

New species of crane-flies from North Queensland (Tipulidae, Diptera)

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- sal edge not concave; the apical portions of the outer forceps laterally compressed and each terminating in a pair of hooks. *longicarina* sp. n.
Keel-like portion not of remarkable length, its dorsal edge strongly concave; the apical portions of the outer forceps cylindrical and each terminated by a single hook. *arcuata* sp. n.

KEY TO THE FEMALES OF THE NEARCTIC SPECIES IN THE GENUS ERNESTIA.

1. Third antennal segment yellow. Subg. *Meriania*
Third antennal segment black. Subg. *Ernestia* 2
2. Fourth abdominal segment rufous. 3
Fourth abdominal segment black. 4
3. Second antennal segment rufous. *ampelus* Walk.
Second antennal segment black. *platycarina* sp. n.
4. Second antennal segment yellow. 5
Second antennal segment black. 8
5. Fifth sternite without a longitudinal groove or depression; tarsal segments of front legs cylindrical; bend of fourth vein with a well-marked appendage. sp. *a*
Fifth sternite with a longitudinal groove or depression; tarsal segments of front pairs of legs flattened dorsoventrally; bend of fourth vein with a very indefinite or with no appendage. 6
6. Fifth sternite with a deep longitudinal depression. 7
Fifth sternite with a very shallow longitudinal depression. sp. *c*.
7. The depression in the fifth sternite extending through the posterior margin, i.e.; the posterior margin concave; a short but distinct carina running the full length of the depression. sp. *b*.
The depression in the fifth sternite not extending through the posterior margin, i.e.; the posterior margin straight; no carina in the depression. sp. *d*.
8. Front at the vertex as wide as either eye; the second, third and fourth but not the fifth abdominal sternites each with a group of strong, blunt, downwardly directed macrochaetae seen best in profile. 9
9. Palpi coal black. *nigropalpis* sp. n.
Palpi yellow, at least at tip. 10
10. The fifth abdominal sternite with two parallel longitudinal grooves separated by a shallow carina. *bicarina* sp. n.
The fifth abdominal sternite with only a single longitudinal groove or depression. 11
11. The fifth sternite longer than the fourth. *sulcocarina* sp. n.
The fifth sternite shorter than the fourth. probably *johnsoni* sp. n.

(To be continued)

NEW SPECIES OF CRANE-FLIES FROM NORTH QUEENSLAND
(TIPULIDAE, DIPTERA).BY CHARLES P. ALEXANDER,
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The undescribed species of crane-flies that are characterized herewith were kindly sent to me by Dr. James F. Illingworth. Most of the material was

collected along the Babinda Creek, North Queensland. The difficulties in the way of collecting these insects in Queensland are well shown by the following paragraph from one of Dr. Illingworth's letters:

"Sweeping along streams is almost out of the question here in the tropics, where every bush is provided with recurved hooks to hold one up. I have torn a number of nets full of holes trying to do it and seldom make a catch. Most of the specimens I found either singly on the vegetation, in the scrub, or in caverns under the large rocks along the streams."

A few additional specimens were secured by Mr. Alan P. Dodd. I would express my indebtedness to Dr. Illingworth and Mr. Dodd for this interesting material. The types of the new species will be preserved in the writer's collection.

Genus *Dicranomyia*, Stephens.

Subgenus *Thrypticomyia*, Skuse.

The type of the subgenus is *D. (T.) aureipennis* (Skuse) (Australia). Other species belonging to this group are *D. arcuata* (Alexander) (Japan), *longivena* (Edwards) (India), *seychellensis* (Edwards) (Seychelles Islands) and probably *saltens* (Doleschall) (Oriental Region). Two additional undescribed species were included in the present material.

***Dicranomyia (Thrypticomyia) doddi*, sp. n.**

General coloration dark brown; thoracic pleura obscure brownish yellow; tarsi largely white; wings with a distinct brown suffusion that is uniformly distributed over the wing surface; stigma large; supernumerary crossvein in cell Sc_1 only a short distance before r .

Male.—Length 6 mm.; wing 5.8 mm.

