

- d. Second longitudinal vein.
- e. Third longitudinal vein.
- f. Fourth longitudinal vein.
- g. Fifth longitudinal vein.
- h. Sixth longitudinal vein.
- i. Small or middle transverse vein.
- k. Hinder transverse vein.
- l, m, n, o. Costal veins.
- p. Anterior basal transverse vein.
- q. Posterior basal transverse vein.
- r. Rudiment of a fourth trunk.
- s. Axillary incision.
- t. Anterior branch of third longitudinal.
- u. Anterior intercalary vein.
- v. Posterior intercalary vein.

ART. XXV.—*New Zealand Diptera: No. 2.—Mycetophilidæ.*

By P. MARSHALL, M.A., B.Sc., F.G.S., Lecturer on Natural Science, Lincoln College.

[Read before the Philosophical Institute of Canterbury, 5th June, 1895.]

Plates VIII.—XIII.

IN common with the other families of smaller flies, the *Mycetophilidæ* have suffered sadly from neglect at the hands of New Zealand entomologists. The only species hitherto recorded as existing in this colony were described by Captain Hutton in the "Catalogue of the New Zealand Diptera." He there gives descriptions of two species, one of which he places in the genus *Mycetophila*, and the other in the genus *Platyura*. The specimens from which Captain Hutton drew his descriptions are fortunately still extant in the museum of Lincoln Agricultural College, so I have been able to examine them; but I am unable to agree with Captain Hutton as to the place he assigns them in the classification of the *Mycetophilidæ*. For reasons that will be given later on, I have deemed it necessary to establish new genera for both these flies, as they possess characters that certainly will not allow them to be placed in any previously-described genera. So far as my observations on the New Zealand representatives of this family have gone, I have been struck with the great diversity of type and structure that is exhibited by our species, for out of seven sub-sections into which the family is divided six are

abundantly represented in this colony. This is the more remarkable when one considers that all the Australian forms hitherto described are included in four of these sub-sections. In the majority of these divisions there are insects that differ radically from any previously-established genera, and for these new genera have been established, though with considerable reluctance in one or two cases. The insects of this family can easily be distinguished from all others by their strongly-curved thorax, and legs armed with strong spurs, as well as by the arrangement of the veins of the wings. They can be taken very commonly on windows facing shady gardens at almost any time throughout the year. They are abundant in the early spring, and at Lincoln a few stragglers will be found as late as the middle of June. At Wanganui no less than ten distinct species could be found as late as the middle of July, and would doubtless be as numerous right through the winter. In their native haunts they can be taken abundantly by sweeping the undergrowth and ferns in all damp bush throughout the summer and the greater part of winter. Though usually small insects, one of our native species is more than an inch in expanse of wings, and to a casual observer would appear to belong to the *Tipulidæ* rather than to the *Mycetophilidæ*.

In the present paper I give descriptions of thirty-five species, of which the majority belong to old-established genera. They are distributed as follows: *Macrocera*, 4 species; *Bolitophila*, 1; *Ceroplastus*, 3; *Platyura*, 4; *Sciophila*, 1; *Tetragoneura*, 1; *Brachydicrania*, 1; *Aphelomera*, 1; *Mycetophila*, 6. Of these genera, species of *Macrocera*, *Ceroplastus*, *Platyura*, *Sciophila*, and *Mycetophila* have been described from Australia and the Old World. Species of *Bolitophila* and *Tetragoneura* have been described from the Old World, but not from Australia; while the genera *Heteropterna* and *Brachydicrania* have been established for insects recently described from Australia. Of the new genera established in this paper, the first three belong to the sub-section *Mycetobinæ*, in which there were but three previously-existing genera, containing but few species, all of which have been described from the Old World, Australia, so far, not having been shown to possess any. Two of the new genera are in some respects highly peculiar, and without doubt form a very interesting feature of the New Zealand Diptera. The other new genera belong to well-represented sub-sections, and have many characteristics in common with previously-described genera, but, owing to the rigid manner in which the genera of this family are described, and the slight variations that are considered sufficient to justify their separation, they cannot be placed in any of the old genera. Some of the genera here

described may very possibly be discarded subsequently, when our insects have been further investigated. Many that are here described as species may afterwards be reduced to varieties, while some of my varieties may very probably be raised to the rank of species. But, though blunders have been made, none of the genera and species described in this paper have been separated from others without considerable thought and care where the issue seemed in any way doubtful.

CLASSIFICATION.

Winnertz, the great authority on this family of flies, divided it into a large number of genera, separated from one another by what at first sight appear to be comparatively insignificant characteristics. His classification has been adopted by all subsequent workers at the family, and has always been found thoroughly satisfactory. Although it may seem in some ways unnecessary to establish so many genera, yet if some were eliminated the remainder would contain such an enormous number of species that it would be necessary to establish sub-genera and other minor divisions in order to provide for their thorough, systematic classification. The family is divided by Winnertz into three sections, according to the characters of the alar venation. All of these sections are numerous represented in New Zealand. The last sub-section of all, *Mycetophilinæ*, is divided into three classes, according to the number and position of the ocelli. It is this division that seems to me somewhat unsatisfactory so far as some of our New Zealand species are concerned. In one genus, for instance, which I have called *Anomala*, there are two species evidently closely allied, but differing in size, coloration, and other specific characters; in addition to merely specific distinction, however, the larger species has only two ocelli, and the other undoubtedly has three, and on account of this difference would, if Winnertz' classification were strictly adhered to, have to be placed not only in distinct genera, but even in different classes. As the two species are evidently so closely allied I have included them both in the same genus, and hope subsequently to come across other species showing a transition, and therefore justifying my classification. The first section is divided into five sub-sections, of which all but the first have New Zealand representatives. The second sub-section, *Mycetobinæ*, as far as I can ascertain, embraces but a few species, which are placed in three genera. I already possess four distinct and in some respects peculiar species belonging to this sub-section, and have found it necessary to establish three new genera for their reception. From the comparatively limited area over which I have searched compared to the vast extent of forest-land in this country, I feel confident that

many more species, and probably genera, will yet be discovered belonging to the sub-section *Mycetobinae*. Generally the *Mycetophilidæ* are excessively abundant in the colony, owing probably to the great extent of damp bush-covered country, and wherever search is made new species are discovered in comparative plenty.

The following is a *résumé*, taken from Skuse's "Monograph of Australian *Mycetophilidæ*," of Winnertz' classification of the family. Only those genera are described that have so far been shown to possess representatives in this colony. Where genera of my own are mentioned their probable relation to other genera is indicated.

Section I.—Second longitudinal vein arising from the fourth longitudinal vein, at the middle of it, or more or less before the middle of it. Marginal cross-vein elongated, very obliquely situated. Inner marginal cell dilated. Anterior branch of the second longitudinal vein seldom missing (in *Diadocidia* only). Anterior branch of the fourth longitudinal vein issuing from the base of the second longitudinal vein. Fifth longitudinal vein generally perfect. Ocelli on the front.

Section II.—Second longitudinal vein arising from the fourth longitudinal vein near the root of the wing. Marginal cross-vein not elongated. Inner marginal cell not dilated. Anterior branch of the second longitudinal vein always present, very small, situated very near the marginal cross-vein; consequently the marginal cell is very short. Anterior branch of the fourth longitudinal vein issuing from the fourth longitudinal vein beyond, at, or before the middle of it. Fifth longitudinal vein incomplete. Three ocelli on the front.

Section III.—Second longitudinal vein, marginal cross-vein, fifth longitudinal vein, and inner marginal cell as in the last section. Anterior branch of second longitudinal vein always missing; therefore only two submarginal cells. Anterior branch of the fourth longitudinal vein arising from the fourth longitudinal vein beyond, at, or before the middle of it, rarely missing, more rarely still the anterior branch of the third longitudinal vein missing. Ocelli three, or only two—namely: (A) Three on the front; (B) three, one on the inner margin of each of the compound eyes, the third always very small, situated in the middle of the anterior margin of the front; (C) two, one on the inner margin of each of the compound eyes.

Summary of the Genera at present known in New Zealand.

SECTION I.

Sub-section I. DIADOCIDINÆ.

Sub-section II. MYCETOBINÆ.

Anterior branch of the second longitudinal vein large, ending in the costa, and forming with the second longitudinal a fork having its base at or beyond the marginal cross-vein. Anterior branch of the fourth longitudinal vein and the third longitudinal vein issuing from the second longitudinal vein. Fifth longitudinal vein perfect. Inner marginal cell large. Surface of the wing hairy, or only microscopically pubescent.

Genus *Nervijuncta*, gen. nov.

Anterior branch of the second longitudinal vein and the second longitudinal vein forming a fork having its base beyond the marginal cross-vein; base of the fork lying just before the base of the third submarginal cell. Surface of the wing hairy. Third longitudinal vein arising from the second longitudinal vein beyond the apex of the inner marginal cell.

This genus is closely allied to *Ditomya*, but differs from it in the third longitudinal vein arising beyond the apex of the inner marginal cell.

Genus *Cyrtoneura*, gen. nov.

Auxiliary vein long, complete. Anterior branch of second longitudinal very long. Fork formed by branches of second longitudinal with its apex lying behind the apex of the fork of the third longitudinal vein. Both branches of second longitudinal vein highly arcuated. Surface of wings slightly hairy.

This genus is very different from any previously described. It should probably occupy the first place in the sub-section.

Genus *Huttonia*, gen. nov.

Auxiliary vein absent. Fork formed by the branches of the second longitudinal vein, long. Anterior branch of third longitudinal represented by a rudiment extending a short distance into the disc from the posterior margin. Posterior branch of third longitudinal also disconnected, but longer than the anterior branch. Anterior branch of fourth longitudinal also disconnected, but longer than the others.

This genus is also very distinct from any previously described. It should occupy the last place in the sub-section.

Sub-section III. BOLITOPHILINÆ.

Genus *Bolitophila*, Meig.

Anterior branch of second longitudinal vein short, lying almost vertically to the costa or to the first longitudinal vein (occasionally absent), and forming with the second longitu-

dinal a fork with a long petiole. From the second longitudinal vein, bent angularly in the vicinity of the root, issue the anterior branch of the fourth longitudinal and the third longitudinal vein. Fifth longitudinal vein perfect. Inner marginal cell large, moderately dilated. Surface of wing microscopically pubescent. Antennæ very long, setiform.

This genus is represented by one species in New Zealand; none have been described from Australia. The New Zealand species has no anterior branch of second longitudinal, and the antennæ are not long.

Sub-section IV. MACROCERINÆ.

Genus *Macrocera*, Meig.

Anterior branch of second longitudinal vein small (occasionally absent), lying in an oblique position, running into the costa, and forming a fork with a long petiole with the strongly-curved second longitudinal. Anterior branch of the fourth longitudinal vein arising from the second longitudinal vein near the base; the third longitudinal vein arising from the same vein a little anterior to the anterior branch of the fourth longitudinal. Fifth longitudinal vein perfect. Inner marginal cell small, moderately dilated. Surface of the wing microscopically pubescent, rarely more hairy. Antennæ very long, filiform.

This genus is almost cosmopolitan. It is represented by several species in New Zealand and Australia.

Sub-section V. CEROPLATINÆ.

Anterior branch of second longitudinal vein small, joining the costa or first longitudinal, forming a fork with a long petiole. Anterior branch of the fourth longitudinal vein arising nearer the base of the latter. Fifth longitudinal vein complete or incomplete. Inner marginal cell short, moderately dilated. Surface of the wing microscopically pubescent.

Genus *Ceroplatus*.

Antennæ broadly flattened. Palpi not incurved. Legs long and slender. Auxiliary vein reaching the costa before the origin of the third longitudinal vein.

This genus is represented by several species in New Zealand. In the present paper I describe three.

Genus *Platyura*.

Antennæ not broadly flattened, somewhat compressed, 2 + 14 jointed. Palpi incurved. Auxiliary vein usually united to the first longitudinal by the subcostal cross-vein. Anterior branch of the second longitudinal vein short, ending either in the first longitudinal or in the costal vein. Third submarginal cell with a very short petiole.

SECTION II.

Sub-section VI. SCIOPHILINÆ.

Genus *Sciophila*.

Tip of the costal vein uniting with the tip of the second longitudinal vein at the apex of the wing. Base of the second posterior cell nearer to the root of the wing than the base of the third submarginal cell. Auxiliary sometimes complete and terminating in the costa above the marginal cell, and sometimes incomplete. Surface of the wing microscopically pubescent. Intermediate coxæ of the male sometimes with an upward-bent spine.

I have only one species belonging to this genus, and of that I have grave doubts, but I place it here until I can obtain better specimens.

Genus *Parvicellula*, nov. gen.

Costal vein extending considerably beyond the apex of the second longitudinal vein, but not reaching the apex of the wing. Auxiliary vein rather stout, almost one-third the length of the wing. Subcostal cross-vein situated near the apex of the inner marginal cell. Petiole of second longitudinal vein very short. Fourth longitudinal vein unbranched.

I have only one species of this genus. It is rather common at Lincoln towards the end of the summer.

Genus *Tetragoneura*, Winn.

Costal vein extending far beyond the tip of the second longitudinal vein, but not as far as the apex of the wing. Auxiliary vein small, bent posteriorly, ending in the first longitudinal vein far before the marginal cell, or shortened to a tooth. The marginal cell far beyond the middle of the first longitudinal vein. Inner marginal cell much lengthened. Fork of the third longitudinal vein with a moderately long petiole. Base of the second posterior cell lying before the base of the third submarginal cell. Surface of the wing microscopically pubescent.

I have only one species of this genus.

SECTION III.

Sub-section VII. MYCETOPHILINÆ.

A. *Three ocelli on the front.*Genus *Aneura*, gen. nov.

Costal vein reaching the apex of the wing. Auxiliary vein more than one-third the length of the wing. Subcostal cross-vein absent. Second longitudinal vein ending in the costa some distance before its apex. Fourth longitudinal vein forked.

I have only one species of this genus. It is distinguished from nearly all the other genera of this sub-section by the absence of the subcostal cross-vein.

Genus *Euryceras*, nov. gen.

Costal vein extending beyond the tip of the second longitudinal vein, but not reaching the apex of the wing. Auxiliary vein ending in the costa at about one-third the length of the wing; subcostal cross-vein situated about half-way along it. Basal portion of the second longitudinal vein and the marginal cross-vein equally long. Inner marginal cell short. Third longitudinal complete. Surface of the wing distinctly hairy. Antennæ compressed.

I have only one species of this genus.

Genus *Anomala*, nov. gen.

Second longitudinal joining costa not far before the apex of the wing. Costa nearly reaching apex of wing. Subcostal cross-vein missing. Inner marginal cell somewhat lengthened, but its apex lies some distance before base of second submarginal cell. Fork of third longitudinal vein short, its petiole rather long. Base of the second posterior cell situated before the origin of third longitudinal vein.

This genus includes two species, both of which are common. It is closely allied to *Leia*, *Ateleia*, and *Cælosia*.

Genus *Aphelomera*, Sk.

Costal vein extending far beyond the tip of the second longitudinal vein, but stopping before the apex of the wing. Auxiliary vein joining the costa a short distance before the marginal cross-vein; no subcostal cross-vein. Marginal cross-vein situated very much before the middle of the first longitudinal vein. Third longitudinal vein detached from the second longitudinal, starting in the wing-disk beyond the marginal cross-vein; no anterior branch. Anterior branch of the fourth longitudinal vein quite detached, appearing as a short piece of a vein joining the margin. Fifth longitudinal vein very rudimentary. Wing microscopically pubescent. Abdomen with six segments.

I have only one species belonging to this Australian genus.

Genus *Cycloneura*, nov. gen.

Auxiliary vein represented by a rudiment. First longitudinal vein ending at about half the distance along the wing. Second longitudinal vein detached at the base, ending some distance before the apex of the wing, and before the end of the costa. Third longitudinal vein detached at the base, ending a little beyond the apex of the wing; posterior branch missing. Fourth longitudinal vein detached at the base.

Fifth longitudinal vein complete, joined beyond half its length by a vein probably corresponding to the posterior branch of the fourth longitudinal vein.

