripennis* Skuse, differing in the colouration of the head, antennae, and abdomen.

DICRANOMYIA SUBREMOTA sp. nov.

Antennae dark brown; general colouration grey; mesonotal praescutum and scutum marked with light brown; legs brownish-yellow, the tips of the tibiae narrowly dark brown; wings faintly greyish-yellow, sparsely spotted with brown; Sc short, basal deflection of Cu^1 far before the fork of M.

♂ Length, about 5 mm.; wing, 6 mm. ♀ Length, 5.4 mm.; wing, 6.5–6.7 mm.

Rostrum and palpi dark brown. Antennae dark brown; flagellar segments suboval. Head grey. Mesonotum grey, with three broad but ill-defined light brown stripes; scutal lobes light brown, median area grey; remainder of mesonotum grey. Pleura dark, grey pruinose. Halteres light brown, yellow basally. Legs with the coxae dark brown; trochanters obscure brownish-yellow; femora brownish-yellow, the tips indistinctly darkened; tibiae and metatarsi obscure yellow, the tips narrowly but conspicuously dark brownish-black; terminal tarsal segments blackened. Wings with a faint greyish-yellow tinge, with very small and indistinct brown seams, arranged as follows: at arculus; at origin of Rs; the stigmal area, appearing as a narrow seam to r; narrow seams along the cord and outer end of cell first M^2 ; veins pale yellowish-brown. Venation: Sc short, Sc^1 extending a short distance beyond the origin of Rs, Sc^2 some distance from the tip of Sc^1 , lying before the origin of Rs; Sc^1 alone about equal to the basal deflection of Cu^1 ; Rs long, gently arcuated, about twice the deflection of R^{4+5} , the latter about equal to the first section of vein R^{2+3} ; r at about one-third R^{2+3} ; r-m faint; basal deflection of Cu^1 about its own length before the fork of M; Cu^2 longer than the basal deflection of Cu^1 . Abdominal segments dark brown; genital segments obscure yellow.

Hab. Norfolk Island (A. M. Lea). Type, I. 12138.

DICRANOMYIA IDONEA sp. nov.

General colouration dull yellow; antennae moniliform; halteres with the apices tipped with yellow; legs short, hairy, yellow, the femora with two narrow brown subterminal rings; tibiae and first three tarsal segments tipped with black; wings pale yellow, sparsely spotted and clouded with brown and grey; Rs and

the basal deflection of R^{4+5} strongly arcuated at origin; inner end of cell first M^2 strongly arcuated; abdominal tergites dull yellow, the basal half of each segment dark brown; base of the sternal valves of the ovipositor shiny black.

♀ Length, about 5.8–6.5 mm.; wing, 7–7.4 mm.

Rostrum and palpi dark brown, the former slightly elongate. Antennae dark brown; flagellar segments moniliform, each segment except the terminal ones being broader than long, subdisciform, closely appressed to one another. Head dark. Mesonotum dark brown (discoloured, in fresh specimens probably covered with a light pollen). Pleura dark brown, pruinose. Halteres pale, the base of the knobs brown, the apices yellowish. Legs with the coxae brownish-yellow; trochanters brownish-yellow; legs short, femora slightly incrassated at tips, hairy, reddish-orange in colour, the apical half more yellowish with two narrow subterminal brown rings; tibiae and basal three tarsal segments brownish-yellow, the tips conspicuously blackened; segments four and five entirely black. Wings with a yellowish tinge; restricted brown markings as follows: at arculus, origin of R_s , tip of Sc , along the cord and outer end of cell first M^2 and at the tips of the longitudinal veins; paler grey clouds at the stigma; a large blotch about midway between arculus and the origin of R_s ; clouds near the outer ends of cells second R^1 , R^3 , R^5 , second M^2 and M^3 ; outer ends of the posterior and anal cells indistinctly greyish; veins dark brown, C , Sc , and R more brownish-yellow. Venation: Sc extending to about opposite midlength of R_s , Sc^2 some distance from the tip of Sc^1 , the latter alone being longer than r ; R_s and the basal deflection of R^{4+5} strongly arcuated at origin, the latter about two-thirds the former; inner end of cell first M^2 considerably arcuated, $r-m$ being placed beyond midlength of cell first M^2 ; this latter cell about as long as vein M^{1+2} beyond it; basal deflection of Cu^1 before the fork of M , about opposite the fork of R_s ; cell second A broad. Abdominal tergites dull yellow, the basal half of each tergite dark brown; sternites yellowish; pleural membrane dull brown. Ovipositor with the sternal valves long, straight, powerful, the apices acute, the bases shiny black; tergal valves small, acute.

Hab. Tasmania: King Island (A. M. Lea). Type, I. 12139.

DICRANOMYIA SEDATA sp. nov.

Head grey; mesonotum brown; pleura obscure yellow with a narrow brown longitudinal stripe; wings light grey with narrow seams and clouds along the cord, outer end of cell first M^2 and origin of R_s ; vein Sc long, cell first M^2 closed.

♂ Length, about 5.5 mm.; wing, 5.4 mm.

Rostrum light brown; palpi brown. Antennae dark brown (flagellum broken). Head grey. Mesonotum brown (injured by the pin). Pleura obscure

yellow with a conspicuous but narrow dark brown longitudinal stripe. Halteres light brown. Legs long and slender; coxae and trochanters brownish-yellow; femora brownish-testaceous, the tips narrowly darkened; remainder of the legs light brown. Wings light grey, cell Sc a little more brownish; stigma short-oval, dark brown; paler brown clouds at the origin of Rs; tip of Sc¹; along the cord and outer end of cell first M²; veins brown. Venation: Sc long, Sc¹ ending about opposite three-fifths Rs, Sc² at the tip of Sc¹; Rs long, strongly arcuated at origin; r at the tip of R¹; cell first M² closed, pentagonal; m about one-half the outer deflection of M³; basal deflection of Cu¹ immediately before the fork of M; Cu² and the basal deflection of Cu¹ subequal. Abdomen dark brown, the bases of the tergites indistinctly pale; sternites with the apical half of each segment brown, the basal half yellowish. Male hypopygium comparatively large, complicated; pleurites large, subglobular, the inner face before the apex produced into a complex fleshy lobe; appendages very small and inconspicuous. Gonapophyses complicated, arranged in two pairs, the outer pair shorter, finely transversely wrinkled, terminating in a small conical tooth; inner apophyse longer, appearing as pale flattened blades, each with a small tooth on the outer margin beyond midlength.

Hab. Queensland: Cairns district (A. M. Lea). Type, I. 12140.

DICRANOMYIA NORFOLCENSIS sp. nov.

♀ Length, 5.8 mm.; wing, 6.3 mm.

Related to *D. sedata*, sp. nov., differing as follows:

Femora with the tips narrowly pale, there being a subterminal brown ring of approximately equal extent. Wings more yellowish than grey; Sc much longer, extending to about opposite three-fourths the length of the longer Rs; basal deflection of R⁴⁺⁵ longer, more than twice as long as r-m; cell first M² more regularly rectangular. Abdominal tergites dark brown, narrowly and indistinctly paler basally; sternites obscure brownish-yellow.

Hab. Norfolk Island (A. M. Lea). Type, I. 12141.

LIBNOTES Westwood, 1876.

LIBNOTES TERRAE-REGINAE sp. nov.

Head yellow, the vertex and occiput marked with dark brown; femora yellow with a broad dark brown subterminal ring; wings subhyaline, cells C and Sc yellowish; veins conspicuously seamed with brown; Rs long, strongly arcuated; vein second A short and strongly arcuated.

♂ Length, 7 mm.; wing, 9 mm.

Rostrum light brown; palpi dark brown. Antennae dark brown. Head yellow, the middle of the vertex and the occiput brown; vertex between the eyes very narrow. Pronotum grey, more infuscated medially. (Praescutum destroyed by the pin.) Scutellum and postnotum dark brown, sparsely greyish pruinose. Pleura reddish-yellow, with a large brown blotch on the mesepimeron and another on the lateral sclerites of the postnotum, the surface sparsely pruinose. Halteres obscure yellow, the knobs dark brown. Legs with the coxae infuscated; trochanters brownish-yellow; femora yellow with a broad dark brown subterminal ring, preceded and followed by a narrow, brighter yellow annulus; tibiae brownish-yellow, the tips narrowly infuscated, the base a little darkened; basal two tarsal segments brownish-yellow, the tips darkened; remainder of the tarsi dark brown. Wings subhyaline, cells C and Sc light yellow; stigma large but not solidly filled in, brown; conspicuous brown seams as follows: At Sc^2 ; at the origin of Rs; along the cord and outer end of cell first M^2 and as conspicuous seams along veins R^{2+3} , M^{1+2} , M^3 , Cu^1 , Cu^2 , and the anal veins; anal angle of the wing narrowly darkened. Venation: Sc^1 ending a short distance beyond the fork of Rs; Rs long, strongly arcuated for a member of this genus; r a short distance from the tip of R^1 , which is bent strongly into the costa; inner ends of cells R^3 , R^5 and first M^2 about in alignment; r-m about equal to the deflection of R^{4+5} ; m about equal to the outer deflection of M^3 , but much more arcuated; vein second A short and strongly arcuated. Abdominal tergites dark brown, the hypopygium a little more reddish; sternites reddish-yellow with a faint greenish tinge, the segments broadly and conspicuously bordered laterally with black.

Hab. Queensland: Mount Tambourine (A. M. Lea). Type, I. 12142.

LIBNOTES OBLIQUA sp. nov.

General colouration of the thorax obscure brownish-yellow; wings subhyaline, the stigma small and indistinct; Rs short and straight, in alignment with the deflection of R^{4+5} ; a supernumerary cross-vein in cell Sc^1 before r.

♀ Length, about 5.5 mm.; wing, 7.3 mm.

Rostrum and palpi dark brown. Antennae with the scapal segments light brown (flagellum broken). Head light grey. Pronotum obscure yellow, more brownish medially. Mesonotum obscure brownish-yellow, without distinct darker markings. Pleura obscure yellow. Halteres brownish-yellow (the knobs broken). Legs with the coxae obscure brownish-yellow, the outer faces slightly infuscated; trochanters obscure yellow; femora brownish-yellow (broken shortly beyond their bases). Wings subhyaline, the stigmal spot very small and indistinct; veins brown. Venation: Sc moderately long, ending opposite r-m, Sc^2 at the tip of Sc^1 ; Rs very short and straight, about twice the deflection of R^{4+5} ;

these two veins being in oblique alignment; R^1 projecting beyond r , the tip atrophied; a supernumerary cross-vein in cell Sc^1 about its own length before r ; veins beyond the cord long and parallel; m a little longer than the outer deflection of M^3 , slightly arcuated; basal deflection of Cu^1 beyond midlength of cell first M^2 . Abdomen dark brown. Ovipositor with the valves small and slender, reddish horn-colour.

Hab. Queensland: Cairns district (A. M. Lea). Type I. 12143.

L. obliqua is closely allied to *L. nervosa* de Meijere, from which it differs in the different pattern of the wings and the venation, especially the longer Sc , Rs , and cell first M^2 .

LIBNOTES HOWENSIS sp. nov.

General colouration yellow, the mesonotum grey-pruinose; pleura striped longitudinally with dark brown lines; femora with a narrow dark brown subterminal ring; wings light yellow, very sparsely and indistinctly marked with brown.

♂ Length, about 15 mm.; wing, 17.2 mm. Middle leg, femur, 14.7 mm.; tibia, 13.5 mm.; tarsus, 11.5 mm.

Rostrum moderately elongate, yellow; palpi short, dark brown. Antennae with the elongate basal segment dusted with grey; second segment dark brown; flagellar segments yellow, the distal segments gradually infuscated; basal flagellar segments oval, the terminal segments more elongated. Head light cream colour. Vertex between eyes very narrow. Mesonotal praescutum light grey, very indistinctly marked with darker grey; scutum whitish grey, the centres of the lobes darker grey; remainder of the mesonotum whitish-pollinose. Pleura whitish-pollinose, narrowly lined with longitudinal dark brown stripes; the more dorsal of these lies behind the wing-root on the lateral sclerite of the postnotum; a second stripe begins above the fore coxa, traversing the mesepisternum and mesepimeron, becoming obsolete near the halteres. Halteres yellow, the knobs brown. Legs with the coxae yellow; a dark brown spot on the outer face of the fore coxa; femora yellow, the tips almost whitish; a narrow (about 0.9 mm.) subterminal brown ring; tibiae yellow, the tips narrowly darkened; basal two tarsal segments yellow, the tips narrowly darkened; terminal three tarsal segments black. Wings light yellow; stigma indistinct; very faint brown spots at the origin of Rs ; fork of M ; at the basal deflection of Cu^1 ; at m and the tips of veins Cu^2 , first A and second A , larger and more conspicuous on the latter; veins yellow, darker in the infuscated areas. Venation: Rs almost straight, in alignment with R^{4+5} ; r at the tip of R^1 ; cell first M^2 long and narrow; m nearly as long as Rs ; basal deflection of Cu^1 at about one-fifth the length of the long cell

first M^2 . Abdominal tergites dull yellow, the apical third of each tergite delicately and beautifully surface-reticulated.

Hab. Lord Howe Island (A. M. Lea). Type, I. 12144.

ORIMARGULA Mik, 1883.

ORIMARGULA AUSTRALIENSIS sp. nov.

General colouration light grey, the mesonotal praescutum with three confluent brownish stripes; halteres and legs brownish-yellow; wings whitish subhyaline, the stigma and cord narrowly and indistinctly infuscated.

♂ Length, about 3.8–4 mm.; wing, 5 mm. ♀ Length, 5.3 mm.; wing, 5.5 mm.

