

NEW OR LITTLE-KNOWN AUSTRALIAN CRANE-FLIES (*TIPULIDAE*, *DIPTERA*).

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In a small collection of crane-flies received from Dr. James F. Illingworth from the vicinity of Cairns, North Queensland, several species of exceptional interest were included. Some of these species were described by Skuse thirty years ago and not recorded in the literature since that time, while a few others had not been discovered in Australia hitherto. Besides the described species a few others proved to be new to science and are discussed herewith. The types of the species are preserved in the collection of the writer. I would express my sincere thanks to Dr. Illingworth for his many kindnesses at this time and in the past.

Family TIPULIDÆ.

Subfamily Limnobiinæ.

Tribe Limnobiini.

Genus DICRANOMYIA *Stephens*.

1829, *Dicranomyia* Stephens, Catalogue of British Insects, vol. 2, p. 243.

Dicranomyia illingworthi Alexander.

1914, *Dicranomyia illingworthi* Alexander, Annals of the Entomological Society of America, vol. 7, pp. 239, 240, pl. 34, fig. 1; pl. 35, fig. 7.

Two alcoholic females of this species were included in the collection. The fly was described from the Fiji Islands and has not been recorded from Australia.

The female sex has not been described and one of these specimens is made the allotype.

Allotype. — Female, length 7.3-7.5 mm.; wing, 6.3 mm.

Very similar to the male, differing as follows:—

The flagellar segments are more oval, becoming more elongated toward the end of the organ. Legs with the coxæ yellow, the bases brown; trochanters dull yellowish brown; femora yellow with a narrow pale brown ring before the tip; tibiæ dull yellow, the tips narrowly but conspicuously dark brown; first and second tarsal segments brownish yellow, the tips narrowly dark brown; last three tarsal segments dark brown; claws with a large tooth near midlength and a series of smaller denticles nearer the base. Abdomen, brown, the pleural membrane still darker brown. Ovipositor with the tergal valves slender, only slightly upcurved; sternal valves compressed, almost straight.

Allotype, ♀, Meringa, near Cairns, 1918 (J. F. Illingworth). Taken at light.

Genus RHIPIDIA *Meigen*.

1818, *Rhipidia* Meigen, Systematische Beschreibung, vol. 1, p. 153.

Rhipidia pulchra de Meijere.

1904, *Rhipidia pulchra* de Meijere, Bijdragen tot de Dierkunde, vol. 17, p. 92, pl. 8, fig. 7.

One female taken at light, Meringa, near Cairns, 1918, J. F. Illingworth.

Genus LIBNOTES *Westwood*.

1876, *Libnotes* Westwood, Transactions of the Entomological Society of London, 1876, p. 505.

Libnotes parvistigma, sp.n.

Belongs to the *familiaris* group; antennæ pale; head dark; pronotum and mesonotal præscutum pale brownish yellow with a broad dark brown median stripe; femora with a narrow dark brown subterminal ring; wings subhyaline, the stigma small, dark brown, *Sc* very long, the basal deflection of *Cu*₁ near mid-length of the long cell 1st *M*₂.

Female.—Length 9-10.4 mm. : wing, 6.6-8.5 mm.

The following description is made from alcoholic specimens.

Rostrum and palpi dark brown. Antennæ pale yellow, the scape and the terminal flagellar segments more brownish. Head dark.

Pronotum pale with a broad dark brown median stripe. Mesonotum pale brownish yellow, the præscutum with a dark brown median stripe that is broadest in front, rapidly narrowed to a point at the suture, in front being confluent with the pronotal stripe : each scutal lobe with a rectangular longitudinal mark ; scutellum brown, with an indistinct paler median dividing line ; postnotum with a distinct brown median stripe. Pleura yellow with a small brown spot beneath the wing-root. Halteres pale, the knobs large. Legs with the coxæ and trochanters pale yellow ; femora brownish yellow with a narrow dark brown ring immediately before the tips ; tibiæ pale brown, the tips indistinctly darkened ; tarsi brown. Wings subhyaline, stigma small, dark brown, rounded and sending a short cloud basad along vein R_1 ; veins dark brown. Venation : Sc very long, Sc_1 ending about opposite $r-m$, Sc_2 far back from the tip of Sc_1 , nearly opposite the fork of Rs ; r at the tip of R_1 ; Rs almost straight, in alignment with the basal deflection of R_{4+5} which is about one-half its length ; cell 1st M_2 long, closed, the basal deflection of Cu_1 at or beyond the middle of its length.