I have only one species of this genus.

Genus *Paradoxa*, nov. gen.

Auxiliary vein represented by a rudiment. Costa ending some distance before apex of the wing. First longitudinal vein ending in the costa about half-way along the wing. Second longitudinal ending in the costa some distance before its end. Third longitudinal vein with rather short petiole and long fork; posterior branch slightly detached at its base. Fourth longitudinal not forked. Fifth longitudinal as in *Cycloneura*.

I have only one species of this genus.

B. Three ocelli, one on the inner border of each of the compound eyes, the third one situated in the middle of the anterior border of the front.

Subcostal cross-vein missing. Surface of the wing microscopically pubescent. Abdomen of the male with six segments.

Genus *Zygomysia*, Winn.

Tips of the costal and second longitudinal veins uniting far before the apex of the wing. Auxiliary vein incomplete, bent anteriorly, gradually disappearing or only forming a tooth. Apex of the inner marginal cell not situated beyond the base of the second submarginal cell. Petiole of the fork of the third longitudinal very short. Anterior branch of the fourth longitudinal vein wanting. Fifth longitudinal vein incomplete. Sixth longitudinal vein in most cases longer.

I have two species belonging to this genus.

C. Two ocelli, one on the inner border of each of the compound eyes.

Surface of the wing microscopically pubescent. Costal vein not extending beyond the tip of the second longitudinal vein. Subcostal cross-vein missing.

Genus *Mycetophila*, Meig.

Auxiliary vein incomplete, bent anteriorly. Apex of the inner marginal cell lying over the base of the second submarginal cell. Branches of the fourth longitudinal fork inclined towards one another at their tips. Fork of the third longitudinal vein with a very short petiole, or almost sessile. Base of the second posterior cell before, under, or a little beyond the base of the second submarginal cell. Fifth longitudinal vein incomplete, broken off before the base of the second posterior cell, or disappearing. Abdomen of the male with six segments.

Genus *Brachydicrama*, Sk.

Auxiliary vein incomplete, very short, bent posteriorly. Apex of the inner marginal cell lying over the base of the second submarginal cell. Fork of the third longitudinal vein with a very short petiole. Second posterior cell small, its base situated far beyond the base of the second submarginal cell. Branches of the fourth longitudinal fork divergent. Fifth longitudinal incomplete, long, ending just before the base of the second posterior cell. Sixth longitudinal vein longer. Abdomen of the male with six segments.

Genus *Brevicornu*, nov. gen.

This genus is separated from *Mycetophila* by the character of the antennæ.

CHARACTERS OF THE FAMILY.

The larvæ of the *Mycetophilidæ* are generally cylindrical, attenuated towards both extremities, soft, fleshy, smooth or a little wrinkled, moist, often viscous, more or less translucent, with twelve more or less clearly determinable segments in addition to the head. Stigmata placed—one pair on the first segment of the thoracic region, and one pair on each of the abdominal segments from the first to the seventh inclusive. Head horny. Short mandibles and palpi occasionally present, and also rudimentary antennæ. The larvæ differ very much in appearance and form, not only in the different genera, but also in different species of the same genera.

The only observations that have hitherto been published are some notes by Mr. G. V. Hudson on the larva of *Bolitophila luminosa* (Trans. N.Z. Inst., vol. xxiii., p. 47). This larva is abundant in all damp and dark bush-gullies in many parts of the colony. It lives suspended in a glutinous web, formed of material which is probably secreted by the salivary glands, though it seems to cover the whole surface of the body. It is whitish and transparent, about $\frac{3}{4}$ in. in length, with short rudimentary antennæ. It emits a brilliant phosphorescent light, and hence has obtained the popular name of the "New Zealand glow-worm." I have not been able to ascertain what the larva feeds on, but probably on small mould and other fungi that abound in the localities where the larvæ are found. The only other species whose larvæ are known to me is *Ceroplatus dendyi*. Professor Dendy found numerous specimens under logs in beech-forest on Mount Alford. One of the larvæ that he gave me pupated in due time, and the imago escaped from the pupa-skin in February; one other pupated, but did not hatch. The larvæ are about 1 in. or $1\frac{1}{2}$ in. in length; in general shape like those of *Bolitophila luminosa*, but more cylindrical, and marked with rings of ferruginous brown.

I have seen similar larvæ in other localities, but have been unable to keep them. Like *B. luminosa*, the *Ceroplatus* larva forms a glutinous web in crannies of the log under which it lives, and in this web it habitually lives. It seems unable to crawl on any hard surface, but remains suspended in its web, and when it moves it enlarges the web first. These larvæ are not luminous, in this respect differing from the larvæ of *C. mastersi*, Sk. The exact function of the glutinous web I can do no more than guess at. It may, as mentioned above, assist in locomotion; it may enable the suspended larva to keep out of the reach of enemies such as planarian worms or predaceous insects. A diagram of the digestive organs of a Mycetophilid in Theobald's "British Flies" shows extremely large salivary glands, and he remarks that these glands usually extend the whole length of the body; the glutinous material is probably secreted by them. The pupa of both *B. luminosa* and *C. dendyi* is suspended in the web formed by the larva.

About eight hundred species of *Mycetophilidæ* are at present known. Many of the genera appear to be almost cosmopolitan. All the largest genera of Europe are represented in New Zealand. Judging from the very varied types I have already collected, I should think that New Zealand will prove to be far richer in species than Australia, for, though the number of species described by Skuse in all probability represent but a small proportion of the total number, those described are confined to comparatively few of the subsections.

IMAGO.

EXTERNAL STRUCTURE.

The head is narrower than the thorax, round or oblong or flattened hemispherical on the fore part, situated deep in the thorax. Front of both sexes broad. Eyes round or oval, frequently emarginate on the inner side or reniform, set with short hair. Ocelli three, or only two: in the former case they are either disposed in a triangle, in a bent or sometimes a straight line on the front, or two are situated one on the border of each of the compound eyes, and the third placed in the middle of the anterior border of the front; in the other case, always at the inner border of each of the compound eyes. Proboscis short, retired, rarely elongate or beak-shaped. Palpi three- or four-jointed, prominent, generally incurved, the first joint always very small. Antennæ generally arcuated, straight, or diverging sideways, 2 + 10 to 2 + 15 jointed; the joints of the scapus distinctly set off; flagellar joints pubescent, sometimes verticillate-setose. Thorax ovate, more or less arched. Prothorax with close short pubescence, sometimes with longer hair, perhaps mixed

with setiferous hair. Metathorax highly arched or perpendicular. Scutellum generally small, semicircular, sometimes large, rounded, triangular, generally setiferous; no transverse suture. Abdomen six- or seven-segmented, rarely eight-segmented, cylindrical or compressed at the sides, narrower at the base. Male with a large or small anal joint holding forceps; female with an ovipositor with two terminal lamellæ; the hair, except in a few cases, short and lying close. Legs sometimes long and slender, sometimes short and robust. Coxæ very strong and elongated. Femora broadly flattened, usually strong. Tibiæ spurred, and with lateral spines, rarely without the latter; fore ones with a spur and a very short spine, two hind ones with two spurs and one to four ranges of lateral spines on the outside, and generally with one range on the inner side; rarely all the tibiæ unarmed. Tarsi long and slender, or short and strong; metatarsus frequently prickly. Wings ovate, longer or shorter than the abdomen, with a broad, rounded, more or less euneiform base. Five or six longitudinal veins, the fifth generally, the sixth always, rudimentary; three cross-veins, of which the humeral and submarginal are always present. Third and fourth longitudinal veins almost always, and the second longitudinal sometimes, forked. No discoidal cell. The first and fourth longitudinal veins are always complete, and form the most important veins issuing from the root of the wing. The costal vein either extends quite to the apex of the wing or stops rather short. The auxiliary vein is often incomplete. Second longitudinal vein issues from the fourth longitudinal vein near its middle or close to its base—in the former case it is broken in an angle, in the latter case it arises obliquely; it joins the costa at or before the apex of the wing. The anterior branch of the fourth longitudinal vein issues rarely near the root of the second longitudinal vein. When the second longitudinal vein issues from the middle of the fourth longitudinal vein it is at the base coalescent with the anterior branch of the fourth longitudinal vein, and the third longitudinal vein has its origin a little below or above the marginal cross-vein, and its fork lies higher up in the wing-disc. In this arrangement the second longitudinal vein is rarely simple, but usually sends out an anterior branch, which runs into the costa or into the first longitudinal vein; this branch may be short or long. When the second longitudinal vein issues from the base of the first longitudinal vein the third longitudinal vein issues from the angle before the marginal cross-vein. Rarely the anterior branch of the fourth longitudinal vein is missing, still more rarely the anterior branch of the third longitudinal vein; infrequently one of these branches is or both are detached at the base. Fifth longi-

tudinal generally only rudimentary. Between the fourth and fifth longitudinals there is generally a longitudinal fold appearing like a vein under and close to the fourth longitudinal vein. Sixth longitudinal vein rudimentary or entirely missing.

When the marginal cell is divided by an anterior branch of the second longitudinal vein the cell thus formed is regarded as the first submarginal cell; otherwise the cell between the second and third longitudinals is the first submarginal cell. In some genera the cells are reduced to one submarginal and one posterior cell.

SUMMARY OF GENERA DESCRIBED IN THIS PAPER.

Sub-section MYCETOBINÆ.

Cyrtoneura, gen. nov.

Nervijuncta, gen. nov.

Huttonia, gen. nov.

Sub-section BOLITOPHILINÆ.

Bolitophila, Europe and America.

Sub-section MACROCERINÆ.

Macrocera, Europe, America, and Australia.

Sub-section CEROPLATINÆ.

Ceroplatus, Europe, America, and Australia.

Platyura, Europe, America, and Australia.

Sub-section SCIOPHILINÆ.

Sciophila, Europe, America, and Australia.

Parvicellula, gen. nov.

Tetragoneura, Europe and America.

Sub-section MYCETOPHILINÆ.

Aneura, gen. nov.

Euryceras, gen. nov.

Anomala, gen. nov.

Paradoxa, gen. nov.

Cycloneura, gen. nov.

Aphelomera, Australia.

Zygomyia, Europe.

Brachydicrania, Australia.

Mycetophila, Australia, Europe, and America.

Brevicornu, gen. nov.

CYRTONEURA, gen. nov.

Head oblong, broader than long, front not flattened. Eyes large, oval, emarginate, meeting above the antennæ. Ocelli three, large, the central one being situated in front of the

others. Epistome setose. Proboscis prominent, rather longer than the palpi. Palpi four-jointed; first joint short, about as broad as it is long; second joint long and greatly swollen, broadest in the middle; third joint rather shorter, cylindrical, much narrower than the first two joints; fourth joint slender, cylindrical, longer than any of the others. Antennæ shorter than the thorax, 2 + 15 jointed; first joint of scapus cupuliform, twice as long and twice as broad as the second, which is also cupuliform; joints of flagellum cylindrical, length about three times the breadth, covered with a dense pubescence, central portion of each joint with stout setæ. Thorax strongly arched, its surface covered with a thin pubescence; lateral margins, with stout setæ. Scutellum small, fringed with long setæ. Metathorax acclivous. Abdomen rather slender, broadened rather posteriorly, slightly pubescent, seven-segmented. Forceps of male large, almost flabelliform, not chelate, covered with setæ. Legs long and slender; coxæ stouter than the femora, setiferous at the tip and on the outer surface; femora very slender, slightly pubescent; tibiæ long and slender, in fore-leg shorter than tarsus, in intermediate leg about as long as tarsus, and in posterior leg nearly twice the length of tarsus, fore and intermediate tibiæ with practically no spines, but posterior tibiæ with two ranges; spurs rather short; tarsi pubescent, with a few small prickles. Wings about as long as abdomen, rather scaly near posterior margin, and hairy near the apex, remarkably rounded at the apical end, and cuneiformly narrowed at the base. Auxiliary vein rather more than one-third the length of the wing, disappearing just before reaching the margin; first longitudinal more than two-thirds the length of the wing; inner marginal cell one-third the length of the wing; petiole of second longitudinal less than the length from apex of inner marginal cell to the commencement of the third longitudinal; anterior branch of second longitudinal long, arcuated, running very gradually into costa; posterior branch very strongly arcuated, joining costa almost at the apex; costa slightly extended beyond point of junction; fork of third longitudinal slightly beyond fork of second; fourth longitudinal only slightly arcuated; fifth longitudinal more strongly arcuated, reaching margin some distance beyond apex of inner marginal cell; sixth longitudinal slender, long, but incomplete.

I have at present only received a specimen of one species belonging to this genus.

Cyrtoneura hudsoni, sp. nov. Plate X., fig. 4; Plate XIII., figs. 1, 2.

Length of antennæ, 0.179; size of body, 0.874 × 0.062; expanse of wing, 0.752 × 0.172.

Antennæ 2 + 15 jointed; first joint of scapus yellow, slightly longer than broad, cyathiform; second joint orange, short, cylindrical, length about equal to its diameter; both joints of scapus almost naked; all joints of flagellum black, but the first has a ring of light-yellow at its lowest end; length and diameter of joints decreasing slightly from below upwards; all the joints are covered with a black pubescence, and have a few stiff black hairs near the middle. Proboscis moderately long, grey above but black below. Palpi four-jointed; first joint grey, narrow, and short; second joint orange, long, and greatly swollen, clothed with yellow and black hairs; third moderately short and narrow, dark-brown, with a black pubescence; fourth about twice the length of the third, covered with black pubescence. Eyes emarginate, separated by a very narrow line just above the antennæ. Ocelli three, two lateral large, central one moderate; situated almost in a line. Vertex narrow. Thorax dark-brown, with a narrow yellow line down the centre, and two broad lateral lines meeting in a semicircle in front, and tapering towards one another posteriorly; another longitudinal lateral stripe just above the wing; the yellow is bordered with dark-brown, which becomes lighter away from the yellow stripes; surface covered with small black hairs, and a row of strong hairs is situated on each lateral margin. Scutellum and metathorax dark-brown. Epinera mottled dark-brown and light-yellow. Halteres with a slender pedicel, terminating in an orange-coloured club, dark at the base, and covered with a short pubescence. Abdomen of seven segments, dark-brown on the median line, but light-yellow on each side. Forceps of the male orange in colour. Legs long and slender; coxæ stout, light-yellow in colour, but shaded with dark-brown; femora dark-yellow, the two posterior pairs being dark in the centre; tibiæ brown, long and slender, clothed with short black hairs; the anterior tibiæ have a single spine, the posterior have two short spines each; short stiff hairs at intervals; tarsi dark-brown, clothed with black hairs of two sizes. Wings very broad at apex, but cuneiformly narrowed at the base, clothed with scattered scales, especially near the inner margin, and with hairs near the apex. Auxiliary vein rudimentary; first longitudinal ending in costa at about five-sixths the length of the wing; second and third longitudinals with a common petiole; anterior branch of second longitudinal very long, bending slightly downwards at the tip; posterior branch strongly bent, ending just before the end of the costa, near the apex of the wing; fork of the third longitudinal nearer the apex of the wing than that of the second; both branches feebly developed, and ending close behind the apex of the wing; both branches of fourth longitudinal well developed;

fifth longitudinal rudimentary. Large patch of brown at the apex, and another patch nearer the base.

This very fine and remarkable species has, so far, only been taken near Wellington. Mr. Hudson has kindly lent me a specimen for drawing up this description. I have no hesitation in creating a new genus for its reception.

NERVIJUNCTA, gen. nov.

