# THE CRANE-FLIES OF THE CHATHAM ISLANDS (NEW ZEALAND)

(Tipulidae, Diptera.)

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The collections of Tipulidae made by Messrs. Gilbert Archey and Charles Lindsay, of the Canterbury Museum, while members of the recent scientific expedition to the islands, have been kindly submitted to me for determination by Mr. R. Speight. My sincere thanks are extended to Director Speight and the collectors of the material for the privilege of examining these interesting collections. The holotypes and uniques are preserved in the collection of the Canterbury Museum.

No species of crane-flies had been recorded hitherto from these islands, and the present material is of great interest in confirming the close relationship of the fauna and flora with the New Zealand mainland.

The Chatham Islands, consisting of the four principal islands, Chatham or Wharekauri, Mangere, Pitt or Rangiauria, and South-east, lie due east of Banks Peninsula, and approximately 445 miles from Cape Palliser, Cook Strait. The main island, Chatham or Wharekauri, is occupied largely by the extensive Te Whanga lagoon. The greatest altitude is about 940 feet. The climate is purely maritime, since no part of the main island is more than four miles from the ocean. The mean annual rainfall is a little more than 38 inches, deposited over an excessive number of days, especially during the winter. The winds are generally strong, and mostly westerly with a southerly tendency, which might explain in part, at least, the very evident affinities with the main islands of New Zealand. The mean annual temperature is 10° C. Frosts are extremely light and rare, while snow is seldom seen. The florula of the Chatham Islands, as recorded by Cockayne, includes 240 species, in 141 genera, belonging to 56 families. Of these species, 33, with 2 genera, are endemic, the great majority of the others being New Zealand

species, over half of these, in turn, being common to New Zealand and Australia. Ten per cent. are Australian-South American in their affinities. Detailed accounts of the climate and plant ecology of the islands may be found in Cockayne.\*

The crane-flies collected by Archey and Lindsay include 10 species distributed in the following 6 genera:—Dicranomyia (5), Discobola (1), Limnophila, s.l. (1), Gynoplistia (1), Molophilus (1), and Amphineurus (1). All of the above show note-

\* Short Account of the Plant Covering of Chatham Islands. Trans. N.Z. Inst., xxxiv., 1901, p. 243.

worthy affinities with the New Zealand mainland, the species either being common to the main islands or else finding their nearest relatives there. Four species, Dicranomyia archeyi, D. lindsayi, Discobola chathamica. and Gynoplistia chathamica. are described herewith as new, and must be considered as being endemic, although the two species of Dicranomyia may later be found to occur on the main islands of New Zealand. It is probable, however, that the species of Discobola and Gynoplistia are endemic relicts of an ancient palaeozelandic Tipulid Dicranomyia conveniens (Walker), D. fauna. gracilis nebulifera Alexander, Limnophila oliveri  $D_{\cdot}$ Edwards. Alexander, and Amphineurus hudsoni Edwards occur also on the main islands of New Zealand, and it is problematical as to how they reached the Chathams. In the case of D. nebulifera, at least, it is entirely possible that the species was carried from the mainland to the Chathams by modern transportation, a belief that is suggested by the discovery of the type-specimen, a large female, on the engine of the steamer Ngatoro, trading to the Chathams from Lyttelton.

### FAMILY TIPULIDAE.

Sub-family Limoniinae.

Tribe Limoniini.

Genus DICRANOMYIA Stephens.

### Diocranomyia archeyi, sp. n.

Belongs to the *vicarians* group; mesonotum dark reddish brown without darker markings; femora almost unicolorous brown; wings subhyaline, the stigma pale; abdominal tergites very indistinctly bicolorous, the apices of the segments only a trifle darker than the bases; male hypopygium with the spines of the rostrum unequal in size, widely separated.

Male.—Length about 7 mm.; wing 7.8 mm.

Female.—Length 7.5 mm.; wing 8 mm.

Rostrum and palpi brownish black. Antennae brownish black throughout, the flagellar segments oval. Head dark grey above, more reddish on the occiput and genae.