Rostrum reddish-brown, sparsely pruinose; palpi dark brown. Antennae of moderate length in both sexes, dark brown; flagellar segments oval. Head dark grey pruinose. Mesonotum light grey, the praescutum with the stripes rather indistinct, brown, entirely confluent; scutal lobes brown, the median area pruinose; scutellum pale, sparsely pruinose; postnotum brown, sparsely pruinose. Pleura light grey. Halteres brownish-yellow. Legs with the coxae yellow, very sparsely pruinose; trochanters brownish-yellow; femora and tibiae brownish-yellow, becoming darker towards the tips; tarsi light brown, the distal tarsal segments dark brown. Wings whitish-subhyaline; stigma brown; cord narrowly and indistinctly seamed with pale brown; in some specimens the wings are much more nearly unicolourous; cell Sc yellow; veins pale brown, veins Sc and R yellow. Venation: Rs long, straight, or weakly convex; r on R^{2+3} a little less than its own length beyond the fork of Rs; Rs and the deflection of R^{4+5} subequal in length; r-m a little shorter than the deflection of M^{1+2} ; petiole of cell M^3 short, about equal to r; fusion of Cu^1 and M about equal to M^3 alone; basal deflection of Cu^1 a short distance beyond the fork of Rs and nearly in alignment with r; second anal vein short and straight. Anal angle of the wing prominent, as in the genus. Abdomen dark brown, sparsely pruinose.

Hab. Queensland: Cairns district (A. M. Lea). Type, I. 12145.

The genus is new to the Australasian region.

ELEPHANTOMYIA Osten Sacken, 1859.

ELEPHANTOMYIA FUMICOSTA sp. nov..

General colouration brownish-yellow; legs black, the tarsi largely white; wings greyish-brown, the costa and a conspicuous seam along the cord dark brown; abdominal segments two to seven yellow, ringed caudally with dark brown.

♂ Length (excluding rostrum), 9.5–10 mm.; wing, 7.8 mm.; rostrum, about 5.5 mm.

Rostrum dark brown. Antennae dark brown, the basal flagellar segment elongate-conical, the terminal segments elongate-cylindrical. Head brown, light yellow beneath. Mesonotal praescutum yellow or brownish-yellow without darker markings; remainder of the mesonotum slightly darker. Pleura yellow, the sternum a little darker. Halteres brown. Legs with the coxae and trochanters pale brown; femora and tibiae dark brownish-black; metatarsi black, the tips narrowly and abruptly white; segments two and three white, the terminal two segments infuscated; claws reddish. Wings with a greyish-brown tinge, the costal margin dark brown, this colouration continued around the wing-margin to the end of vein R^{4+5} ; cord and the origin of Rs broadly seamed with dark brown; cell R^1 dark brown, with the exception of a large area of the pale ground-colour at the base; veins dark brown. Venation: Rs rather straight, angulated at origin; R^{2+3} almost perpendicular at origin, slightly spurred at the bend; basal deflection of R^{4+5} about equal to r-m; cell first M^2 rather large; basal deflection of Cu^1 about equal to m. Abdominal segment one obscure yellow; segments two to seven yellow, the caudal margin narrowly dark brown, these markings narrowest on the basal segments, broadest on the seventh segment, where it includes about the distal half; remainder of the abdomen dark brown.

Hab. North Queensland: Kuranda (F. P. Dodd), Babinda, August 7 1920 (J. F. Illingworth). Type, I. 12146, in South Australian Museum; paratype, alcoholic, in the collection of the author.

The genus *Elephantomyia* has not hitherto been recorded from Australia.

CERATOCHEILUS Wesché, 1910.

Ten species of this well-defined genus have now been made known. It is of great interest to add still another form, the first from the Australian Region. It is possible that *Rhamphidia levis* Hutton, of New Zealand, is a member of this genus.

CERATOCHEILUS AUSTRALASIAE sp. nov.

Thorax brownish-yellow, the praescutum with three broad, nearly confluent, brown stripes; pleura brownish-yellow with a broad, dark brown longitudinal stripe; wings strongly infuscated, unspotted; cell first M^2 closed.

♀ Length (excluding rostrum), 8 mm.; wing, 7.8 mm.; rostrum 5.5 mm.

Rostrum slender, dark brownish-black. Antennae dark brownish-black. Head yellowish-grey, the median area of the vertex a little infuscated; corniculus small, subcircular, yellowish-brown. Pronotum dark brown. Lateral margins of the mesonotal praescutum brownish-yellow, the disk with three broad dark brown stripes, the anterior ends of the lateral stripes confluent with the median stripe, restricting the ground-colour to two indistinct streaks near the suture;

scutal lobes dark brown; scutellum and postnotum reddish-testaceous, brown medially, sparsely pruinose. Pleura obscure brownish-yellow, with a broad dark brown longitudinal stripe extending from the pronotum to the base of the abdomen, passing through the base of the halteres. Mesosternum between the fore and middle coxae pale brown. Halteres pale brown, the knobs darker. Legs with the coxae and trochanters brown, the femora brown, paler basally; tibiae and tarsi darker brown; hairs on the legs profoundly bifid as in the genus. Wings with a strong brownish tinge, a little darker along the cord; cells C and Sc darker brown; veins dark brown. Venation: Sc¹ ending a short distance beyond the origin of Rs, Sc² opposite this origin; Rs short, straight, subequal to the deflection of R⁴⁺⁵; R²⁺³ sinuous, about twice the length of the sector; cell first M² closed, m a little more than one-half the outer deflection of M³; basal deflection of Cu¹ a short distance beyond the fork of M. Abdomen dark brown; valves of the ovipositor reddish horn-colour.

Hab. Lord Howe Island (A. M. Lea). Type, I. 12147.

MOLOPHILUS Curtis, 1833.

MOLOPHILUS GIGAS sp. nov.

Antennae short in both sexes; size very large (wing of female 9 mm.); general colouration dark brown; femora yellow, the apical half brownish-black; wings amber-yellow.

♂ Length, about 6.5 mm.; wing, 8.7 mm. ♀ Length, about 8 mm.; wing, 9 mm.

Rostrum and palpi dark brown, the former dusted with grey. Antennae short in both sexes; scape dark brown; flagellar segments brown, the base of each segment obscure yellow to produce an indistinct bicolorous appearance; terminal flagellar segments uniformly dark brown. Head dark, conspicuously light grey-pruinose; vertex with conspicuous proclinate bristles. Pronotum brown. Mesonotal praescutum brown, grey-pruinose, with four darker brown stripes, the intermediate pair confluent anteriorly; region cephalad of the pseudosutural foveae rufous; tuberculate pits black, separated from one another by a distance about equal to the diameter of one; pseudosutural foveae conspicuous, black; remainder of the mesonotum dark brown. Pleura dark, sparsely light grey-pruinose; dorsal-pleural membranes obscure yellow; a patch of yellow hairs on the lateral sclerite of the postnotum. Halteres yellow. Legs with the coxae dark brown; trochanters yellow; femora with about the basal half yellow, the distal half conspicuously and abruptly dark brownish-black; the amount of yellow is greater on the fore and middle legs; tibiae and tarsi dark brownish-black; hind legs long, the femora incrassated. Wings with a strong amber-yellow tinge; veins

yellow, clothed with conspicuous brown hairs. Venation: Fusion of M^3 and Cu^1 about equal to the basal deflection of Cu^1 alone. Abdomen dark brown, the caudal margin of the tergites narrowly and indistinctly paler; abdomen clothed with long, conspicuous yellow hairs. In the female the sternites are more yellowish. Ovipositor with the tergal valves slender, upcurved, horn-coloured; sternal valves acicular, almost straight, dark brown.

Hab. Tasmania: Waratah (A. M. Lea). Type, I. 12148.

This conspicuous species of *Molophilus* is by far the largest yet made known.

GNOPHOMYIA Osten Sacken, 1859.

GNOPHOMYIA CYANOCEPS sp. nov.

Closely related to *G. fascipennis* (Thoms.); r lacking; cell first M^2 open by the atrophy of M^3 ; head above with a greenish-blue bloom.

♂ Length, 6 mm.; wing, 5.2 mm. ♀ Length, 6.3 mm.; wing, 6.2 mm.

Rostrum yellow, darker in the female; palpi dark brown. Antennal scape yellow, the apex of the second segment dark brown; flagellum dark brown. Front, genae, and anterior part of the vertex yellow; remainder of the vertex dark brown with a greenish-blue bloom. Pronotum and mesonotal praescutum reddish-yellow, unmarked with darker; scutal lobes dark brown; postnotum with two small blackish spots at the posterior margin. Pleura yellow; a reddish-brown area occupying portions of the mesosternum, mesepisternum, and mesepimeron. Halteres brown at the base, the remainder of the stem and part of the knob yellowish. Legs with the coxae and trochanters yellow; femora yellow, the tips narrowly infuscated, the surface with a few scattered erect bristles; tibiae light brown, the tips dark brown; tarsi brownish-black. Wings whitish-subhyaline, cells C and Sc yellow; in the female with three conspicuous bands and the apex brown; the first band occupies the region immediately beyond the arculus, incomplete; second band broad, extending from R to the wing-margin at the tip of the second anal vein; third band broad, complete, but more diffuse posteriorly, mostly located beyond the cord; wing-apex narrowly darkened; in the male the three basal bands are only barely indicated; wing-apex uncoloured; veins dark brown; costa provided with flattened scales. Venation: Sc long, Sc^1 extending to about one-third the length of Rs; Sc^2 invisible; Rs long, almost straight; R^{2+3} about one-half longer than the basal deflection of Cu^1 ; r atrophied; cell first M^2 open by the atrophy of the outer deflection of M^3 ; basal deflection of Cu^1 a short distance beyond the fork of M. Abdominal tergites reddish-yellow in the male, the sternites lighter yellow; in the female the abdomen is dark brownish-black.

Hab. Northern Territory: Melville Island (W. D. Dodd). Type, I. 12149.

G. fascipennis (Thoms.) is related to this handsome little fly, but is readily

told by the retention of both r and the outer deflection of vein M^3 . Both species are notable by their marked sexual dimorphism.

RHABDOMASTIX Skuse, 1889.

RHABDOMASTIX GENEROSA sp. nov.

Size large (wing of female over 11 mm.); antennae brownish-yellow; general colouration light grey; wings faintly yellowish; Sc long, extending to almost opposite the fork of Rs; R^{2+3} and Rs subequal in length; R^1 and R^2 closely approximated at wing-margin.

♀ Length, 9.5 mm.; wing, 11.3 mm.; antenna, about 6 mm.

Rostrum and palpi light brown. Antennae brownish-yellow, the flagellar segments a little darker; antennae if bent backward extending to about the base of the third abdominal segment. Head light grey. Mesonotum light grey, the lateral margins of the praesutum narrowly and indistinctly brownish; pleura whitish-grey. Halteres light yellow. Legs with the coxae and trochanters testaceous-yellow (remainder of the legs broken). Wings with a faint yellowish tinge; stigma barely indicated; veins yellowish-brown. Venation: Sc long, Sc^1 ending a short distance before the forking of the long Rs, Sc^1 a little shorter than the basal deflection of Cu^1 ; Rs long, gently arcuated at origin, about as long as R^{2+3} ; R^2 a little more than one-half the length of the basal deflection of Cu^1 ; R^1 and R^2 close together at the wing margin, the space on costa between them being about one-third r-m; cell first M^2 small, short-rectangular, m being about one-half the outer deflection of M^3 ; basal deflection of Cu^1 just beyond the fork of M; Cu^2 about twice the deflection of Cu^1 ; vein second A moderately long. Abdominal tergites brown, indistinctly obscure yellow before their apices; sternites obscure brownish-yellow. Ovipositor with the tergal valves slender, the points slightly curved; sternal valves strongly compressed.

Hab. New South Wales: Dorrigo (W. Heron). Type, I. 12150.

TRENTEPOHLIA Bigot, 1854.

TRENTEPOHLIA DODDI sp. nov.

General colouration reddish-yellow; legs yellow; wings pale yellowish, the wing-apex very narrowly infuscated; costal and subcostal veins yellowish.

♂ Length, 5.7–5.8 mm.; wing, 6 mm. ♀ Length, 6.5–7.5 mm.; wing, 6.1 mm.

Rostrum brownish-yellow; labial palpi yellowish; maxillary palpi light brown. Antennae dark brown. Head dark grey. Mesonotal praesutum reddish-yellow, moderately shiny; scutum brown; postnotum obscure yellow, the posterior half infuscated. Pleura reddish-yellow, slightly pruinose. Halteres

yellow. Legs with the coxae and trochanters obscure yellow; remainder of the legs yellow. Wings pale yellowish, the wing-apex very narrowly infuscated, continued basad as short, narrow seams along veins R^3 and R^{4+5} ; veins dark brown, C, Sc and R more yellowish. Venation: Sc^1 and R^1 far removed from one another at the wing-margin, the distance on costa between them being about equal to the basal deflection of Cu^1 ; Rs straight, about equal to the deflection of R^{4+5} ; tip of R^1 beyond r faint and without macrotrichiae; r oblique, at about three-fifths the length of R^{2+3} ; R^2 oblique, about equal to R^{4+5} plus M^{1+2} ; petiole of cell R^5 less than one-half of the cell; basal deflection of Cu^1 about one-half its length before the fork of M; fusion of Cu^2 and first A at the wing-margin punctiform. Abdomen light brown, segments seven to nine brownish-black in the male; ovipositor pale.

Hab. Northern Territory: Melville Island (W. D. Dodd). Type, I. 12151.

AUSTROLIMNOBIA gen. nov.