Female.—Length 5.5 mm.; wing 6 mm.

Rostrum obscure yellow; palpi dark brown. Antennae dark brown. Head greyish brown.

Mesonotum dark brown. Pleura obscure brownish yellow. Halteres long and slender, dark brown. Legs with the coxae and trochanters dark brown; femora dark brown, slightly paler basally; tibiae and about the basal one-half or slightly more of the metatarsi dark brown; remainder of the tarsi white or faintly reddish white. Wings with a uniform brownish suffusion; stigma large, elongate-oval, dark brown; veins dark brown. Venation: Sc ending opposite the origin of R_s ; Sc_2 pale, removed from the tip of Sc_1 , the latter being about equal to the deflection of R_{4+5} ; supernumerary crossvein in cell Sc a little more than the length of r before this latter crossvein; extreme tip of R_1 atrophied; inner end of cell 1st M_2 slightly arcuated; cell 1st M_2 about equal to vein M_3 beyond it; basal deflection of Cu_1 near midlength of cell 1st M_2 .

Abdomen dark brown.

Habitat.—North Queensland.

Holotype, ♂, Gordonvale, June, 1920 (A. P. Dodd).

Allotopotype, ♀.

Paratopotype, ♂.

This crane-fly is dedicated to its collector, Mr. Alan P. Dodd. Its closest relative is apparently *D. seychellensis* (Edwards) which differs mainly in the coloration of the wings.

Dicranomyia (Thrypticomys) fumidapicalis, sp. n.

General coloration dark brown; thoracic pleura yellow; legs dark brown, the tarsi largely white; wings hyaline basally, with about the apical fifth strongly infuscated.

Male.—Length 6—6.5 mm.; wing 6.7 mm.

Female.—Length about 5.5 mm.

Described from alcoholic specimens.

Rostrum and base of palpus obscure brownish yellow; terminal palpal segments dark brown. Antennae dark brown, the flagellar segments with a short basal pedicel and with long, unilaterally arranged verticils as in the males of this group. Head dark.

Mesonotum dark brown, the median area of the scutum and the postnotum paler. Pleura obscure yellow, the mesosternum infuscated. Halteres elongate, brown. Legs with the coxae and trochanters yellowish; only the fore legs remain attached to the body; femora, tibiae and about the basal third of metatarsi dark brown; remainder of the tarsi except the terminal segment white; fore metatarsi with a small tubercle near the base. Wings hyaline with about the apical fifth strongly infuscated, this including almost all the wing beyond the level of the cord; stigma oval, still darker brown; veins dark brown. Venation: Sc_1 before the origin of R_s , Ss_2 ending just beyond the origin of R_s , Sc_1 alone being a little longer than the basal deflection of Cu_1 ; R_s long, arcuated at origin; r near tip of R_1 ; cell 1st M_2 long and narrow, longer than vein M_3 beyond it; basal deflection of Cu_1 beyond midlength of cell 1st M_2 .

Abdomen of male long and slender, dark brown; sternites a little paler.

Habitat.—North Queensland.

Holotype, ♂, Babinda, August 7, 1920 (J. F. Illingworth).

Allotopotype, ♀.

Paratopotypes, 2 ♂'s.

The apically darkened wings are very conspicuous.

Subgenus Idioglochina, subgen. n.

Flagellar segments with the inner face strongly produced into flattened disks, giving a subserrate appearance to the antennae, the periphery of each disk with a series of about six spinous bristles. Wings with costa and radius greatly incrassated; r long, arcuated; cell R_1 very large, due to the strong bending of R_{2+3} toward R_{4+5} near its origin.

Type of the subgenus.—*Rhipidia tusitala* Alexander (Samoa).

Dicranomyia de beauforti de Meijere (Papuan subregion) is also a member of this subgenus.

Subgenus Euglochina, subgen. n.

Wings very long and narrow, cuneiform, entirely without an anal angle; R_s very short, about equal to the basal deflection of R_{4+5} , originating far out toward the wing-tip, the cord lying beyond five-sixths of the wing-length; cells beyond the cord unusually short and crowded; vein 2nd A running parallel to Cu , at the margin separate or fused with the tip of Cu_2 .