Pronotum reddish brown, a little darker medially. Mesonotum dark reddish brown, a little brighter laterally, without darker markings; median area of scutum and the scutellum more testaceous yellow; postnotum yellowish. Pleura pale yellowish testaceous. Halteres pale, the knobs infuscated. Legs with the coxae and trochanters testaceous, strongly tinged with greenish; femora pale brown, the bases indistinctly paler, with a scarcely evident paler subterminal ring; tibiae and tarsi brown. Wings subhyaline, cells C and Sc a trifle brighter; stigma a little darker, yellowish; veins brown. Venation:  $Sc_1$  ending opposite the origin of Rs,  $Sc_2$  a short distance from the tip,  $Sc_1$ alone shorter than the basal deflection of  $Cu_1$ , the latter at the fork of M.

Abdominal tergites brown, the apices of the individual segments a trifle darker than the bases, but in most cases producing a unicolorous effect; basal sternites a little paler. Male hypopygium with the tergite gently emarginate posteriorly. Basistyle relatively small, the mesal lobe very large and stout. Ventral dististyle fleshy, large, the rostrum slender, with two widely separated spines, the outer one stout, the basal spine slender, arising from a hyaline papilla; apex of rostrum beyond the outer spine stout, the apex obtuse; dorsal dististyle rather strongly curved, sickle-shaped. Gonapophyses with the mesal apical lobe long and slender, darkened, the margins weakly denticulate, especially the lateral margin.

Habitat—New Zealand (Chatham Islands).

Holotype, 3, Maunganui, Dec. 16th, 1923 (Gilbert Archey). Allotopotype, 9.

Paratopotypes, 43 2.

This interesting crane-fly is named in honour of the collector. *Dicranomyia archeyi* seems to be more closely allied to D. *crassispina* Alexander than to any other described species of the main islands. One of the paratypes has the stigma of the wings considerably darker than the types, and it is possible may not be conspecific.

# Dicranomyia nebulifera Alexander.

# 1922 Dicranomyia nebulifera Alexander; Ann. Mag. Nat. Hist., (9) X: 83-84.

A male from Manukau, Chatham Islands, Jan. 1–2, 1924 (Charles Lindsay). The fly was described from Canterbury, where it has since been taken in small numbers. It is also known from Westland. The male hypopygium (fig. 1) has the ventral dististyles (vd) relatively small with a conspicuous fleshy rostrum that bears two long, slender spines, each arising from an enlarged papillose base. The dorsal dististyle (dd) is constricted near mid-length, the slightly enlarged outer portion prolonged into a long, straight beak that is weakly decurved at apex. Ninth tergite (t) distinctly emarginate.

### Dicranomyia lindsayi, sp. n.

Male.—Length about 7.5 mm.; wing 9.5 mm.

*Female.*—Length about 9 mm.; wing 9.8 mm.

Very closely related, and similar to D. nebulifera Alexander, differing in the structure of the male hypopygium.



1. Male hypopygium of *Dicranomyia nebulifera* (Alexander); dorsal aspect.

2. Male hypopygium of D. lindsayi, sp. n.; dorsal aspect.

The figures are drawn from flattened specimens.

a = aedeagus; b = basistyle; dd = dorsal dististyle; g = gonapophyse; t = ninth tergite; vd = ventral dististyle.

Halteres with the bases of the knobs slightly infuscated. Male hypopygium (fig 2) with the ninth tergite (t) relatively small, the caudal margin evenly rounded, the median area very slightly emarginate. Basistyles (b) relatively small, the mesal lobe large, setiferous. Ventral dististyle (vd) very large and fleshy, the setae small and reduced in size and number till almost lacking on the mesal face; rostrum relatively slender, the usual two spines short and spike-like, placed close together in a small common depression, not on elevated papillae. Dorsal dististyle (dd) broadest on basal half, the apex relatively slender, the extreme tip narrowed and decurved. Gonapophyses (g) with the mesal apical lobe relatively slender, narrowed to the small apex. Aedeagus (a) with apical divergent flaps. Habitat—New Zealand (Chatham Islands).

Holotype, 3, Mangere Island altitude 400 feet, Jan. 4-21. 1924 (Charles Lindsay).

