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Studies on the Crane-flies of New Zealand.

Part 1: Order Dipera, Superfamily Tipuloidea.

BY
CHARLES P. ALEXANDER,
Department of Entomology, Massachusetts Agricultural College, Amherst, Massachusetts, U.S.A.

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*Studies on the Crane-flies of New Zealand: Part 1—Order Diptera,
Superfamily Tipuloidea.*

By CHARLES P. ALEXANDER, Department of Entomology, Massachusetts
Agricultural College, Amherst, Massachusetts, U.S.A.

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INTRODUCTION.

THE crane-flies, or Tipuloidean flies, are well known to all entomological students and collectors in New Zealand, passing often under the vernacular name of "daddies" or "daddy-long-legs." The designation of the southern Maori for these insects would seem to be *te-tatau-o-te-whare-o-Maui*, or, translated, "the door of the house of Maui," a derivation which is not readily explainable (Beattie, *Trans. N.Z. Inst.*, vol. 52, pp. 53-77, 1920). The general appearance of many of the groups and species in the Dominion is very striking—as, for example, the magnificent orange-and-black species of *Macromastix*, the green species of the same genus, the abundant species of *Gynoplistia*, the large and showy Cerozodiae with flabellate antennae in the male sex, and the relative abundance of species of *Tanyderus*, a very primitive genus which elsewhere has proven excessively uncommon. Our knowledge of the Tipuloidea of New Zealand received its greatest impetus upon the publication in the last volume of these *Transactions* of Edwards's revision of the species, in which all of the species and data available at the time of writing the paper (1921) are most capably presented.

The great increase in our knowledge of these flies during the past few years has rendered it advisable to publish a series of papers upon this general subject in which the more involved genera can be revised and figured, the detailed lists of species for the various provinces and districts given, the crane-fly fauna of the two Islands critically compared, and similar data presented. In the present article the writer wishes to outline the stages in the historical development of our knowledge of the crane-flies of the Dominion, and to append a bibliography of the papers relating to these flies that have been published to date. Moreover, since a great number of the species that have been described have been based upon a single sex, or even upon a single specimen, it now seems desirable to diagnose the opposite sex of certain of these species and to designate an allotypic specimen. These allotypes are discussed in the concluding portion of this paper.

CHRONOLOGICAL DEVELOPMENT OF OUR KNOWLEDGE OF THE CRANE-FLY
FAUNA OF NEW ZEALAND.

Never has the knowledge of the crane-fly fauna of a country been developed more rapidly and efficiently than has that of New Zealand during the past half-dozen years. This is due largely to disinterested collecting of virtually all of the entomological students of the country. At the end of 1918 the entire known Tipuloidean fauna of New Zealand consisted of but fifty-seven species; the total number now known to the writer is more than 350, and additions are constantly being made.

G. V. Hudson, veteran student of the insects of the Dominion, and himself the authority for several species of New Zealand crane-flies (1892, 1895, 1913c, 1920c),* supplied the greater part of the material for the first serious efforts to make this fauna known. A small part of this material, together with additional specimens collected by Helms and Hutton in the South Island, became the property of Osten-Sacken, but were, unfortunately, largely undescribed by this pioneer student of crane-flies, the only species that he made known from this abundant material being *Tanyderus forcipatus* (1880), *Cerozodia plumosa* (1887), and *Discobola dohrni* and *D. venusta* (1894). The next Hudson collection was turned over to Captain F. W. Hutton, and made the subject of the first comprehensive report on these flies (1900). The total number of species recognized by Hutton at this time was forty-four, of which twenty-five are described as new in this paper. Other crane-flies described from New Zealand before the beginning of the twentieth century are few in number. The entomological collections of the voyage of the "Astrolabe" included no Tipulidae and very few Diptera, most of which are wrongly determined in the report. A few scattered species were described by Walker (1848, 1856), based largely on the collections made by Dr. Andrew Sinclair near Auckland in 1845. Schiner (1868) capably discussed the collections made by the entomologists of the expedition of the Austrian frigate "Novara." Nowicki (1875) described his *Macromastix holochlora*, collected by Edwards, and long sunk as a synonym of *M. viridis* (Walker) but now known to be distinct. Butler (1875) added the description of *Dicranomyia fumipennis*, based on a manuscript description by White. Hutton (1881) described *Macromastix vulpina*, while in the same year Westwood characterized *Gynoplistia wakefieldi*. In 1882 Mik published an excellent account of the Diptera collected in the Auckland Islands in 1879 by Krone. Kirby (1884) described several additional species collected by Sinclair.

In 1902 Hutton characterized four additional Tipuloidea, increasing his list to forty-eight. Lamb (1909) described the crane-flies from the subantarctic islands collected by Hudson (1909). Alexander (1920) reported upon the Osten-Sacken collection of crane-flies kindly submitted by Dr. Walther Horn and now in the Berlin-Dahlem Museum. At about this same time Hudson sent to the British Museum a large portion of the duplicates of his fine collection of these flies, which were reported upon by Edwards (1923A) in a paper that the present writer would characterize as being the most valuable review of this group of flies that has ever appeared. In this paper Edwards recognizes a total of 159 species, of which ninety-two are described as new. Seven additional species were supplied by Hudson and described by Edwards later the same year (1923B).

Subsequent collecting in the Dominion has demonstrated that Hudson's collections, as studied by Edwards, were exceptionally rich in large and medium-sized species, but that the small and obscure forms were not so well represented. Thus the genus *Molophilus*, of which only five species were known to Edwards, now includes more than fifty species, and bids fair to become one of the largest genera in the Islands. The great increase in our knowledge of these small and medium-sized forms came subsequently to 1920, when Mr. Thomas R. Harris, in the North Island, and Mr. James W. Campbell, in the South Island, and others, became interested in collecting these flies.

* Dates in parentheses refer to the bibliography.

The many lesser subsequent collections have been described in the series of papers by the writer cited in the bibliography (Alexander, 1921-23). M. André Tonnoir's collections (1921-23) have not yet been recorded in print.

DESCRIPTION OF ALLOTYPIC SPECIMENS OF NEW ZEALAND CRANE-FLIES.

A considerable number of the crane-flies described by Hudson, Hutton, Edwards, Alexander, and others were represented by one sex only, sometimes by a single specimen. It is very desirable that the opposite sex be made known, especially in the numerous cases where the descriptions were based upon the female. In the present paper the writer describes the unknown sex of certain of these species, many of which have now been found to be widely distributed in the Dominion. For the type of this opposite sex the writer uses Muttkowski's term "allotype" (*Bull. Pub. Mus. Milwaukee*, vol. 1, p. 10, 1910). Certain American entomologists, especially those connected with the National Museum, have recently maintained that a specimen to be an allotype must be selected from the original series of specimens, either co-types or paratypes. Muttkowski's original description states, "If the protolog describes only a holotype male, the first female subsequently described is to be called the allotype." The following year Muttkowski (*Ann. Ent. Soc. Amer.*, vol. 4, p. 207, 1911) restated his opinion of an allotype, and made it clear that this type may be based upon material collected at any subsequent date to that of the type. Since this definition exactly fits the conditions met in the present paper, the writer can see no need for the term "neallotype," proposed as a substitute term by the above-mentioned entomologists.