Abdominal tergites brownish yellow, segments one to six with a large brown, roughly triangular area in the centre of each ; sternites dull yellow. Ovipositor with the tergal valves very small and slender, the sternal valves much more powerful, compressed, almost straight.

Habitat.—North Queensland.

Holotype, ♀, Meringa, near Cairns, 1918 (J. F. Illingworth).

Paratopotypes, 25 ♀'s.

From the fact that the type series consisted only of females we may surmise that this material was taken at light.

Libnotes parvistigma bears a marked resemblance to *L. indica* (Brunetti) of India, a much smaller fly with dark brown legs, a dark cloud at the origin of the sector and a slightly different venation (Sc shorter ; basal deflection of Cu_1 close to the fork of M).

Libnotes pulchripes, sp.n.

Antennæ dark brown, the flagellar segments oval, moniliform ; fore femora with the tips broadly blackened ; tibiæ white with a postmedial black ring ; tarsi white ; wings grayish subhyaline, stigma small, dark brown ; anal angle of the wing lacking, cell 1st M_2 open.

Male.—Length 5.3-6 mm. ; wing, 5.7-5.9 mm.

Mouth parts small, pale brown. Antennæ dark brown, the segments oval, strongly moniliform. Head pale yellowish brown.

Mesonotum pale brownish, the præscutum without apparent stripes. Pleura dull yellow, sparsely pruinose ; a brown mark on the mesosternum between the fore and middle legs. Halteres elongate, brown, the knobs dark brown. Legs with the coxæ pale ; trochanters brown ; femora yellow, the tips of the fore femora broadly blackened and incrassated ; middle femora scarcely enlarged or darkened apically ; hind femora slightly incrassated and infuscated ; tibiæ white, immediately before midlength with a conspicuous black ring ; tarsi white, the claws black. Claws long and but slightly curved, simple, the base with about two acute bristles ; the last tarsal segment with a few slender setigerous tubercles bearing very long, powerful bristles.

Wings grayish subhyaline ; stigma small, oval, dark brown ; veins dark brown ; wings cuneiformly narrowed at the base, the anal angle lacking. Venation : Sc moderately elongated, Sc_1 ending some distance beyond the origin of Rs and not far before its fork ; Sc_2 far from the tip of Sc_1 , slightly beyond or even proximad of the origin of Rs , Sc_1 usually being longer than Rs ; Rs almost straight, about in alignment with R_{4+5} ; cell 1st M_2 open by the atrophy of the outer deflection of M_3 ; basal deflection of Cu_1 at the fork of M ; 2nd Anal vein sinuous.

Abdomen pale brown ; hypopygium small.

Habitat.—North Queensland.

Holotype, ♂, Gordonvale, February, 1918 (J. F. Illingworth).

Paratopotype, ♂.

The types were from grass.

The reference of this curious fly to *Libnotes* is somewhat provisional but the only other course would be the erection of a new genus. The almost simple claws, the open cell 1st M_2 and the cuneiform wings are aberrant characters in the genus *Libnotes*.

Tribe Antochini.

Genus *STYRINGOMYIA* Loew.

1845, *Styringomyia* Loew, Dipterologische Beiträge, vol. 1, p. 6.

Styringomyia bancrofti Edwards.

1914, *Styringomyia bancrofti* Edwards, Transactions of the Entomological Society of London, 1914, pt. 1, p. 222, pl. 23, figs. 44, 45; pl. 25, figs. 80, 81.

Two females from Meringa, near Cairns, 1918 (J. F. Illingworth).

Tribe Eriopterini.

Genus *ERIOPTERA* Meigen.

1803, *Erioptera* Meigen, Illiger's Magazin, vol. 2, p. 262.

Erioptera (Erioptera) angustifascia, sp.n.

Antennæ pale brown; head dark brown, paler along the inner margin of the eyes; femora with a broad brownish ring before the tips; wings grayish subhyaline with a narrow brown seam along the cord; R_{2+3} short, at a marked angle with the end of the sector, r at the fork of R_{2+3} .

Female.—Length 4.8 mm.; wing, 3.5 mm.