Palpi short. Antennae with probably sixteen segments, the flagellar segments cylindrical, gradually decreasing in length from the basal to the apical, provided with conspicuous appressed hairs and a few short verticils. Pseudosutural foveae represented only by a small oval area; no apparent tuberculate pits. Legs long and stout; no tibial spurs; tarsal segments one to three each with a single small apical spur; claws relatively small, simple; empodium present. Wings with Sc long, Sc^1 not close to R^1 at wing-margin; Sc^2 some distance from the tip of Sc^1 ; Rs originating far basad, at one-fourth the length of the wing, the fork of Rs at midlength of the wing; Rs in alignment with R^{4+5} ; R^{2+3} in alignment with R^2 ; r some distance from the tip of R^1 ; cell first M^2 very long; forks of the longitudinal veins deep; cell M^1 lacking.

The type species of this genus is one of the largest and most striking Eriopterine crane-flies that has yet been discovered, rivalling in size species of the genera *Gnophomyia*, *Lecteria*, and *Clydonodozus*. No close relative can be pointed out by the writer.

AUSTROLIMNOBIA SPECTABILIS sp. nov.

Antennae yellow; mesonotum greenish-yellow, the lateral margins and the pleura blackish; legs yellow, the tips of the femora, tips and bases of the tibiae black; wings hyaline, the costal margin with three dark brown blotches, the third of which encloses a yellow stigmal area; wing-apex broadly dark brown; three pale brown blotches along the posterior margin of the wing.

Sex? Wing, 19.5 mm.; fore leg, femur, 12.4 mm.; middle leg, femur, 13.5 mm.; tibia, 15.8 mm.; tarsus, 10.3 mm.

Rostrum and palpi dark brown. Antennae with the scapal segments brown; flagellar segments yellow (only thirteen antennal segments remain, but the tip is evidently broken, and the full number is probably sixteen); there is no evidence of any fusion of segments at the base of the flagellum as in many Eriopterini. Head blackish (if any bloom is normally present it is destroyed in the unique type); vertex between the eyes narrow. Pronotum dark brown. Mesonotum shiny greenish-yellow, the lateral margins of the praescutum broadly blackened; scutellum and postnotum brighter, more yellowish. Pleura brownish-black. Mesosternum between the fore and middle coxae with a greenish cast. Halteres brownish-black. Legs with the coxae black; trochanters chestnut-brown; femora yellow, the tips broadly (2.2 mm.) and abruptly black; tibiae yellow, the bases and apices rather narrowly (1.5 mm.) and subequally blackened; metatarsi yellow, passing into light brown toward the tip; remainder of the tarsi brown, the terminal segment deepening into black. Wings hyaline, conspicuously variegated with dark brown, pale brown, and yellow; cell C dark brown, passing into yellow before its outer end; cell Sc alternately dark brown and yellow; a conspicuous oval yellow mark in the stigmal region, surrounded by a conspicuous semicircular dark brown mark that extends from the outer end of cell Sc across the fork of R^{2+3} and thence to the tip of R^1 and r ; two conspicuous dark brown circular areas, one at the origin of R_s , the second at the fork of R_s , sending a delicate seam along the cord to the fork of Cu ; wing-apex broadly dark brown, this including the ends of cells second R^1 , R^2 , R^3 , R^5 , and second M^2 ; along the posterior margin are three paler brown areas, extending from cell Cu^1 to cell second A, largest at the ends of veins Cu^2 , second A, and before the end of vein first A, the latter narrowly connected with the brown seam at the cord; outer end of cell first M^2 very narrowly and indistinctly infuscated; veins yellow, darker in the infuscated areas. Venation: Sc^1 ending opposite the fork of R^{2+3} , Sc^1 alone being about equal to the basal deflection of Cu^1 ; R^1 beyond r longer than the basal deflection of Cu^1 ; R_s about equal to R^{2+3} ; basal deflection of R^{4+5} about equal to the first section of R^2 ; cell first M^2 long and narrow, about as long as vein M^3 beyond it; inner ends of cells R^5 , first M^2 , and Cu^1 in direct alignment; m equal to the outer deflection of M^3 ; basal deflection of Cu^1 near the fork of M. (Abdomen broken.)

Hab. Tasmania: Waratah (A. M. Lea). Type, I. 12152.

EPIPHRAGMA Osten Sacken, 1859.

The genus *Epiphragma* had not been previously recorded from the Australasian Region.

EPIPHRAGMA TERRAE-REGINAE sp. nov.

Antennae dark brown, the first flagellar segment orange; mesonotal praescutum with the anterior half dark brown, the posterior half abruptly light yellow; legs yellow, the femora with two brown rings; tibiae with a narrow brown ring beyond the base; wings brown, the margin with darker brown areas that are narrowly bordered with light yellow.

♀ Length, 10 mm.; wing, 10.5 mm.

Rostrum brown, dusted with golden pollen; palpi dark brown. Antennae dark brown, the first flagellar segment orange; second flagellar segment pale brown; remainder of the flagellum dark brown. Head dark, dusted with brown. Pronotum extensive, fulvous brown. Mesonotal praescutum with the anterior half dark brown, beyond midlength conspicuously and abruptly covered with a light yellow pollen (scutum injured in pinning); scutellum brown, paler caudally; postnotum brown, the posterior third yellowish with a capillary dark brown median line. Pleura brown with a slightly darker ventral stripe. Halteres yellowish-brown, the knobs darker. Legs with the posterior and middle coxae conspicuously light yellow, the extreme bases dark brown; anterior coxae dark brown except at the apex; trochanters light yellow; femora yellow, before the tips with a broad (1.4 mm.) dark brown ring; a narrower post-medial brown annulus; tibiae yellow with a narrow brown ring shortly beyond the base, tips narrowly darkened; tarsi brownish-yellow, the tips darkened. Wings brown; quadrate to subcircular darker brown areas, arranged as follows: at h; bases of cells R and M; at origin of Rs; at the supernumerary cross-vein in cell C; an area at the end of Sc, continued caudad along the cord; tip of R¹ and r; tips of R² and R³; these markings are conspicuously margined with yellow; slightly paler brown markings at the ends of the longitudinal veins; outer end of cell first M² and the fork of M¹⁺² clouded; veins dark brown. Venation: R²⁺³ about equal to the basal deflection of Cu¹; r about its own length from the tip of R¹; petiole of cell M¹ about equal to the basal deflection of Cu¹; basal deflection of Cu¹ near two-fifths the length of cell first M². Abdominal tergites brown, still darker brown laterally; sternites yellowish-brown, the basal sternites brighter apically.

Hab. Queensland: Cairns district (A. M. Lea). Type, I. 12153.

EPIPHRAGMA HOWENSIS sp. nov.

♂ Length, about 11.5 mm.; wing, 12 mm.; antenna, about 4.5 mm.

Generally similar to *E. terrae-reginae*, differing as follows: Antennae of the male elongate, if bent backward extending to considerably beyond the base of the abdomen; flagellar segments one to three orange-yellow; segments four to

eight yellow, the bases narrowly infuscated; remainder of the flagellum dark brown. Head with a blackish dash on either side of the vertex, adjoining the inner margin of the eye. Mesonotal praescutum with the yellow posterior half quadrilineate with dark brown; scutal lobes dark brown; scutellum light brownish-yellow with a narrow brown median line; postnotum indistinctly trilineate with brown. Pleura dark brown. Legs long and slender, yellow, unmarked with darker. Wings with the pattern nearly as in *E. terrae-reginae*, but the darker circles at the basal deflection of Cu^1 , outer end of cell first M^2 , and the fork of M^{1+2} deeper coloured, conspicuously margined with pale conspicuous yellow spots in the outer ends of cells R^2 to first A. Venation: R^{2+3} a little longer than the basal deflection of Cu^1 ; petiole of cell M^1 long, approximately twice as long as the basal deflection of Cu^1 . Abdomen dark brown.

Hab. Lord Howe Island (A. M. Lea). Type, I. 12154.

LIMNOPHILA Macquart, 1834.

LIMNOPHILA PILOSIPENNIS sp. nov.

Mesonotum shiny reddish-yellow; praescutum with a narrow darker brown median stripe; pleura brownish-yellow with a conspicuous blackish area on the mesepimeron; wings yellowish-grey, the apices of the radial cells with macrotrichiae; abdomen dark brown, the basal sternites more yellowish.

♀ Length, 6.5 mm.; wing, 7.5 mm.

Rostrum greyish-pubescent; palpi dark brown. Antennae with the scapal segments dark brown; flagellar segments light brown, the outer ones becoming darker; flagellar segments oval, becoming more elongate toward the end of the organ. Head dark brown with a sparse pollen. Pronotum dark brown. Mesonotum shiny reddish-yellow, the praescutum with a narrow, darker brown median stripe. Pleura brownish-yellow; a conspicuous blackish area on the mesepimeron; mesosternum infuscated. Halteres pale brown, the apices of the knobs light yellow. Legs with the coxae yellowish-brown; trochanters dull yellow; femora brownish-yellow with an indistinct brownish ring at about one-third the length; remaining segments of the leg brownish-yellow, the tips of each very narrowly infuscated. Wings with a yellowish-grey tinge, the costal and subcostal cells and the stigma light yellow; veins light greyish-yellow. Venation: Sc long, Sc^1 ending about opposite the fork of Rs ; Sc^2 a short distance from the tip of Sc^1 , the latter alone about equal to the basal deflection of Cu^1 ; Rs long, arcuated at origin, in direct alignment with R^{2+3} ; r indistinct; R^{2+3} about one-half longer than $r-m$; inner end of cells R^3 , R^5 , and first M^2 in direct alignment; cell first M^2 small, long-pentagonal; cell M^1 short, its petiole about as long as Rs ; basal deflection of Cu^1 just before midlength of cell first M^2 . A sparse grouping of

strong macrotrichiae in the ends of cells R^1 to M^1 . Abdomen dark brown, the basal sternites more yellowish. Valves of the ovipositor long, horn-coloured.

Hab. Lord Howe Island (A. M. Lea). Type, I. 12155.

LIMNOPHILA LEAI sp. nov.

General colour dark, sparsely dusted with grey; halteres yellow; legs short and hairy; wings yellowish-subhyaline, brighter at the base, variegated with brown; wing-tip broadly infuscated; cell M^1 lacking.

♀ Length, 9.5–10 mm.; wing, 7.8–8.2 mm. Middle leg, femur, 3.6 mm.; tibia, 3.4 mm.

Rostrum and palpi dark brown. Antennae black, with sixteen segments, the basal flagellar segments pyriform, the fourth and fifth very slightly produced on their inner face, but with no indication of a pectination. Head black, sparsely brownish-grey pruinose, especially on the front and anterior portion of the vertex. Pronotum light grey-pruinose. Mesonotal praescutum dark brown, the humeral region more castaneous; remainder of the mesonotum brighter brown, especially the scutellum. Pleura heavily light grey-pruinose. Halteres yellow. Legs with the coxae light grey-pruinose; trochanters obscure yellow; legs short and conspicuously hairy; femora yellow, the slightly incrassated apical third black; tibiae yellowish-brown, the tips dark brown; tarsi black, the bases of the metatarsi a little brighter; tarsi a little longer than the tibiae; tibial spurs long. Wings yellowish-subhyaline, the base brighter; cells C and Sc brownish-yellow; three incomplete cross-bands and the wing-tip brown; the basal band occupies the bases of cells R and M, connected in cell Cu with the second band, which occupies the level of the origin of Rs, appearing as a large blotch at its origin; a large area in cells M and Cu and a small blotch near the end of cell first A; the third band occupies the level of the cord, extending from the stigma to the posterior margin, at cell first M^2 split to include both ends of the cell; wing-apex in cells R^2 , R^3 , R^5 , second M^2 and M^3 broadly brown; veins yellow, brown in the infuscated areas. Venation: Rs angulated at origin, R^{2+3} a little longer than the basal deflection of R^{4+5} ; r a little more than its own length from the tip of R^1 ; r-m shorter than m; cell first M^2 small, subhexagonal; cell M^1 lacking; basal deflection of Cu^1 beyond midlength of cell first M^2 ; vein second A sinuous, the cell broad.

Hab. Tasmania: Cradle Mountain (H. J. Carter and A. M. Lea). Type, I. 12156.

L. leai and the following species, *L. carteri*, bear a striking resemblance to species of *Gynoplistia*, and yet by the antennal structure must be referred to *Limnophila*. The discovery of the male sex should be of interest.

LIMNOPHILA CARTERI sp. nov.

General colouration dark brown; halteres with the knobs dark brown; wings faintly yellowish, conspicuously spotted and clouded with dark brown; base of cell R unmarked with brown; cell M¹ present.

♀ Length, 9.5 mm.; wing, 9.5 mm. Fore leg, femur, 6 mm.; tibia, 5.8 mm. Generally similar to *L. leai*, differing as follows:

Halteres with the knobs dark brown. Legs longer and more slender, less hairy; femora dark brown, the basal quarter obscure yellow; tibiae and metatarsi yellowish-brown, the tips dark brown; remainder of the tarsi dark brown. Wings faintly yellowish, cells C and Sc more saturated; membrane heavily spotted and clouded with brown, arranged as follows: a small spot at about one-third the length of cell R; a large circular spot at the origin of Rs; a broad seam along the cord; conspicuous spots at the end of vein R², at the outer end of cell first M², and at the fork of M¹⁺²; conspicuous brown washes occupying most of cell M, except the base and outer end; a broad seam along vein M to the cord; wing-apex in cells R², R³, R⁵ and M¹ narrowly and unevenly darkened; slightly more than the basal half of cell Cu darkened, this colour also including the ends of the anal cells; veins brown. Venation: R²⁺³ about equal to the basal deflection of R⁴⁺⁵; cell R² widely flaring at outer margin; cell first M² long-hexagonal, the basal deflection of Cu¹ before midlength; cell M¹ present, nearly one-half longer than its petiole. Abdomen dark brown, the sternites more reddish. Ovipositor with the valves long and slender, horn-coloured.

Hab. Tasmania: Cradle Mountain (H. J. Carter and A. M. Lea). Type, I. 12157.