In the following descriptions the Tillyard modification (*Proc. Linn. Soc. N.S.W.*, vol. 44, pp. 533-718, 1919) of the Comstock-Needham system of wing-venation is used. The terminology of the parts of the male hypopygium is that of Crampton (*Trans. Ent. Soc. Amer.*, vol. 48, pp. 207-25, 1923). The figures of hypopygia are made from specimens cleared and mounted on slides. Allotypes described in the present paper are preserved in the writer's collection.

Tribe LIMNOBIINI.

Dicranomyia fasciata Hutton.

1900. *Dicranomyia fasciata* Hutton, *Trans. N.Z. Inst.*, vol. 32, p. 34.

1923. *Dicranomyia fasciata* Hutton: Edwards, *ibid.*, vol. 54, p. 277.

Hutton's type, a female, was from Christchurch: Edwards had no additional material. The species is widely distributed in the South Island (Canterbury, Westland, Otago, Southland), rarer in the North Island (Ohakune, Wellington).

Allotype.—♂. Length, 6 mm.; wing, 9 mm.

Rostrum and palpi dark brown. Antennae black throughout; flagellar segments oval, terminal segment more elongate. Head brown, grey-pruinose, especially anteriorly. Mesonotal praescutum grey with three brown stripes more or less confluent, anterior ends of lateral stripes bent laterad to margin of sclerite, restricting ground-colour to humeral triangles and a small lateral spot before suture; scutellum dark, caudal margin greenish-testaceous. Pluera brown, grey-pruinose. Halteres brown, base of stem broadly greenish-testaceous. Legs dark brown, the coxae sparsely pruinose, trochanters more greenish, tibiae and tarsi passing into black.

Wings greyish subhyaline with extensive pale-brown markings, the more conspicuous being at origin of Rs, completely traversing cell R; at stigma; along cord and outer end of cell 1st M_2 ; slightly paler clouds at ends of longitudinal veins, most extensive in anal cells. Venation: Sc_1 ending a short distance beyond origin of Rs, this distance slightly variable, Sc_2 just before this origin; *m-cu* shortly before the fork of M. Abdomen dark brown, posterior margins of outer sternites indistinctly pale; hypopygium dark. Male hypopygium (fig. 1) with basistyles cylindrical, each with squat hemispherical lobe on mesal face at base, this lobe terminating in small tubercle set with a pencil of setae; mesal face of basistyle provided with numerous very long powerful setae. Ventral dististyle simple, a fleshy lobe unprovided with a rostrum; dorsal dististyle a very strongly curved chitinized hook. Gonapophyses with mesal apical angle a slightly curved, feebly bifid, chitinized rod.

Allotype, ♂, Glenorchy, Otago, altitude 1,200 ft.; 4th January, 1923 (C. C. Fenwick).

Dicranomyia aegrotans Edwards.

1923. *Dicranomyia aegrotans* Edwards, *Trans. N.Z. Inst.*, vol. 54, pp. 280-81, pl. 27, fig. 22 (wing).

Edwards's type was based on the female specimen mentioned, but not described, by Walker (*List Dipt. Brit. Mus.*, vol. 1, p. 45, 1848). The type-locality is unknown. Widely distributed in both Islands.

Allotype.—♂. Length, 6.5 mm.; wing, 8.3 mm.

Similar to female, differing as follows: Basal flagellar segments pyriform, outermost passing into oval. Mesonotal praescutum with very broad and distinct medium brown stripe, lateral stripes paler and ill-defined, confluent internally with median stripe; scutal lobes with dark centres. Pleura heavily light grey. Legs with femora rather uniformly dark brown, tibiae and basitarsi a little paler. Wings as described for female; base of cell 2nd A strongly infuscated, coloration following distad along vein Cu. Venation: Sc_1 ending just beyond origin of Rs, Sc_2 some distance from its tip and very short, Sc_1 alone about equal to *m-cu*; Rs nearly three times basal deflection of R_{4+5} ; cell 1st M_2 normally open by atrophy of *m*. Abdomen dark brown, including the hypopygium. Male hypopygium (fig. 2) characteristic of the species. Basistyles with the mesal apical angle produced caudad into slender finger-like lobe that terminates in two large setae and one or two smaller ones; mesal face of basistyle very densely setiferous. Dististyle single, simple, base enlarged, mesal face at apex produced into conspicuous, chitinized, slightly curved rostrum bearing two long spines just before mid-length, these spines directed strongly basad. Gonapophyses pale, mesal apical angle produced caudad into short black curved spine.

Allotype, ♂, Ohakune, Wellington, altitude 2,060 ft.; 15th October, 1921 (T. R. Harris).

Dicranomyia repanda Edwards.

1923. *Dicranomyia repanda* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 278, pl. 27, fig. 17 (wing).

Edwards's types consisted of three males—two taken by Hudson near Wellington, the third by Dr. Andrew Sinclair and mentioned but not

described by Walker (*List Dipt. Brit. Mus.*, vol. 1, p. 57, 1848). This very distinct and handsome crane-fly is widely distributed in both Islands.

Allotype.—♀. Length, 10.5 mm.; wing, 13.4 mm.

Differs from male only in the following respects: Basal segment of scape concolorous with remainder of antenna. Mesonotal praescutum almost covered by four nearly confluent black stripes, interspaces faintly pruinose; lateral margins of praescutum reddish-brown. Pleura heavily covered with microscopic light-grey pubescence that appears like a bloom. Halteres ochreous, knobs dark brown. Legs with the brown femoral ring subequal in extent to the orange apex beyond it. Abdominal tergites dark brown, paler sublaterally near base of segments. Ovipositor with genital segment obscure orange; tergal valves relatively small but straight, sternal valves ending near mid-length of tergal valves.

Allotype, ♀, Ohakune, Wellington, altitude 2,060 ft.; 1st October, 1921. (T. R. Harris).

Dicranomyia nigrescens Hutton.

1900. *Dicranomyia nigrescens* Hutton, *Trans. N.Z. Inst.*, vol. 32, p. 34

1923. *Dicranomyia nigrescens* Hutton: Edwards, *ibid.*, vol. 54, pp. 281-82.

Hutton's type, a female, was from Wellington. Common in parts of Canterbury and Otago.

Allotype.—♂. Length, about 7 mm.; wing, 8.5 mm.

Agreeing closely with Hutton's brief description, differing chiefly in sexual characters.

Median area of scutum a little paler than remainder of mesonotum. Femoral bases narrowly and indistinctly paler. Stigma scarcely darker than remainder of wing. Sc_1 ending opposite origin of Rs, Sc_1 alone shorter than *m-cu*; Rs arcuated at origin, about twice the basal deflection of R_{4+5} ; cell 1st M_2 short-rectangular, shorter than any of veins issuing from it; *m-cu* at or close to fork of M. Abdomen brownish-black, including hypopygium. Male hypopygium (fig. 3) with ninth tergite distinctly bilobed, median area near caudal margin with abundant setae. Basistyles small, mesal face of each produced into conspicuous stout lobe. Ventral dististyle large and fleshy, mesal face produced into short rostrum armed with two subequal erect spines, situated not far from base. Dorsal dististyle a gently curved spine that narrows gradually into an acute point. Gonapophyses with mesal apical angle produced caudad into a gently curved lobe.

Allotype, ♂, Glenorchy, Otago, altitude 1,200 ft.; 4th January, 1923 (C. C. Fenwick).