The following description is made from an alcoholic specimen.

Rostrum pale brown; palpi dark brown. Antennæ pale brown, the segments beyond the sixth broken; flagellar segments oval. Head dark brown, broadly yellowish adjoining the inner margin of the eyes.

Mesonotum brownish yellow without distinct stripes. Pleura brownish yellow. Halteres pale. Legs with the

coxæ and trochanters yellow; femora yellow, before the tips with a broad, indistinct brownish annulus; tibiæ and tarsi yellowish, the terminal segments of the latter darkened; claws very small. Wings grayish subhyaline; a narrow brown seam along the cord, extending from r to the fork of M ; veins brown. Venation: Sc_1 ending nearly opposite r , Sc_2 a short distance beyond the origin of Rs ; Rs long, almost straight; R_{2+3} short, about equal to $r-m$, forming a marked angle with the end of Rs , r at its fork, oblique; cell 1st M_2 open; 2nd *Anal* vein strongly sinuous before its end.

Abdomen pale brown. Ovipositor with the valves very slender; tergal valves strongly upcurved, the margins smooth.

Habitat.—North Queensland.

Holotype, ♀, Meringa, near Cairns, 1918 (J. F. Illingworth).

Erioptera (Erioptera) illingworthi, sp.n.

Antennæ pale brown; legs yellowish, the terminal tarsal segments darkened; wings pale brownish yellow, r inserted on R_2 .

Female.—Length about 5.5 mm.; wing, 4.3 mm.

The following description is made from an alcoholic specimen.

Rostrum pale yellowish brown; palpi brown. Antennæ light brown. Eyes rather small, widely separated by the vertex. Head pale brownish yellow.

Mesonotum pale brownish yellow, the præscutum without distinct darker stripes. Pleura yellow. Halteres pale. Legs with the coxæ and trochanters yellow; remainder of the legs yellow with only the terminal segments of the tarsi darkened. Wings pale brownish yellow; veins pale brown. Venation: Sc_1 ending nearly opposite r , Sc_2 just beyond the origin of Rs ; Rs long, straight; r on R_2 about its own length beyond the fork of R_{2+3} ; cell 1st M_2 open; 2nd *Anal* vein strongly sinuous before its end.

Abdomen brownish yellow. Ovipositor with the tergal valves very long and slender, the upward curve almost a semicircle.

Habitat.—North Queensland.

Holotype, ♀, Meringa, near Cairns, 1918 (J. F. Illingworth).

It is with the greatest pleasure that this interesting little *Erioptera* is dedicated to its collector, my friend Dr. James F. Illingworth.

Genus GONOMYIA Meigen.

1818, *Gonomyia* Meigen, Systematische Beschreibung, vol. 1, p. 146.

Subgenus LEIPONEURA Skuse.

1889, *Leiponeura* Skuse, Proceedings of the Linnean Society of New South Wales, vol. 4 (ser. 2), pp. 795, 796.

Gonomyia (Leiponeura) cairnensis, sp.n.

Antennæ dark brown, the scape conspicuously light yellow; mesonotal præscutum with three dark brown stripes; pleura yellow, longitudinally striped with dark brown; wings grayish yellow with small brown spots at the tips of Sc_1 and R_{2+3} ; Sc_1 short with Sc_2 at its tip; basal deflection of R_{4+5} long; abdominal tergites brown, ringed caudally with yellow.

Male.—Length, 6.6 mm.; wing, 5.7 mm.

The following description is made from an alcoholic specimen.

Rostrum and palpi dark brown. Antennæ with the scape light yellow, the flagellar segments dark brown. Head yellow; a linear brown mark on the anterior part of the vertex between the eyes.