# Allotopotype, 2.

This crane-fly is named in honour of the collector of the typematerial, Mr. Charles Lindsay.

# Dicranomyia gracilis Edwards.

1923 Dicranomyia gracilis Edwards, Trans. N.Z. Inst., liv.; 283-284, pl. 27, fig. 25 (wing); pl. 32, fig. 133 (male hypopygium).

The commonest species in the collections. Numerous specimens from Mangere Island, altitude 400 feet, Jan. 4-21, 1924 (Charles Lindsay); Manukau Point, Jan. 1-2, 1924 (Charles Lindsay); Maunganui, Dec. 16, 1923 (Gilbert Archey).

Dicranomyia gracilis is very closely related to D. monilicornis (Hutton) but is probably distinct. The evidence at hand thus far indicates that it is a maritime species. Dr. Tillyard and Mr. Philpott found it in sea-caves at Nelson. Mr. Myers made the following interesting notes on the fly at York Bay, Wellington, November 25th, 1923:—"On seaward face of rocks almost surrounded by water—large numbers present, all bobbing upand-down with such rapidity and vigour that the whole outline was misty. This they did immediately upon alighting, both sexes participating." The habit described is a very characteristic one for members of the tribe Limoniini.

### Dicranomyia (Alexandriaria) conveniens Walker.

1848 Limnobia conveniens Walker; List Dipt. Brit. Mus., 1: 57.
1923 Dicranomyia conveniens Edwards; Trans. N.Z. Inst., liv.: 282-283, pl. 27, fig 23 (wing); pl. 32, fig. 131 (male hypopygium).

One female, from Mangere Island, altitude 400 feet, Jan.

4-21, 1924 (Charles Lindsay).

# Genus DISCOBOLA Osten Sacken.

# Discobola chathamica, sp. n.

Allied to *D. picta* (Hutton); wings subhyaline with an abundant brown dotting in all the cells, the confluent dark areas in *picta* being broken into small spots and dots. *Male.*—Length 7-7.5 mm.; wing 8-9.5 mm.

Rostrum and palpi brownish black. Antennae with the basal segment of the scape dark brown, the second segment obscure yellow; flagellar segments paler, almost yellowish, in some cases appearing weakly bicolorous. Anterior part of vertex between the eyes golden, the posterior part of the vertex grey with three velvety black areas, the median one only narrowly separated from the lateral or genal areas.

Pronotum pale, almost whitish, with a narrow black median line; praescutum pale, with a median pale brown stripe that is further split by a capillary black vitta; a conspicuous dark brown stripe extending from the head to above the wing-root, traversing the lateral margins of the pronotum and praescutum; posterior sclerites of mesonotum gradually darkening, the posterior portion of the postnotal mediotergite blackened, the base Pleura golden-yellow with a with a narrow silvery triangle. broad, conspicuous black stripe extending from the fore coxae across the ventral portion of the anepisternum, the pteropleurite, on to the postnotal pleurotergite, this being black except for the region adjoining the halteres. Halteres yellow, the knobs dark brown. Legs with the coxae largely dark brown, the bases indistinctly paler; trochanters brownish yellow; femora yellow with a conspicuous black subterminal ring at less than its length from the whitish apex; tibiae pale yellow, the tips scarcely darkened; tarsi yellow, the terminal three segments black. Wings subhyaline, with an abundant dark brown spotting and dotting in all the cells; apices of cells 2nd  $R_1$  and  $R_2$  faintly washed with brown; the usual massive dark areas at the origin of Rs and surrounding the stigma in members of the venusta group are here broken into disconnected spots and dots; the oblique clear band beyond the cord in *picta* is lacking, its location densely occupied with brown dots; the large dusky clouds at the margin in the cubital and anal fields in *picta* are here broken into small Venation: Cell 1st  $M_2$  irregular, as in D. picta and dots. D. striata; supernumerary crossvein in cell 1st A transverse and relatively weak.

Abdomen dark brown, the hypopygium more reddish brown.

Habitat—New Zealand (Chatham Islands).