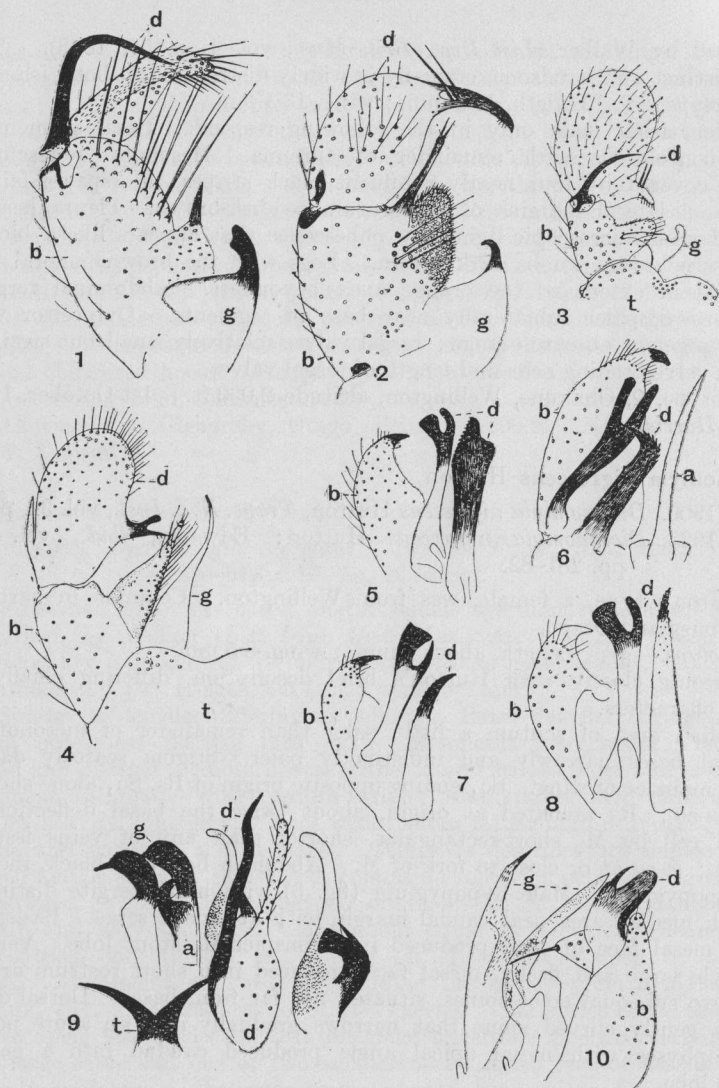
Discobola gibbera Edwards.

1923. *Discobola gibbera* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 286, pl. 28, fig. 29 (wing).

Edwards's type, a female, was from Tisbury, Southland, collected in 1915 by Philpott. The fly has since been taken in the Provinces of Wellington, Westland, Canterbury, and Southland.

Allotype.—♂. Length, 8.5 mm.; wing, 9.5 mm.

Generally similar to female, differing as follows: Median area of praescutum broadly dark brown, widening behind and suffusing posterior sclerites of mesonotum. Mesopleura almost entirely shiny black. Abdominal tergites brownish-black, caudal margin distinctly, median area more

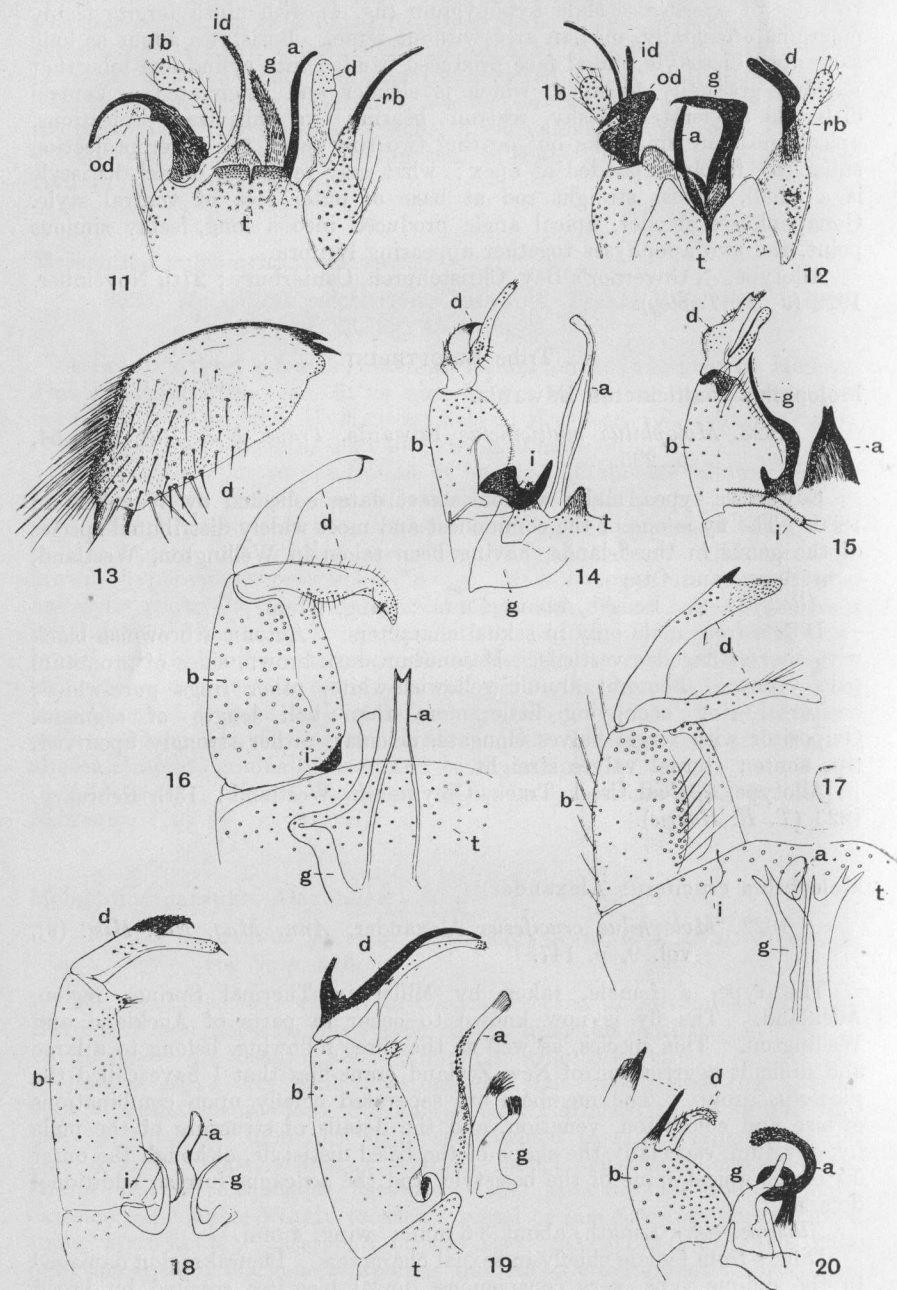


MALE HYPOPYGIA OF SPECIES OF NEW ZEALAND CRANE-FLIES.