Mesonotal præscutum yellow with three broad dark brown stripes, the long median stripe very indistinctly divided by a capillary pale line; scutal lobes dark brown, the median area pale with a very indistinct brown median dash; scutellum and postnotum pale, the latter darker behind. Pleura yellow, longitudinally striped with dark brown, the stripe beginning as two narrow brown lines on the propleura, continued caudad, including the extreme base of the fore coxa, passing through the base of the halteres and continuing to the abdomen. Mesosternum dark brown, the pale stripe between this mark and the pleural stripe broad and distinct. Halteres pale. Legs with the

coxæ pale, the base of the fore coxæ darkened; trochanters pale; remainder of the legs broken. Wings with a strong grayish yellow suffusion; stigma oval, slightly darker gray; a small dark brown spot at the tip of Sc_1 and another at the tip of R_{2+3} ; veins dark brown, deepest along the cord. Venation: Sc short, ending far before the origin of Rs , Sc_2 at the tip of Sc_1 ; the distance on R between Sc_2 and the origin of Rs is about equal to the basal deflection of Cu_1 ; Rs rather long, strongly angulated at origin; basal deflection of R_{4+5} long, about equal to $r-m$; basal deflection of Cu_1 just before the fork of M .

Abdominal tergites dark brown, broadly ringed caudally with yellow to produce an annulated appearance; sternites dull yellow, the segments with a very narrow and indistinct brown lateral stripe that is interrupted at the incisures. Male hypopygium with the pleurites rather stout, the inner caudal angle produced caudad into a small blackened chitinized point and a blunt fleshy protuberance that is covered with about 15 short setæ; a single pleural appendage, elongate, flattened, blade-like, the tip obtusely rounded and a little darkened, at the base with a small rounded lobe that is densely covered with short hairs. Outer gonapophyses large, heavily chitinized, bifid, the apical point about three times as large as the subterminal spine. Penis-guard subtended on either side by a slender, curved hook with the subacute tips heavily chitinized.

Habitat.—North Queensland.

Holotype, ♂, Meringa, near Cairns, 1918 (J. F. Illingworth).

Gonomyia (Leiponeura) queenslandica, sp.n.

Antennæ brown; mesonotum dark brown; pleura brownish yellow, indistinctly marked with brown, wings with a strong grayish brown tinge, vein Sc short, Sc_2 far before the tip of Sc_1 ; cell 1st M_2 closed.

Female.—Length 4.6 mm.; wing, 4mm.

The following description is made from an alcoholic specimen.

Rostrum pale; palpi short, dark brown. Antennæ dark brown, the first scapal segment paler. Head dark; vertex protuberent.

Pronotum pale. Mesonotal præscutum dark brown, the lateral margins and humeral angles paler. Pleura brownish yellow, indistinctly marked with brown. Halteres pale, the knobs a trifle darker. Legs with the coxæ brownish on their outer faces; trochanters pale brown; remainder of the legs pale brown. Wings with a strong grayish brown suffusion; stigma indistinctly darker; veins brown. Venation; Sc short, Sc_1 ending far before the origin of R_s , this distance nearly equal to the length of R_s alone; Sc_2 far removed from the tip of Sc_1 , Sc_1 alone being longer than R_s ; R_s short, strongly arcuated at its origin; basal deflection of t_{4+5} very short, subpunctiform; veins R_{2+3} and R_{4+5} strongly divergent; basal deflection of Cu_1 a short distance before the fork of M .

Abdominal tergites dark brown; sternites yellow. Ovipositor with the tergal valves slender, acute, slightly upcurved.

Habitat.—North Queensland.

Holotype, ♀, Meringa, near Cairns, 1918 (J. F. Illingworth).

Gonomyia queenslandica is closest to *G. brevivena* (Skuse) but Sc_2 is not at the tip of Sc_1 and cell 1st M_2 is scarcely one-half the length of cell 2nd M_2 (second posterior).

Genus CONOSIA van der Wulp.

1880, *Conosia* van der Wulp, Tijdschrift voor Entomologie, vol. 23, p. 159, pl. 10, figs. 5-7.

Conosia irrorata (Wiedemann).

1828, *Limnobia irrorata* Wiedemann, Aussereuropäische zweifl. Insekten, vol. 1, p. 574.

A female specimen, taken at Meringa, near Cairns, 1918 (J. F. Illingworth).

Tribe Limnophilini.

Genus LECHRIA Skuse.

1889, *Lechria* Skuse, Proceedings of the Linnean Society of New South Wales, vol. 4 (ser. 2), pp. 830, 831.