The type is badly discoloured and there is a possibility that the head and thorax are not grey pruinose in fresh specimens, as in *L. leai*.

LIMNOPHILA EFFETA sp. nov.

Size small (wing of ♀ under 6 mm.); general colouration dark; halteres yellow; legs yellow, the femora with a narrow subterminal brown ring, tips of the tibiae and metatarsi narrowly blackened; wings yellowish-subhyaline, the stigma and anal angle faintly darkened; cell M¹ present.

♀ Length, 5.5 mm.; wing, 5.8 mm.

Rostrum and palpi dark brown. Antennal scape reddish-brown (the flagellum broken). Head dark coloured (discoloured). Mesonotum dark coloured (badly greased in the unique type); median area of the scutum more reddish. Pleura dark, grey pruinose. Halteres light yellow. Legs with the coxae obscure yellow, the fore coxae infuscated; trochanters obscure yellow; femora brownish-yellow with a narrow subterminal brown ring; tibiae and metatarsi yellow, the

tips narrowly but conspicuously blackened; remainder of the tarsi brownish-black. Wings yellowish-subhyaline, cells C and Sc slightly more yellowish; stigma slightly darker brown, ill-defined; anal angle of the wing infuscated; veins dark brown. Venation: Sc ending about opposite the fork of Rs, Sc² a slight distance from the tip of Sc¹, Sc¹ alone being a little longer than the basal deflection of Cu¹; Rs long, subangulated at origin, in alignment with R²⁺³; R²⁺³ a little more than one-half R²; r rather faint, at or immediately beyond, the fork of R²⁺³ and on R¹ nearly twice its own length from the tip; inner ends of cells R³, R⁵ and first M² in oblique alignment, but R³ shorter than R⁵; cell first M² long and narrow, widened distally; petiole of cell M¹ long, about twice the cell and approximately as long as cell first M²; basal deflection of Cu¹ at or just beyond midlength of the latter. Abdomen dark brown. Ovipositor with the valves elongate, slender, strongly upcurved, reddish-horn-coloured.

Hab. Tasmania: Wilmot (H. J. Carter and A. M. Lea). Type, I. 12158.

L. effeta is apparently closely related to *L. disposita* Skuse (New South Wales), differing in the smaller size and in the venational details, as the length of Rs and the position of the radial cross-vein.

LIMNOPHILA PANTHERINA sp. nov.

Antennae of the male elongate; general colouration light brown, the thoracic pleura grey-pruinose; legs yellow; wings subhyaline, the costal margin yellowish, the cells spotted and dotted with brown; R²⁺³ short, r far from the tip of R¹.

♂ Length, 10.5 mm.; wing, 10.8 mm.; antenna, about 4 mm.

Rostrum brownish-yellow; palpi brown. Antennae of the male elongate, if bent backward extending to opposite midlength of the second abdominal segment; antennae brownish-yellow. Head brown. Mesonotum brown, grey-pruinose (discoloured in the type), the postnotum more testaceous. Pleura light grey-pruinose, darker on the lateral sclerites of the postnotum and on the sternum. Halteres long and slender, light brown. Legs with the coxae yellowish-testaceous; trochanters yellow; femora and tibiae obscure yellow (tarsi broken). Wings subhyaline, the costal margin light yellow, this colour extending to the wing-apex; stigmal spot small, dark brown; dark brown spots arranged as follows: at arculus; origin and fork of Rs; tip of Sc; at r; tip of R¹; R²; a smaller spot at R³; an interrupted seam along the cord; sparse small brown dots in all the cells of the wings excepting Sc, there being about twenty-five in cell C; veins dark brown, C, Sc, and R yellowish-brown. Venation: Sc long, extending beyond the fork of R²⁺³, Sc² longer than Sc¹ and near its extreme tip; Rs long, almost straight; R²⁺³ short, about two-thirds the basal deflection of Cu¹; r very far before the tip of R¹, the ultimate section of R¹ being longer than the penultimate; r near one-

third the length of cell R^2 ; petiole of cell M^1 about equal to R^{2+3} ; basal deflection of Cu^1 near midlength of cell first M^2 , the latter slightly widened distally. Abdomen elongate, the tergites with about the basal three-fifths of each segment yellow, the apex darkened; a more or less distinct basal brown band and two impressed transverse marks near two-fifths the length of each tergite; sternites obscure yellow. Hypopygium blackened.

Hab. Victoria: Black Spur, Dividing Range, May 16, 1901 (W. Ashby).
Type, I. 12159.

LIMNOPHILA (PSEUDOLIMNOPHILA) INDECORA sp. nov.

General colouration clear light grey; a narrow dark brown line from the pronotum to the base of the abdomen; praescutum with three brown stripes; femora and tibiae blackened at tips; wings yellowish-subhyaline, sparsely variegated with brown, the outer half of cell R^5 infuscated; Rs long, angulated at origin; R^{2+3} short; basal deflection of Cu^1 near the fork of M.

♀ Length, about 11.5–12.5 mm.; wing, 11.4–12.3 mm.

Rostrum dark coloured, sparsely pruinose; palpi dark brown. Antennae with the basal segment dark, greyish-pruinose; second segment reddish, slightly pruinose; flagellum dark brown. Head light grey, the middle of the vertex a little darker. Pronotum light grey, more infuscated medially. Mesonotal praescutum clear light grey with three brownish stripes, the median stripe obliterated anteriorly excepting a narrow darker median stripe that continues to the anterior margin; lateral stripes shorter; pseudosutural foveae black, very conspicuous, their surface granular; remainder of the mesonotum clear grey, the scutum and scutellum narrowly darker medially. Pleura clear grey. Halteres brown, the base of the stem yellow. Legs with the coxae light grey pruinose; trochanters reddish-yellow; femora brownish-yellow, the tips broadly blackened; tibiae yellow, the tips narrowly blackened; basal three tarsal segments brownish-yellow, the tips narrowly darkened; terminal tarsal segments dark brown. Wings yellowish-subhyaline, the costal and subcostal cells more brownish-yellow; stigma oval, dark brown; small brown spots as follows: at origin and fork of Rs; at Sc^2 ; tip of R^2 ; fork of Cu ; at r-m, and at fork of M^{1+2} ; apical half of cell R^5 and the tip of R^2 strongly infuscated. Venation: Sc ending a little beyond the fork of Rs, Sc^2 slightly removed from the tip, Sc^1 alone about equal to R^{2+3} ; Rs long, angulated at origin; R^{2+3} shorter than the deflection of R^{4+5} ; r far from the tip of R^1 , the latter tip alone longer than the basal deflection of Cu^1 ; r on R^2 a little more than its own length beyond the fork of R^{2+3} ; R^2 sinuous; r-m very reduced in size; cell first M^2 hexagonally rectangular; petiole of cell M^1 about equal to or shorter than cell first M^2 and shorter than vein M^2 ; basal deflection of Cu^1

immediately beyond the fork of M; vein second A long, sinuous. Abdomen dark brown, sparsely pruinose; sternites more yellowish, especially on the lateral and apical margins of each segment, sparsely pruinose; faint linear lateral dashes. Ovipositor with the valves long and slender, yellowish horn-colour.

Hab. Western Australia: Warren River (W. D. Dodd). Tasmania: King Island (A. M. Lea). Type, I. 12160.

XENOLIMNOPHILA subgen. nov.

Antennae with seventeen segments in both sexes. Wings reduced to linear pads in both sexes. Legs very long and slender, the tibiae with long spurs.

This peculiar fly is well worthy of subgeneric rank. The genus *Zaluscodes* Lamb⁽¹⁾ is based on *Z. aucklandicus* Lamb, a small, brownish-yellow fly from the Auckland Islands. This group and *Alfredia* Bezzi⁽²⁾ are apparently degenerate species of *Limnophila*, since they possess sixteen-segmented antennae and other Limnophiline characteristics. Apparently these species, together with *L. aspidoptera* Coq. and *L. subaptera* Alex., of Western North America, have no more claim to generic rank than have the numerous subapterous species of *Tipula* and related genera. *Xenolimnophila*, however, has seventeen-segmented antennae of a rather peculiar structure, and the affinities of the group may be closer to *Gynoplistia*, in spite of the almost simple structure of the antennal flagellum.

LIMNOPHILA (XENOLIMNOPHILA) ZALUSCODES sp. nov.

Subapterous in both sexes; legs long and slender, longer in the male than in the female.

♂ Length, about 13.5 mm.; wing, 2 mm. Fore leg, femur, 13.5 mm.; tibia, 18 mm.; hind leg, femur, 13.8 mm.; tibia, 19.6 mm. ♀ Length, about 15.5–16 mm.; wing, 2 mm. Fore leg, femur, 7.9 mm.; tibia, 9.3 mm.; hind leg, femur, 8.1 mm.; tibia, 11.4 mm.

Rostrum and palpi dark brown. Antennae seventeen-segmented, moderately elongate, dark brown, the scapal segments more reddish; flagellar segments subcylindrical, the inner face a little produced. Head reddish-brown, narrowed behind. Mesonotum reddish-brown, the praescutum with two narrow darker lines; pleura sparsely pruinose. Thorax small, the dorsum flattened as in most subapterous Tipulidae. Halteres yellow, the knobs dark brown. Legs of the male much longer than in the female, as shown by the above measurements, giving the insect a spider-like appearance; coxae long and prominent, heavily

(1) Lamb, Subantarctic Islands of New Zealand, 1, 1909, p. 130.

(2) Bezzi, Atti Soc. Ital. Sci. Nat., lvii, 1918, p. 20-22.

dusted with grey; tibiae very long, longer than the femora; tibial spurs long and slender. Wings yellow, reduced to mere strap-like lobes with no distinct venation, a little longer than the halteres. Abdomen dark brown, lighter coloured in the female. Male hypopygium with the pleurites short and stout; pleural appendages two, relatively small and slender. Ovipositor with the valves long and powerful, blackened at the base, the apical half of the valves paler.

Hab. Tasmania: Waratah (H. J. Carter and A. M. Lea). Type, I. 12161.

CEROZODIA Westwood, 1835.

CEROZODIA FLAVIPES sp. nov.

Size large (wing of female over 20 mm.); tarsi light yellow; mesonotum brownish-grey in the male with three dark brown stripes; in the female more reddish-brown with the stripes less distinct.

♂ Length, about 17 mm.; wing, 16.2 mm.; antenna, about 10 mm.
♀ Length, 25–26 mm.; wing, 21.5 mm.; antenna, about 7 mm.

♂ Rostrum reddish-brown; palpi dark brown, Antennae with 25 segments; flagellar segments 1 to 21 with very long flabellations, the terminal two segments simple; the branches at about midlength of the organ are longest (about 2.6 mm.), shorter on the basal and terminal pectinated segments; scape light brown, the flagellum and branches dark brown. Head dark brownish-grey. Mesonotum brownish-grey with three dark brown stripes, the median stripe entire; remainder of the mesonotum dark brown, the scutellum a little more reddish. Pleura dark, heavily grey-pruinose; dorso-pleural membranes obscure yellow. Halteres light yellow, the knobs dark brown. Legs with the coxae dark, grey-pruinose; trochanters brownish-yellow; femora brown, the base paler, the tip narrowly yellowish, preceded by an indistinct darker ring; tibiae light brown, the tips narrowly darkened; metatarsi except the tip and the terminal tarsal segment brown; remainder of the tarsi light yellow. Wings whitish-subhyaline, the wing-base and cells C and Sc more yellowish; a heavy dark brown pattern as follows: a more or less distinct area at the base of cell R; a large spot at one-third the length of cell R; at origin of Rs; at the stigma, continued obliquely backward along the cord to the fork of M; a rounded spot at the tip of R²; less distinct clouds along the cord; outer end of cell first M²; fork of M¹⁺²; along veins M and R⁴⁺⁵; brownish washes in cells M, Cu¹, the distal half of R⁵, and near the ends of the anal cells. Venation: Sc long, Sc¹ extending to slightly beyond the fork of R²⁺³; r near mid-distance between the fork of R²⁺³ and the tip of R¹; R²⁺³ a little shorter than the arcuated deflection of R⁴⁺⁵; petiole of cell M¹ shorter than cell first M²; basal deflection of Cu¹ at about two-fifths the length of cell first M². Abdomen reddish-brown, sparsely pruinose, the caudal

margins of the basal segments and the entire distal tergites darker brown; sternites reddish-brown, sparsely pruinose.

♀ The females referred to this species agree in the general features of size and colour. The number of antennal segments is twenty in one specimen, twenty-one in the other; of these, only the basal five flagellar segments bear a short, subterminal serration. The mesonotum is more reddish-brown, with the praescutal stripes ill-defined. Legs darker, the pale femoral tips less clearly indicated. Wings with the brown spots more clearly defined; the brown washes in the medial and anal cells more restricted. Ovipositor with the valves slender, dark brownish-black. In the paratype female, the median praescutal stripe is reddish, split by a capillary dark brown line; legs indistinctly reddish. It is possible that more than a single species is involved in this group.

Hab. Tasmania: Hobart and Waratah (A. M. Lea); Cradle Mountain (H. J. Carter and A. M. Lea). Type, I. 12162.

CEROZODIA MINUSCULA sp. nov.

Size small (wing of female under 15 mm.); general colouration light grey, the praescutum with conspicuous black stripes; wings whitish-subhyaline, conspicuously spotted with brown.

♂ Length, 10.5 mm.; wing, 11.3 mm. ♀ Length, 12.5 mm.; wing, 12.4 mm.