Head nearly round, front not flattened. Eyes large, emarginate, almost meeting just in front of the ocelli. Ocelli three, large, situated almost in a line on the front. Palpi four-jointed, short—first joint small; second longer and considerably swollen, the broadest part being in the middle; third joint rather shorter than the second, cylindrical, and rather narrow; fourth joint longest, very slender. Antennæ shorter than the thorax; first joint of scapus short and broad, cupuliform; second joint twice the length of the first and not so broad, almost cylindrical; flagellum slender, cylindrical, 2 + 15 jointed, length of joints about three times their breadth, joints decreasing in diameter towards the apex of the antenna, pubescent, several stout setæ situated near the centre of each joint. Thorax highly arched, pubescent, with strong setæ on the lateral margins. Scutellum slim, circular, bordered with setæ on posterior margin. Metathorax acclivous. Abdomen rather flattened, seven-jointed, slender in front but becoming broad posteriorly. Forceps of male two-jointed, first joint almost spherical, crateriform at the apex, densely hairy; second joint double the length of the first, cylindrical, hairy. Legs slender; coxæ much stouter than the femora, almost naked; femora about twice the length of the coxæ, pubescent; tibiæ slender, in fore-leg rather more than half the length of the tarsus, in intermediate leg very slightly longer than tarsus, in posterior leg rather longer than tarsus and with two rows of few but rather long and slender spines; spurs very distinct; metatarsus long, that of intermediate and posterior legs with a few minute prickles. Wings larger than the abdomen, rounded at the apex and cuneiformly narrowed at the base, pubescent on the surface. Auxiliary vein a short tooth not joining the costa nor the first longitudinal; first longitudinal joining the margin at about two-thirds the length of the wing; inner marginal cell about one-third of the length of the wing; third longitudinal arising from the second beyond the apex of inner marginal cell; anterior branch of second longitudinal slightly arcuated, joining margin some distance in front of first longitudinal; posterior branch of second longitudinal joining the tip of costa almost at the apex of the wing; fork of third longitudinal situated just beyond the fork of the second, branches not

divergent; fourth longitudinal almost straight; fifth longitudinal arcuated; sixth incomplete, not reaching to apex of inner marginal cell, situated some distance from fifth longitudinal.

This genus is evidently closely allied to *Ditomyia*, but differs from it in the point of origin of the third longitudinal vein.

Nervijuncta nigrescens, sp. nov. Plate VIII., fig. 1.

Length of antennæ, 0.055; dimensions of body, 0.170 × 0.030; expanse of wing, 0.155 × 0.057.

Antennæ 2 + 15 jointed; first joint of scapus short, cyathiform, fuscous; second more than twice the length of the first, fuscous, but with a broad cinereous border on the upper end; all joints of flagellum black, slightly decreasing in length and diameter from the base upward; each joint with several small scattered hairs, and a zone of stiff hairs about the middle point. Palpi four-jointed—first joint small, nearly round; second joint long and rather broad, black, with long black hairs at its anterior end; third joint black, more slender, nearly naked; last joint cylindrical, brown, with a few stout black hairs at its anterior end. Eyes large, emarginate. Ocelli three, middle smaller than the two lateral, situated nearly in a row. Eyes almost contiguous, behind the antennæ. Vertex dark-brown, densely pubescent. Anterior portion and sides of thorax bright-golden, covered with golden hairs; central portion of thorax and scutellum dark-brown, the former ornamented with a few long stiff black hairs. Metathorax brown, but lighter than the mesothorax. Lower portions of epimera almost black. Abdomen very narrow anteriorly, but broadening posteriorly, consisting of seven segments; anterior portion of each segment dark-brown; posterior margin has a narrow band, smoky-grey in colour; all segments covered with moderately-long black hairs. Legs rather long and thin; anterior coxæ light-yellow, posterior coxæ becoming brown at the tips; femora dark-brown, long and narrow, covered with short stout black hairs; anterior tibia slightly longer than the femur, bearing one short spine at its end; posterior tibia much longer, ornamented with two spines, and bearing scattered short stiff bristles; all tibiæ and tarsi nearly black; first joint of tarsus very long, others decreasing gradually in size, thickly clothed with very short black hairs. Wings nearly entirely brown, surface clothed with scattered black slender hairs. Auxiliary vein rudimentary; first longitudinal nearly three-quarters the length of the wing; second and third longitudinals with a common but very short petiole arising from the apex of the inner marginal cell; petiole of second

longitudinal about the same length as its anterior branch; posterior branch ends in the termination of the costa just before the apex of the wing; third longitudinal very slender, apex of its fork slightly nearer the apex of the wing than apex of fork of second longitudinal; inner marginal cell apparently open between second and fourth longitudinals; both branches of fourth longitudinal strong, ending in the margin; fifth longitudinal not complete, and very thin. Forceps of male dark at base, but yellow towards their apex. Genital appendages of female dark-orange.

HUTTONIA, gen. nov.

Head oval, almost round. Eyes emarginate, with a narrow line of division between them above the bases of the antennæ. Palpi moderately long, four-jointed; first joint very short, almost orbicular; second rather long and swollen, length about twice the breadth; third joint about as long as the second, narrow and cylindrical; third joint slender, rather longer than the others. Front short. Ocelli three, nearly in a straight line, the central one rather smaller than the others. Antennæ about as long as the thorax, 2+16 jointed; joints of scapus cupuliform, about as long as broad, slightly setose; flagellum rather long, joints about twice as long as broad, pubescent, a few setæ situated near the middle point of each joint, terminal joint very small and nipple-like. Thorax highly arched, pubescent, with setæ on the lateral margins. Scutellum small, semicircular, with setæ on the hind margin. Metathorax acclivous. Abdomen slightly flattened, seven-segmented, narrow in front but becoming broadened posteriorly. Forceps of the male large, almost flabelliform, pubescent. Legs long and slender; coxæ stout, setose on the outer edge and on the apex; femora about twice as long as the coxæ, slightly compressed, pubescent; tibiæ long and slender, longer than the tarsi in the intermediate and posterior legs, and covered with two ranges of short and rather slender spines; spurs unequal, long; tarsi with small prickles on the under-surface. Wings rather narrow, cuneiform at the base and gracefully rounded at the apex, surface pubescent. Auxiliary vein entirely absent; first longitudinal short, running into the costa about half-way along the wing; inner marginal cell about one-third the length of the wing; anterior branch of second longitudinal running into the costa about two-thirds along the wing. posterior branch strongly arcuated, joining the tip of the costa at the apex; anterior branch of third longitudinal a mere rudiment extending a very little distance into the disc of the wing, posterior branch commencing in the disc a little beyond the fork of the second longitudinal; fourth longitudinal not quite joining the margin, disappears just before reaching the inner

marginal cell; fifth longitudinal strong, slightly arcuated; sixth longitudinal rudimentary, represented by a straight line of black hairs.

This genus is in some degree a connecting-link between the foregoing genera. I have not got sufficient material to ascertain its exact position.

Huttonia tridens. Plate VIII., fig. 2.

Platyura tridens, Hutton (Cat. N.Z. Diptera).

Length of antennæ, 0.078; size of body, 0.0245 × 0.038; expanse of wing, 0.225 × 0.071.

Antennæ 2 + 16 jointed; joints of scapus thick and cyathiform, light-yellow, fringed with black hairs; joints of flagellum compressed, oval in outline, the first nine joints yellow at the base, the centre is coloured brown, and the apical portion again is yellow; there is no sharp line of demarcation between the yellow and brown bands. Palpi yellow; first joint dark-yellow, long and thick, covered with short black hairs; second rather shorter than the first and slender, with very few black hairs; third and fourth same thickness as the second but much shorter, the latter being rather pointed; a few black hairs on third and fourth joints. Eyes emarginate, almost meeting above the bases of the antennæ. Front black round the ocelli, shading to black posteriorly. Collare light-yellow. Anterior portion of the thorax light-yellow, but bordered with a narrow streak of brown; three longitudinal bands blending together anteriorly behind the yellow band; central longitudinal band much shorter than the lateral ones, not extending more than half-way down the thorax; whole thorax covered with short black hairs. Epimera light-yellow above, but black just above insertion of the coxa. A very few long stout black hairs on the lateral and posterior margins of the mesothorax. Scutellum smoky-brown, fringed with six very long black hairs. Metathorax and pleuræ dark-brown. Halteres with rather a slender pedicel, bearing a densely cinereous club. Abdomen dark-brown, the posterior half of each segment yellow; a thin covering of black hairs on all the segments. Forceps of male light-yellow, ending in a black claw, and covered with short black hairs. Legs rather long; coxæ yellow, with a few black hairs on the outer side; femora darker, about twice the length of the coxæ; tibiæ darker, with short black hairs and longer spines; spurs moderately long, black; tarsi rather short, covered with short black hairs and a few spines; ground-colour dark-yellow. Wings slightly longer than the abdomen, with a slight dusky tinge, covered rather sparingly with black hairs. Veins dark-brown. A dark patch on the anterior branch of second longitudinal, extending to posterior

branch and to costa; another fainter patch about half-way between this and the apex, reaching from second longitudinal to costa; other fainter patches on the two branches of the third longitudinal.

I have only one specimen of this fine insect. It is the same specimen as that from which Captain Hutton's description of *Platyura tridens* was drawn. It was taken at Wellington. The very exceptional features in its neuration compel the creation of a new genus for its reception.

Genus MACROCERA, Meig.

Head broad, oval, flattened on the fore part. Eyes oval, a little emarginate on the upper side above. Ocelli three, of unequal size, in a triangle on the front, the foremost one smaller. Palpi four-jointed, cylindrical; the first joint small, the following ones of equal length, or the fourth somewhat lengthened. Antennæ 2 + 14 jointed, very long, frequently much longer than the body, projecting forward, arcuated; the first joint of the scapus spheroidal, the second more cupuliform; the first flagellar joint cylindrical, the upper ones setiform, pubescent, a little setiferous on the under side, the last two joints densely covered with hair and setæ. Thorax oval, highly arched. Scutellum small, almost semicircular. Metathorax highly arched. Abdomen flattened, almost cylindrical in the female, broadest in the middle, with seven segments in both sexes. Legs slender, long, the fore ones short; tibiæ spurred, the spurs small, lateral spines wanting. Wings hairy, or only microscopically pubescent, large, broad, with a very broad base; usually rather longer than the abdomen, half open in repose. Auxiliary vein complete, terminating in the costa, and united to the first longitudinal vein by the subcostal cross-vein; costal vein extending far beyond the tip of the second longitudinal vein, and almost reaching the apex of the wing; second longitudinal vein very much arched, forming a long-stalked fork, the anterior branch, always very short, lying in a very oblique position, terminating in the costa; fifth longitudinal vein more or less undulated.

This genus is evidently well represented in New Zealand, as I already possess specimens of four distinct species. One species, *M. antennatis*, is very fine, possessing antennæ three times as long as its body. Another species, *M. scoparia*, which, so far as I have been able to judge, is extremely common throughout the colony, is remarkable owing to the fact that the anterior fork of the second longitudinal vein is entirely wanting. This peculiarity, Mr. Skuse writes me, is not unknown in the *Macrocera*, but is apparently rare. I am unable to quote any other species showing the same peculiarity.

A. WINGS MICROSCOPICALLY HAISED.

a. Wings unspotted.

Macrocera montana, sp. nov. Plate VIII., fig. 3.

Length of antennæ, 0·247; size of body, 0·215 × 0·038; expanse of wing, 0·161 × 0·084.

Antennæ considerably longer than the body; joints of scapus short, dark-brown; lower joints of flagellum dark-yellow with black tips, clothed with scattered black hairs; last six or seven joints dark-brown to black, clothed with much longer hairs. Front brown. Thorax bright-yellow, slightly darker on the median line; on each side of it there is a line of stiff black hairs which taper towards one another, but do not coalesce; lateral margins of thorax bordered with long stiff black hairs. Pleuræ black. Scutellum fringed with a border of long stiff black hairs. Metathorax black with yellow sides. Abdomen very slender, compressed; each segment with anterior portion yellowish-brown, becoming dark-brown posteriorly, clothed with long scattered black hairs. Coxæ dull-yellow, black towards the tips; femora light-yellow, covered with short black hairs; tarsi and tibiæ brown, covered with dense black hairs. Wings shorter than the body, dull-yellow, with a microscopic pubescence. Veins umber-brown, with a row of black hairs on each; auxiliary vein joining the costa beyond the origin of the cross-vein; tip of first longitudinal vein not dilated; costal vein reaching the apex of the wing; inner marginal cell with a very pointed apex.

I have only one specimen of this insect, which was taken in a shady, damp gully on the Rimutaka Mountains, at an elevation of about 2,000ft. It is rather closely allied to *M. delicata*, Skuse, of New South Wales.

Macrocera howletti, sp. nov.

Length of antennæ, 0·242; size of body, 0·219 × 0·028; expanse of wing, 0·165 × 0·074.

Antennæ longer than the body; joints of the scapus yellow, very short; basal joint of flagellum dark-brown, densely clothed with short black hairs; all other joints much lighter in colour, central joints lightest; last five joints covered with moderately-long bristly hairs. Ocelli situated in a triangular black spot, but all the rest of the head is light- or orange-yellow. Thorax variously marked with yellowish-brown and golden-yellow marks; a very faint indication of the longitudinal lines of black hairs noticeable in the last species; lateral margins bordered with long black hairs. Scutellum light-yellow, bordered with long black hairs. Pleuræ and metathorax orangé-yellow. Halteres with pedicel

almost white at the base, becoming cinereous towards the top; club much compressed, cinereous, thinly clothed with black hairs. Abdomen narrow, anterior part of each segment light-yellow, darkening to brown in the posterior portion; scattered stiff black hairs on all the segments. Coxæ light-yellow, with scattered black hairs; femora slender, with short black hairs; tibiæ and tarsi straw-coloured, densely clothed with stout but short black hairs. Wings smoky. Auxiliary vein not complete; transverse veins bounding inner marginal cell very slender; apex of first longitudinal not dilated. Apex of wing rounded. All veins straw-colour, with a single row of black hairs.

I have only one specimen, taken in the Ruahine Mountains, in January. This is very closely allied to the last species, but is separated from it by the colour of the antennæ and thorax, rounded tip to the wing, and very feeble development of the basal portions of the veins, and the incomplete auxiliary vein. If intermediate forms are subsequently discovered this may have to be linked with the last species.

B. WINGS DISTINCTLY HAISED.

- a. Wings unspotted.
- b. Wings spotted.

Macrocera antennatis, sp. nov.

Length of antennæ, 0·660; size of body, 0·218 × 0·044; expanse of wing, 0·260 × 0·088.

Antennæ three times the length of the body; joints of scapus orange-coloured, very short and thick; joints of flagellum all dark-brown, thickly clothed with short black hairs; joints becoming darker towards the apex of the antennæ, and the hairs longer and more numerous. Ocelli situated very close together on a small raised black triangular area. Crown cinereous, becoming orange posteriorly. Thorax dark-orange, marked variously with light-yellow; one median and two lateral lines of short black hairs; black hairs sparingly scattered over the thorax. Scutellum, metathorax, and pleuræ all dark-orange. Halteres with stout pedicel bearing oval-shaped cinereous club, clothed with black hairs. Abdomen depressed; first segment light-yellow; anterior portion of subsequent segments black, posterior portion yellow; last two segments black. Forceps of male orange. Abdomen sparingly clothed with long black hairs. Legs long and slender; coxæ short and stout, with a few stout black hairs; femora long and slender, clothed, like the tibiæ and tarsi, with numerous black hairs. Wings with faint tawny-tinge; one small black patch at the apex, another at the junction of the second and third longitudinal veins, proceeding upwards

and towards the apex; apical half of wing thinly clothed with short black hairs. Auxiliary vein reaching the margin of the wing above the apex of the inner marginal cell; apex of first longitudinal considerably dilated; anterior branch of second longitudinal very short; fifth longitudinal complete, reaching the margin close to the fourth longitudinal.

I have only one male specimen of this very fine and distinct species. It was taken on the Ruahine Mountains, in January.

Macrocera scoparia, sp. nov. Plate IX., fig. 1.

Length of antennæ, 0.220; size of body, 0.121 × 0.032; expanse of wing, 0.165 × 0.066.