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| Fig. 1. <i>Dicranomyia fasciata</i> Hutton. | Fig. 11. <i>Amphineurus subfatuus</i> Alexander. |
| 2. <i>D. aegrotans</i> Edwards. | 12. <i>A. fatuus</i> (Hutton). |
| 3. <i>D. nigrescens</i> Hutton. | 13. <i>Aphrophila neozelandica</i> (Edwards). |
| 4. <i>Discobola gibbera</i> Edwards. | 14. <i>Polyymoria nigrocincta</i> (Edwards). |
| 5. <i>Molophilus cruciferus</i> Alexander. | 15. <i>Limnophilella serotina</i> (Alexander). |
| 6. <i>M. pulcherrimus</i> Edwards. | 16. <i>Gynophistia pedestris</i> Edwards. |
| 7. <i>M. parvulus</i> Alexander. | 17. <i>G. arthuriana</i> Edwards. |
| 8. <i>M. philpotti</i> Alexander. | 18. <i>Atarba viridicolor</i> Alexander. |
| 9. <i>Amphineurus horni</i> Edwards. | 19. <i>A. filicornis</i> Alexander. |
| 10. <i>Gonomyia nigrohalterata</i> Edwards. | 20. <i>Elephantomyia zealandica</i> Edwards. |

EXPLANATION OF SYMBOLS.

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|------------------------|-------------------------|-------------------------|
| a, aedeagus. | i.d., inner dististyle. | o.d., outer dististyle. |
| b, basistyle. | g, gonapophyse. | r.b., right basistyle. |
| d, dististyle. | l.b., left basistyle. | r.d., right dististyle. |
| i, interbasal process. | l.d., left dististyle. | t, 9th tergite. |



diffusely obscure yellow; sternites similar, but dark areas more confined to sides of sclerites. Male hypopygium (fig. 4) with ninth tergite feebly emarginate caudally, median area without setae. Basistyles about as long as ventral dististyle, mesal face produced caudad into cylindrical lobe that narrows gradually to apex, which is slender and attenuated. Ventral dististyle moderately fleshy, rostrum bearing two chitinized projections, apical one more spine-like but bearing two tiny setae, the other projection subapical, feebly expanded at apex; what may represent dorsal dististyle is a small, almost straight rod at base of outer face of ventral style. Gonapophyses slender, apical angle produced into a long, feebly sinuous point, the two apophyses together appearing lyriform.

Allotype, ♂, Governor's Bay, Christchurch, Canterbury; 27th November, 1922 (*J. F. Tapley*).

Tribe ERIOPTERINI.

Molophilus multicinctus Edwards.

1923. *Molophilus multicinctus* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 295.

Edwards's types, males without exact data, collected by Wakefield in 1880. The fly is one of the commonest and most widely distributed species of the genus in the Islands, having been taken in Wellington, Westland, Canterbury, and Otago.

Allotype.—♀. Length, about 4 mm.; wing, 4 mm.

Differs from male only in sexual characters. Antennae brownish-black with shorter flagellar verticils. Mesonotum dark brown, sides of pronotum pale yellow. Femoral annuli yellowish-white, other rings pure-white; basitarsal ring occupying little more than half length of segment. Ovipositor with tergal valves elongate, acicular, rather strongly upcurved, tips acute; sternal valves straight.

Allotype, ♀, Coal Creek Track, Greymouth, Westland; 13th February, 1923 (*T. R. Harris*).

Molophilus cruciferus Alexander.

1922. *Molophilus cruciferus* Alexander, *Ann. Mag. Nat. Hist.* (9), vol. 9, p. 147.

The type, a female, taken by Miller in Thermal Springs region, Auckland. The fly is now known to occur in parts of Auckland and Wellington. This species, as well as the three following, belong to a large and difficult aggregation of New Zealand crane-flies that I have called the *plagiatus* group. The members are separated chiefly upon combinations of size and coloration, venation, and the details of structure of the male hypopygium, especially the shape of the basal dististyle, although the outer dististyle, apical spine of the basistyle, and the aedeagus furnish additional details.

Allotype.—♂. Length, about 3.6 mm.; wing, 4 mm.

Differs from female chiefly in sexual characters. Pleural region damaged in the unique type, very conspicuous, dorsal pleurites covered by broad brownish-black longitudinal stripe, ventral pleurites and mesosternum yellowish, silvery pruinose. Male hypopygium (fig. 5) as in *plagiatus* group; apical beak of basistyle a moderately elongate chitinized spine. Outer

dististyle relatively slender, apex bifid, lateral arm dilated into a blade, mesal arm a gently curved obtusely rounded lobe. Basal dististyle conspicuous, appearing as a broad flattened blade, apex feebly expanded into spear-shaped structure, lateral margin of head thus formed with a series of about a dozen acute and slightly recurved teeth; this appendage is darkened, though not blackened, except on basal third which is pale. Aedeagus relatively short and stout, apex suddenly narrowed.

Allotype, ♂, Ohakune, Wellington, altitude 2,060 ft.; 10th October, 1921 (*T. R. Harris*).

Molophilus pulcherrimus Edwards.

1923. *Molophilus pulcherrimus* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 295, pl. 28, fig. 45 (wing).

Edwards's type, a female, taken at Wellington in December by Hudson. This beautiful little crane-fly is now known to be widely distributed in both Islands (Auckland, Wellington, Nelson, Westland, Canterbury, Otago).

Allotype.—♂. Length, 3.2 mm.; wing, 4 mm.

Generally similar to description of female, differing as follows: Scutal lobes with dark centres; scutellum shiny brownish-black. Fore femora dark, except at extreme base, densely covered with appressed black setae so fore femora appear black in contrast with other legs. Abdomen dark brown, hypopygium brownish-ochreous. Male hypopygium (fig. 6) with basistyles relatively stout, each terminating in chitinized beak that bears a small shoulder before apex. Outer dististyle chitinized, deeply bifid, outer branch weakly toothed at apex. Basal dististyle a stout, almost straight, chitinized rod that terminates in a powerful spine directed laterad, mesal face before this spine with abundant appressed spinulae; a small spine on lateral face of style near two-thirds length. Aedeagus long and slender, almost straight, gradually narrowed to acute apex.

Allotype, ♂, Mount Ruapehu, Wellington, altitude 4,500 ft.; 27th February, 1922 (*T. R. Harris*).

Molophilus parvulus Alexander.

1922. *Molophilus parvulus* Alexander, *Ann. Mag. Nat. Hist.* (9), vol. 9, p. 146.

The types, females, were from Ohakune, taken in November, 1920, by Harris. I have not seen this species except from this locality.

Allotype.—♂. Length, about 2.8 mm.; wing, 3.4 mm.

Base of R_{2+3} very faint to atrophied. Male hypopygium (fig. 7) with apex of basistyle produced into long slender chitinized spine, surrounding base of which are numerous small setae which pass into larger setae on face of style. Outer dististyle relatively short and stout, bifid at apex, lateral arm a conspicuous flattened blade, apex dilated and truncate, extreme outer angle weakly toothed; mesal or inner arm an acute curved spine, apex acute; basal half of this style pale. Basal dististyle pale, only apical third blackened, tapering gradually to acute gently curved tip, before apex with sparse appressed denticles.

Allotopotype, ♂, Ohakune, altitude 2,060 ft.; 1st December, 1922 (*T. R. Harris*).

Molophilus philpotti Alexander.

1922. *Molophilus philpotti* Alexander, *Ann. Mag. Nat. Hist.* (9), vol. 9, pp. 145-46.