Rostrum light grey pruinose; palpi dark brown. Antennae dark, the first segment greyish-pruinose; first flagellar segment of the male with a long, black flabellation (remainder of the antenna broken); in the female there are only fifteen antennal segments, the basal five segments with a moderately long branch on the inner face before the apex; terminal flagellar segments cylindrical. Head grey. Pronotum grey. Mesonotal praescutum light grey with three black stripes, the broad median stripe conspicuously split by a capillary grey line; pseudosutural foveae conspicuous, subrectangular in outline; scutum grey, each lobe with the centre blackened; scutellum grey; postnotum greyish, darker posteriorly. Pleura light grey; a slightly darker dorsal longitudinal stripe; mesosternum slaty-grey. Halteres yellow, the knobs dark brown. Legs with the coxae yellowish, grey pruinose, heaviest on the posterior coxae; trochanters obscure yellow; femora yellow, the tips broadly blackened; tibiae yellowish-brown, the tips broadly dark brown; metatarsi brownish-yellow (remainder of the tarsi broken). Wings whitish-subhyaline, the costal and subcostal cells solidly infuscated, cell Sc¹ largely pale; stigma oval, dark brown; conspicuous brown clouds as follows: at one-third the length of cell R; at origin of Rs; at the tip of R² and a seam along the cord; paler brownish-grey seams along most of the longi-

tudinal veins, at the outer end of cell first M^2 ; at the fork of M^{1+2} , and at the end of cells Cu^1 , first A, second A, and in the wing-axil; extreme base of the wing yellow. Venation: Rs angulated or slightly spurred at origin; R^{2+3} about equal to the deflection of R^{4+5} ; r on R^2 a little more than its own length beyond the fork of R^{2+3} ; petiole of cell M^1 equal to or slightly longer than cell first M^2 ; basal deflection of Cu^1 before midlength of cell first M^2 . Abdomen dark brown, the basal sternites more yellowish, sparsely grey pruinose. Ovipositor with the tergal valves long and slender, only slightly upcurved.

Hab. Tasmania: Wilmot (H. J. Carter and A. M. Lea). Type, I. 12163.

GYNOPLISTIA Westwood, 1835.

GYNOPLISTIA BELLA PALLIDAPICALIS subsp. nov.

♂ Length, 9–10 mm.; wing, 9 mm.

Very similar to typical *G. bella* Walker, differing as follows:

Male antenna with twenty segments, the terminal five simple. Wings with the apical dark band reduced to an indistinct cloud in the ends of cells R^2 to R^5 ; the white spot in cell R is very small, much smaller than the white blotch beyond the origin of Rs.

This is the variety *B* mentioned by Skuse, his material having also been secured in Tasmania.

Hab. Tasmania: Cradle Mountain (H. J. Carter and A. M. Lea).

STIBADOCERELLA Brunetti, 1918.

The genus *Stibadocerella* was erected by Brunetti for the Oriental *S. pristina* Brunetti. It is of great interest to record a second species, the first member of the Cylindrotominae to be found in the Australasian Region. Although the type is in a highly fragmentary condition, there will be no doubt of the identity because of the conspicuous diagnostic characters listed under the species. The present form deviates from the original characterization of the genus by the long vein R^{2+3} , r-m being placed at the fork of the sector. The chief character still available for the separation of *Stibadocerella* from *Stibadocera* Enderlein would thus seem to be the impunctate head and thorax. The white tarsi are likewise a conspicuous character, though shared by the Oriental genus *Agastomyia* de Meijere (1919). This latter genus differs from all other known Tipulidae, with the exception of the Limnobiine *Doaneomyia* Alexander, in the possession of a single anal vein.

STIBADOCERELLA TASMANIENSIS sp. nov.

General colouration yellowish; mesonotal praescutum reddish-brown, impunctate; a conspicuous transverse brown stripe on the mesopleura; legs brown,

the tarsi largely white; wings with a strong brownish tinge; a few macrotrichiae in the cells near the wing-tip; r-m at the fork of Rs, R^{2+3} long and sinuous.

♂ Wing, 8.2 mm.; antenna, about 10.5 mm.

Rostrum and palpi brownish-yellow. Male antennae very long; scape obscure yellow; flagellar segments brown, each provided with abundant long erect hairs. Front obscure yellow; vertex broad, dark brown. Pronotum light yellow. Mesonotal praescutum reddish-brown, impunctate; remainder of the mesonotum reddish-testaceous. Pleura obscure yellow with a broad transverse dark brown mark across the mesopleura, extending from the lateral margins of the praescutum to the mesosternum between the fore and middle coxae. Halteres brown (the knobs broken). Legs with the coxae and trochanters obscure yellow; femora brown, the bases paler; tibiae and metatarsi dark brown; tarsal segments three and four, and the apex of two, white; last tarsal segment slightly infuscated. Wings with a strong brownish tinge; no stigma; veins dark brown; a few macrotrichiae in the apices of cells R^5 , second M^2 , and M^3 . Venation: Sc long, ending about opposite two-fifths the long Rs, Sc^2 at the tip of Sc^1 ; Rs long, the basal third subsinuous; r-m at the end of Rs, R^{2+3} being very long, gently sinuous; no trace of the tips of veins R^1 or R^2 ; r-m long, about one-half as long as cell first M^2 ; basal deflection of Cu^1 at midlength of cell first M^2 . (Abdomen broken.)

Hab. Tasmania: Hobart (A. M. Lea). Type, I. 12165.

BRACHYPREMNA Osten Sacken, 1886.

BRACHYPREMNA (?) TIGRIVENTRIS sp. nov.

General colouration dark brown, the mesonotum without distinct markings; head dark brown, narrowly yellowish adjoining the eyes; wings faintly brownish, stigma dark brown, followed and preceded by a subhyaline area; vein second A running very close to the anal angle of the wing; abdominal tergites dark brown, the sternites yellowish, the segments margined caudally with dark brown.

♀ Length, 14.5 mm.; wing, 15 mm.

Frontal prolongation of the head reddish-brown; nasus long and slender, black, dusted with grey, tipped with long, black bristles. Antennae brown, apparently only ten-segmented; flagellar segments gradually decreasing in length. Head dark brown, narrowly yellowish adjoining the margin of the eyes. Mesonotal praescutum, scutum and postnotum dark brown, without distinct stripes or markings of any kind (scutellum destroyed in pinning). Pleura light brown, sparsely variegated with darker areas, more conspicuous on the lateral sclerites of the postnotum. Halteres moderately elongated, brown, yellow at the base of the stem, the knobs dark brown. Legs with the coxae light brownish-

testaceous; trochanters brownish yellow (remainder of the legs broken). Wings with a brownish tinge; stigma oval, dark brown; subcostal cell a little darker than the remainder of the wing; cord and longitudinal veins beyond it indistinctly clouded and seamed with brown; conspicuous whitish-subhyaline areas before and beyond the stigma; veins brown, tips of veins M^2 , M^4 and Cu^1 pale at the wing-margin. Venation: Sc long, Sc^1 ending about opposite two-fifths the length of R^{2+3} ; Sc^2 a little removed from the tip of Sc^1 ; the distance on costa between the tips of Sc^1 and R^1 is about two-thirds of r ; Rs moderately long, gently arcuated; R^{2+3} a little shorter than Rs ; R^2 nearly at right angles to R^{2+3} at the fork, r joining near its base; petiole of cell M^1 shorter than m ; $m-cu$ obliterated by fusion of Cu^1 and M^{3+4} ; vein second A running very close to and parallel with anal angle of wing, cell second A consequently very linear and of nearly uniform width for its entire length. Abdominal tergites brown, the caudal margin of the segments ringed with black, this including about the apical fourth of each segment; lateral regions of the tergites more yellowish; sternites yellow, the caudal margins of the segments narrowly and conspicuously banded with dark brown. Ovipositor yellowish horn-colour; tergal valves compressed, the apices bluntly rounded; sternal valves a little shorter than the tergal valves, the tips acute.

Hab. Queensland: Cairns district (A. M. Lea). Type, I. 12166.

The reference of this fly to the genus *Brachypremna* is entirely provisional. All of the known existing species of the genus are American. Several features of structure and colour of the present insect point strongly to *Brachypremna*, and it is placed therein until more material becomes available.

CLYTOCOSMUS Skuse, 1890.

CLYTOCOSMUS SKUSEI sp. nov.

General colouration black, the mesonotum lined with silvery grey; pleura spotted with white, a triangular orange area before the wing-root; wings reddish-brown, the base brighter; abdomen black, the basal half of tergite two, all of tergites seven to nine, and the sternites orange.

♂ Length, 21 mm.; wing, 19–20 mm. Fore leg, femur, 9.3 mm.; tibia, 9.8 mm.; metatarsus, 4.5 mm.; remainder of fore tarsi, 7 mm.; middle leg, femur, 11.5 mm., tibia, 9.9 mm., metatarsus, 4.7 mm., remainder of middle tarsi, 8 mm.; hind leg, femur, 12 mm., tibia, 12.9 mm., metatarsus, 6.3 mm., remainder of hind tarsi, about 8 mm.

Head fiery-orange; palpi brownish-black. Antennae with the basal segment orange; remainder of the organ black; the first seven flagellar segments dilated into a cordiform structure, the branches being short and inconspicuous, much

shorter than in this sex of *C. helmsi*; segment two of the flagellum largest, thence gradually decreasing in size to the seventh; eighth flagellar segment slightly enlarged; terminal segments long-cylindrical with conspicuous verticils. Pronotum velvety-black. Mesonotal praescutum silvery-grey with three conspicuous velvety-black stripes that restrict the ground-colour to narrow lines; median stripe narrowed behind, cuneiform, anteriorly split by a very indistinct grey line; lateral stripes but narrowly separated from the median stripe; lateral margins of the sclerite narrowly blackened; scutal lobes grey, each lobe with the centres black, circled with grey; median area of the scutum and lateral margin of each lobe narrowly blackish; scutellum grey with a median black stripe; postnotum black with an anterior median grey spot. Pleura brownish-black, conspicuously variegated with white spots, these on the mesepisternum, mesepimeron, dorsal margin of the mesosternum, and the lateral sclerite of the postnotum before the origin of the halteres; propleura narrowly white; a white spot above the hind coxa; a conspicuous orange triangular area on the dorsal pleurites immediately caudad of the anterior spiracle and before the wing-root. Halteres black, the bases a little paler. Legs with the coxae conspicuously light grey pruinose; remainder of the legs black; claws of the male with two small teeth beneath. Wings with a strong reddish-brown tinge, much darker than in *C. helmsi* or *C. tillyardi*, brighter at the wing-base and in the costal and subcostal cells; cells M, Cu¹ and first A with small triangular paler centres. Abdominal tergites velvety-black, the basal half of segment two and segments seven to nine orange; the black tergites each have a conspicuous circular white spot at the lateral ends, and tergites two to five have an additional submedian spot near the anterior margin on either side; sternites fiery-orange, the caudal margins of segments four to six very narrowly blackish-brown.

Hab. New South Wales: Dorrigo. Type, I. 12167.

This magnificent crane-fly is dedicated to the late Frederick A. A. Skuse, the great pioneer student of Australian Tipulidae, author of the genus *Clytocosmus*. If it were not for the constancy between the sexes of *C. helmsi* Skuse as regards body colouration, I would have regarded this fly as representing the male sex of *C. tillyardi* Alexander; however, the colouration of the thorax of the two species is so nearly diametrically opposite that I cannot believe that they represent a single species. More material will settle the status of this fly. *C. lichtwardti* Riedel, recently described ⁽¹⁾ from North Queensland, also has the colouration similar in the two sexes.

(1) Riedel, Arch. f. Naturgesch., lxxxv, 1920, p. 85-88.

PTILOGYNA Westwood, 1835.**PTILOGYNA MINIMA** sp. nov.

Size small (wing of male 12 mm.); head and thorax light yellow; wings pale brown, the base and costal margin more saturated; abdomen yellow, the tergites trivittate with brownish-black.

♂ Length, 13.2 mm.; wing, 12 mm.; antenna, 5.8 mm. ♀ Length, 14.5 mm.; wing, 11.3 mm.

Frontal prolongation of the head rather short, light yellow, infuscated laterally and beneath; palpi dark brown. Antennae yellow, the long branches dark brown. Head yellow, duller on the posterior portions of the vertex. Mesonotum dull yellow, the praescutum slightly darker medially. Pleura yellow. Halteres light brown, the knobs dark brown. Legs with the coxae and trochanters obscure yellow; remainder of the legs brown, the femora paler basally. Wings with a pale brownish tinge, the base and costal margin more saturated; no distinct whitish spots as in *P. ramicornis* (Walker). Venation: Third section of vein M^{1+2} longer than the second section (M^{1+2} plus R^{4+5}); R^{2+3} about twice R^2 ; veins dark brown. Abdomen yellow, the tergites with a broad dark brownish-black median stripe; lateral margins narrowly dark brown; sternites brownish-yellow.

Hab. Northern Territory: Melville Island (W. D. Dodd). Type, I. 12168.

This tiny *Ptilogyne* is abundantly distinct from the widely distributed *P. ramicornis* (Walker).

PHACELODOCERA Enderlein, 1912.

The genus *Phacelodocera* was based on *Ptilogyne flabellifera* Loew, of Brazil. In this group the antennae are very similar to those of *Ptilogyne*, but the details of venation are almost exactly as in *Plusiomyia*, r-m and the petiole of cell M¹ being present. The species here described is the second of the genus to be made known.

PHACELODOCERA TASMANIENSIS sp. nov.

Antennae with long flabellations; wings with a heavy brown pattern, streaked with hyaline; r-m and the petiole of cell M present; abdomen reddish, grey pruinose, the lateral margins blackish.

♂ Length, about 28 mm.; wing, 25 mm.; antenna, about 10 mm.; abdomen alone, 18.5 mm. Fore leg, femur, 14.7 mm.; tibia, 16.5 mm.; hind leg, femur, 15.8 mm.; tibia, 16.6 mm.

Frontal prolongation of the head long and slender, about as long as the remainder of the head, reddish, the dorsal half brown; mouth parts dark brown.