Antennæ about twice the length of the body; joints of scapus light-orange, very short and robust; flagellar joints long and slender; basal joints light-brown, but apical joints nearly black, all clothed with stout black hairs. Palpi short, black. Vertex black. Thorax golden-yellow; a broad brown stripe commences just behind the collare and extends down the centre of the thorax nearly to the scutellum; a lateral dark-brown stripe on each side, but not extending far beyond the point of insertion of the wings. Scutellum dark-brown. Metathorax dark-brown with yellow sides. Fleuræ dark-brown. Halteres smoky-white; club elongated, oval in shape, covered with short black hairs; first and third and sometimes other segments light- or dark-yellow; other segments black. Forceps of male yellow. Abdomen clothed with rather long black hairs. Legs pale-yellow, becoming darker towards the tarsus, covered all over with short black hairs; spurs of tibiæ short, dark-yellow; first joint of tarsus long, others very short. Wings longer than the body, almost hyaline, but shaded at the apex and at the petiole of the second longitudinal; covered all over with short black hairs. Auxiliary vein ending just before apex of inner marginal cell; apex of first longitudinal slightly dilated; second longitudinal without anterior branch; posterior branch ending some distance before the apex; costal vein ending a little before the apex.

This species is extremely common apparently throughout the colony. It may very commonly be taken on windows during all the summer months. It is easily distinguished from all other *Macroceræ* with which I am acquainted by the fact that the second longitudinal has no anterior branch.

Genus BOLITOPHILA, Hoffm.

Head small, roundish, fore part flattened. Eyes broadly oval, a little emarginate on the upper side above. Ocelli three, arranged on a somewhat bent line on the front. Palpi

prominent, incurved, cylindrical, four-jointed; first joint very small, the following of about equal length; the fourth the longest. Antennæ setaceous, pubescent, in the male as long as, in the female shorter than, the body; 2 + 15 jointed; the joints of the scapus cyathiform; the flagellar joints cylindrical, the terminal one very small, almost gemmiform. Thorax small, oval, highly arched. Scutellum small, roundish. Metathorax acclivous. Halteres large. Abdomen very long and slender; in the male linear, subcylindrical, eight-segmented without the anal joint; in the female nine-segmented, the last segment small. Legs long and slender; tibiæ with very short weak spurs, the fore tibiæ with a single range of spines on the inner side, and the hind pair with one range on the inner and two ranges of shorter and weaker spines on the outer side. Wings large, microscopically pubescent, as long as or somewhat longer than the abdomen, with obtusely cuneiformly narrowed base; incumbent in repose. Costal vein uniting with the tip of the third longitudinal at or somewhat beyond the apex of the wing; auxiliary vein complete, joining the costa, united to the first longitudinal by the subcostal cross-vein; third longitudinal vein with an anterior branch (which is sometimes wanting), the branch short, almost vertical, ending in the tip of the first longitudinal vein or in the costa; small cross-vein, short, situated almost midway between the origin of the third longitudinal vein and the inner end of the second posterior cell; fourth longitudinal vein starting from the base of the fifth longitudinal vein; fork of the fifth longitudinal vein united at its base to the fourth longitudinal vein by a small cross-vein; sixth longitudinal vein perfect.

The only New Zealand species of this genus that I have seen is *B. luminosa* (Sk.). The only specimens of this fly, so far as I know, were reared from larvæ by Mr. G. V. Hudson, of Wellington. The larvæ are abundant throughout the colony in dark, damp gullies, but whether they all belong to the same species is not so far determined. Though the larvæ are abundant the fly seems scarce, as I have never taken any; but this may be because the insect is a night-flier. The larva and metamorphosis of the insect are fully described by Mr. G. V. Hudson (Trans. N.Z. Inst., vol. xxiii., pp. 43-49, pl. viii.).

Bolitophila luminosa, Skuse (Trans. N.Z. Inst., vol. xxiii., p. 47). Plate IX., fig. 2; Plate XIII., fig. 4.

Length of antennæ, 0.090; size of body, 0.380 × 0.040; expanse of wing, 0.250 × 0.070.

Antennæ very slender, as long as the head and thorax combined; joints of scapus yellow, tinged with brownish; flagellar joints elongated, progressively diminishing in thick-

ness, brown. Hypostoma brown. Palpi yellow. Front and vertex black. Thorax black or very deep brown, levigate, with a median yellow line; the humeri and lateral borders pale-yellow or whitish; two convergent rows of short black hairs from humeri to scutellum; some black bristly hairs above the origin of the wings. Pleuræ deep-brown tinged with pale-yellow. Halteres pallid, the club black. Abdomen slender, subcylindrical, five times the length of the thorax, dusky-brown; the segments distinctly, especially the hindermost ones, tinged with yellowish anteriorly, densely clothed with very short black or brown hairs. Extremity and lamella of ovipositor yellow. Legs long and very slender; coxæ pale-yellow or whitish, the fore and intermediate pairs with the extreme apex and the hind pair with almost the apical half dusky-brown, trochanters dusky-brown; femora pale-yellow or whitish, the hind pair black at the apex; tibiæ and tarsi black, tibial spurs black; in the fore-legs the tibiæ and metatarsi of about equal length, the tarsi twice the length of the tibiæ. Wings shorter than the abdomen, pellucid, with a delicate yellowish tint, and almost the apical half infurcated with grey. Costal vein uniting with the tip of the third longitudinal vein somewhat beyond the apex of the wing; auxiliary vein terminating in the costa opposite or somewhat beyond the inner end of the second posterior cell, the subcostal cross-vein situated near its base; first longitudinal vein running straight into the costa, near a point before the tip of the posterior branch of the fourth longitudinal vein; third longitudinal vein greatly arcuated near its base, strongly arcuated near its tip; posterior branch of fifth longitudinal vein abruptly reaching the margin.

Though well acquainted with the larva, I have never taken the mature form of this insect. Mr. G. V. Hudson, of Wellington, has hatched out some of the larvæ, from one of which this description was drawn by Mr. Skuse.

Genus CEROPATUS, Bosc.

Head small, broadly oval, flattened on the fore part. Eyes oval, sometimes a little emarginate on the inner side above. Ocelli three, on a curved line on the front. Palpi short, not incurved, with three or four joints; first joint small, the others large. Antennæ projecting forwards, shorter than the head and thorax together, very flat and broad, broadest in the middle, 2 + 14 jointed; joints of the scapus cotilliform, in some species the first joint prolonged in front; flagellar joints almost annular, the last joint conical or gemmiform. Thorax oval, highly arched. Scutellum almost semicircular. Metathorax arched. Abdomen cylindrical, or a little flattened,

with seven segments in both sexes. Legs long; tibiæ spurred, the spurs of unequal length; lateral spines missing or exceedingly small, one range on the inner side of the fore tibiæ, one on the inner side and two on the outer of the hind tibiæ. Wings microscopically pubescent, shorter than the abdomen, base broad and rounded off, incumbent in repose. Costal vein extending beyond the tip of the second longitudinal vein, ending before the apex of the wing; auxiliary vein complete, terminating in the costa before the origin of the third longitudinal vein; subcostal cross-vein missing; second longitudinal vein forming a long-stalked fork with a short anterior branch, the latter running into the costa, sometimes into the first longitudinal vein; petiole of the third submarginal cell always short; fifth longitudinal vein complete.

I have specimens of three species of this genus, all of which are of small size.

Ceroplatus dendyi, sp. nov. Plate IX., fig. 3.

Length of antennæ, 0.046; size of body, 0.198 × 0.038; expanse of wing, 0.160 × 0.066.

Antennæ dark; scapus with lowest joint moderately long and very thick, second joint about as long as broad, black, with a faint tawny tinge; joints of flagellum considerably dilated and flattened, broadest at the base, and gradually decreasing in width towards the apex; surface pubescent, with stiffer hairs on the margins, all joints of flagellum black. Ocelli in a triangle, central, much smaller than the two lateral. Crown dark-brown or black, pubescent. Thorax dark-brown, with two lighter patches over the point of insertion of the wings, and two broad indistinct lighter lines commencing near the collare and coalescing some distance in front of the scutellum. Thorax densely covered with black hairs. Scutellum black, its posterior broader, fringed with black hairs. Metathorax brown. Pleuræ dark-brown. Halteres with almost white pedicels; club brown for basal three-quarters, apical quarter white. Abdomen black, with brown patches on the middle segments. Forceps of male cinereous. Abdomen and forceps covered thinly with black hairs. Legs moderate; coxæ straw-coloured, with black hairs, darker at the tips; femora, tibiæ, and tarsi straw-coloured, but covered with black hairs that become more numerous towards the distal extremities; one spur on each anterior tibia, and two, the inner larger than the outer, on each posterior tibia; all black. Wings smoky, with a large dark patch at the apex, and another smaller one proceeding transversely from the costa to the petiole of the third longitudinal. Auxiliary vein joining the costa just before

the origin of the third longitudinal vein; anterior branch of second longitudinal short, joining the costa a little beyond the apex of the first longitudinal; costal vein extending some distance beyond the apex of second longitudinal, but not quite reaching the apex of the wing; posterior branch of third longitudinal and subsequent veins do not quite reach the margin; sixth longitudinal terminating some distance before the margin. Surface of wing microscopically haired.

I have only two specimens of this insect, one of which was reared by Dr. Dendy from larvæ, and the other by myself. The larvæ are found beneath logs, and apparently live on the small mould fungi that grow in such localities. The insect is closely allied to *Ceroplatus mastersi* (Skuse) of New South Wales. The larvæ from which my specimens were bred were found by Dr. Dendy in Alford Forest. Unlike the larvæ of *C. mastersi*, those of the present species are certainly not luminous. The form of the larvæ is totally different from that of the diagram given in Theobald's "British Flies," vol. i., page 96.

Ceroplatus hudsoni, sp. nov.

Length of antennæ, 0.056; size of body, 0.168 × 0.022; expanse of wing, 0.143 × 0.049.

Antennæ about as long as head, and thorax very similar to those of *C. dendyi*. Thorax, scutellum, and pleuræ black, the two former covered with stiff black hairs. Halteres with a stout pedicel bearing a black pubescent knob. Abdomen black, the posterior portion of each segment being dark-grey; abdomen covered with stiff black hairs. Legs rather long; coxæ black, hairy towards the extremity; femora with the two extremities black but light-yellow in the central portion, covered all over with short black hairs; tibiæ and tarsi straw-coloured, clothed with short stiff black hairs. Wing slightly smoky; an indistinct patch of dark colour near the apex, which disappears at the anterior branch of the third longitudinal, and does not extend further from the apex than the fork of the second longitudinal; another patch extending from the junction between second and third longitudinals nearly to the former patch; both patches much lighter than in *C. dendyi*. First longitudinal very close to margin of the wing; veins brown, not black as in *C. dendyi*.

I have only one specimen of this insect, taken by Mr. G. V. Hudson in the neighbourhood of Wellington. It closely resembles *C. dendyi*, but can be distinguished by its smaller size, darker colour, narrower and lighter wings, and the colour of the coxæ.

Ceroplatus leucoceras, sp. nov. Plate XIII., fig. 3.

Length of antennæ, 0.044; size of body, 0.170 × 0.022; expanse of wing, 0.110 × 0.044.

Joints of scapus dark-brown, short and robust, upper edge of each joint fringed with brown hairs; flagellum greatly flattened, first six joints light-yellow, bordered at the edge with short black hairs; next six joints black, fringed with black hairs; last two joints light-yellow, the terminal one bearing a nipple-like projection; first and thirteenth joints considerably darker than any of the others; broadest part of antennæ about the fourth and fifth joints of flagellum. Head black, covered with black pubescence. Thorax black, lighter in front, with very indistinct dark-brown markings covered with moderate black hairs. Scutellum black, bordered with black hairs. Metathorax dark-brown. Pleuræ cinereous. Halteres with stout pedicels; knob oval, cinereous at the base but white at the tip. Abdomen rather elongated, black, third fourth and fifth segments with the anterior portion dusky-white; everywhere covered with black hairs. Forceps of male dark, cinereous, densely pubescent. Legs rather short; coxæ cinereous at the base, almost black at the tip; femora black above, but dusky below; tibiæ and tarsi dusky; all joints of the leg covered with black hairs; all spurs black, moderately long. Wings slightly smoky; large patch of dark shading at the apex, extending as far as the fork of the second longitudinal vein, becoming lighter towards the inner margin; another patch extending from the junction between the second and third longitudinal to a little beyond the fork of the third longitudinal, reaching very little below the third longitudinal but extending to the margin; a small patch, comparatively light, near the end of the posterior branch of the fourth longitudinal. Auxiliary, first, second, and posterior branch of fourth longitudinal vein very distinct and prominent; anterior branch of second longitudinal reaching the margin about one and a half times its own length from the apex of the first longitudinal; costa extending a little beyond apex of second longitudinal, not reaching apex of the wing. Surface of the wing microscopically haired.

I have only one specimen of this very distinct and beautiful little species. It was obtained in native scrub close to Wanganui in January.

Genus PLATYURA, Meig.

Head small, broadly oval, the fore part flattened. Eyes oval, a little emarginate on the inner side above. Ocelli three, of unequal size, near together in a triangle on the broad front, the middle one smaller. Palpi prominent, incurved, four-jointed; the first joint small, the second shortened-oval, as long as or somewhat shorter than the third, the third and fourth joints cylindrical, the fourth longest. Antennæ as long as the head and thorax taken together or even longer, rarely

shorter; arcuated, projecting forwards, somewhat compressed at the sides, or cylindrical, gradually diminishing towards the tip, 2 + 14 jointed; joints of the scapus distinctly set off, the first cyathiform, the second one more cupuliform; the flagellar joints compact. Thorax oval, highly arched. Scutellum small, almost semicircular. Metathorax arched. Abdomen slender, with seven segments in both sexes, flattened, claviform, in the male somewhat cylindrical at the base, rarely entirely cylindrical, always terminating in a forceps. Legs long; femora somewhat thickened, shorter than the tibiæ; tibiæ spurred; very small lateral spines, one inner and two outer ranges on the fore tibiæ without spines, and the hind pair with two ranges of lateral spines which are so small as to be only perceptible with a lens. Wings somewhat broad, base rounded off, as long as the abdomen or a little longer, incumbent in repose, microscopically pubescent. Costal vein extending beyond the tip of the second longitudinal vein, terminating some distance from the apex of the wing; auxiliary vein ending in the costa, rarely broken off, usually united to the first longitudinal vein by the subcostal cross-vein; anterior branch of the second longitudinal vein very short, ending either in the first longitudinal vein or in the costa; third submarginal cell always with a very small petiole; fifth longitudinal vein complete or incomplete.

This genus is well represented in New Zealand. In those species of which I have been able to make a thorough examination the males and females differ considerably in appearance. Several kinds can be found on window-panes.

B. ANTERIOR BRANCH OF THE SECOND LONGITUDINAL
RUNNING INTO THE COSTA.

a. Fifth longitudinal vein reaching the posterior margin.

Platyura magna, sp. nov. Plate XIII., figs. 5-7.

Male. Length of antennæ, 0.095; size of body, 0.374 × 0.040; expanse of wing, 0.258 × 0.079.

Antennæ rather shorter than head and thorax together; joints of scapus short, cinereous, cyathiform; joints of flagellum very slightly dilated, black, naked, terminal joint longer than the others, rounded anteriorly; fourth and fifth joints mark the broadest part of the flagellum. Palpi dark-orange, with a few scattered short black hairs. Head black, shining. Thorax with a broad central black stripe extending from the collare almost to the scutellum; two broad lateral stripes commencing some distance behind the collare and coalescing about opposite the insertion of the wings with the central stripe; rest of the thorax dark-orange, with a silvery sheen; the whole surface covered with black hairs. Scutellum black, bordered with a fringe of stout

black hairs. Metathorax and pleuræ yellow, but with a bright-silvery sheen, due to the presence of a minute silvery pubescence. Halteres with a stout orange pedicel, terminating in a moderate knob, orange at the base but darker at the apex, covered with a black pubescence. First two segments of abdomen slender, black; third segment dark-orange, with a dense covering of black hairs; fourth segment bright-orange, with few black hairs; fifth segment dark-orange; the last two segments black, and covered thickly with black hairs. Base of forceps dark-orange, becoming black at the apex, and ending in two horny chelæ. Legs moderately long; coxæ orange, with a few black hairs at the tip; femora dark-orange, covered with short black hairs; tibiæ and tarsi dark-orange, but the close covering of hairs on the tarsi makes them appear almost black; spurs stout, black. Wings with a fulvous tinge, especially near the costal margin; a black patch extending from the fork of the second longitudinal to the apex, very dark near the costal margin, but shading away towards the inner margin; another feebly-shaded spot near the end of the fifth longitudinal, extending a little beyond the fourth longitudinal, but not extending any distance towards the anterior margin. Veins yellow at the base, but shading into black at the apex of the inner marginal cell; costal vein terminates where the second longitudinal joins it; two branches of the third longitudinal terminate close together, and the apices of the fourth and fifth longitudinals close together. Wings microscopically haired.