The types, females, were taken in the Province of Nelson by Philpott. The species occurs in both Islands.

Allotype.—♂. Length, about 3.7 mm.; wing, 4.4 mm.

Very similar to female, differing chiefly in sexual characters. Antennae short, flagellum dark brown. Abdomen more uniformly brownish-yellow than in type. Male hypopygium (fig. 8) with apical spine of basistyle relatively short and only feebly chitinized, not blackened. Outer dististyle very much as in *M. cruciferus*, the stem stouter. Basal dististyle pale, only extreme tip darkened, apex suddenly narrowed and provided with sparse appressed denticles that pass into small setae basally. Aedeagus long and slender, straight.

Allotype, ♂, Mount Ruapehu, Wellington, altitude 3,700 ft.; 6th January, 1922 (*M. N. Watt*).

Amphineurus (Nothormosia) horni Edwards.

1923. *Amphineurus horni* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 294, pl. 28, fig. 44 (wing).

Edwards's type, a female, was from Wellington, collected by Hudson. The fly is very common, occurring in both Islands (Wellington, Canterbury, Otago).

Allotype.—♂. Length, about 2.8 mm.; wing, 5 mm.

Differs from female chiefly in sexual characters. Head dark grey. Antennae elongate, longer than body, dark brown, scapal segments a little paler; flagellar segments fusiform, near mid-length of each with numerous elongate erect verticils. Mesonotum greyish-brown, sides of praescutum somewhat darker; pseudosutural foveae elongate, shiny black. Halteres dark brown, base of stem conspicuously ochreous. Legs with coxae and trochanters testaceous; femora brown. Abdomen dark brown, genital segment brighter brown. Male hypopygium (fig. 9) with ninth tergite heavily chitinized, appearing as two divergent chitinized horns. Basistyles relatively stout, outer apical angle produced caudad into slender digitiform setiferous lobe nearly as long as longest dististyle. What appears to be a basal dististyle, but may be an interbasal process, is a long, sinuous, heavily-chitinized rod, directed caudad, apex acute. Outer dististyle complex, longest element a pale elongate blade arising from an enlarged base whose surface appears squamose, at its base with a small curved chitinized appendage, apex expanded into truncate hatchet-shaped blade, outer margin with acute spine (thumb). Aedeagus pale basally, strongly bent before apex, subtended on either side by flattened blade-like gonapophyses which terminate in a slender black spine; viewed dorsally or ventrally, apical third of each gonapophyse more blackened than base and bent strongly mesad so tips are nearly contiguous on median line.

Allotype, ♂, Ohakune, Wellington, altitude 2,060 ft.; 3rd November, 1921 (*T. R. Harris*).

Amphineurus (Nesormosia) subfatuus Alexander.

1922. *Amphineurus subfatuus* Alexander, *Ann. Mag. Nat. Hist.* (9), vol. 10, pp. 87-88.

The type, a female, was taken at Ohakune, Wellington Province, by Harris. The fly is known only from this province.

Allotype.—♂. Length, about 5 mm.; wing, 7 mm.

Agrees closely with type female, differing only in sexual characters. Male hypopygium (fig. 11) with ninth tergite (*t*) squarely truncate, deeply split medially by a narrow incision, surface and margins of lobes finely spiculate, lateral shoulders more spinous. Basistyles with asymmetrical dististyles, as in subgenus. Right basistyle (*r.b.*) produced apically into long curved black spine arising from an enlarged setiferous base; the single dististyle of this side (*r.d.*) an irregular darkened blade, the surface with small scattered setiferous punctures and bearing a small glabrous wing-like projection. Left basistyle (*l.b.*) is produced apically into a very strongly clavate fleshy lobe not unlike that found in *A. fatuus*, but is extended into a weak spine. Dististyles of left side two in number, the outermost (*o.d.*) a chitinized rod, apical half slender, strongly curved and bearing a hyaline setiferous membrane in its concavity; second or inner style (*i.d.*) an acicular rod, sparsely hairy especially on mesal face near base, apex very feebly dilated. Gonapophyse (*g*) a pale-yellow blade that gradually narrows to apex, surface densely setiferous. Aedeagus (*a*) nearly as in *A. fatuus*, narrowed immediately before apex.

In *A. (N.) fatuus* (Hutton) (fig. 12) the asymmetry is less marked, apical lobes of basistyles (*b*) being nearly alike on the two sides; dististyle of right side (*r.d.*) is bifid, the two arms closely appressed, the obtuse arm with tiny setiferous punctures. The two dististyles of left side very dissimilar in shape, the outermost (*o.d.*) heavily chitinized, narrowed into a beak that is bent strongly upon itself and acutely pointed; face of this style with a series of comb-like teeth or pegs; second or inner style (*i.d.*) an acicular rod profoundly bifid, the two arms unequal. What Edwards describes as the aedeagus seems rather to be a gonapophyse (*g*), the other being much reduced. The true aedeagus (*a*) is very similar to that found in *subfatuus*. Ninth tergite (*t*) has lateral lobes long, obliquely truncate, margins and apices of lobes smooth.

Allotype, ♂, Ohakune, Wellington, altitude 2,060 ft.; 22nd November, 1922 (*T. R. Harris*).

The degree of asymmetry in male hypopygium of the two species of *Nesormosia* is very surprising, being somewhat more marked in *subfatuus* than in *fatuus* because of the conspicuous difference in apical lobes of basistyles. From specimens of *subfatuus* received from Mr. Hudson and collected at the time and place of capture of the type of *A. (N.) niveinervis* Edwards, I am strongly of the opinion that the latter name must be placed in the synonymy of *subfatuus*.

Gonomyia (Lipophleps) nigrohalterata Edwards.

1923. *Gonomyia (Lipophleps) nigrohalterata* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 290, pl. 28, fig. 38 (wing).

Edwards's type, a female, was taken at Auckland in September, 1906, by Wesché. The fly is not uncommon in the central and northern portions of the North Island.

Allotype.—♂. Length, about 4.5 mm.; wing, 5.5 mm.

Agrees closely with female. Rostrum scarcely brightened. Scutellum bright yellow; postnotum darkened on posterior half. Pleural stripe narrow but conspicuous, extending from cervical sclerites to postnotum. Abdominal tergites dark brown, sternites and hypopygium obscure yellow. Male hypopygium (fig. 10) with basistyles relatively small, apex of each produced caudad in blunt, setiferous lobe. Dististyles two—one a blunt, fleshy, setiferous lobe that terminates in a powerful fasciculate seta, the other more chitinized, with a short acute black spine near mid-length, this spine shorter than the apex of style beyond it. Gonapophyses slightly asymmetrical, long and slender. Dististyles of one side broken, and it cannot be stated whether or not the hypopygium is asymmetrical as in the related *G. (L.) longispina* Alexander.

Allotype, ♂, Taumarunui, Auckland; 24th December, 1922 (*T. R. Harris*).

Astelobia rufa (Hudson).

1895. *Tipula rufa* Hudson, *Trans. N.Z. Inst.*, vol. 27, p. 294.

1900. *Gnophomyia rufa* Hutton, *ibid.*, vol. 32, p. 39–40, pl. 4, fig. 13 (wing).

1920. *Gnophomyia rufa* Hutton: Hudson, *ibid.*, vol. 52, pp. 32–33, pl. (col.) 1, figs. 7–9 (larva, pupa, adult).