Type of the subgenus.—*Dicranomyia cuneiformis* de Meijere. (India to Java).

Dicranomyia connectans Alexander (Tropical Africa) is also a

member of this subgenus. Edwards (Ann. Mag. Nat. Hist., ser. 8, vol. 8, pp. 58; 59; 1911) has determined the *Limnobia saltens* of Doleschall as falling in this group of species. Almost coincidentally, De Meijere (Tijdsch, v. Ent., vol. 54, p. 22; 1911) determined *saltens* as being a typical member of *Thrypticomyia* Skuse. The habitus of the species of *Euglochina* is very distinct from that of *Thrypticomyia*.

Genus *Libnotes*, Westwood.

Subgenus *Pseudoglochina*, subgen. n.

Tarsal claws simple, the basal enlargements provided with two acute bristles. Wings long and narrow, cuneiform, entirely without an anal angle; \overline{Rs} short, straight; no supernumerary crossvein in cell Sc_1 ; cell 1st M_2 open by the atrophy of M_3 .

Type of the subgenus.—*Libnotes pulchripes* Alexander.

Dicranomyia kobusi de Meijere and *D. bicinctipes* Brunetti of the Oriental region are likewise members of this group. In the opinion of the writer, the group is closer to *Libnotes* than to *Dicranomyia* but this whole series of genera and subgenera are very closely allied.

Genus *Geranomyia*, Haliday.

***Geranomyia (Geranomyia) sagittifer*, sp. n.**

Rostrum and antennae black; vertex silvery grey; general coloration of the thorax shining orange, the mesonotal praescutum with a median arrow-shaped black mark; legs pale yellowish brown; wings pale grey with five rather small brown costal markings, vein Sc long.

Female.—Length (excluding rostrum) 6.5 mm.; wing 6 mm.; rostrum alone 2.9 mm.

Rostrum and palpi dark brownish black. Antennae black. Head above silvery grey.

Mesonotum shiny orange, the praescutum with a single arrow-shaped median black mark, the basal end behind, a short distance before the suture, the narrow end terminating slightly anterior to the level of the pseudosutural foveae. Thoracic pleura dull ochreous. Halteres orange, the knobs a little infuscated. Legs with the coxae and trochanters orange; femora brownish yellow; tibiae and tarsi light brown. Wings pale grey, the costal and subcostal cells a little more yellowish; five comparatively small brown markings in the costal region, arranged as follows: at the supernumerary crossvein in cell Sc ; at origin of \overline{Rs} ; at tip of Sc_1 ; at tip of R_1 and r , and at the end of the vein R_{2+3} ; cord and outer end of cell 1st M_2 very narrowly and indistinctly seamed with grey; veins brown. Venation: Sc long, Sc_1 extending to just beyond the end of \overline{Rs} , Sc_2 at the tip of Sc_1 ; \overline{Rs} long, angulated at origin, thence straight; cell 1st M_1 pentagonally rectangular, widened distally, about as long as vein M_{1+2} beyond it; basal deflection of Cu just beyond the fork of M .

Abdomen dull orange-yellow.

Habitat.—North Queensland.

Holotype, ♀, Gordonvale, June, 1920 (A. P. Dodd).

Paratypes, 3 ♂'s, Babinda, October, 1920 (J. F. Illingsworth).

***Geranomyia (Geranomyia) nigronitida*, sp. n.**

Head dark; mesonotum shiny black, the pleura yellowish; wings nearly

hyaline; stigma small, brown; Sc long, basal deflection of Cu_1 before midlength of cell 1st M_2 ; abdominal tergites dark brown, sternites light yellow.

Male.—Length (excluding rostrum) 6—6.4 mm.; wing 5.8—6 mm.; rostrum alone about 3 mm.

Female.—Length (excluding rostrum) 7.5—7.8 mm.; wing 6.5 mm.; rostrum alone about 3.5 mm.

Described from alcoholic specimens.

Rostrum elongate, dark brown; palpi dark brown. Antennae dark brownish black. Head dark, grayish pruinose.