Female. Length of antennæ, 0·079; size of body, 0·385 × 0·071; expanse of wing, 0·242 × 0·094.

Joints of scapus bright-orange, covered with short black hairs; joints of flagellum as in the male. Head black, but thorax orange, with silver sheen marked with dark-orange in much the same way as the male is marked with black. Scutellum dark-orange, fringed with black hairs. Metathorax and pleuræ with a beautiful silvery sheen. All segments of abdomen dark-orange mottled with black, and covered with black hairs. Legs rather darker all over than in male. Wings with more pronounced fulvous shade, and less conspicuously shaded than in male. Sides of abdomen covered with a less-evident silvery tomentum than the pleuræ.

I have only one male and one female specimen of this fine and remarkable insect; they were taken together, at an elevation of about 1,000ft., on the Ruahine Mountains, in the month of January.

Platyura agricola, sp. nov.

Male. Length of antennæ, 0·064; size of body, 0·203 × 0·033; expanse of wing, 0·157 × 0·055.

Antennæ 2 + 14 jointed; joints of scapus about as long as broad, black, fringed with black hairs; joints of flagellum moderately stout, base of lowest joint fuscous, all the rest black, slightly pubescent. Second joint of palpus black, third and fourth joints about equal in length, light-yellow covered with minute yellowish pubescence and a few scattered black hairs. Epistome black, covered with black hairs. Vertex smoky-grey with moderately long black hairs, and covered with minute silvery pubescence. Thorax covered with minute silvery pubescence, except a median and two lateral black stripes whose surface is shining; one median line of strong black hairs, which are also scattered all over the surface except on the black stripes. Scutellum black, but covered with minute silvery pubescence and fringed with strong black hairs. Metathorax and pleuræ black, but with pubescence. Halteres with stout pedicel bearing large oval fulvous clubs apparently naked. Abdomen black, but often with dull-orange patches on the posterior portions of the third, fourth, and fifth segments; all segments with numerous black hairs. Forceps of male large, dull-orange at the base, but darkening upwards, becoming black at the tips. Legs rather long; coxæ straw-coloured, darker on the outer surface; femora straw-coloured, covered with short black hairs; tibiæ and tarsi darker and more thickly covered with black hairs; several rows of spines on the tibiæ; spurs rather long, black. Wings with yellowish tinge, surface covered with minute black pubescence. All veins strong, black but lighter near the base; costal vein extending beyond junction with second longitudinal, but ending abruptly before the apex; anterior branch of second longitudinal about equal in length to petiole of third longitudinal.

Female. Length of antennæ, 0.050; size of body, 0.108 × 0.044; expanse of wing, 0.176 × 0.073.

Antennæ more slender than those of the male; joints of scapus light-brown; basal and terminal joint of the flagellum much longer than any others; basal joint dark-brown, others black. Thorax tawny, the black marks being represented by dark-brown stripes which unite in a broad patch in front of the scutellum. Scutellum tawny, with a fringe of black hairs. Metathorax and pleuræ dark-brown. Halteres as in the male. Abdomen much broader and of a lighter colour than in the male, all the segments being bordered posteriorly with tawny-red. Legs and wings as in the male, but apex of the wing much rounder.

I have assumed that these are male and female forms of the same insect, for, though both forms are extremely common about Lincoln, I have never captured a female of the one or a male of the other. They can be taken all through

the summer at Lincoln, but I have not taken them elsewhere.

Platyura flava, sp. nov.

Length of antennæ, 0.038; size of body, 0.137 × 0.016; expanse of wing, 0.115 × 0.042.

Antennæ 2 + 14 jointed; joints of scapus yellowish-grey, first joint rather broader than long, second about as long as broad, both covered with a silvery pubescence; joints of flagellum black, with a pubescence giving silvery reflections. Head black, with a very short, rather inconspicuous, silvery pubescence. Thorax light-yellow anteriorly, darkening to dark-yellow posteriorly, shaded with black, but without any distinct or definite markings; whole surface covered with moderately stiff black hairs. Scutellum dark-brown, fringed with black hairs. Metathorax and pleuræ dark-tawny. Halteres with a stout pedicel bearing a club, yellow at base but almost white at the top. Abdomen dark-tawny on the back but lighter on the sides, and the posterior margin of each segment almost black; thinly covered with black hairs. Coxæ bright-yellow, with a few black hairs on the outer side near the tip; femora darker, covered with short black hairs; tibiæ and tarsi with light ground-colour, but rather thickly clad with black hairs, the former with a few scattered spines in addition; spurs black. Wings almost hyaline. Auxiliary vein rather faint; first longitudinal joining costa about two-thirds of its length; anterior branch of second longitudinal about as long as part of costa between its apex and that of first longitudinal; costal vein extending some distance beyond the apex of second longitudinal, but not reaching apex of the wing; all the veins dark-brown or black.

I have only one rather imperfect specimen of this insect, taken at Lincoln in August. A specimen taken at Wanganui differs but slightly from this insect, and is perhaps a representative variety of the North Island.

Genus SCIOPHILA, Meig.

Head small, flattened on the fore part, sitting deep in the thorax, of rounded oval shape owing to its high vertex. Eyes remote in both sexes, oval, a little emarginate on the upper side above. Ocelli three, arranged near one another in a triangle on the broad front, the anterior one very small. Proboscis very short, not prominent. Hypostoma more or less broad. Palpi prominent, incurved, four-jointed, the first joint very small, the second shorter than the third, the fourth as long as or longer than all three together, seldom shorter than them. Antennæ projecting forward, arcuated, those of the male always longer than those of the female, in the latter often

only as long as the head and thorax together, somewhat compressed, 2 + 14 jointed; joints of the scapus distinct, cyathiform, setose at the apex; flagellar joints cylindrical, with downy pubescence. Thorax highly arched, oval. Scutellum small, semicircular. Metathorax acclivous. Halteres with an oblong club. Abdomen slender, with seven segments, narrowed at the base, generally claviform, especially in the male, somewhat flattened posteriorly; in the male terminating in a short forceps, in the female in a short non-projecting ovipositor with two terminal lamellæ. Legs long; femora with a fringe of hair on the lower side; tibiæ spurred, the fore pair with two, the hind pair with three ranges of lateral spines, of which those on the inner side are particularly short and delicate; coxæ elongated, the fore pair hairy on the front, the intermediate pair only at their apex, the hind pair with a row of setaceous hairs on their outer sides. In the male of some species the coxæ of the intermediate legs have on the inner side a long arcuated spine; these spines terminate in a double hook-shaped curved point, usually of a dark colour. Wings microscopically pubescent, longish-oval, with rounded-off base, a little longer than the abdomen. Tip of the costal vein uniting with the tip of the second longitudinal vein at the apex of the wing, rarely before it; auxiliary vein terminating in the costa not beyond the anterior branch of the second longitudinal vein; base of the second posterior cell lying either before, under, or beyond the origin of the third longitudinal vein, but always before the base of the third submarginal cell, and never so far forward as to come under the anterior branch of the second longitudinal vein; fifth longitudinal vein incomplete, usually broken off opposite the middle of the second posterior cell, sometimes disappearing before the base of the second posterior cell.

Sciophila fagi, sp. nov. Plate X., fig. 1.

Size of body, 0.174 × 0.032; expanse of wing, 0.132 × 0.074.

Joints of scapus short, not more than half their length, light-yellow, with a few black hairs; first joint of flagellum yellow but clouded, subsequent joints black, length about four times their breadth, covered with very fine glistening black hairs. Palpi long and slender, clouded straw-colour; first joint short, slightly hairy; second joint about twice the length of first, scattered black hairs on its surface; third joint more slender and twice the length of the second; fourth joint still more slender and darker in colour, about half as long again as the third. Vertex almost black. Thorax yellow, marked with tawny; two lateral rows of black hairs inclined to one another and meeting before the scutellum, also a median

row, but much shorter, not half the length of the thorax; sides of thorax with scattered black hairs. Scutellum testaceous, with two long black hairs on its posterior margin. Metathorax almost black posteriorly; pleuræ brown. Halteres with stout pedicels bearing black hairs; clubs almost white, with short stout black hairs. Abdomen of seven segments, the posterior portion of each segment being dark-yellow. Forceps of male black, covered with black hairs. Legs long and slender; coxæ very light yellow, with black hairs; femora, tibiæ, and tarsi darker, more densely covered with hairs; a few short black spines on the tibiæ, and shorter ones on the tarsi; spurs black, but rather short. Wings smoky, covered with black hairs. Auxiliary vein rather faint, rather more than one-third the length of the wing; first longitudinal ending rather near the apex of the wing; second longitudinal ending in costa slightly before apex of wing; costa continued to apex; subcostal cross-vein below apex of auxiliary; anterior branch of third longitudinal disappears about half-way from the fork to the margin of the wing; posterior branch very faint; anterior branch of first longitudinal almost straight, posterior rather wavy; fifth longitudinal straight, but not nearly reaching the margin.

I have only one specimen of this insect, and, unfortunately, the antennæ are not entire. The peculiarities of its neuriation perhaps entitle it to be the type-species of a new genus.

Sciophila (?) *hirta*, n. sp. Plate IX., fig. 5.

Size of body, 0.132×0.030 ; expanse of wing, 0.165×0.069 .

Antennæ not perfect; joints of scapus dark-brown, nearly cylindrical, breadth nearly as great as their length; flagellum nearly cylindrical, no appreciable gap separating the joints, covered all over with a soft light-yellow pubescence. Palpi very slender but not long, light-yellow. Vertex black and shining. Thorax black and shining, a dark-yellow humeral patch on each anterior corner, behind which there is a patch of long black hairs. Abdomen black and shining, and covered with a close coating of stiff black hairs. Legs rather slender; coxæ pale-yellow at the base but darker at the tip, covered with black hairs; femora dark-yellow, clothed with black hairs; tibiæ dark-brown, considerably dilated at the extremity, marked with longitudinal rows of black hairs, with spines at intervals; spurs very light yellow; tarsi much darker and more densely clothed with black hairs than the tibiæ. Wings light-brown, becoming much darker at the first longitudinal vein; surface covered with scattered black hairs. Auxiliary vein ending blindly, not extending as far as the transverse vein; first longitudinal extending about four-fifths

of the distance along the wing; second longitudinal joining the tip of the costa almost at the apex of the wing; anterior branch comparatively long, situated some distance from the transverse vein; vein connecting second and third longitudinals very faint; apex of fork of third longitudinal situated some distance beyond end of marginal cell; anterior branch of third longitudinal disconnected at a point rather nearer the base than the middle of the marginal cell; fifth longitudinal almost parallel to and close beside posterior branch of fourth longitudinal, but not reaching the margin.

I have only one, and that rather an imperfect specimen, of this insect, taken in *Fagus* bush, at the base of Mount Torlesse, in March. It shows more affinities with *Sciophila* than with any other genus described in Mr. Skuse's *Monograph*, and I have therefore placed it in that genus. It differs from it in the position of the anterior branch of the second longitudinal, and in the disconnection of the anterior branch of the fourth longitudinal; while the rudimentary condition of the auxiliary vein is extremely exceptional in *Sciophila*. I hesitate to establish a new genus on such a poor specimen, but feel confident that the insect will not long be left in this genus.

Genus PARVICELLULA, gen. nov.

Head oval. Eyes large, emarginate, nearly meeting below the antennæ. Proboscis short. Palpi short, first joint very short, the others about equal in length, except the fourth, which is rather longer. Front almost triangular. Three ocelli, the middle one much smaller than the others, arranged in a slightly-curved line. Antennæ about as long as the thorax, 2+14 jointed; first joint of scapus very short, much broader than long, second joint about as long as broad, setose on the upper surface; flagellum stout, joints rather longer than broad, densely pubescent. Thorax very highly arched, pubescent, setaceous on anterior and lateral margins. Scutellum small, nearly circular, bordered posteriorly with setæ. Metathorax steep. Abdomen rather flattened, seven-jointed, hirsute. Legs rather slender; coxæ stout, slightly hairy on the outer side; femora half as long again as the coxæ, rather slender, compressed, hairy; tibiæ rather stout, in fore and intermediate legs shorter than the tarsi, in the posterior legs about the same length as the tarsi, a few scattered spines on the fore tibiæ, two ranges of few spines on intermediate tibiæ, and two ranges of well-developed spines on the posterior legs; spurs stout; intermediate and hind tarsi with small prickles on the inner side. Wings about as long as the abdomen, rounded at the apex, with fairly pronounced anal angle; surface thickly covered with hairs. Auxiliary vein rather stout,

less than one-third the length of the wing, subcostal cross-vein situated near its apex; first longitudinal vein ending at about two-thirds the length of the wing; marginal cross-vein situated just beyond subcostal; petiole of second longitudinal very short, so submarginal cell is almost triangular; second longitudinal running into the costa some distance before the apex; costa prolonged beyond its tip, but not reaching the apex; third longitudinal rather indistinct, the apex of its fork situated some distance beyond apex of inner marginal cell, branches slightly divergent; fourth longitudinal unbranched; fifth and sixth longitudinals absent.

I have specimens of but one species of this genus, but the neurulation is so distinct that I think I am justified in establishing a new genus for it.

Parvicellula triangula. Plate X., fig. 2; Plate XIII., figs. 8, 9.

Length of antennæ, 0.038; size of body, 0.132×0.033 ; expanse of wing, 0.115×0.057 .

Antennæ 2+14 jointed; first joint of scapus very short, pale-yellow, second joint pale-yellow, cyathiform, the margin of the upper side ornamented with a few stiff black hairs about as long as the joint; first two joints of flagellum yellow, but antennæ gradually darkening towards the tip; all joints much the same length, centre ones bulging in the middle, terminal joints more cylindrical; all joints covered with soft pubescence giving silvery reflections; all joints rather longer than broad. Palpi incurved, cinereous; first joint short, second rather longer and thicker, clothed with black hairs; third and fourth slender and short, with a few short black hairs. Proboscis slightly protruding, hairy. Ocelli three, one situated close to the inner margin of each eye, the third almost in a line between them. Vertex black and shining, with a few black hairs. Thorax dark-tawny, with indistinct central and lateral black bands, covered with a minute pubescence and long golden hairs. Scutellum tawny, with golden hairs. Metathorax black, with golden hairs on its posterior margin. Pleuræ and epimera black. Abdomen of seven segments, black, but thickly covered with long golden hairs, slightly depressed, broadest in centre. Lamellæ of female white, covered with light-coloured hairs. Halteres very light yellow, covered with a minute pubescence. Legs of moderate length; coxæ smoky at the base, light-yellow in the middle, and black at the apex, the apical portion clothed with long golden hairs; femora dark at the tip; tibiæ about half as long again as the femora, rather stout, with many short black spines and a dense covering of black hairs; tarsi slender, straw-coloured, with a dense covering of short black hairs and spines on the posterior

surface. Wings with a yellowish tinge, especially near the costal margin and close to the veins; surface rather thickly covered with black hairs. Veins brown, with a central row of black hairs; auxiliary vein ending in costa at about one-quarter the length of the wing; first longitudinal joining costa at about two-thirds length of the wing; second longitudinal joining costa some distance before apex; costa continued beyond this point, but not nearly reaching the apex; subcostal vein situated just before marginal cell, latter very short, almost triangular; petiole of third longitudinal not long; fourth longitudinal not forked.

I have three specimens of this insect, two of which were taken at Lincoln in February, and the other in Christchurch in June.

A male specimen has almost identical measurement with the female, but it has black forceps. The legs are very much lighter in colour than those of the female, more especially the tarsi and tibiæ; the spurs are light-yellow. The veins of the wing are light straw-colour instead of brown.