The genus *Lechria* is a very isolated group that has been referred almost without question to the tribe Eriopterini although the fact that the insects possessed tibial spurs

has been pointed out by several writers. De Meijere was the first to remove the genus from the Eriopterini to the Limnophilini, to where it runs by means of the existing keys, but it seems very possible that a new tribe may be required for it when the immature stages are made known. The chief venational peculiarities of *Lechria* are the apparent fusion of R_2 with R_1 near the tip of the latter, a condition that is quite comparable with that found in the tribe Pediciini as discussed by the writer in another paper, (Entomological News, vol. 29, pp. 201-205, pl. 12; 1918), and the union of $r-m$ directly with the sector before its fork. Some features of structure are suggestive of *Dicranoptycha*, and more evidence may show these two genera to be closer than their present arrangement would indicate.

Lechria rufithorax, sp. n.

Antennæ dark brown; vertex very narrow; mesonotal præscutum dull rusty brown without stripes, the scutellum and postnotum dark plumbeous brown; femora brownish yellow, the tips dark brown, apical tarsal segments darkened; wings faintly grayish, the costal cells more infused.

Male.—Length about 5 mm.; wing, 6.9-7 mm.

Female.—Length about 7.5 mm.; wing, 7.8 mm.

Rostrum reddish yellow; palpi dark brown, the basal segment pale. Antennæ dark brown, the scapal segments paler brown. Eyes very large, separated by a very narrow, linear strip of the vertex in both sexes. Head dark gray, provided with numerous black setæ.

Mesonotal præscutum dull rusty brown without apparent stripes; scutal lobes, scutellum and postnotum dark plumbeous brown. Pleura pale, very sparsely gray pruinose. Halteres short, brown, the base of the stem paler. Legs with the coxæ pale, sparsely gray pruinose, the outer face near the apex with a group of short black setæ; trochanters pale brown, the posterior inner face with a conspicuous blackened area that is produced into an acute chitinized tooth; femora brownish yellow, the tips dark brown; tibiæ and tarsi brown, the terminal tarsal segments dark brown. Wings with a faint grayish tinge, cells C , Sc , and Sc_1 strongly infused; stigma linear, darker brown; wing-apex faintly margined with brown; veins dark brown;

veins with dense, moderately long macrotrichia, a group of about four macrotrichia at about midlength of the basal deflection of Cu_1 . Venation: Sc_2 at the tip of Sc_1 ; $r-m$ connecting with Rs at a distance before the tip of the latter about equal to its own length; R_2 apparently fused with R_1 , the fusion less than one-half of the section of R_1 between Sc_2 and the juncture of R_2 ; basal deflection of Cu_1 about one-third the length of cell 1st M_2 .

Abdominal tergites dark brown, the lateral margins of the segments broadly paler; sternites pale brownish yellow, the ninth segment entirely dark brown. Male hypopygium with two pleural appendages, the outer appendage shortest, ending in an abrupt, slightly curved chitinized point, the inner face before the point microscopically denticulated; inner appendage pale, shaped like a boomerang. Gonapophyses four in number, the lateral pair flattened, blade-like, the proximal pair slender with the tips acute and slightly divergent. Ovipositor with the tergal valves long, strongly upcurved, greatly exceeding the sternal valves.

Habitat.—North Queensland.

Holotype, ♀, Gordonvale, November, 1917 (J. F. Illingworth).

Allotopotype, ♀.

Paratopotype, ♂.

The types were found resting on tree-trunks.

Lechria rufithorax agrees most nearly with *L. bengalensis* Brunetti (India) which species is known to the writer only from the figure and description. From these it is seen that the Indian species is much smaller (length 4 mm.) with the front broad and flat; the coloration of the thorax, legs and abdomen and the venational details differ as indicated in the accompanying key.

Key to the Species of the Genus LECHRIA Skuse.

1. R_1 beyond the stigma bent down to R_2 to form an apparent X (New South Wales)... *L. singularis* Skuse
- No such X-shaped combination of veins in the radial field, R_2 being apparently fused with R_1 for a varying distance back from the wing-margin..... 2

2. Tarsi conspicuously white. (Java)..... *L. leucopiza* de Meijere
Tarsi brown 3
3. Thorax shiny blackish brown, the humeral regions and margins reddish yellow; femora blackish brown. (Java)..... *L. lucida* de Meijere
Thorax yellowish or reddish 4
4. Mesonotum yellowish, the scutellum livid brown; fusion of R_2 and R_1 extensive, more than one-half of the free portion of R_1 beyond Sc_2 . (India) *L. bengalensis* Brunetti
Mesonotum rusty brown, the scutal lobes, scutellum and postnotum dark plumbeous brown; fusion of R_2 and R_1 slight, less than one-half of the free portion of R_1 beyond Sc_2 . (Queensland)..... *L. rufithorax*, sp.n

Tribe Hexatomini.