Pronotum dark brown. Mesonotum shiny black, the humeral regions of the praescutum paler; in dried specimens the lateral margins of the praescutum may be slightly pruinose. Pleura obscure yellow. Halteres pale yellowish white. Legs with the coxae and trochanters yellow; remainder of the legs broken. Wings nearly hyaline; stigma small, brown; veins dark brown. Venation: a supernumerary crossvein in cell Sc; Sc long, Sc_1 extending to just before the end of Rs, Sc_2 a short distance from the tip of Sc_1 , the latter about equal to m; Rs comparatively short, straight, about twice the deflection of R_{4+5} ; inner end of cell 1st M_2 slightly arcuated; outer deflection of M_3 a little longer than m; basal deflection of Cu_1 before midlength of cell 1st M_2 , much longer than Cu_2 alone.

Abdominal tergites dark brown, especially in the female; sternites light yellow.

Habitat.—North Queensland.

Holotype, ♂, Babinda, August 7, 1920 (J. F. Illingworth);

Allotopotype, ♀.

Paratopotypes, 4 ♂ ♀.

Genus *Molophilus*, Curtis.

Molophilus unispinosus, sp. n.

General coloration sulphur-yellow; vertex with a brown spot; mesonotum light chestnut; male hypopygium with three pleural appendages on either side, the longest a cylindrical curved arm with the apex enlarged and provided with a powerful blackened spine, surrounded by numerous yellow hairs.

Male.—Length about 3.5 mm.; wing about 3.7 mm.

Described from an alcoholic specimen.

Rostrum and palpi brown. Antennal scape light sulphur-yellow, the flagellum broken. Head sulphur-yellow above with a conspicuous circular dark brown spot on the vertex; genae slightly infuscated.

Mesonotum with the praescutum light chestnut, the lateral margins dark brown; scutal lobes similar, the posterior lateral angles slightly produced laterad, light yellow; scutellum chestnut yellow; postnotum obscure yellow. Pleura brownish yellow, the dorso-pleural region light sulphur-yellow. Halteres pale, the knobs light sulphur-yellow. Legs with the coxae and trochanters pale brownish yellow; remainder of the legs broken. Wings greyish yellow, the veins yellowish.

Abdomen brownish yellow, the lateral margins of the tergites paler. Male hypopygium with three pleural appendages on either side, the longest a cylindrical curved arm that is expanded into a collar at the end, armed with a single

powerful chitinized spine, surrounded by numerous golden-yellow hairs.

Habitat.—North Queensland.

Holotype, ♂, Babinda, August 7, 1920 (J. F. Illingworth).

Molophilus longioricornis, sp. n.

General coloration dark brown; antennae of the male elongated; pleural appendages of the male hypopygium a chitinized horn with a long, slender spine on the proximal face beyond midlength.

Male.—Length about 3.2 mm.; wing, about 3.6 mm.

Described from an alcoholic specimen.

Rostrum and palpi pale brown. Antennae dark brown; the flagellar segments are broken beyond the base but the antennae are very long, probably only a little shorter than the body. Head dark.

Thorax dark brown, only the pleural membranes paler. Halteres pale, the knobs a little darker. Legs with the coxae pale brownish yellow; trochanters yellow; remainder of the legs broken. Wings with a strong grayish suffusion; veins dark brown.

Abdomen dark brown. Male hypopygium with each pleural appendage appearing as a cylindrical chitinized horn, the bent apex suddenly narrowed into a chitinized spine that is directed proximad; beyond midlength of the appendage on the proximal face is a long, slender, slightly bent spine; the outer face of the appendage is provided with several small appressed spines.

Habitat.—North Queensland.

Holotype, ♂, Babinda, August 7, 1920 (J. F. Illingworth).

Genus **Limnophila**, Macquart.

Limnophila illingworthi, sp. n.

Antennae dark brown, the first flagellar segment light yellow; mesonotal praescutum and pleura brownish yellow, narrowly striped longitudinally with brown; legs dark brown, femora with a narrow yellowish subterminal ring; tibiae with a narrow yellowish ring just beyond the base; wing light gray, the costal margin strongly yellowish; a series of dark brown costal spots; all cells of the wing dotted with gray; costal fringe conspicuous.