Genus TETRAGONEURA, Winn.

Costal vein extending far beyond the tip of the second longitudinal vein, but not reaching the apex of the wing; auxiliary vein small, bent posteriorly, ending in the first longitudinal vein far beyond the marginal cell, or shortened to a tooth; the marginal cell far beyond the middle of the first longitudinal vein; inner marginal cell much lengthened; fork of the third longitudinal vein with a moderately-long petiole; base of the second posterior cell lying before the base of the third submarginal cell. Surface of the wing microscopically pubescent.

The above short diagnosis is the only reliable one to which I have access at present. I hesitate to add other characters, fearing that my species is not sufficiently typical.

Tetragoneura nigra, n. sp. Plate XIII., figs. 10, 11.

Length of antennæ, 0.044; size of body, 0.077 × 0.014; expanse of wing, 0.077 × 0.033.

Antennæ about as long as the body; joints of scapus pale-yellow, cyathiform; joints of flagellum barrel-shaped, but situated on pedicels; length slightly greater than their diameter, the first three pale-yellow, those nearer the end of the antennæ; all the joints covered with soft hairs with silvery reflections. Vertex black, with a few black hairs. Thorax dull-black, a median and two V-shaped lateral marks rather more intense in shade; surface covered with short black hairs, and the margins with strong thick black hairs incurving over the thorax. Scutellum black, with two long black hairs

near the posterior margin. Metathorax and pleuræ black. Halteres light-yellow; the club oval in shape, with an almost imperceptible black pubescence on its edges. Abdomen black, with a shining granulated surface on which there is a thin covering of black hairs. Legs rather stout; coxæ light-yellow, with a few dark hairs on its darkened tip; base of femora rather dark as well as the distal portion, central portion light-yellow but covered all over with black hairs; femora considerably dilated; tibiæ rather short, slightly dilated at the end, ground-colour yellow but thickly covered with short black hairs, the posterior tibiæ with two ranges of black spines, intermediate tibiæ also with black spines but not so conspicuous; tarsi rather short, with much shorter spines, but otherwise much the same as the tibiæ; all spurs black. Wings with a slight brownish tinge. Costal vein extending a long distance beyond tip of second longitudinal, but not extending to apex of wing; apex of second posterior cell nearer the base of the wing than the apex of the third submarginal cell; fifth longitudinal reaching to apex of second posterior cell. Surface of wing covered with black hairs.

I only possess one specimen of this insect, which was obtained at Lincoln College in the month of December.

Genus ANEURA, gen. nov.

Head rather small, oval, deeply imbedded in the thorax. Eyes oval, not emarginate. Proboscis short. Palpi long and slender; first joint about as long as broad; second longer than broad, but stout; third long, cylindrical, and slender; fourth longer than all the others put together, very slender. Ocelli three, the central one much the smallest. Antennæ 2 + 14 jointed; the joints of the scapus very short, cupuliform, slightly setose; joints of flagellum four times as long as broad, gradually decreasing in diameter towards the apex, terminal joint very narrow, densely pubescent. Thorax highly arched, smooth but for three longitudinal rows of hairs converging to a point in front of the scutellum; lateral margins slightly setiferous. Scutellum small, semicircular, setiferous on the posterior margin. Metathorax steep. Abdomen slightly compressed from the side. Legs long and slender; coxæ rather short, not more than half the length of the femora, slightly setose; femora slender, those of the posterior legs compressed, hairy; tibiæ of fore-legs about the same length as the metatarsus, of the intermediate leg about the length of the whole tarsus, and those of the posterior legs longer than the tarsus; posterior tibiæ with two rows of scarce, short, and feeble spines; spurs small and feeble; tarsi long and slender, with a few very small prickles on the under-

side. Wings oval, rounded at the apex, and anal angle not prominent, shorter than the abdomen, surface hairy. Auxiliary vein more than one-third the length of the wing, but not half its length; no subcostal cross-vein; first longitudinal slightly arcuated, ending near the apex of the wing; second longitudinal arcuated, joining costa just before the apex; costa prolonged beyond the tip of the second longitudinal and reaching the apex; basal portion of second longitudinal about one and a half times the length of the submarginal cross-vein, which is situated some distance before the apex of the auxiliary vein; petiole of the third longitudinal about the same length as the anterior branch, branches divergent; apex of the second posterior cell situated before the apex of the second submarginal cell; branches of fork of fourth longitudinal very divergent; fifth longitudinal incomplete.

This genus differs from most of the others in the subsection in the absence of the subcostal cross-vein. It is closely allied to *Boletina*.

Aneura boletinoides, sp. nov. Plate X., fig. 5; Plate XIII., figs. 12, 13.

Length of antennæ, 0.093; size of body, 0.154 × 0.016; expanse of wing, 0.132 × 0.049.

Antennæ 2+14 jointed, longer than head and thorax together; joints of scapus short, nearly globular, very light yellow; first joint of flagellum light-yellow at base, but upper portion and all succeeding joints dark-brown; length of joints about three times their diameter, all rather thickly clotted with black hairs; terminal joint slender but rounded. Palpi very dark brown; first joint rather slender, second long and slightly swollen, third shorter and more slender, fourth longest and more slender than any others. Thorax bordered all round with light-yellow, central portion light-brown; one central row of short black hairs; two lateral rows, the outer one consisting of long hairs; central row short, but two inside lateral rows meet in front of scutellum. Scutellum light-yellow, bordered with long black hairs. Metathorax and pleuræ brown. Pedicel long and slender, supporting rather a large club, both pedicel and club being covered with a short black pubescence. Abdomen light-yellow, the posterior margin of each segment especially on the sides being brown; surface with scattered long slender black hairs. Lamellæ of female dark-brown, and forceps of male rather large, black. Abdomen of male with broader brown borders on posterior portion of abdomen than in female. Legs long and slender; coxæ rather short, very light yellow; femora rather long, light-yellow, but covered with black hairs; tibiæ and tarsi light-coloured, but covered with black hairs, and

bearing a few black spines; spurs black. Wings with a slight brown tint, surface covered with black hairs. First and second longitudinal veins black, others very light brown; auxiliary vein about one-third the length of the wing; no subcostal cross-vein; first and second longitudinal veins curved near the end; petiole of third longitudinal long; fifth longitudinal not reaching fork of fourth.

I have four specimens of this insect, all of which were taken at the foot of Mount Torlesse, in *Fagus* bush, in March and November.

Genus CYCLONEURA, gen. nov.

Head longer than broad. Eyes large, but well separated on the front. Antennæ and palpi not seen. Thorax almost globular. Abdomen of seven segments in the male. Wings rather narrow. Auxiliary vein rudimentary; first longitudinal ending about half-way along the anterior border; second longitudinal vein ending some distance before the apex; costal vein continued beyond the end of the second longitudinal, but not reaching the apex of the wing; anterior branch of third longitudinal ending at a point a little beyond the apex of the wing; posterior branch wanting; anterior branch of fourth longitudinal ending at about one-third of length of inner margin of the wing; fifth longitudinal vein complete, joined at about half its length by a vein perhaps corresponding to the posterior branch of the fourth longitudinal; second, third, and fourth longitudinals detached at their bases. Legs stout; femora greatly compressed; tibiæ with long spines; spurs long, pubescent; first two joints of tarsus of hind-legs with prickles on the under-surface.

I have only one species of this genus. It was taken in scrubby bush on the Port Hills in December.

Cycloneura flava, sp. nov. Plate XI., fig. 5.

Length of antennæ, ——— ?; size of body, 0·088 × 0·016; expanse of wing, 0·096 × 0·033.

Antennæ and palpi not seen. Front dark, but rather densely covered with grey hairs. Thorax dark-yellow, thinly clothed with short black and longer orange hairs situated on the lateral margins. Scutellum semicircular, ferruginous, with a few long setæ on the posterior margin. Pleuræ and metathorax dark-brown. Halteres with light-coloured stipes, and rather large black club. Abdomen depressed, broadest in the middle, dark-ferruginous, irregular patches being of a darker colour than the rest of the abdomen. Coxæ bright-yellow, with a row of hairs on the exterior margin; femora greatly compressed, bright-yellow, with yellow hairs; tibiæ longer than the coxæ, darker, with rows of short black hairs

and two ranges of spines, dark-ferruginous; spurs long, yellow; tarsi rather shorter than the tibiae, yellow, with rows of short black hairs. Wings longer than the abdomen, yellow, but smoky at the tips, the darkest patch situated at the end of the second longitudinal vein. Neuration of the wings as described under the genus.

I have only one specimen of this species, which was taken on the Port Hills in December.

Genus PARADOXA, nov. gen.

Head nearly round. Eyes large. Antennæ 2 + 14 jointed; joints shaped almost as in *Tetragoneura*. Palpi short, four-jointed; first and second joints very short, third longer and stouter, fourth the same length as third but much more slender. Thorax rather elongated. Abdomen compressed vertically, as broad as the thorax. Femora greatly compressed; tibiae about as long as the femora, with a few slender black spines; spurs large, pubescent; first joint of tarsus the longest, others gradually decreasing in length. Wings longer than the abdomen. Auxiliary vein represented by a short rudiment; first longitudinal ending some distance beyond the middle of the anterior margin, joined to second longitudinal by marginal cross-vein situated near its apex; second longitudinal vein ending some distance before the apex of the wing; costa prolonged considerably beyond the tip of the second longitudinal vein, but not reaching the apex of the wing; third longitudinal vein with a long fork, slightly disconnected at its base; posterior branch also slightly disconnected at its base; anterior branch of fourth longitudinal reaching the margin, but disappearing before reaching the base of the wing; fifth longitudinal vein complete, reaching the margin, joined at a point about three-quarters of its length from the base by a strong vein as in *Cycloneura*, which probably represents the posterior branch of the fourth longitudinal vein.

I have only one species belonging to this distinct genus.

Paradoxa fusca, sp. nov. Plate XII., fig. 5.

Length of antennæ, 0.016; size of body, 0.096 × 0.010; expanse of wing, 0.092 × 0.016.

Antennæ 2 + 14 jointed; first joint of scapus short, nearly black; second joint cyathiform, ornamented with a few bristles; flagellum dark-brown, densely ciliated; joints broader than long, placed on very short pedicels tapering gradually to the apex; last joint has length more than twice its breadth and an obtuse apex. Palpi short, light-yellow; two basal joints short, third and fourth about equal in length, rather longer than the first and second put together.

Front black. Thorax strongly curved, black or dark-brown, rather sparsely covered with short black hairs, which are longer on the margins. Scutellum black, with a row of hairs on its posterior margin. Pleuræ and metathorax black. Abdomen black, but third and fourth segments dark-brown, sparsely covered with short black hairs. Legs rather short; coxæ smoky; femora compressed, yellow in the centre, but bordered with dark-brown; tibiæ rather longer than the femora, not slender, the two posterior pairs with a few moderately-long black spines, anterior tibiæ without spines; spurs rather stout, straw-coloured, and covered with a light pubescence. Wings brown, darker near the costa and in the central portion of the first submarginal cell. Inner marginal cell long, its apex being nearly directly above the apex of fork of third longitudinal vein; cross-vein situated near the end of first longitudinal vein; costal vein ending before the tip of the wing; second longitudinal vein joining it some distance before its tip. Surface of the wing microscopically pubescent.

I have only one specimen, taken at Lincoln College, in September.

Genus EURYCERAS, gen. nov.

Head oval, not very deeply imbedded in the thorax. Eyes large, round, slightly emarginate on the inner side above. Palpi incurved, rather short; first and second joints about equal, short; third joint about double their length, cylindrical; fourth joint still longer, slightly clavate. Ocelli three, large, placed almost in a straight line on the broad front. Antennæ 2 + 14 jointed, about as long as the head and thorax together; joints of scapus much broader than long, cupuliform, setiferous above; flagellum compressed, broadest part in the middle, joints generally broader than long except at the apex, densely pubescent. Thorax highly arched, pubescent, without strong setæ on the lateral margins. Scutellum rather small, semicircular, hardly setiferous. Metathorax steep. Abdomen rather flattened, seven-segmented, narrow in front but broader posteriorly. Forceps of the male rather small, chelate. Legs rather slender; coxæ short but stout, hairy; femora slender, but posterior pair compressed, pubescent; fore tibiæ larger than the metatarsus but less than half the length of the whole tarsus, intermediate tibiæ rather shorter and posterior tibiæ longer than the tarsus, three ranges of small spines on fore and intermediate tibiæ and two ranges of longer spines on posterior tibiæ; spurs rather short; first not much longer than second joint of tarsus, a few small prickles on the under-side of tarsus. Wings rather pointed at the apex, and anal angle rather prominent; surface of wings distinctly hairy. Auxiliary vein

complete but short, subcostal cross-vein situated about half-way along it; first longitudinal joining costa more than two-thirds the length of the wing; second longitudinal joining the costa before the apex; costa slightly extended beyond the point of junction, but not reaching the apex of the wing; submarginal cross-vein about equal to basal portion of second longitudinal; petiole of third longitudinal rather short; apex of fork of fourth longitudinal just below origin of third longitudinal, branches divergent; fifth longitudinal strong but incomplete.

This genus is closely related to *Anaclinia*, Winn.

Euryceras anaclinoides, sp. nov. Plate XI., fig. 1; Plate XIII., figs. 14, 15.

Length of antennæ, 0.068; size of body, 0.132 × 0.034; expanse of wing, 0.154 × 0.060.

Antennæ 2 + 14 jointed; joints of scapus short, yellow, cyathiform, covered with short yellow cilia; joints of flagellum black, but densely covered with a yellow pubescence; fifth and sixth joints broadest, their breadth being half as much again as their length; terminal joint the longest, its length being about three times its breadth; succeeding joints gradually decreasing in length but increasing in breadth. Palpi very light yellow, incurved; first joint short; second joint rather long and broad, densely ciliated with light-yellow hairs; third and fourth joints much more slender, about equal in length, densely ciliated. Vertex black, rather hairy. Ocelli situated nearly in a straight line. Eyes emarginate, but not nearly meeting. Thorax light-yellow anteriorly but much darker posteriorly, becoming almost black in front of the scutellum; surface covered with short black hairs, the sides with a margin of long golden hairs. Scutellum dark-brown, with a fringe of black hairs. Metathorax almost black, the posterior portion with a few long yellow hairs. Pleuræ brown, with a few long hairs. Halteres with stout pedicels bearing an elongated pyriform club, light-yellow in colour, and covered with a fine pubescence. Abdomen black, first segment yellow except in centre of dorsal surface, where it is brown covered with long yellow hairs; abdomen broadening considerably posteriorly, the posterior portion of each segment brown, last segment with a yellow border covered all over with rather black hairs. Legs rather long; coxæ yellow, the outer surface of posterior coxa brown, a few stiff yellow hairs on each coxa; intermediate and posterior femora brown on the anterior side of the upper portion, and at the distal extremity, which is covered with black hairs, other parts of coxa yellow, covered with short yellow hairs; tibiæ of anterior and intermediate legs rather short, yellow,

but covered with black hairs and a few black spines; posterior tibiæ rather long and stout, with more numerous and longer spines; all tarsi black, owing to thick covering of black hairs; spurs yellow at the base, shading to brown at the tip. Wings slightly shaded with brown, and covered with black hairs. Costa and first and second longitudinal veins black, others light-brown; fifth longitudinal extending some distance beyond fork of fourth, but not reaching the margin.

I have only one specimen of this insect. It was taken in *Fagus* bush, at the base of Mount Torlesse, in March.

Genus ANOMALA, nov. gen.