Antennae comparatively long, the first flagellar segment with a single long (about 3 mm.) flabellation; flagellar segments two to nine with three long flabellations, a pair of divergent, stronger, basal branches, the longest being about 4 mm. in length, and a more slender branch of subequal length just beyond midlength of the segment on the same face; the branches toward the end of the segment are shorter; the apical segments of the antenna taken together are a little longer than the terminal branch; first segment of the scape brown; remainder of the organ black. Head dark brown, the occiput more reddish. Pronotum reddish, grey pruinose. Mesonotal praescutum reddish, greyish-white pruinose, with three dark grey stripes that are indistinctly margined with darker; remainder of the mesonotum reddish, sparsely light grey pruinose. Pleura reddish, with a longitudinal stripe covered with a silky-grey bloom, the dorsal sclerites and the mesosternum darker brown to produce two longitudinal stripes that enclose a broad grey one. Halteres dark brown. Legs with the coxae reddish-brown, light grey pruinose; femora reddish-brown, the tips dark brown; tibiae and metatarsi reddish-brown, the tips narrowly blackened; tarsi blackish. Wings dark brown, the costal, subcostal and base of the radial cell somewhat brighter; anal cells more greyish; the wing is variegated with whitish-hyaline, the pattern being strikingly like that of *Plusiomyia pandoxa*; a large hyaline blotch on the outer half of cell M; cell first M² hyaline, sending forth three interrupted rays; a narrow one obliquely to the costa across the bases of cells R², R³, R⁵ and the extreme tip of cell second R¹; the second ray includes almost all of cell R⁵ excepting a narrow brown interruption at about one-third the length of the cell; the third ray is broad and includes only the basal portions of cells second M² and M⁴; cell Cu¹ is dark, only the centre being indistinctly paler; cell Cu hyaline, the base dark brown, the apical third greyish, enclosing an oval hyaline area; anal cells broadly hyaline basally, greyish-brown apically, a narrow hyaline ray in cell first A near vein second A continued to the anal margin. Venation: r-m longer than m-cu; petiole of cell M¹ a little shorter than m. Abdomen reddish, the tergites beyond the second greyish-pruinose, except dorso-medially and laterally; lateral margins of the segments broadly blackened, these areas narrow anteriorly, broadened behind; a broad dark brown dorso-median stripe, this interrupted at the posterior margin of each segment; sternites reddish-brown, sparsely pruinose.

Hab. Tasmania: Waratah (H. J. Carter and A. M. Lea). Type, I. 12169.

PLUSIOMYIA Skuse, 1890.

PLUSIOMYIA PANDOXA sp. nov.

Mesonotum dark grey, the praescutum with four dull violaceous stripes; a narrow arcuated brown band across the scutellum; pleura silky-grey with three

narrow dark brown longitudinal stripes; wings dark brown; a whitish-subhyaline area in the outer end of cell M that splits into three rays at cell first M^2 , one going to costa in cell R^2 , one to the wing-tip in cell R^5 , the third to the posterior margin in cell M^4 ; lateral margins of the abdominal tergites dark brown.

♂ Length, 26-30 mm.; wing, 25-27 mm.; abdomen alone, 17-21 mm.

Frontal prolongation of the head reddish; palpi dark brown. Antennae with the scapal segments reddish, the flagellum dark brown; first flagellar segment produced strongly ventrad at apex; pectinations of flagellar segments two to seven about one-half longer than the segments. Head reddish-purple, the anterior portion of the vertex and a broad margin adjoining the eyes light grey. Pronotum light grey, cinnamon-brown medially. Mesonotal praescutum dark grey with four rather narrow dull violaceous stripes, the intermediate pair separated by a narrow line of the ground-colour; scutum grey, the lobes largely dull violaceous; a narrow dark chestnut band extends from each wing-root across the posterior part of the scutellum; postnotum pale grey pruinose, the posterior margin of the median sclerite and the ventral half of the lateral sclerites above the halteres chestnut. Pleura and sternum with a light grey silky bloom, with three more or less evanescent narrow chestnut-brown longitudinal stripes, the most dorsal one occupying the dorso-pleural membranes; the second, broadest, extending from the ventral ends of the propleura above the fore coxae to the base of the halteres; the most ventral stripe occupying the mesosternum; the area between the ventral and intermediate stripes is broader than the latter; these dark stripes are best seen when the insect is viewed from before; viewed from behind they are quite invisible. Halteres brown, the knobs obscure brownish-yellow. Legs with the coxae reddish, light grey pruinose; trochanters dark reddish-brown; femora reddish, the tips indistinctly darkened; tibiae obscure brownish-yellow, darkened apically, the extreme tips indistinctly infuscated; tarsi brown. Wings dark brown, the costal and subcostal cells more yellowish-brown; cells Cu, first A and second A more greyish, subhyaline basally; a large oval whitish-subhyaline area in cell R before the origin of R_s ; a large blotch occupying the outer half of cell M, passing through cell first M^2 and there splitting into three rays, the first narrow, traversing the bases of cells R^2 and R^3 ; the second including most of cell R^5 and the extreme tip of R^3 , the third including the base of cell second M^2 and all of M^4 except the anterior outer angle; thus there appears an outer longitudinal white stripe, crossed by an arcuate similar band that extends from margin to margin; cell Cu^1 grey, the surrounding veins heavily margined with dark brown. Wings broader than in *P. gracilis*. Venation: Cell M^1 short-petiolate. Abdomen reddish; lateral margins of the tergites broadly dark brown. Male hypopygium of simple structure.

Hab. Tasmania (A. Simson, No. 3846). Type, I. 12170.

PLUSIOMYIA TRIPECTINATA sp. nov.

Similar in general appearance to *P. pandoxa*; flagellar segments two to six with a slender pectination beyond midlength of each segment, in addition to the usual basal pair; wing-pattern heavier, especially in the anal cells.

♂ Length, 25 mm.; wing, 24.5–26 mm.; abdomen alone, 18 mm.

Very similar in general appearance to *P. pandoxa*, differing as follows:

Basal flagellar segment with a slender finger-like lobe immediately before the tip; segments two to six, in addition to the slender basal branches, with a shorter but conspicuous third branch just beyond midlength of the segment; seventh flagellar segment without the apical branch and apparently with but a single basal branch. Stripes on the praescutum duller grey. Wings narrower; the wing-pattern very similar to that of *P. pandoxa*, the chief differences as follows: The white band in cell R⁵ is narrowly interrupted by a brown line before the fork of M¹⁺²; the posterior ray from cell first M² does not reach the posterior margin, but ends at near midlength of cell M⁴; outer ends of the anal cells brownish-grey, heaviest along vein second A; a whitish ray in cell first A reaching the wing-margin near vein second A; cell Cu hyaline with the distal end and a mark at two-thirds the length narrowly brown. Abdomen shorter, the lateral margins darker.

Hab. Tasmania: Magnet, Waratah (A. M. Lea). Type, 12171.

The antennal structure is very distinct from that in other members of the *gracilis* group.

PLUSIOMYIA (?) FELIX sp. nov.

Mesonotum light grey, the praescutum with three reddish-brown stripes; a conspicuous tubercle on the lateral sclerite of the postnotum before the root of the halter; wings greyish-subhyaline, the cord and longitudinal veins narrowly seamed with brown; abdominal tergites reddish-brown, the lateral margin of each segment with silver-grey triangles.

♂ Length, 26 mm.; wing, 24.3 mm.

Frontal prolongation of the head reddish; palpi dark brown. Antennae with the scapal segments reddish-brown (flagellum broken). Head with the vertex behind the antennal bases shiny-reddish; remainder of the vertex dusky-grey, a little more reddish adjoining the inner margin of the eyes. Mesonotal praescutum light grey with three conspicuous reddish-brown stripes that are weakly pruinose; median stripe split by a capillary line of ground-colour except at the posterior end; scutal lobes and lateral margins of the scutellum largely reddish; median area of scutum and scutellum light grey-pruinose; postnotum reddish,

heavily light grey-pruinose. Lateral sclerites of the postnotum immediately before the root of the halteres produced laterad into conspicuous tubercles. Pleura light grey-pruinose; a reddish triangle on the mesepisternum; mesosternum reddish. Halteres brown, the knobs light yellow. Legs with the coxae light grey; trochanters reddish-brown; femora reddish-brown, the tips narrowly blackish (remainder of the legs broken). Wings greyish-subhyaline; cell C more yellowish; cell Sc narrow, fulvous; stigma pale yellowish-brown; cord seamed with brown; longitudinal veins very narrowly seamed with brown, broader on M. Venation: As in *P. pandoxa*; vein R^3 longer than R_s ; R^{4+5} strongly sinuated at midlength; petiole of cell M^1 about equal to r-m; cell first M^2 shorter, the basal deflections of M^{1+2} and M^{3+4} subequal. Abdominal tergites reddish-brown with the lateral margins conspicuously silvery-grey; median line duller grey; tergite one entirely dull grey; the lateral triangles are most distinct on segments two to seven; the dorso-median grey line is narrowly interrupted at the posterior margins of the segments; sternites reddish, sparsely grey pruinose.

Hab. Tasmania (A. Simson, No. 3262). Type, I. 12172.

The reference of this crane-fly to *Plusiomyia* is rendered somewhat doubtful by the loss of the antennae. However, the other details of structure agree, and it is highly probable that the above reference is correct.

PLUSIOMYIA MINOR sp. nov.

Size small (wing of female under 13 mm.); general colouration dark brown, the thorax without distinct stripes; first scapal segment very long and slender; flagellar segments two to seven with a pair of basal branches and a smaller blunt subterminal branch; wings greyish-subhyaline, unmarked; abdomen brownish-black.

♀ Length, about 12 mm.; wing, 12.6 mm.

Frontal prolongation of the head slender, only a trifle longer than the remainder of the head, reddish-brown, passing into dark brown at the tip; palpi dark brown. Antennae with the first scapal segment long and slender as in *P. inornata*, about as long as the frontal prolongation of the head or nearly one-third of the entire antennal length; first flagellar segment with an apical triangular tooth; flagellar segments dark brown; segments two to seven branched, the longest branch scarcely a third longer than the segment that bears it; the minute third branch of each of these six flagellar segments is situated just before the tip of each segment; terminal six segments of the flagellum simple. Head dusky grey; vertex between the eyes narrow. Mesonotum rather dark brown without distinct stripes. Pleura dark brownish-testaceous without markings. Halteres brown, the knobs dark brown. Legs with the coxae and trochanters

brownish-testaceous; remainder of the legs darker brown. Wings greyish-subhyaline, unmarked with darker; cell Sc and the stigma a little darker; veins brown. Venation: Rs and R^{2+3} subequal in length; cell M^1 broadly sessile; cells M^1 , second M^2 and M^4 parallel and approximately subequal in length and breadth. Abdomen brownish-black, probably with a brown bloom in fresh specimens. Ovipositor with the valves dark brownish horn-colour.

Hab. North Queensland: Cairns district (A. M. Lea). Type, I. 12173.

P. minor is the smallest species of the genus known. It is closest to *P. inornata* Skuse, and belongs to this group or subgenus. It differs from *inornata* in its very small size, the shorter flagellar pectinations, and the details of colouration.

PLUSIOMYIA SPISSIGRADA sp. nov.

Female subapterous; wings considerably atrophied both in length and breadth.

♀ Length, about 33 mm.; wing, 12 mm.; abdomen alone, excluding the ovipositor, about 22 mm.

Frontal prolongation of the head moderately elongated, a little longer than the remainder of the head, with no indication of a nasus, reddish-brown in colour; mouth-parts darker. Antennal scape dark brown (flagellum broken). Head dark grey, narrowly paler adjoining the inner margins of the eyes. Pronotum very thin, deep reddish-brown. Mesonotal praescutum testaceous-brown with a dark brown median stripe, the median line of the praescutum with a distinct, shallow, longitudinal fovea; lateral stripes obscure yellow, darker laterally; scutum brown, the median area and inner portions of the lobes obscure yellow; scutellum brown, the posterior half of the median lobe yellowish; postnotum reddish-brown; lateral sclerites of the postnotum more pruinose; a conspicuous transverse ridge across this sclerite before the halter, as in the genus. Pleura reddish-brown, the mesepimeron and lateral sclerite of the postnotum more yellowish. Halteres brownish-yellow. Legs with the coxae and trochanters reddish-brown; femora reddish-brown, becoming dark brown at the tips (remainder of the legs broken). Wings considerably atrophied both in length and breadth so as to render the fly incapable of flight, the venation correspondingly distorted; wings dirty grey, the basal and costal regions more yellowish. Venation: Costa twice bellied outward, more strongly so opposite the stigmal region; cell M^1 entirely sessile; veins stout, the cells correspondingly reduced. Abdomen large and filled with eggs, dark reddish-brown; pleural region duller (the tips of the ovipositor are broken, but the shields of both valves are dark shiny brown).

Hab. Tasmania: Frenchman's Cap (J. E. Philp). Type, I. 12174.

In spite of the fact that the antennal flagella are broken and that the wing-venation is distorted by the atrophy of the wing, there can be scarcely any doubt that the generic reference as given is correct. The peculiar shape of the head and the strong transverse ridge on the lateral sclerites of the postnotum are well-defined characters of *Plusiomyia*. The discovery of nearly apterous members of this genus is of exceptional interest.

PLUSIOMYIA NECOPINA sp. nov.

Female subapterous; wings reduced to mere strap-like organs.

♀ Length, about 24 mm.; wing, about 5.5 mm.; abdomen alone, 19 mm.