Genus ERIOCERA *Macquart*.

1838, *Eriocera* Macquart, *Dipteres exotiques*, vol. 1, pt. 1, p. 74.

The genus *Eriocera* has not been recorded from Australia hitherto. The present collection includes two species, both of which are undescribed.

Eriocera australiensis, sp.n.

Antennal flagellum yellowish brown; mesonota præscutum brownish yellow with four dark brown stripes; scutal lobes dark brown; femora brownish yellow, the tips faintly darkened; wings pale brown; cell 1st M_2 closed; abdomen dull yellow, the segments narrowly ringed caudally with dark brown.

Female.—Length 11-13.5 mm.; wing, 10.5-11.5 mm.

The following description is made from alcoholic specimens.

Rostrum and palpi light brown. Antennæ with the scapal segments brown, the flagellum yellowish brown, the terminal segments darker; antennæ with eight segments, the first flagellar segment longer than the second and third taken together; the remaining segments gradually decrease in size to the end of the organ; last segment constricted at midlength and evidently formed by the fusion of two small segments. Vertical tubercle large and conspicuous, with a broad V-shaped notch. Head brown.

Mesonotal præscutum brownish yellow with four dark brown stripes, the median pair separated by a much narrower pale line, broadest in front, narrowed behind and not attaining the suture; scutal lobes conspicuously dark brown; scutellum and postnotum pale brown. Pleura pale brown, marked with darker blotches. Halteres pale, the knobs dark brown. Legs with the coxæ and trochanters yellowish brown; femora brownish yellow, the tips but faintly darkened; tibiæ and tarsi brown. Wings with a pale brown suffusion, the costal and subcostal cells somewhat darker; stigma lacking; veins brown. Venation: *Sc* long, ending beyond the fork of *Rs*, *Sc*₂ not far removed from the tip of *Sc*₁; *Rs* shorter than *R*₃ alone; *R*₂₊₃ about equal to or a little shorter than *R*₂ alone; *r* on *R*₂ about its own length beyond the fork of *R*₂₊₃; cells *R*₅ and 1st *M*₂ in alignment, much shorter than cell *R*₃; cell 1st *M*₂ closed, elongate, subrectangular, about as long as vein *M*₁₊₂ beyond it; the basal deflection of *Cu*₁ at about one-third the length of cell 1st *M*₂; cell *M*₁ lacking; *Cu*₂ and the basal deflection of *Cu*₁ subequal.

Abdominal tergites dull yellow, the posterior margins of the segments narrowly ringed with dark brown to produce a distinctly annulated appearance; sternites similar but the pattern even better defined. Ovipositor with the valves long and powerful, the tergal valves much exceeding the sternal valves.

Habitat.—North Queensland.

Holotype, ♀, Meringa, near Cairns, 1918 (J. F. Illingworth).

Paratopotypes, 25 ♀s.

Eriocera aperta, sp.n.

Antennal flagellum dark brown; mesonotum dark brown; femora brown, paler basally; wings brownish gray; cell 1st *M*₂ open by the atrophy of *m*; abdomen dark brown.

Female.—Length 10.8 mm.; wing, 9 mm.

Rostrum and palpi brown. Antennæ with the scapal segments light brown, the flagellar segments dark brown; only four flagellar segments are evident in the type, these gradually decreasing in length from the basal to the terminal. Head brown, grayish pruinose.

Mesonotum dark brown, the præscutum without distinct stripes. Pleura dark brown, indistinctly variegated with paler. Halteres dark brown. Legs with the coxæ and trochanters yellowish brown; femora brown, paler basally; remainder of the legs dark brown. Wings brownish gray, the costal and subcostal cells darker; veins dark brown. Venation: *Sc* rather short, *Sc*₁ ending a little beyond the fork of *Rs*, *Sc*₂ a short distance from the tip of *Sc*₁ and opposite the fork of *Rs*; *Rs* longer than in *E. australiensis*, being longer than that portion of *R*₄₊₅ beyond *r-m*; cell 1st *M*₂ open by the atrophy of *m*; cell *M*₃ very small, shorter than its petiole; *Cu*₂ about equal to the basal deflection of *Cu*₁, their angle slightly greater than a right angle.