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

Described from an alcoholic specimen.

Rostrum brown; palpi dark brown. Antennae dark brown, the first flagellar segment conspicuously light yellow; antennae short, the first scapal segment elongate. Head brown, paler between the eyes.

Mesonotal praescutum brownish yellow, indistinctly striped longitudinally with brown, there being a more conspicuous median stripe that becomes obliterated before the suture and two sub-lateral stripes on either side; lateral margins of the praescutum darker brown; scutum obscure brownish yellow, each lobe encircled by brown, this circle darker anteriorly and laterally; scutellum pale brownish yellow with a narrow brown median line; postnotum pale brownish yellow with the median line darker brown and with two transverse bars, one near midlength, the other at the posterior margin. Pleura yellow, striped longitudinally with pale brown, there being two or three more or less complete brown stripes that are a little narrower than the pale stripes between. Halteres yellow, the knobs slightly darker. Legs with the coxae yellow, traversed by narrow brown lines, there being two such lines on the fore and middle coxae;

trochanters yellow ; femora dark brown, with a narrow light yellow ring before the broad (2 mm.) tips ; tibiae dark brown with a narrow light ring immediately beyond the base, this a little broader than the pale femoral ring ; tarsi pale brown. Wings light gray, the costal margin strongly yellow ; wings heavily spotted with dark brown and gray ; a series of dark brown spots along the costa, there being about ten before the larger one at the tip of Sc ; three additional large spots situated at the ends of veins R_1 , R_2 , and R_3 ; a large pale brown area at the origin of Rs and as seams along the cord and outer end of cell 1st M_2 ; all cells of the wings with rather abundant gray dots, a little larger and heavier at the ends of the longitudinal veins ; veins brown, costa, subcosta and radius more yellowish. Venation: Sc long, Sc_1 extending some distance beyond the fork of R_{2+3} , Sc_2 nearly three times as long as Sc_1 alone ; indistinct supernumerary crossveins in the last three brown spots in the costal cell ; Rs long, almost square at origin ; R_{2+3} short, shorter than the basal deflection of Cu_1 ; r at the tip of R_1 and beyond midlength of R_2 ; inner ends of cells R_3 , R_5 and 1st M_2 in oblique alignment ; cell 1st M_2 long and narrow, the outer end widened ; petiole of cell M short, about equal to the basal deflection of Cu_1 , the latter inserted just before midlength of cell 1st M_2 ; costal fringe conspicuous.

Abdominal tergites brown, darker brown laterally ; sternites a little paler, especially on the caudal half of the segment.

Habitat.—North Queensland.

Holotype, ♂, Babinda, August 7, 1920 (J. F. Illingworth).

Paratopotype, ♂, October, 1920, (J. F. Illingworth).

This handsome crane-fly is dedicated to its collector, my friend, Dr. James F. Illingworth. It is possible that it is more correctly referable to *Epiphragma* but the supernumerary crossveins in the costal cell are very faint and three in number.

ANNOTATED CHECK LIST OF THE MACROLEPIDOPTERA OF ALBERTA—ADDITIONS, 1920

BY KENNETH BOWMAN,
Edmonton, Alberta.

I record below the additions to my "Check List of the Macrolepidoptera of Alberta, published by the Alberta Natural History Society (Red Deer, 1919), which were made during the season of 1920.

The numbers before the names are those of Messrs. Barnes and McDunnough's "Check List of the Lepidoptera of Boreal America, 1917." The numbers after the names indicate the month in which the insects were taken. The capital letters are abbreviations of localities, as follows: B, Banff ; Bm, Blairmore ; C, Calgary ; Cd, Cadomin ; E, Edmonton ; L, Laggan ; N, Nordegg ; P, Pocohontas.

The insects were identified by Messrs. Barnes & Lindsay, Mr. L. W. Swett and Dr. J. McDunnough, as shown by the initials in brackets following each insect. I wish to express my great indebtedness to them for their kindness in identifying these insects.