1923. *Gnophomyia (Astelobia) rufa* Edwards, *ibid.*, vol. 54, p. 298, pl. 28, fig. 48 (wing).

Hudson's types, males, were taken in dry forest near Wellington. Although Edwards discussed the female sex, he did not designate a specimen as allotype.

Allotype.—♀. Length, 28 mm.; wing, 19.3 mm.

Characters as in male, differing only in sexual characters. Tergal valves of ovipositor long and slender, acutely pointed, strongly upcurved beyond mid-length.

Allotype, ♀, Wilton's Bush, Wellington; 15th November, 1908 (*G. V. Hudson*).

Described from a perfect specimen in my collection, received through the kindness of Mr. Hudson.

Aphrophila neozelandica (Edwards).

1923. *Gnophomyia (Aphrophila) neozelandica* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 298, pl. 28, fig. 47 (wing).

Edwards's type is a female, taken at Otira Gorge by Hudson. The species is widely distributed in both Islands, being known from Wellington, Nelson, Westland, Canterbury, and Otago.

Allotype.—♂. Length, 6.5 mm.; wing, 11.5 mm.

Agrees closely with female. Flagellar segments cylindrical. Femora paler basally. Abdomen purplish-black, extreme caudal margins of segments indistinctly paler, this better marked on subterminal segments. Male hypopygium with basistyles relatively stout. Single dististyle (fig. 13) is a broad, flattened blade, apex terminating in two acute teeth and a more obtuse lobe; caudal or outer margin on basal third is densely provided with coarse black setae directed strongly basad; surface of blade likewise provided with setae and microscopic setulae. Base of aedeagus densely set with conical spinulae.

Allotype, ♂, Glenorchy, Otago, altitude 1,200 ft.; 4th January, 1923 (*C. C. Fenwick*).

Tribe HEXATOMINI.

Nothophila fuscana (Edwards).

1923. *Ulmomorpha fuscana* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 305, pl. 29, fig. 54 (wing).

Edwards's type, a male, was taken near Wellington in April. The species occurs in both Islands, flying late in the season.

Allotype.—♀. Length, 11 mm.; wing, 11.3 mm.

Very close to male, differing chiefly in sexual characters. Head greyish-brown. Praescutal stripes confluent. All tergites margined caudally with buff. Wings fully developed, as in male. Ovipositor with long, slender, gently upcurved tergal valves.

Allotype, ♀, Wellington; April, 1922 (*G. V. Hudson*).

Nothophila nebulosa (Edwards).

1923. *Ulmomorpha nebulosa* Edwards, *Trans. N.Z. Inst.*, vol. 54, pp. 304–5, pl. 29, fig. 53 (wing); pl. 33, fig. 143 (hypopygium).

Edwards's types, males, were from near Wellington, taken in April by Hudson. Like the preceding species, the fly is a characteristic late-summer or fall species, but so far has not been taken except in the near vicinity of the City of Wellington.

Allotype.—♀. Length, about 12 mm.; wing, 12.7 mm.

Generally similar to the male, differing as follows: Wings fully developed, as in male. Ovipositor with tergal valves as in preceding species; sternal valves stouter than tergal valves, short and nearly straight.

Allotype, ♀, Wilton's Bush, Wellington; 20th April, 1922 (*G. V. Hudson*).

Polymoria nigrocincta (Edwards).

1923. *Limnophila nigrocincta* Edwards, *Trans. N.Z. Inst.*, vol. 54, pp. 312–313, pl. 29, fig. 59 (wing).

Edwards's type, a female, was taken at Wainuiomata, Wellington, in December, 1920, by Hudson. The fly is widely distributed in both Islands (Wellington, Nelson, Canterbury, Otago, Southland).

Allotype.—♀. Length, 10 mm.; wing, 11 mm.

Generally similar to female, differing chiefly in sexual characters. Antennae relatively short, about as long as thorax alone, scape and basal segment of flagellum ochreous, flagellum brownish-black. Scutal lobes conspicuously dark brown. Abdomen dark brown, the hypopygium obscure yellow, lobes of ninth tergite brownish-black. Male hypopygium (fig. 14) with ninth tergite produced medially, emarginate posteriorly, lateral lobes triangular, hairy. Basistyles relatively stout; dististyles two, both small; outer dististyle a small flattened blade that terminates in curved blackened spine, margin of blade setiferous; inner style much longer than outer, base enlarged and provided with coarse setae, distal portion slender, apex obtusely rounded, surface with microscopic setulae. Interbasal process chitinized, boomerang-shaped, narrow outer end subacute at apex. Aedeagus long and narrow, basal two-thirds with lateral wing, slender apical third gently curved. Gonapophyses appearing as very large flattened blades, almost transparent in mounts, outer apical angle produced caudad into more slender lobe that is obliquely truncated at apex.

Allotype, ♂, Ohakune, Wellington, altitude 2,060 ft.; 12th November, 1921 (*T. R. Harris*).

Limnophilella serotina (Alexander).

1922. *Limnophila serotina* Alexander, *Insec. Inscit. Menst.*, vol. 10, pp. 202-3.

The type, a female, was taken in the Riccarton (Deans) Bush, Christchurch, Canterbury, in April, 1922, by Gourlay. The fly is known only from Canterbury and Westland.

Allotype.—♂. Length, 11 mm.; wing, 12.4 mm.

Generally similar to female, but of more delicate, ethereal build, not unlike *L. delicatula* (Hutton), which I consider to be closely allied.

Characters as in female, differing as follows: Antennae of moderate length, about as long as combined head and thorax; scapal segments ochreous, flagellum dark brown, basal segments a trifle paler. Abdomen reddish-brown with dark-brown subterminal ring that includes segments 7 and 8. Male hypopygium (fig. 15) with basistyles relatively stout, with sparse relatively short setae; dististyles two, united at extreme base; outer style dilated into a wing on basal half, surface with microscopic setulae, apical half more narrowed and terminating in setiferous beak, before apex on outer margin with a broad flattened glabrous tooth; inner style a little shorter, of nearly uniform width throughout, apex obtuse. Gonapophyses appearing as conspicuous divergent horns. Aedeagus short and stout, the apex bifid.

Allotype, ♂, Punakaia, Westland; 27th February, 1923 (*T. R. Harris*).

Cerozodia paradisea Edwards.

1923. *Cerozodia paradisea* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 328, pl. 30, fig. 93 (wing of ♂).

Edwards's types, males, were from the vicinity of Lake Wakatipu, Otago. The fly is known only from Otago and Southland.

Allotype.—♀. Length, 25 mm.; wing, 3.8 mm.

Characters as in male, differing as follows: Antennae 26-segmented, terminal two segments closely united and possibly to be interpreted as being a single segment; flagellar segments 1-13 with distinct branches, the longest about one-half longer than segments that bear them; flagellar segment 14 protuberant on lower face but not otherwise produced. Head yellowish-grey pruinose. Praescutal stripes three, light yellow, interspaces brown; scutellum and postnotum light grey. Halteres ochreous, knobs dark brown. Legs with coxae light-grey pruinose; legs with femora dark brown, tibiae and tarsi paler brown, terminal tarsal segments infuscated. Wings rudimentary, light brown, costal margin near base, and outer edge, darker brown. Venation distorted. Ovipositor with basal shield varnished, yellow, with longitudinal oblique brown markings. Tergal valves of ovipositor long and slender, gently upcurved.