Abdomen dark brown, the caudal margins of the segments very narrowly and indistinctly yellowish. Ovipositor with the valves long and slender, dark-colored.

Habitat.—North Queensland.

Holotype, ♀, Gordonvale, June, 1918 (J. F. Illingworth).

The type was collected along a stream.

Eriocera aperta is the first species of the genus known to the writer in which cell 1st *M*₂ is open. The condition is probably a normal one since both wings of the type are quite the same.

Subfamily Tipulinæ.

Tribe Tipulini.

Genus PHYMATOPSIS Skuse.

1890, *Phymatopsis* Skuse, Proceedings of the Linnean Society of New South Wales, vol. 5 (ser. 2), pp. 97, 98.

Phymatopsis brevivalpis, sp.n.

Antennæ very short, 11-segmented, the distal five segments nearly globular and conspicuously crowded; palpi very short, the last segment equal to the third; mesonotal præscutum dull yellow with indistinct stripes; wings gray, the subcostal cell darker; abdomen yellow, the segments narrowly ringed caudally with brown.

Male.—Length 9.5-10 mm.; wing, 9-9.3 mm.; hind leg, femur, 7.2 mm.; tibia, 8 mm.; metatarsus, 10.8 mm.; remainder of tarsus, 6.8 mm.

The following description was made from alcoholic specimens.

Frontal prolongation of the head rather slender, longer than the head, the outer half on the dorsal surface with numerous black hairs that are most dense at the apex; no distinct nasus; palpi very short, the third segment nearly globular, the last segment but little longer than the third. Antennæ with but 11 segments, the scapal segments dull yellow; flagellum brown; first scapal segment much longer than the oval second segment; first flagellar segment elongate, strongly narrowed at the base, enlarged distally; second to fourth flagellar segments gradually decreasing in size, a little narrowed basally; the five terminal flagellar segments subglobular, crowded; flagellum verticillate. Front and anterior part of the vertex yellow, remainder of the head dark brown, narrowly paler adjoining the inner margins of the eyes; vertical tubercle conspicuous.

Mesonotal præscutum dull yellow with three very broad light reddish brown stripes that are narrowly margined with darker brown and are confluent; the broad median stripe is split by a capillary brown line; scutum dull yellow, the median area brownish; scutellum dull yellow, brownish posteriorly; postnotum dull yellow with an indistinct brownish median line. Pleura dull yellow. Halteres brown, paler basally. Legs with the coxæ and trochanters dull yellow; femora brownish yellow, the tips narrowly darkened; tibiæ and tarsi dark brown; tarsi very long, the metatarsi longer than the tibiæ; claws simple. Wings gray; cell *Sc* brown; stigma very pale; veins dark brown; Venation: *Sc*₁ preserved, at the tip of *Sc*₂; cell 2nd *R*₁ short-rhomboidal; cell *M*₁ sessile in the paratype, petiolate in the type; fusion of *Cu*₁ with *M*₃₊₄ transient; cell 2nd *A* very narrow.

Abdomen dull yellow, the segments narrowly and rather indistinctly ringed caudally with brown; eighth segment dark brown; pleural membrane dark. Male hypopygium of very simple structure, very similar to the

type found in the Limnobiinæ; ninth tergite with a broad U-shaped notch, the lateral lobes broadly rounded; pleurites cylindrical; pleural appendages meeting across the genital chamber.

Habitat.—North Queensland.

Holotype, ♂, Meringa, near Cairns, 1918 (J. F. Illingworth).

Paratopotype, ♂.

Phymatopsis brevipalpis agrees well with the genotype and only described species, *P. nigrirostris* Skuse, in the prominent tubercle on the vertex, the long rostrum without a nasus, the short antennæ with the terminal segments distinctly smaller, the simple male hypopygium and the details of venation, especially the small, rhomboidal cell 2nd *R*₁ and the very narrow cell 2nd *A*. It departs from the characters of the genus in the unusually short palpi, the terminal segment being very small and not at all flagelliform, and in the antennæ having but eleven segments.

Genus CTENACROSCELIS Enderlein.