Frontal prolongation of the head slightly longer than the remainder of the head, brown; basal segments of palpi more yellowish; remainder of mouth-parts darker brown. Antennae (broken beyond the scape), first scapal segment dull yellow, tipped with darker; second segment yellow. Head with a light yellow pollen; vertex and occiput with a conspicuous dark brown area that restricts the ground-colour to margins adjoining the eyes; this dark mark on the vertex broadens out toward the occiput. Pronotum not so thin and plate-like as in *P. spissigrada*, brown, darker medially. Mesonotal praescutum light yellowish-brown with three darker brown stripes; scutum brown, the median area paler (scutellum badly injured in pinning); postnotum light coloured, slightly pruinose; the ridge on the lateral sclerites of the postnotum occurring in this genus scarcely evident. Pleura pale brown, sparsely grey pruinose. Halteres pale brown, the knobs darker brown. Legs with the coxae pale greyish-brown; trochanters obscure yellow; femora light brown, more yellowish basally (the tips broken). Wings brown, short, and so narrow as to appear strap-like; venation so crowded as to be scarcely apparent; the region of the arculus is beyond one-third the wing-length. Abdomen obscure brownish-yellow, the tergites with two parallel narrow dark brown stripes that are more or less interrupted, the space between about equal in width to one of them; sternites obscure yellow, the basal half of the segments slightly darker, pleural membrane darker brown. Ovipositor with the valves powerful, shiny dark brown; tergal valves slender, lying transversely, the lateral margins feebly serrulate, the tips slightly expanded; sternal valves very large and powerful, nearly black, much stronger than the tergal valves, the two together appearing like a long acute point; the structure of the tergal valves is much like that found in the *arctica* group of the genus *Tipula*, but the sternal valves are very different, being as large and powerful as any other species of Tipulid known to the writer.

Hab. Tasmania; Gladstone (J. E. Philp). Type, I. 12175.

PHYMATOPSIS Skuse, 1890.**PHYMATOPSIS BREVIROSTRATA sp. nov.**

Antennae with twelve segments in the male; flagellum brown; mesonotum obscure yellow, the praescutum with three broad blackish stripes that are confluent, or nearly so; wings whitish-subhyaline with conspicuous brown cross-bands; Rs short; abdomen black, the tergites with yellowish bases in the male, more greyish in the female.

♂ Length, 7.5–8 mm.; wing, 9–10.8 mm. ♀ Length, 10 mm.; wing, 9 mm.

Frontal prolongation of the head short and stout, strongly arched at about midlength; no distinct nasus, but a tuft of four or five bristles at this point; palpi dark brown. Antennae rather short, twelve-segmented in the male; first flagellar segment pyriform; remaining segments gradually decreasing in size, but increasing in length to the terminal one; scape obscure yellow, flagellum brown. Head yellowish-grey, the vertex with a large triangular brown blotch. Mesonotal praescutum obscure yellow with three broad blackish stripes that are confluent or nearly so, the median stripe very narrowly split by a capillary pale line; scutal lobes black; scutellum yellowish-testaceous; postnotum dark brown, blackish posteriorly, this colour continued laterad on to the lateral sclerites of the postnotum and appearing as a large blotch before the root of the halter. Pleura pale brownish-yellow, sparsely pruinose. Halteres dark brown, the basal half of the stem light yellow. Legs with the coxae and trochanters light yellow; femora yellowish-brown, the tips narrowly blackened; tibiae dark brown, the tips blackened; tarsi black. Wings whitish-subhyaline with cross-bands of brownish; cells C and Sc more yellowish; stigma dark brown, suffusing all of cell Sc¹ and the outer half of first R¹, continued caudad as a broad seam along the cord to the fork of M; broad brown cross-bands in the basal cells, one at the arculus; the second near midlength of the basal cells; wing-apex and the posterior and anal cells greyish-brown; the conspicuous whitish bands left are before and beyond the cord and near the wing-base. Venation: Rs short, arcuated at origin, shorter than R²⁺³; petiole of cell M¹ shorter than r-m; cell second A very narrow; Cu² about twice the deflection of Cu¹. Abdominal tergites two to six obscure yellow, the caudal margins broadly black, the remaining tergites black; lateral margins broadly greyish-yellow; sternites brownish-yellow.

The female referred to this species is much darker in colour, the black including the entire thorax; the wing is more uniformly darkened, the band at the cord being very broad, restricting the white markings before and beyond the cord to small oval areas; cell second A broader; bases of abdominal tergites more greyish than yellow.

Hab. New South Wales: Dorrigo (W. Heron). Type, I. 12176.

Although this handsome little fly deviates in some important respects from the definition of *Phymatopsis* there is no other group that can receive it, and it seems best to place it in the present genus, although, like *P. brevipalpis* Alexander, it is aberrant in several points.

SEMNOTES Westwood, 1876.

SEMNOTES REGIFICA sp. nov.

General colouration yellow; mesonotal praescutum with three confluent transverse black stripes that do not attain the suture; legs black, the tibiae with a broad yellow ring beyond the base; wings dark brown, a conspicuous yellow band at the base of the wing and an oval yellow spot near the origin of Rs.

♀ Length, about 22 mm.; wing, 29.5 mm.; fore leg, femur, 12.2 mm.; tibia, 16.4 mm.; metatarsus, 20.5 mm.; middle leg, femur, 15 mm.; tibia, 16.3 mm.; metatarsus, about 24 mm.; hind leg, femur, 17 mm.; tibia, 20.5 mm.; metatarsus, about 30 mm.

Frontal prolongation of the head short, light yellow, the nasus stout, decurved; palpi with the basal segments yellow, the terminal segments brown. Antennae with the first scapal segment nearly as long as the remainder of the organ taken together, yellow; remainder of antennae brownish-yellow. Head orange-yellow. Pronotum yellow; lateral margins and a confluent spot on either side of the narrow yellow median area dark brown. Mesonotal praescutum yellow with three broad black stripes, the median stripe broad but short, becoming obsolete near midlength of the segment; lateral stripes short, attaining the lateral margins of the sclerite in front of the root of the wing, confluent with the median stripe, not attaining the suture; scutal lobes yellow, each with two conspicuous isolated brownish-black spots along the anterior margin in transverse alignment; scutellum yellow, the caudal margin of the median area dark brown; postnotum yellow. Pleura yellow; mesopleura dark brown, sparsely variegated with obscure yellow; propleura black; a large oval brownish-black spot on the lateral sclerites of the postnotum before the root of the halteres. Mesosternum dark brown. Halteres dark brown, the base of the stem yellowish. Legs with the coxae obscure yellow, the outer faces suffused with dark brown; trochanters with the outer faces infuscated; femora black, the bases narrowly and indistinctly paler; tibiae with the extreme base (1.3 mm.) brownish-black, the distal half similar, the intervening space broadly (6.3 mm.) and conspicuously light yellow; tarsi black. Wings dark brown; a conspicuous yellow cross-band just beyond the wing-root, the outer margin at arculus; an oval yellow spot near the middle of the wing in cells R and M, immediately before the origin of Rs; centres of cells M, Cu¹ and the anal

cells paler than their margins. Venation: Rs shorter than R^{2+3} ; basal deflection of R^2 perpendicular; R^3 longer than R^{2+3} ; petiole of cell M^1 and m subequal. Abdominal tergites testaceous-yellow, the median line and the caudal margins of each segment black, to form an inverted T on each segment, the lateral margins most distinct on tergites two to five; sternites obscure yellow, the caudal margins of the segments narrowly blackened; distal abdominal segments with a slight silvery bloom. Ovipositor very short and blunt as in the genus.

Hab. North Queensland: Kuranda (F. P. Dodd). Type, I. 12177.

HABROMASTIX Skuse, 1890.

HABROMASTIX HERONI sp. nov.

General colouration brownish-yellow; vertex with a conspicuous dark brown mark; praescutum with three broad dark brown stripes, the median one split by a pale line; postnotum darkened posteriorly; femora broadly blackened at tips; wings greyish-brown, variegated with pale yellow; R^{2+3} longer than cell first M^2 ; basal section of vein M^{3+4} more than twice the second deflection.

♂ Length, 14–14.5 mm.; wing, 16.5–17 mm.; antenna, about 14.5–15 mm.

Rostrum slender, yellowish above, dark brown laterally and beneath; palpi dark brown. Antennae with the scape and basal two segments of the flagellum light brownish-yellow, passing into dark brown. Head with the front narrowly grey pruinose; vertex yellow, more fulvous on the tubercle, paler adjoining the eyes, a conspicuous dark brown median stripe, narrowed in front, broadest behind. Mesonotal praescutum brownish-yellow with three broad dark brown stripes, the median stripe split by a capillary pale line, all the stripes attaining the suture; scutal lobes dark brown, the median area narrowly pale; scutellum with the median sclerite dark brown, the lateral regions pale; postnotum whitish-grey, the posterior half conspicuously dark brown, continued to before the root of the halteres. Pleura light brownish-grey, indistinctly striped longitudinally with darker grey. Halteres light brown, the base of the knob darker brown. Legs with the coxae brownish-yellow, the apical half of the outer faces of the fore and middle coxae darker; trochanters obscure yellow; femora light brownish-yellow, the tips broadly and conspicuously blackened; tibiae brownish-black, only the extreme bases brightened; tarsi brownish-black. Wings with a strong greyish-brown tinge, the costal and subcostal cells more yellowish-brown; stigma darker brown; the wing is conspicuously variegated with pale yellow spots and areas, distributed as follows: a small band beyond the arculus extending across the wing but interrupted behind vein Cu; a second larger V-shaped band extends across the wing, the point of the V near midlength of cell M, this area traversing cell Cu; conspicuous areas before the cord and stigma; beyond the stigma in

cell R^2 ; in the bases of cells second M^2 and M^4 and near the end of vein Cu, this latter including considerable portions of cells M, Cu^1 , and Cu; a small circular spot near the end of vein Cu^2 in cell Cu^1 ; the dark brown streak enclosed between vein Cu and the weak vein immediately behind it (Cu^2 of Tillyard) is thus crossed only by two pale areas; veins dark brown. Venation: Sc^2 ends between one-third and one-fourth the length of R^{2+3} ; R^{2+3} longer than cell first M^2 ; cell first M^2 widened outwardly, the basal section of M^{3+4} more than twice the second section; cell M^1 very short-petiolate to narrowly sessile. Basal abdominal tergites reddish-brown, beyond the third passing into blackish, the lateral margins of each segment with a conspicuous brownish-yellow triangle, this colouration narrowly and indistinctly continued across the posterior margin; basal sternites obscure yellow, beyond the fifth passing into black.

Hab. New South Wales: Dorrigo (W. Heron). Type, I. 12178.

This handsome species, which is most nearly related to *H. ornatipes* Skuse and *H. terrae-reginae* Alexander, is named in honour of its collector, Mr. W. Heron, who has added several species of crane-flies to the list from New South Wales.

ACRACANTHA Skuse, 1890.

ACRACANTHA TASMANIENSIS sp. nov.

Face clear light yellow, the vertex behind the tubercle light violaceous; a narrow dark brown dash adjoining the inner margin of the eyes; mesonotum shiny-reddish, tinged with violaceous; a brownish-black triangle before the wing-root; femora brownish-yellow, the tips broadly blackened; wing subhyaline, the longitudinal veins beyond the cord bordered with brown; petiole of cell M^1 very short.

♀ Length, 22 mm.; wing, 20 mm.; fore leg, femur, 11.3 mm., tibia, 11.8 mm.; hind leg, femur, 12.8 mm.; tibia, 13.7 mm.; tarsus, 22.8 mm.

Frontal prolongation of the head rather short, light brown; nasus long and slender, provided with conspicuous black bristles; palpi brown. Antennae with fifteen segments (in the female); scape reddish-brown, the flagellum dark brown; first scapal segment elongate; basal six flagellar segments enlarged, the inner face of each a little produced and without bristles; remaining seven flagellar segments elongate-cylindrical, provided with very long, conspicuous verticils on all sides. Front and anterior face of the vertical tubercle clear light yellow; vertex and occiput light violaceous; a narrow dark brown mark on the vertex adjoining the inner margins of the eyes, this sending a capillary point cephalad and slightly proximad on to the vertical tubercle; occiput darkened. Pronotum clear light yellow. Mesonotal praescutum shiny-reddish with a faint violaceous tinge; a

rather broad but ill-defined median stripe, split by a capillary darker median line; scutal lobes reddish, the median area more yellowish; scutellum reddish-brown, the median area yellow; two brown spots at the base of the median sclerite; postnotum shiny reddish-brown, the lateral sclerites paler, especially ventrally, with a circular brown spot before the root of the halteres. Pleura faintly reddish; a broad, light yellow longitudinal stripe extending from the propleura to the base of the abdomen, slightly interrupted near the wing-root; a conspicuous brownish-black triangular area before the root of the halteres; a ventral brownish-violaceous longitudinal stripe extending from the propleura across the fore coxa and dorsal margin of the mesosternum. Halteres light brown, the knobs darker. Legs with the outer faces more or less violaceous; trochanters yellow; femora brownish-yellow, the tips broadly (3 mm.) and abruptly blackened; tibiae brown, the base narrowly yellowish, the apex narrowly blackened; tarsi dark brown. Wings subhyaline, the stigma and costal region brownish-yellow; cells second R^1 , R^2 , and apex of R^3 yellowish; veins beyond the cord conspicuously seamed with brown; linear brownish streaks in cell R and less distinctly in cell M; anal cells greyish, a clear streak in cell first A, adjoining vein second A; veins dark brown. Venation: Rs longer than R^{2+3} , gently arcuated; R^3 a little longer than Rs; petiole of cell M^1 very short, less than r-m; m-cu present, but short. Abdominal tergites reddish-brown, segments five to eight darker; sternites obscure yellow with a broad blackish median stripe. Ovipositor reddish horn-colour, the tergal valves slender; sternal valves flattened, the tips subacute.

Hab. Tasmania: Cradle Mountain (H. J. Carter and A. M. Lea). Type, I. 12179.