Allotype, ♀, Hunter Range, near Lake Manapouri, Southland, altitude 4,000 ft.; 1st to 7th January, 1923 (*S. Lindsay*).

Gynoplistia pedestris Edwards.

1923. *Gynoplistia pedestris* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 317.

Edwards's type, a female, lacked exact data, but, since it was collected by Wakefield, was presumably from Canterbury. The discovery of this fly in large numbers by Campbell and Gourlay within the limits of the City

of Christchurch, as discussed in the appended account, indicates that the type-locality is very probable. The fly has not been taken elsewhere.

Allotype.—♂. Length, 14 mm.; wing, 2.5 mm.

Characters as in female, differing as follows: Antennae 16-segmented, formula being 2 + 2 + 8 + 4; basal pectinate segments in spiral alignment; pectinations short, the longest about three times length of segment that bears it. Head light grey, centre of vertex suffused with dark brown. Mesonotal praescutum pale brown, anterior end of median stripe and posterior ends of lateral stripes better indicated, brown, the latter passing on to scutal lobes; median area of remainder of mesonotum light grey. Pleura dusted with grey. Wings rudimentary, yellowish, more infuscated outwardly, without distinct pattern. Abdomen reddish-brown, tergites with slightly darker median stripe and with dark-grey sublateral margin; sternites largely dark grey. Hypopygium reddish. Male hypopygium (fig. 16) with basistyle simple, stout, mesal face with abundant setae; mesal face at base with smooth hemiovate black lobe. Outer dististyle a flattened blade, broadest at base, apex on outer margin produced into conspicuous black spine, remainder of apex squarely truncated, not projecting beyond spine, margin weakly serrulate; outer dististyle without setae; inner dististyle slender, inner or mesal face near mid-length bulging and provided with setae, apex beyond this base slightly bent, provided with numerous setigerous punctures and with a short stout spinous seta on inner margin. Gonapophyses slender, before mid-length bent strongly upon themselves, tips weakly expanded. Aedeagus slender, straight, base dilated, apex bifid.

Allotype, ♂, Christchurch, Canterbury, altitude 30 ft.; 18th October, 1921 (*E. S. Gourlay*).

This is the only species of *Gynoplistia* so far described in which both sexes are nearly apterous. I am greatly indebted to Mr. Gourlay for the accompanying discussion of the conditions under which these flies were found.

"This little lot is the result of one half-hour's collecting at the locality indicated on the labels in the bottles. The flies are fairly plentiful on a hot day, and are not only like harvest-spiders (Phalangiidae) in appearance, but are also similar in their movements, each having the same peculiar springy gait. They delight in hanging on tall grass-blades without a movement, basking in the sun. Associated with this species to-day were two other Tipulidae, the relative abundance of the three being indicated by the following figures: *Gynoplistia pedestris*, 50 per cent.; *Limnophila skusei*, 35 per cent.; *Holorusia novarae*, 15 per cent. In their breeding-grounds the soil is a rich, black, peaty humus, and though wet is not slimy. The river (Avon) flows through the centre of the city and the locality is about five minutes' walk from the Square. This is the only locality from which I have collected this species [to which was later added Johnson's Fish-pond, Opawa, Christchurch—a single male on 12th February, 1922], and this particular stretch is about 100 yards long by 2.5 yards in width at its broadest point, so they seem to have a limited range. I have not observed particularly whether they are to be found in other similar places along the river, but no doubt this will be the case."—(*E. S. Gourlay*).

Gynoplistia sackeni Alexander.

1920. *Gynoplistia sackeni* Alexander, *Insec. Inscit. Menst.*, vol. 8, pp. 125-26.

The type, a male, was collected at Wellington in June, 1895, by Hudson. This interesting species has been taken only in the Province of Wellington. The fly appears to be a characteristic winter and early-spring species.

Allotype.—♀. Length, 14 mm.; wing, 4 mm.

Female differs from male chiefly in sexual characters. Antennae 16-segmented, basal eight flagellar segments with short branches, the longest not exceeding segment that bears it; lower face of ninth flagellar segment slightly produced. Basal segment of scape sparsely pruinose; second segment pale brown; flagellum black throughout. Mesonotal praescutum buffy, the colour largely concealed by three slightly darker stripes; remaining sclerites of mesonotum more pruinose. Wings greatly atrophied, as indicated by above measurements, being long and slender, strap-like, dark brown with base more yellowish. Venation distorted but recognizable. Tips of femora and tibiae narrowly infuscated; tarsi largely brown. Abdomen more or less pruinose, caudal margins of segments brighter brown. Ovipositor with valves very long and slender, especially the gently upcurved tergal valves.

Allotype, ♀, Ohakune, Wellington, altitude 2,060 ft.; 30th September, 1921 (*T. R. Harris*).

Gynoplistia fuscoplumbea Edwards.

1923. *Gynoplistia fuscoplumbea* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 318, pl. 35, fig. 165 (hypopygium).

Edwards's type, a male, was from Wellington, collected by Hudson. The fly is well distributed in the Province of Wellington.

Allotype.—♀. Length 15 mm.; wing, 11 mm.

Generally similar to male, differing as follows: Antennae 17-segmented, basal nine flagellar segments with short branches, the longest scarcely exceeding in length segments that bear them; basal segment of scape heavily pruinose; second segment ochreous at apex; flagellum with branches black. Rostrum and head grey, vertex infuscated on either side of pale median line. Praescutal stripes fairly well defined. Femoral subterminal pale rings faint to nearly obsolete. Wings fully developed, more yellowish than in male; wing-tip scarcely infuscated. Ovipositor with valves very long and slender, tergal valves gently upcurved.

Allotype, ♀, Ohakune, Wellington, altitude 2,060 ft.; 2nd December, 1922 (*T. R. Harris*). Taken *in copula* with male and pinned together.

Gynoplistia incisa Edwards.

1923. *Gynoplistia incisa* Edwards, *Trans. N.Z. Inst.*, vol. 54, pp. 318–19, pl. 35, fig. 166 (hypopygium).

Edwards's type, a male, was from Wellington, collected by Hudson. The species occurs in both Islands.

Allotype.—♀. Length, 16 mm.; wing, 12 mm.

Generally similar to male. Antennae 17-segmented, basal ten flagellar segments with relatively elongate branches, the longest being about one-half longer than segment that bears it; terminal five segments simple. Rostrum brownish-ochreous. Scapal segments of antennae ochreous; basal two flagellar segments pale basally, apex and branches brownish-black. Head dark grey, lighter behind antennal bases. Mesonotal praescutum with lateral stripes very distinct but median stripe barely indicated, as in male, faintly divided by median dark vitta. Subterminal orange annulus of femur paler and less conspicuous. Wings fully developed; apex not so heavily infuscated as in male. Ovipositor with tergal valves long and slender, especially the gently upcurved tergal valves.

Allotype, ♀, Ross, Westland; 19th February, 1923 (*T. R. Harris*).

Gynoplistia arthuriana Edwards.

1923. *Gynoplistia arthuriana* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 319, pl. 30, fig. 75 (wing).

Edwards's type was from Arthur's Pass, Canterbury, at 3,000 ft., collected by Hudson. The species is known only from this general region.

Allotype.—♀. Length, 11.5 mm.; wing, 10 mm.