Head moderate, nearly round, but slightly prolonged posteriorly, situated rather deep in the thorax. Eyes ovate, entire. Ocelli two, or three: if only two present, one is situated in the margin of each of the compound eyes; if three, the third in the middle of the front. Palpi short, incurved, four-jointed; first joint short, moderately robust; second much longer; third and fourth more slender and about equally long. Antennæ cylindrical, tapering towards the apex, projecting forwards, arcuated, 2 + 14 jointed; first joint of scapus nearly cylindrical, second cupuliform, both joints setiferous on the sides and upper edge; flagellar joints cylindrical, with a short downy pubescence. Thorax highly arched. Scutellum semicircular. Abdomen rather flattened, broadest in the middle. Legs rather short; tibiæ spurred, and provided with lateral spines which are short on the anterior tibiæ, and long ones arranged in three ranges on the intermediate and two ranges on the posterior tibiæ. Wings with rounded apex and anal angle. Auxiliary vein joining the costa just before the origin of the third longitudinal vein; costal vein extending some distance beyond the tip of the second longitudinal vein; first longitudinal joins the costa before the branch of the third longitudinal vein; marginal cross-vein situated a little before the tip of the first longitudinal, which bends down and closely approaches the second longitudinal; anterior branch of third longitudinal reaching the margin just before the apex of the wing; apex of fork of fourth longitudinal situated just before the apex of fork of third longitudinal; anterior branch straight, posterior branch undulated; fifth longitudinal indistinct; subcostal cross-vein absent.

This genus is closely allied to *Leia*, *Ateleia*, *Acrodicrania*, and *Cælosia*, but can be easily distinguished by the absence of the subcostal cross-vein, and by the fact that the third and fourth longitudinal veins are complete.

Anomala guttata. Plate XI., fig. 3; Plate XIII., figs. 16, 17.

Mycetophila guttata, Hutt.

Length of antennæ, 0.079; size of body, 0.174 × 0.044; expanse of wing, 0.165 × 0.066.

Antennæ 2 + 14 jointed; joints of scapus yellow, first much longer than the second, which is cyathiform, surface of both with a few stout short black hairs which are much longer on the edge of the second joint; first five or six joints of flagellum yellow, terminal joints nearly black, length usually about twice the breadth, all joints densely covered with short hairs having bright silvery reflections. Palpi prominent, rather large and thick, light-yellow, with a few short hairs. A black shining patch round each ocellus, but an orange area between them. Vertex dark-brown, with long black hairs on the margin. Thorax dark-yellow, surface with a few scattered hairs, which are long on the anterior and lateral margins; four longitudinal brown stripes, two short ones extending from the collare to the insertion of the wings, one on each side of the median line, but never confluent; the other two near the lateral margin, commencing farther back, and extending nearly to the scutellum, never confluent. Scutellum dark-brown anteriorly, light-yellow posteriorly, fringed with long black hairs. Metathorax and pleuræ dark-brown. Halteres with light-coloured rather slender pedicels bearing an oval club, light-yellow in colour. Abdomen broadest in the middle, covered with hairs giving golden reflection; anterior portion of each segment yellow, posterior and longer portions dark-brown. Legs rather short; coxæ light-yellow, with black hairs on anterior surface; femora brown at both ends but yellow in the centre; tibiæ rather stout, those of posterior and intermediate legs darkened at both extremities and covered with short hairs and bearing several spines of two sizes; anterior tibiæ only with shorter spines; tarsi light-yellow, but thickly clothed with dark hairs; spurs brown. Wings with brownish tinge, microscopically pubescent; one brown patch between apex of first longitudinal and costa; another patch at fork of second and third longitudinals, and a third on the inner side of posterior branch of fourth longitudinal; a more indistinct patch between anterior branch of fourth longitudinal and posterior branch of second longitudinal—*i.e.*, near the margin of first posterior cell. Second longitudinal joining costa not far before apex of wing; costa almost reaching the apex; apex of fork of third longitudinal much nearer the apex of wing than transverse vein, the latter situated half-way along the wing; fork of fourth longitudinal nearer base of wing than junction

between second and third longitudinals; branches reaching margin far apart. Size of brown patches varies considerably.

This is an excessively common insect throughout the colony. It may be taken throughout the year, but is more frequent in the spring months.

Anomala minor, sp. nov.

Length of antennæ, 0.066; size of body, 0.120 × 0.027; expanse of wing, 0.140 × 0.046.

Antennæ 2 + 14 jointed; joints of scapus dark-yellow, covered on the upper surface with stiff black hairs, one of which, situated on the anterior rim of the second joint, is larger than the two joints together. Palpi light-yellow. Vertex black, but covered rather thickly with long yellow hairs. Thorax dark-tawny to black; in the former case marks are present closely resembling those on the thorax of the last species; surface covered thickly with long yellow hairs. Scutellum black, with very short hairs on its posterior margin. Metathorax and pleuræ black. Halteres white; club pyriform, rather elongated. Abdomen black, covered with minute golden pubescence and thinly-scattered long golden hairs. Legs rather short; coxæ almost white, but darker at the distal extremity; femora dark-brown at both ends but very light in the middle, covered with long golden hairs; tibiæ rather stout, yellow, but darker at both extremities, covered with short black hairs and with two rows of long black spines; spurs light-yellow, with short black hairs; tarsi yellow, but densely covered with short black hairs. Wings with slight brownish tinge, microscopically pubescent; brown patches in same position but lighter, except the one situated in the first submarginal cell; all the apical portions of the wing shaded light-brown. Veins at the base light-yellow, but almost black at the extremity; first and second longitudinal veins do not approach so closely as in the last species; second longitudinal short; costa not nearly extending to tip of wing; apex of fork of third longitudinal situated almost below transverse vein; transverse vein nearer apex of wing than half-way; fork of fourth longitudinal almost directly below point of junction between second and third longitudinals; branches of fourth longitudinal not reaching margin, far apart.

Not so abundant as the preceding, but common at Christchurch and Wanganui.

Genus APHELOMERA, Skuse.

Head small, round, the fore part flattened, situated deep in the thorax. Ocelli three, of almost equal size, arranged in a curved line high on the front. Eyes ovate, a little emargi-

nate above on the inner side. Palpi prominent, incurved, four-jointed; first and second joints somewhat robust, first joint small, second twice the length of the first, third rather longer than the first and second taken together and considerably more slender, fourth joint very slender, about equal in length to all the others taken together. Antennæ arcuated, projecting forward, longer than the head and thorax combined, very slender, 2 + 14 jointed; joints of the scapus of about equal size, cupuliform, both setiferous at the apex; flagellar joints cylindrical, with a short dense pubescence. Thorax oval, highly arched. Scutellum small, almost semicircular. Metathorax high, acclivous. Abdomen slender, cylindrical, six-segmented, with an anal joint almost as large as the sixth abdominal segment, and small forceps. Legs long, slender; femora not so robust as the coxæ, compressed; tibiæ spurred, and the intermediate and hind pairs each with two rows of lateral spines. Wings oblong-ovate, longer than the abdomen, rounded off at the base, microscopically pubescent. Costal vein extending far beyond the tip of the second longitudinal vein, stopping a little before the apex of the wing; auxiliary vein joining the costa a little before the marginal cross-vein; the humeral cross-vein very oblique; no subcostal cross-vein; first longitudinal vein joining the costa at a point three-fourths of the distance from the root of the wing to the tip of the costa; the marginal cross-vein situated very much before the middle of the first longitudinal vein, at a point about one-third the length of the latter; third longitudinal vein detached from the second longitudinal vein, starting in the wing-disc considerably beyond the marginal cross-vein, reaching the margin much below the apex of the wing, without any trace of an anterior branch; fourth longitudinal vein joining the margin before the tip of the first longitudinal vein joins the costa, the only trace of an anterior branch being an indistinct short piece of a vein quite detached from the fourth longitudinal vein, and joining the posterior margin a short distance in front of it; fifth longitudinal vein only rudimentary.

The only species of this genus hitherto described is from Sydney, so the genus would appear to be confined to Australasia.

Aphelomera skusei, n. sp. Plate XI., fig. 4.

Length of antennæ, 0.055; size of body, 0.073 × 0.013; expanse of wing, 0.066 × 0.030.

Joints of scapus orange, with a few black hairs; flagellum black, joints from three to five times longer than broad, covered all over with a fine pubescence. Palpi light-brown, darker at the tip. Thorax dark-brown or black, covered with short yellowish hairs and longer black hairs,

curved inwards. Scutellum black, bordered with long black hairs. Metathorax and pleuræ black, smooth. Halteres with stout yellow pedicel bearing an elongated black club densely covered with a black pubescence. Abdomen slender, black, densely clothed with black hairs. Coxæ rather stout, light-yellow; femora darker, more compressed, and thickly clothed with short yellow hairs; tibiæ light, but thickly covered with short black hairs; tibiæ of fore-legs half as long as tarsi, in posterior legs tibiæ nearly as long as tarsi; long spines on tibiæ and short ones on tarsi, black; spurs greyish-brown. Wings with a pale-brownish tint, veins brown; surface microscopically pubescent. A few long black hairs on first and second longitudinals; auxiliary distinct; fifth longitudinal rudimentary.

I have taken four specimens of this insect. It appears to be rather widely distributed. It is closely allied to *A. sydneyensis*, of Australia.

Genus ZYGOMYIA, Winn.

Tips of the costal and second longitudinal veins uniting far before the apex of the wing; auxiliary vein incomplete, bent anteriorly, gradually disappearing or only forming a tooth; apex of the inner marginal cell not situated beyond the base of the second submarginal cell; petiole of the fork of the third longitudinal vein very short; anterior branch of the fourth longitudinal vein wanting; fifth longitudinal vein incomplete; sixth longitudinal vein in most cases large.

I have placed the following species in this genus, though in some respects their alar venation varies from that described above: in particular, the fork of the third longitudinal vein has a moderately-long petiole, and the sixth longitudinal vein is wanting.

Zygomya flavicoxa, sp. nov. Plate XI., fig. 6.

Length of antennæ, 0.041; size of body, 0.093 × 0.024; expanse of wing, 0.088 × 0.035.

Antennæ a little longer than head and thorax together; joints of scapus about equal in size, cyathiform, about as long as broad, light-brown large setæ on the anterior margin of second joint; flagellum dark-brown, rather compressed, the joints rather broader than long, densely covered with pubescence giving silvery reflections. Palpi light-yellow. Two lateral ocelli fairly large, central one small, situated in a marked depression. Front broad, black, with a few hairs giving yellowish reflections. Thorax with all the central portion black, humeral patches yellow, and lateral portions light-brown; everywhere covered with numerous hairs giving yellowish reflections. Metathorax and pleuræ black. Scutel-

lum black, with a few long hairs on the posterior margin. Abdomen black, narrow in front but broadening considerably posteriorly, hairs few and scattered. Forceps of male light-yellow. Halteres with a light-yellow pedicel; club large, pyriform, black. Legs not long; coxæ yellow, darkening towards the apex, where there are a few light-coloured setæ; trochanters light-yellow; femora rather compressed, yellow, but dark-brown or black at the apex, covered all over with black hairs, which are lengthened considerably near the end of the lateral margins; tarsi straw-coloured, with two ranges of long black spines; posterior spurs half the length of metatarsus, straw-coloured, but densely covered with short black hairs; tarsi with spines on the inner surface. Wings with a pale-yellow tinge; veins dark-brown, but lighter where they cross the white areas; costal margin of wing brown, the shading extending downwards at the marginal cross-vein; all the apical half of the wing shaded with brown, which is darker near the costal margin; a roundish white patch half in the second and half in the first submarginal cell. Tips of costal and second longitudinal veins uniting before the apex of the wing; fourth longitudinal strong; fifth longitudinal parallel to the third, ending about half-way down it; sixth longitudinal strong.

Common at Wanganui and Lincoln early in the spring.

Zygomyia fusca, sp. nov.

Length of antennæ, 0.049; size of body, 0.115 × 0.033; expanse of wing, 0.125 × 0.049.

Joints of scapus rather long, light-yellow, cyathiform, the first half as long again as the second; joints of flagellum rather compressed, dark-brown, those at the base about as long as broad, the apical ones with the length more than four times the breadth, thickly clothed with a pubescence giving silvery reflections. Palpi yellow. The central ocellus small, situated in rather a deep depression. Thorax dark-brown, bordered with orange anteriorly, and covered with black hairs. Scutellum dark-brown, with long hairs on the posterior margin. Metathorax and pleuræ dark-brown on upper portion, but black below. Halteres white; club oval, with a few black hairs. Abdomen black, with very few hairs except on the posterior margins of the segments; a cinereous band on the hind margin of every segment. Forceps of male dark-brown, and densely covered with black hairs. Legs moderate; coxæ almost white, but a small patch of brown and black hairs at the tip; trochanters dark; femora light straw-colour, with short black hairs which become setæ on the margins near the apex, rather dark at the base, compressed; tibiæ stout and, like the tarsi, closely resemble those of *Z. flavicoxa*.

Wings hyaline, with shaded patches similar to those on the wings of *Z. flavicoxa*, but much smaller; the white sub-apical patch longer, and extending almost from the costa to the posterior margin. Auxiliary vein bent slightly posteriorly; fifth longitudinal ending below the apex of the second submarginal cell; veins much stouter than in the last species.

Though the veining of the wings is almost identical with that in the last species, I have no doubt of the specific distinctness of the two types. The size of this species is much greater than that of the last. The halteres are white instead of black, the femora are not dark at the apex and are lighter in colour, the abdomen is ringed with cinereous; the wings have the dark patches smaller and much more closely defined.

Genus BRACHYDICRANIA, Skuse.

Head roundish, compressed in the fore part, situated deep in the thorax; front broad, the anterior border prolonged as a small triangle, which reaches to the basal joints of the antennæ. Eyes longish-round. Ocelli two, large. Palpi prominent, incurved, four-jointed; first joint small, second longer, very robust; third joint subclavate, about one-third longer than the second; fourth joint very slender, about equal to all the others united. Antennæ projecting forward, somewhat arcuated, 2 + 14 jointed; first joint of scapus cyathiform, second much shorter than the first, cupuliform, both setiferous at the apex; flagellar joints cylindrical, somewhat compressed from the sides, with dense minute downy pubescence. Thorax ovate, highly arched, with a short pubescence, setiferous on the lateral and hind margins. Scutellum semicircular, setiferous. Metathorax steep. Abdomen slender, in the male with six, in the female with seven, segments, narrowed at the base, cylindrical, or a little compressed from the sides; anal joint of the male moderately large; female ovipositor very short, with two small lamellæ. Legs long, slender; intermediate and hind femora rather broadly compressed; tibiæ spurred, and having lateral spines, fore pair with one distinct range of very small size on the inner side and a few very small spines on the outer side, intermediate pair with a range of small spines on each side, hind pair with two ranges of longer spines on the outer side; metatarsus of the hind tarsi with some very minute prickles. Wings longer than the abdomen, oblong-oval, with moderately-rounded base, microscopically haired. Auxiliary vein very small, incomplete, directed towards the first longitudinal vein; costal vein not extending beyond the tip of the second longitudinal vein; marginal cross-vein situated about the middle of the first longitudinal vein and over the base of the second submarginal cell, the latter with a shorter petiole; tips of the third longi-

tudinal fork somewhat divergent; second posterior cell short, its base situated much beyond the base of the second submarginal cell; the branches of the fourth longitudinal fork divergent; fifth longitudinal vein long, incomplete; sixth longitudinal vein long.

This genus was established by Skuse for some Australian species. None have hitherto been described from any other country.

Brachydicrania hiemalis. Plate XI., fig. 2; Plate XIII., figs. 18, 19.

Length of antennæ, 0.055; size of body, 0.154 × 0.022; expanse of wing, 0.143 × 0.049.

Antennæ about as long as head and thorax; joints of scapus dark-yellow, setiferous; joints of flagellum rather longer than broad, difficult to distinguish near the base, but separated near the apex, dark-brown, but covered with a short dense pubescence giving a silvery reflection. Palpi long and slender; first, second, and third joints light-yellow; basal half of fourth joint light-yellow, apical half dark-brown. Front dark-brown, covered with rather short hairs. Thorax dark-brown, humeri and lateral margins dark-yellow, short yellow hairs and longer black ones covering its surface. Scutellum dark-brown, bordered with a few very long black hairs. Metathorax and pleuræ brown, smooth. Halteres with white pedicel; club smoky. Abdomen rather slender, covered sparingly with black hairs; first and second segments brown with yellow sides, and sometimes yellow on posterior margin; third segment dark-yellow, brown on centre of dorsal surface; remaining segments black. Legs long and slender; coxæ almost white, smoky towards the tip; femora very light yellow; tibiæ pale straw-colour, but covered with black hairs arranged in longitudinal lines, and two rows of long slender spines on intermediate and posterior tibiæ; tarsi nearly black from dense clothing of black hairs; those of anterior legs very long, shorter in intermediate, and about as long as tibiæ in posterior legs; spurs very long and slender, pale-brown. Wings microscopically pubescent, the pubescence being arranged in longitudinal lines; pellucid, with a very pale tint. Auxiliary very short; first longitudinal nearly parallel with costa; second longitudinal and anterior branch of third longitudinal slightly sinuate; marginal cross-vein situated beyond apex of second submarginal cell, about half-way along first longitudinal vein; neither branch of fourth longitudinal reaching the margin.