Holotype, 3, Mangere Island, altitude 400 feet, Jan. 4-21, 1924 (Charles Lindsay).

Paratopotypes, 233; paratype, 3, Kaingaroa, Chatham Island, Dec. 25, 1923 (Gilbert Archey).

The venusta group of the genus includes two described species with cell 1st  $M_2$  irregular in outline, D. picta (Hutton) and D. striata Edwards. The Chatham Islands species above described is abundantly distinct from both of the above species.

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#### CRANE-FLIES, CHATHAM ISLANDS

# Tribe Hexatomini. Genus LIMNOPHILA Macquart.

# Limnophila oliveri Alexander.

# 1923 Limnophila oliveri Alexander; Ann. Mag. Nat. Hist., (9) xii.: 108-109.

One damaged male from Kaingaroa, Chatham Islands, Dec. 25, 1923 (Gilbert Archey). The fly had previously been taken only in the vicinity of Lake Wakatipu, Otago. A closely allied species (L. indecora, Alexander) occurs in Australia and Tasmania. It should be noted that these two flies are referred to the genus Limnophila only in its broadest sense.

### Genus Gynoplistia Westwood.

# Gynoplistia chathamica, sp. n.

Nearly apterous, the wings (of the 2 at least) shorter than the halteres, yellow; legs elongate, the tibiae longer than the tarsi; abdominal segments brown, the caudal margins of the segments buffy yellow.

Female.—Length about 17 mm.; wing 1.5 mm. Fore leg, femur, 8.5 mm.; tibia, 9.2 mm.; tarsus, 8.8 mm. Middle leg, femur, 9 mm.; tibia, 8.8 mm.; tarsus, 8 mm. Posterior leg, femur, 9.7 mm.; tibia, 10.5 mm.; tarsus, 8.3 mm.

Palpi dark brown, the segments short but distinct. Antennae with the scapal segments brownish yellow; flagellum broken. Head grey, the centre of the vertex weakly infuscated, with a yellowish pollen, the occiput reddish brown.

Pronotum large, brown, the posterior notum yellowish pollinose. Mesonotum depressed as usual in nearly apterous species, brownish yellow with indications of darker brown stripes; pseudosutural foveae large, reddish; posterior sclerites greyish. Pleura grey, the dorsal pleurites more yellowish; dorso-pleural membrane infuscated. Halteres obscure yellow, the knobs infus-Legs with the coxae and trochanters pale, the former cated. sparsely whitish pruinose; legs long, giving the insect a spidery appearance, the tibiae longer than the tarsi in all cases, as shown by the above measurements; legs with conspicuous erect setae; femora obscure brownish yellow, the tip rather conspicuously infuscated; tibiae yellow, the extreme tip scarcely darkened, the long tibial spurs black; tarsi brownish yellow, the segments tipped with black. Wings small, shorter than the halteres, yellow throughout, the venation distorted.

Abdomen brown, the median area of the tergites darker brown, the caudal margins of the segments irregularly obscure

buffy yellow; tergites with an oblique line of shiny impressed dots on the posterior half of each sclerite; sternites more pruinose, the caudal margins of the segments similarly pale. Ovipositor with the valves straight, the extreme tips broken.

Habitat.—New Zealand (Chatham Islands).

Holotype, 2, Wharekauri, among bush on hill, Dec. 13, 1923 (Gilbert Archey).

Gynoplistia chathamica is related to G. ambulator Alexander, G. pedestris Edwards, and G. resecta Edwards.

Tribe Eriopterini.

Genus Molophilus Curtis.

# Molophilus, sp.

A female specimen of a medium-sized yellow species of this genus was taken at Maunganui, Chatham Islands, *Dec.*, 1923 (Gilbert Archey).

Genus Amphineurus Skuse.

# Amphineurus hudsoni Edwards.

1923 Amphineurus hudsoni Edwards; Trans. N.Z. Inst. 54: 293, pl. 28, fig. 43 (wing); pl. 33, fig. 137 (male hypopygium).

A single female specimen from Maunganui, Chatham Islands, Dec., 1923 (Gilbert Archey).