Characters as in female, differing as follows: Antennae 17-segmented, the formula being 2+2+8+5, basal pectinate branches being in spiral alignment; longest branches between three and four times the length of segments that bear them. Head grey, vertex suffused with rich brown. Mesonotal praescutum with median stripe almost concolorous with ground-colour, margined laterally with brown; lateral stripes distinct. Abdomen dark brown, basal lateral region of individual tergites lighter brown. Male hypopygium (fig. 17) with caudal margin of ninth tergite very feebly concave medially. Basistyles relatively short and stout, simple, mesal face grooved, adjoining margins and apex on mesal face densely provided with long coarse setae that become small to obsolete on outer face at base of sclerite; a small pale unarmed tubercle on mesal face of sclerite at base. Outer dististyle a flattened blade; some distance before apex on outer face with a small black tooth; apex gently serrulate to crenulate; inner dististyle shorter, just beyond mid-length gradually narrowed to slender feebly setiferous apex. Gonapophyses closely subtending small curved aedeagus, each apophyse trifid at apex.

Allotype, ♂, Otira Gorge, Westland; 10th January, 1920 (*J. W. Campbell*).

Atarba (Atarba) viridicolor Alexander.

1922. *Atarba (Atarba) viridicolor* Alexander, *Ann. Mag. Nat. Hist.* (9), vol. 9, p. 308.

The type, a female, was taken by Harris at Ohakune in October, 1921. The fly is at present known only from this general region.

Allotype.—♂. Length, about 5.8 mm.; wing, 7.3 mm.; antennae, about 11 mm.

Generally similar to female, differing chiefly in sexual characters. Antennae very long, nearly twice length of body, elongate-cylindrical flagellar segments with numerous delicate erect setae distributed throughout their length. Green coloration of body is faded into a fawn-yellow, coxae remaining green. Abdominal tergites brown, sternites paler; a subterminal dark-brown ring. Male hypopygium (fig. 18) with basistyles very long and slender, surface setiferous, especially mesal face; immediately before apex on mesal face with low setiferous tubercle. A single dististyle, this very remarkable and suggestive of the origin of the double dististyli of most Tipulidae; style is a pale, curved blade, apex obtuse, just beyond mid-length on outer face with a slightly shorter densely spinous lobe; the appearance thus presented is much as though the two styli were originally a unit and were now in process of division. Interbasal process small, pale, apex truncate. Gonapophyses appearing as slender strongly curved horns, directed cephalad, thence mesad, caudad, and finally laterad in almost a circle. Aedeagus relatively short, twisted at base, apex obtuse.

The more widely distributed *Atarba (Atarba) filicornis* Alexander exhibits a very different type of hypopygium (fig. 19). Ninth tergite deeply emarginate posteriorly, the relatively slender lateral lobes thus formed being provided with long coarse setae. Basistyles shorter and stouter, subapical tubercle more slender; interbasal process very small. Dististyle

deeply split, outer arm a slender chitinized rod, apex acute, margin smooth or nearly so, except at base where is borne a very powerful bifid spine, with a tiny double spinule in its axil; inner arm of dististyle subequal in length, slender, pale, with sparse tiny setae. Aedeagus long, gently curved upward, with row of papillae along its face. Gonapophyses of either side bifid, tip of each arm densely tufted with golden spinous setae.

Allotopotype, ♂, Ohakune, Wellington, altitude 2,060 ft.; 13th November, 1921 (*T. R. Harris*).

Elephantomyia zealandica Edwards.

1923. *Elephantomyia zealandica* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 288, pl. 28, fig. 35 (wing).

Edwards's type, a female, was from Lake Wakatipu, Otago, collected in 1906 by Hudson. The fly is now known to be widely distributed in both Islands.

Allotype.—♂. Length, excluding rostrum, 5.5 mm.; wing, 6.5 mm.; rostrum alone, about 4 mm.

Similar to female, differing only in sexual characters. Median praescutal stripe very distinct on anterior half of sclerite, becoming obliterated behind. Abdomen with subterminal dark-brown ring, including segments 7 and 8. Male hypopygium (fig. 20) with basistyles stout, setiferous, more densely so on mesal face. Dististyles two, small, outer style a straight slender heavily chitinized rod slightly narrowed toward apex, which is weakly toothed; inner style a little longer and stouter, fleshy, apex slightly curved, surface setiferous. Gonapophyses almost transparent in balsam mounts, curved near mid-length, apex obtuse; besides this pair of apophyses are two other pairs on either side of base of aedeagus. Aedeagus stout, slightly coiled.

Allotype, ♂, Waipori, Otago, altitude 2,000 ft.; 5th December, 1921 (*W. G. Howes*).

Tribe TIPULINI.

Dolichopeza (Dolichopeza) atropos (Hudson).

1895. *Tipula atropos* Hudson, *Trans. N.Z. Inst.*, vol. 27, p. 295.

1900. *Dolichopeza atropos* Hutton, *ibid.*, vol. 32, p. 24, pl. 3, fig. 1 (wing).

1923. *Dolichopeza atropos* Edwards, *ibid.*, vol. 54, p. 331.

Hudson's unique type, a male, was taken at Terawhiti, near Wellington, while hovering about a cave (a gold-mining shaft, according to Edwards). Hutton redescribed the unique type. Edwards had not seen a specimen.

Allotype.—♀. Length, 15 mm.; wing, 15 mm.

Female agrees well with male, differing chiefly in sexual characters. Antennae nearly as long as thorax; basal segment of scape pale brownish-testaceous; second segment of scape light yellow; flagellum black; flagellar segments each with slight basal swelling provided with short verticils. Vertical tubercle conspicuous, entire, pale-fulvous, contrasting markedly with remainder of body. Mesonotal praescutum with a slightly paler stripe on either side of darker median line; short lateral stripes likewise paler than ground-colour. Ovipositor with short stout valves, tergal valves straight.

Allotype, ♀, Queenstown, Otago; 4th January, 1923 (*C. C. Fenwick*).

This is the largest of the four New Zealand species of the genus thus far described. The fulvous vertical tubercle was not mentioned in either

Hutton's or Hudson's descriptions. In order to be certain of the identity, specimens were submitted to Mr. Hudson, who very kindly compared them with his type and reports them identical.

Macromastix submontana Edwards.

1923. *Macromastix submontana* Edwards, *Trans. N.Z. Inst.*, vol. 54, p. 346.

Edwards's type, a female, was from Mount Cleughern, in the Hunter Mountains, Southland, collected in 1916 by Philpott. An additional series from the same general locality was taken in January, 1923, by Stuart Lindsay.

Allotype.—♂. Length, 16 mm.; wing, 20 mm.

Agreeing closely with type female. Antennae short, black throughout, only 11-segmented; penultimate and antepenultimate segments small, terminal segment larger and nearly twice the length of preceding segment. The type female, which is in writer's collection through the kindness of Mr. Philpott, likewise has 11-segmented antennae as given by Edwards. Thoracic setae creamy-white. Basal half of abdominal tergite 2-deep fulvous-orange, narrowly divided medially by a black longitudinal vitta. Male hypopygium black, including dististyles. Ninth tergite with caudal margin emarginate.

Allotype, ♂, Hunter Range, near Lake Manapouri, Southland, altitude 4,000 ft.; 1st to 7th January, 1923 (*S. Lindsay*).

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