1912, *Ctenacroscelis* Enderlein, Zoologische Jahrbucher, vol. 32, pt. 1, pp. 1, 2.

Ctenacroscelis conspicabilis (Skuse).

1890, *Holorusia conspicabilis* Skuse, Proceedings of the Linnean Society of New South Wales, vol. 5 (ser. 2), pp. 120, 121.

One female specimen taken at light, Babinda, North Queensland, June 18th, 1919 (J. F. Illingworth). The female has never been described and the present specimen is made the allotype.

Allotype, Female.—Length, 26 mm.; wing, 27 mm.

Similar to the male, the following characters, additional to those given in the original description being noted:

Flagellar segments of the antennæ with the tips narrowly and indistinctly pale to produce a somewhat bicolorous appearance. Mesonotal præscutum with the lateral margins dark brown. Femoral ctenidium distinct; claws of female simple. The pale wing-apex includes the outer end of cell *R*₃, the outer half of *R*₅ and all of *M*₁. Ovipositor with the tergal valves very slender, the tips a little expanded; sternal valves much shorter.

Ctenacroscelis aberrans, sp.n.

Antennæ brown; mesonotal præscutum yellow with four indistinct brownish gray stripes; pleura unmarked; wings grayish fulvous; abdomen dark brown, the tergites broadly margined laterally with buffy gray.

Male.—Length, 19.5 mm.; wing, 22 mm.; hind leg, femur, 15 mm.; tibia, 18 mm.; metatarsus, 21 mm.

Frontal prolongation of the head brown, more yellowish beneath; nasus distinct; palpi dark brown, the segments paler at the tips. Antennæ short, brown, the flagellar segments darker; verticils distinct. Head brown, narrowly paler adjoining the inner margins of the eyes; vertex with a capillary brown line.

Mesonotal præscutum dull yellow with four indistinct brownish gray stripes, the intermediate pair narrowly separated; scutum yellow, each lobe with two indistinct darker marks; scutellum and postnotum dull yellow. Pleura pale fawn-yellow, unmarked. Halteres brown, the knobs darker, the extreme base of the stem paler. Legs with the coxæ and trochanters pale yellow; femora yellowish brown, the tips narrowly dark brown; tibiæ pale brown, the tips very narrowly and indistinctly darker; tarsi brown; ctenidium distinct; metatarsus longer than the tibia; claws large and powerful with a conspicuous basal tooth and a similar blunt tooth at about one-third the length of the claw, the space between these teeth nearly circular. Wings with a strong grayish fulvous tinge, deeper in the costal cell, saturated in the subcostal cell; stigma small, indistinct; veins bright chestnut brown; obliterative areas very restricted, represented only by a small spot before the stigma, the end of R_s , the basal deflection of M_{1+2} and the outer deflection of M_{3+4} . Venation: Vein R_3 but little arcuated; cell R_3 considerably widened at the wing-margin; R_s short.

Abdomen with the first segment yellowish, the remainder of the organ dark brown; caudal margin of the segments very narrowly, the lateral margins broadly, buffy gray; sternites similar, the caudal margins narrowly ringed with pale. Eighth tergite concealed beneath the seventh, visible only laterally. Male hypopygium with the ninth

tergite subquadrate, with a small U-shaped median notch, the lateral lobes broadly subtruncate. Pleural appendages at the end of the rather short fused sterno-pleurite. Eighth sternite unarmed.

Habitat.—North Queensland.

Holotype, ♂, Gordonvale, December, 1917 (J. F. Illingworth).

The type specimen was taken at light.

This species must be considered as being an aberrant member of the genus *Ctenacroscelis*. The structure of the male hypopygium and the ctenidium are quite characteristic of this genus but the course of vein R_3 differs from that of other species of *Ctenacroscelis* and very nearly approximates the normal condition in the genus *Tipula*.

Genus NEPHROTOMA Meigen.

1803, *Nephrotoma* Meigen, Illiger's Magazin, vol. 2, p. 262.

Nephrotoma australasice (Skuse).

1890, *Pachyrrhina Australasice* Skuse, Proceedings of the Linnean Society of New South Wales, vol. 5 (ser. 2), p. 126, pl. 5, fig. 20.

♂ ♀, Cairns, September, 1917 (J. F. Illingworth).

♂ ♀, Mossman, May, 1919 (J. F. Illingworth).