ACRACANTHA ABNORMALIS sp. nov.

Antennae twelve-segmented in both sexes; basal six flagellar segments incrassated, the terminal four without long verticils as usual in the genus; mesonotum buffy-yellow, the praescutum with four dark brown stripes; pleura silvery-grey; wings faintly greyish; basal abdominal tergites fulvous, the remaining segments more brownish.

♂ Length, about 11 mm.; wing, 14.5 mm. ♀ Length, about 18-20 mm.; wing, 16-20 mm.

Frontal prolongation of the head brown, dusted with grey; nasus long and slender; palpi dark brown. Antennae twelve-segmented in both sexes; scapal segments brownish-yellow; flagellum dark brown; the six basal flagellar segments subcylindrical, gradually decreasing in length from the first to the fourth, the fifth a little shorter than the third; these basal segments have no verticils on their inner face, those on the outer face appressed; the terminal four segments elongate, the last three especially so; verticils inconspicuous. Head dark brown medially,

narrowly buffy-grey adjoining the inner margins of the eyes; in the female the sides of the vertex and genae are grey; a small, button-like tubercle on the vertex between the antennal bases. Mesonotal praescutum buffy, the margins with a light yellowish pollen; four narrow dark brown stripes, the intermediate pair paler at their anterior ends; scutal lobes dark; scutellum and postnotum dark brown, dusted with grey, the postnotum with a capillary dark brown median line. Pleura light silvery pruinose, slightly darker on the mesepisternum; dorso-pleural membranes dark brown. Halteres brown, the base of the stem yellowish. Legs with the coxae brown, dusted with light grey; trochanters brownish-yellow; femora brownish-yellow, the tips narrowly darkened; tibiae light brown, the tips dark brown; tarsi dark brown. Wings with a faint greyish tinge; cells Sc and the stigma brown, the latter continued into cells Sc¹ and second R¹; a brown seam at the fork of Cu. Venation: R² oblique, the terminal section gently arcuated, so that cell second R¹ is widest just beyond the base; r is provided with about a dozen strong macrotrichiae and appears as a continuation of vein R¹, all the other veins excepting C being destitute of macrotrichiae; petiole of cell M¹ shorter than m; basal deflection of M¹⁺² about equal to and parallel with m; m-cu obliterated by the punctiform fusion of Cu¹ and M³⁺⁴. Abdominal tergite one greyish-pruinose; remaining segments brown, the second tergite more fulvous. Ninth tergite of the male hypopygium with a deep V-shaped notch, the margins thus formed densely set, provided with stiff black bristles; pleural appendage appearing as a simple subclavate hairy lobe. In the female, the second to fourth tergites are more or less yellowish, the remaining tergites dark; sternites brownish-yellow. Ovipositor reddish horn-colour. In the paratype male from Scottsdale the abdomen is almost uniformly brownish-yellow and only five basal flagellar segments are incrassated; in the female, the sixth to eighth abdominal segments are broadly blackened caudally.

Hab. Tasmania: Devonport, Scottsdale, Huon River, Hobart, King Island (A. M. Lea); Cradle Mountain (H. J. Carter and A. M. Lea). Type, I. 12180.

ISCHNOTOMA Skuse, 1890.

ISCHNOTOMA PRIONOCEROIDES sp. nov.

General colouration dark, grey pruinose; antennae subserrate, in the female sex; wings faintly brownish, sparsely variegated with whitish-subhyaline areas; femora dark brown, the basal third rufous; abdomen blue-black, the segments very narrowly margined caudally with pale.

♀ Length, 17.5-18 mm.; wing, 17.3 mm.

Frontal prolongation of the head dark, the nasus comparatively short; palpi brownish-black. Antennae dark brown, twelve-segmented; basal three flagellar

segments subcylindrical; fourth to eighth narrowed basally, widened distally, the apex of each truncated, giving the flagellum a subserrate appearance; two apical segments more elongate. Head dark blue-black, pruinose. Mesonotum badly discoloured in the type, blue-black, light grey pruinose; the praescutum apparently has darker longitudinal stripes, including a capillary median vitta. Pleura grey, almost whitish immediately before the halteres, provided with conspicuous whitish hairs, longest and most conspicuous on the lateral sclerites of the postnotum. Halteres light brown. Legs with the coxae dark, light grey pruinose; trochanters dark brown; femora dark brown, the basal third, or slightly more, conspicuously rufous; tibiae reddish-brown, the tips darkened; tarsi brownish-black. Wings with a faint brownish tinge, sparsely variegated with whitish subhyaline; cells C and Sc more yellowish; stigma brownish; the whitish areas occupy the basal half of cell R^2 ; outer half of cell first M^2 ; most of cells M^1 and second M^2 ; apices of cells M and M^4 , and less distinctly in the bases of cells Cu, M^1 , and the anal cells; veins dark brown. Venation: Rs moderately long, a little shorter than R^3 ; r rather faint, oblique, inserted on R^2 shortly beyond the fork; R^{2+3} a little longer than R^2 ; petiole of cell M^1 about two-thirds of m; basal deflection of M^{1+2} about equal to m and parallel with it; m-cu punctiform; Cu^2 about one-half longer than the deflection of Cu^1 . Abdomen blue-black, pruinose; caudal margins of the segments very narrowly and indistinctly margined with paler, less distinct on segment two, gradually widening to the sixth and seventh segments. Terminal segments of the abdomen narrowed; ovipositor relatively small, the tergal valves long and slender; sternal valves much shorter, compressed, the tips obtusely rounded.

Hab. Tasmania: Summit of Mount Wellington (A. M. Lea). Type, I. 12181.

I. prionoceroides is a very distinct species of the genus. The resemblance to species of the northern genus *Prionocera* Low is surprising.

ISCHNOTOMA RUBROABDOMINALIS sp. nov.

Vertical tubercle small, reddish, less distinctly so in the female; mesonotal praescutum with three grey stripes that are narrowly margined with dark brown, the median stripe split by a capillary dark brown line; legs black, only the bases of the femora brighter; abdomen reddish, the segments greyish-pruinose laterally; segments eight and nine dark brown.

♂ Length, 13.5–15 mm.; wing, 15–16 mm. ♀ Length, 16–18 mm.; wing, 14–16.4 mm.

Frontal prolongation of the head dark brown, pruinose; nasus long and slender; palpi dark brown. Antennae dark brown, the first scapal segment pruinose; in the male the first flagellar segment is elongate-cylindrical, the second

and third shorter, subcylindrical; fourth to ninth short, the inner face produced slightly to give the segments a roughly triangular appearance; terminal (twelfth) segment cylindrical, filiform. In the female, the antennae appear to be only eleven-segmented, the subterminal segments serrated as in the male, but less distinctly so. Head dark, greyish-pruinose, narrowly rufous medially; vertical tubercle reddish, infuscated medially, indistinctly trifold anteriorly; in the female this tubercle is obscure reddish-brown. Mesonotal praescutum with the interspaces buffy-grey; stripes grey, narrowly but conspicuously margined with dark brown, the lateral margins of the median stripe becoming narrowed behind and finally obliterated beyond three-fourths the length of the segment; median stripe split by a capillary dark brown line that ends immediately before the suture; margins of the lateral stripes complete, crossing the suture; scutum light grey, the lobes darker grey, each with a dark brown semicircle that is confluent with the margins of the lateral praescutal stripes; scutellum and postnotum clear light grey with a capillary brown line, the lateral margins of these sclerites a darker grey. Pleura light grey, narrowly darkened dorsally, before the wing-root with a conspicuous triangular tubercle that is dark brown, the apex conspicuously orange. Mesosternum greyish-brown. Halteres light brownish-yellow, the knobs dark brown. Legs with the coxae light grey; trochanters dark brownish-grey; femora black, the bases narrowly fulvous; remainder of the legs black. Wings with a greyish tinge; stigma pale brown; wing-surface sparsely variegated with dusky, these areas including the end of cell R^2 ; an area near the end of cell M adjoining vein Cu and narrow seams to the veins; outer ends of the anal cells faintly darkened; an indistinct oblitative area before the stigma, crossing cell first M^2 into the base of cell M^4 ; veins dark brown. Venation: R^{2+3} a little longer than R^2 ; Rs longer than R^{2+3} but shorter than R^3 ; petiole of cell M^1 about equal to m; m-cu short but indicated. Abdominal tergite one buffy-grey, infuscated dorso-medially; tergites two to seven bright fulvous, the segments conspicuously margined laterally with light grey; sternites similar but more brownish-fulvous, the basal segments slightly pruinose; segments eight and nine dark brown. Ninth tergite narrowly margined laterally with fulvous. In the female, the bright colour includes the eighth tergite. Male hypopygium having the ninth tergite large, with a broad U-shaped median notch, the lateral angles broadly rounded. Ovipositor with the valves long and slender.

Hab. Tasmania: Waratah (H. J. Carter and A. M. Lea). Type, I. 12182.

MACROMASTIX Osten Sacken, 1886.

MACROMASTIX BREVIPETIOLATA sp. nov.

Nasus powerfully developed; antennae short; head orange-yellow; mesonotum shiny testaceous-brown, the pleura more yellowish; wings strongly suffused with

brown, the costal and subcostal cells and the stigma more yellowish; petiole of cell M^1 very short.

♂ Length, about 11-12 mm.; wing, 14 mm. ♀ Length, about 9 mm.; wing, 12 mm.

Frontal prolongation of the head rather short, obscure yellow, the nasus very long and powerful, tufted with hairs at the apex; palpi dark brown. Antennae apparently thirteen-segmented, short in both sexes; the first scapal segment yellowish; second segment yellowish-brown; flagellum dark brown, the basal three segments oval, gradually decreasing in size, beyond the third the segments of the flagellum are elongate, linear, provided with only sparse, though moderately long verticils (segmentation of the flagellum difficult to determine in dried material). Head bright orange-yellow, clearest on the anterior part of the vertex, more obscure on the occiput. Mesonotum rather shiny testaceous-brown without distinct markings, only the posterior third of the postnotum being a little darker. Pleura testaceous-yellow, shiny. Halteres dark brown (the knobs broken). Legs with the coxae testaceous-yellow; trochanters yellow; remainder of the legs slender but not excessively elongated, pale brown, darkening on the tarsi. Wings with a strong brownish tinge, the costal and subcostal cells and the stigma more yellowish; veins dark brown. Venation: Sc^2 ending just before the fork of Rs; R^{2+3} slightly longer than the long Rs; r rather indistinct, on R^2 more than its own length beyond the base; R^3 about one-half longer than R^{2+3} ; petiole of cell M^1 very short, a little less than r; m longer than the outer deflection of M^{3+4} ; fusion of M^{3+4} and Cu^1 punctiform; cell Cu^1 twice as long as wide; cell second A narrow. A fringe of rather stiff, bristle-like hairs completely surrounds the wing-margin. Abdominal segments obscure brownish-yellow; seventh and eighth segments dark brown. Hypopygium semi-inverted as in many species of this genus.

Hab. New South Wales: Dorrigo (W. Heron). Type, I. 12183.

TIPULA Linnaeus, 1758.

TIPULA LEPTONEURA sp. nov.

General colouration light brown, the thoracic pleura more yellowish; legs long and slender, claws toothed in the male; wings faintly brownish-grey, the costal and sub-costal cells more yellowish; cell R^2 small, cell second A very narrow; male hypopygium fused into a continuous ring.

♂ Length, 14 mm.; wing, 15.5 mm.

Frontal prolongation of the head yellowish-brown; nasus moderately long, provided with conspicuous black and yellow setae; palpi light brown. Antennae

short, if bent backward extending about to the wing-root; scape and first flagellar segment light brown; flagellar segments indistinctly bicolorous, the basal swelling of each segment black, the remainder of each segment brown; flagellar segments slightly dilated before their tips to appear binodose; verticils long and conspicuous. Head greyish-brown; vertex strongly infuscated; a narrow pale border adjoining the eyes; a capillary brown median vitta; genae pruinose. Mesonotal praescutum and scutum light brown with indistinct stripes; scutellum and postnotum yellowish-testaceous. Pleura brownish-yellow. Halteres dark brown, the base of the stem narrowly yellowish. Legs with the coxae yellowish, very sparsely dusted with grey; trochanters yellow; femora brown, the base paler; tibiae and tarsi brown; legs long and slender, the metatarsi longer than the tibiae; claws toothed in the male. Wings faintly brownish-grey, the costal and subcostal cells and the wing-root more yellowish; stigma brown, completely filling cell Sc^1 ; obliterative areas of slight extent; veins dark brown. Venation: Rs short, about equal to R^{2+3} ; cell R^2 small, its inner end pointed; vein R^3 straight, about one-half longer than Rs; cell first M^2 comparatively small, pentagonal; petiole of cell M^1 longer than m; second anal vein short and straight, cell second A being long and narrow. Wings petiolate. Abdomen yellowish basally, segments four to eight dark brown; hypopygium brownish-yellow. Male hypopygium incrassated, the sclerites fused into a continuous ring. Region of the ninth tergite tumid, the caudal margin produced caudad into two blackened, conspicuous blades that are densely set with black spicules. Pleural region slightly produced, the principal appendage a pale, flattened bifid lobe. Region of the ninth sternite carinate, the median area produced into a small, slender tubercle; dorsal caudal angles of the sternite with long, yellow hair. Eighth sternite unarmed.

Hab. Northern Territory: Bathurst Island, Melville Island (W. D. Dodd). Type, I. 12184.

T. leptoneura is a true member of the genus *Tipula*, and apparently the first to be reported from Australia. It belongs to a group or subgenus that consists of many African species (*T. alphaspis* Speiser, *T. langi* Alex., *T. gaboonensis* Alex., and others), distinguished by the small size of the cell R^2 , the toothed claws in the males, and the fused sclerites of the male hypopygium.