This insect was extremely common on window-panes and in low-lying bush in Wanganui in June and July. Closely allied to *B. pullicanda*, of Australia, but, I think, distinct.

Genus MYCETOPHILA, Meig.

Head somewhat longish, round, compressed in the fore part, situated deep in the thorax; front broad, the anterior border elongated triangularly, which extends to the basal part of the antennæ. Eyes oval. Ocelli two, large. Palpi prominent, incurved, four-jointed; first joint small, the others equally so, or the last the longest. Antennæ projecting forward, arcuated, 2 + 14 jointed; the joints of the scapus cyathiform, setiferous at the apex; flagellar joints cylindrical, compressed from the side, with short downy pubescence. Thorax ovate, highly arched, with short pubescence, longer hair on the lateral margins, setiferous on the hind border. Scutellum semicircular, or a shortened triangle, setiferous on the border. Metathorax highly arched. Abdomen of the male with six segments, of the female with seven segments, more or less compressed from the sides, narrowing at the base; anal joint of the male generally small; ovipositor of the female with two lamellæ. Legs robust; femora compressed; tibiæ spurred, the fore pair with small spines on the outer side, the intermediate pair with two ranges of strong spines on the outer side and one range of stronger or weaker ones on the inner side; the hind tibiæ with two or three ranges of short spines on the outer side; metatarsi of the hind tarsi with fine prickles. Wings a little longer than the abdomen, longish-oval, the base rounded off or more or less obtusely-cuneiformly narrowed, microscopically pubescent. Auxiliary vein incomplete, bent anteriorly; costal vein not extending beyond the tip of the second longitudinal vein and not reaching the apex of the wing; marginal cross-vein situated at or somewhat beyond the middle of the first longitudinal vein, and over the base of the second submarginal cell, the latter with a short petiole or sessile; base of the somewhat-extended posterior cell situated before, under, or a little beyond the base of the second submarginal cell; the branches of the fourth longitudinal inclined towards one another at their tips; fifth longitudinal vein incomplete; rudimentary sixth longitudinal vein stout.

This is a large genus, including species that have been described from nearly every known country.

Mycetophila sylvatica, n. sp.

Length of antennæ, 0.104; size of body, 0.286 × 0.055; expanse of wing, 0.225 × 0.094.

Joints of scapus yellowish-brown, setose on the upper surface, first joint more than twice as long as the second; joints of flagellum light-brown; length four or five times the breadth, covered all over with a close pubescence giving grey

reflections. Palpi long, incurved; first joint nearly black, second joint long, light-brown, third joint similar to the second but more slender and shorter, fourth joint longest, orange-coloured. Front greyish-brown, setose, the hairs being black. Thorax dark-brown, thickly covered with short black hairs, with long curved black hairs on the margins. Scutellum black, with long black hairs on the margin. Metathorax and pleuræ black, the latter with long slender black hairs. Halteres with stout pedicels, very light yellow, but covered with short black hairs. Abdomen slender, dark-brown irregularly mottled with fulvous, covered everywhere with rather short black hairs. Legs rather long and slender; coxæ yellow at both ends, but the central portion is dark-brown, tip setose; femora dark-yellow, the tip and central portion shaded with brown, surface covered with short black hairs; tibiæ slender, straw-coloured, with longitudinal rows of black hairs, and spotted with brown spots, from which long spines arise; spurs dark-brown; tarsi long and slender, with horizontal rows of black hairs, but no spines. Wings with distinct brown tinge, but extreme tip yellow; a dark-brown patch at marginal cross-vein and apex of inner marginal cell; a very irregular band extending from the end of the first longitudinal to near the end of the second posterior cell; a shaded patch between these two marks and a shaded sub-apical area. Veins brown. Surface of wing microscopically pubescent, the hairs being arranged in oblique lines. Auxiliary not very short, slightly bent posteriorly and gradually disappearing; tip of costa and second longitudinal very near apex of the wing; fifth longitudinal extending to fork of fourth longitudinal; sixth longitudinal long, nearly reaching margin; inner marginal cell just lying over base of second submarginal cell, whose petiole is very short.

I found abundant specimens of this insect in one spot in a very damp gully on the bush-covered side of the Rimutaka Mountains, near the Summit Station.

Mycetophila howletti, sp. nov.

Length of antennæ, 0.132; size of body, 0.300 × 0.065; expanse of wing, 0.264 × 0.120.

Basal joint of scapus more than twice the length of the second, setæ black; length of joints of flagellum two or three times their breadth, the basal five or six joints with an orange band at both ends, but the central portion is dark-brown. Palpi dark-orange; first joint short, second stout, third more slender, bristly like the second, fourth strongly curved, broadening considerably at the apex, slightly bristly. Front yellowish-grey, covered with black hairs. Thorax reddish-yellow, but black on lateral margins above the wings, densely

covered with black hairs. Scutellum dark-brown, with strong hairs on its posterior margins. Metathorax yellow. Pleuræ dark-brown, covered with slender black hairs. Abdomen almost black, mottled with very dark brown; margins of some of the segments lighter. Legs robust; coxæ light-yellow, but brown on the posterior margin; femora rather expanded, greyish-yellow, with two black spots on the posterior side and a conspicuous black tip on the posterior legs; tibiæ dull-yellow, with a black tip covered with longitudinal rows of black hairs and spines of two sizes, the longer ones being orange-red; spurs long, orange-red in colour; tarsi darker than the tibiæ, several rows of fine spines on the inner side. Wings very broad, microscopically pubescent, with a deep-yellow tint, but the larger part coloured almost black; a dark patch surrounding marginal cross-vein, which extends downward and spreads out widely, covering all the posterior portion of the wing, but becoming lighter as the margin is approached; this becomes darker nearer the apex and spreads up again to the second longitudinal vein, but has an irregular outline, becoming very much narrower at second longitudinal and reaching costa at the end of first longitudinal, the apex being yellow. First and second longitudinals brown; the others very strong and black; petiole of second submarginal cell very short, the apex of the inner marginal cell lying over the base of the second posterior.

I have only one specimen of this fine insect. It was taken in bush on the Ruahine Mountains, in January.

Mycetophila fagi, n. sp.

Length of antennæ, 0.055; size of body, 0.148 × 0.034; expanse of wing, 0.127 × 0.055.

Antennæ slender; joints of scapus long, long black setæ on anterior portion of last joint; flagellum nearly cylindrical, brown, the basal portion of each joint being lighter than the apical portion, covered all over with short pubescence. Palpi light-yellow. Head yellow, dark near the two ocelli. Thorax yellow, without any markings, but ornamented with a few long and many short black hairs. Scutellum yellow, with long black bristles on the posterior margin. Metathorax and pleuræ dark-yellow. Pedicel of halteres nearly white; club light-yellow, pubescent. Abdomen dark-brown, the posterior portion of each segment light-yellow. Forceps of male brown, with black setæ. Legs rather short; coxæ pale-yellow, with a few black setæ; femora straw-coloured, with black hairs; tibiæ straw-coloured, with long black spines but no smaller ones, and a fringe at the distal end; spurs long, straw-coloured, but densely covered with black pubescence; tarsi rather stout, with short black spines

on the lower surface. Wings with yellow tinge. Veins all about equally distinct; costal vein ending at tip of second longitudinal just before apex of wing; apex of inner marginal cell and of fork of third and fourth longitudinal almost in same transverse line; fifth longitudinal not reaching fork of fourth.

This is a doubtful species, but I believe it to be distinct. I have four specimens, taken in *Fagus* bush, in March.

Mycetophila variabilis, sp. nov. Plate XII., fig. 3.

Length of antennæ, 0.090; size of body, 0.187 × 0.033; expanse of wing, 0.198 × 0.071.

Antennæ rather slender; first joint of scapus light-yellow with setæ on lower surface, second joint with setæ all round anterior border; length of each joint of flagellum more than twice the breadth, basal half of each joint yellow, apical half brown, last seven joints entirely brown, covered with short pubescence giving grey reflections. Palpi yellow, covered with black hairs. Front dark-yellow, with short black hairs and a row of long black bristles along the anterior and lateral margins. Thorax dark-yellow, with short and long hairs scattered over its surface; sometimes the thorax is marked with more or less distinct broad dark-brown or black longitudinal stripes, which in extreme forms cover the greater part of its surface. Scutellum varies from yellow to brown, and has four long black bristles situated on its posterior border. Metathorax and pleuræ brown, the latter rather hairy. Abdomen varies from brown to yellow, the posterior margin of each segment being usually far lighter in colour than the anterior portion. Halteres with short stout pedicels bearing rather large clubs, brown in colour, covered with a close short pubescence. Legs stout; coxæ light-yellow, with one or two small spots of brown on the sides; femora light-yellow, in the darker specimens they are conspicuously tipped with black; tibiæ straw-colour, often darker at the tips, with longitudinal rows of black hairs and spines of two sizes, the longer being long and stout; the longer spur almost as long as the metatarsus; joints of tarsus light-yellow, with numerous rows of black hairs and spines on the under-surface. Wings with distinct yellow tinge. Veins dull-yellow, all equally distinct; auxiliary vein short, but not terminating abruptly; second longitudinal uniting with costa some distance before the tip of the wing; often a small black patch at the end of each branch of the longitudinal veins; usually a distinct black patch around marginal cross-veins, also a small one at apex of second posterior cell; fifth longitudinal ending at or a little before apex of second posterior

cell, its distance from the fourth longitudinal differs considerably in different specimens.

This is an extremely common and variable insect. Several varieties seem to be well marked, and subsequent investigation may show that they belong to different species. For the present I have united them, as I am not yet satisfied that some of them belong to different species. The insect may be taken throughout the year, but is especially abundant during the summer months. I have obtained specimens at Wanganui and Lincoln, as well as at several intermediate localities.

Mycetophila robusta, sp. nov.

Length of antennæ, 0.121; size of body, 0.198 × 0.054; expanse of wing, 0.204 × 0.090.

Antennæ slender; joints of scapus not very stout, reddish-yellow, the basal joint setiferous on the lower surface, the upper joint all over the upper margin; flagellum with basal joint in length about four times its breadth, reddish-yellow, others with length about three times their breadth, reddish-yellow on the lower portion, dark-brown above, the yellow portion smaller and the brown portion larger in each succeeding joint as the apex is approached; all joints covered with short pubescence. Palpi reddish-yellow; second and third joints stout, covered with short black hairs; fourth joint very slender and rather longer, and not so densely covered with black hairs. Front reddish-yellow, the anterior margin and lateral margins fringed with stout black hairs. Thorax, scutellum, metathorax, and pleuræ reddish-yellow; thorax with rather short black hairs. Scutellum with four long black spines on posterior portion. Halteres short, reddish-yellow; clubs pyriform, with black pubescence. Abdomen reddish-yellow, darker on the upper surface, covered all over with rather short black hairs. Legs stout; coxæ bright-yellow, setiferous at the end; femora rather dilated, yellow, covered with short black hairs; tibiæ with longitudinal rows of short black hairs, two rows of very long spines and a few shorter ones; tarsi yellow, with longitudinal rows of black hairs and numerous black spines on the under-surface; spurs very long and stout. Wings with pronounced yellow tinge. Veins yellow; tip of costal uniting with tip of second longitudinal almost at the apex of the wing; fifth longitudinal not nearly reaching apex of second posterior cell; sixth longitudinal longer. Black spots on the wing absent or less pronounced than in the last species.

The three last species are very closely allied, and would perhaps be more properly classed as varieties of a single species. The chief distinction between them is their size, but this cannot be considered a specific character if specimens

intermediate between the extremes are found. I have included a large number of specimens, differing considerably in size as well as in markings on the wings and bodies, under *M. variabilis*, but intermediate specimens are very numerous, and undoubtedly link the extremes together sufficiently to justify their inclusion in the same species. Of the present species I have four specimens, taken in forest country on the flanks of the Ruahine Mountains, closely allied to *M. lineola*, Meig., of England.

Mycetophila maculata, sp. nov. Plate XII., fig. 2.

Length of antennæ, 0·049; size of body, 0·103 × 0·024; expanse of wing, 0·110 × 0·055.

Antennæ dark-brown, moderately slender; joints of scapus dark-yellow, first much longer than the second, setæ small; flagellum nearly cylindrical, joints at base much longer than broad, those near the apex about as long as broad, covered with dense pubescence, light near the base but darker near the apex. Palpi dark-yellow. Front dark-brown, with black hair. Thorax dark-brown, lighter on the front and lateral margins, one long spine on each side of the posterior margin. Scutellum dark-brown, with four long black spines on the posterior margin. Metathorax and pleuræ black. Halteres white; club moderate, covered with very fine white pubescence. Abdomen black, with a narrow white stripe on the posterior border of the second, third, fourth, and fifth segments; abdomen greatly compressed, and covered with black hairs. Legs rather slender; coxæ stout, dark-brown on the outer surface and on the tip; femora broad, greatly compressed, basal portion yellow, apical portion black, covered with short black hairs; tibiæ rather stout, with several longitudinal rows of black hairs, and two rows of long black spines; spurs long; tibiæ rather light-coloured, with rows of hairs and with spines on under-surface. Wings with yellowish tinge; brown spot extending from apex of second submarginal cell and origin of third longitudinal to costa; a brown band extending from apex of first longitudinal to the posterior margin, becoming gradually lighter as the posterior margin is approached; apex slightly shaded with brown, also a small area situated beneath the apex of second posterior cell.

This insect is abundant all through the summer. It is closely allied to *M. lunata*, Meig., of England.

BREVICORNU, nov. gen.

Head rather longer than broad. Eyes small, separated by a broad front. Antennæ very short; flagellum not three times as long as the scapus, ending in a sharp point. Ocelli

small. Thorax strongly curved. Abdomen compressed laterally, with six segments in the female. Legs moderately long, rather slender; femora compressed; tibiæ of anterior legs without spines, posterior and intermediate tibiæ with a few very weak spines; spurs rather long and slender; tarsi slender, first joint more than twice as long as any of the succeeding joints. Wings rather shorter than the abdomen, microscopically pubescent. Auxiliary vein short, ending in the costa; first longitudinal ending in the costa at a point more than two-thirds of the length of the wing; second longitudinal vein joining the tip of the costa before the apex of the wing; inner marginal cell rather lengthened, but its apex lies before the apex of the fork of the third longitudinal vein; inner marginal cell not quite closed, as marginal cross-vein is not perfect; petiole of third longitudinal vein not very short; fourth longitudinal vein with very acute fork, the apex of the second posterior cell lying some distance before the apex of the second submarginal cell; fifth longitudinal vein incomplete, ending just beyond the apex of the fork of the second posterior cell.

The character of the antennæ and of the tibiæ I think justify me in establishing a new genus for this species. I have, so far, specimens of but one species.

Brevicornu flava, sp. nov. Plate XII., fig. 4; Plate XIII., fig. 20.

Length of antennæ, 0.020; size of body, 0.100 × 0.021; expanse of wing, 0.088 × 0.033.

Antennæ short; joints of scapus bright-yellow with black hairs, about equal in length; joints of flagellum dark-brown, covered everywhere with a short dense pubescence giving silvery reflections; joints of about equal length, but the basal joints have a breadth about three times their length, while those near the apex are nearly as long as they are broad; terminal joint longer than broad, subconical. A small black patch round both ocelli. Front dark-brown, almost black. Vertex brownish-orange, with scattered hairs about the same colour. Palpi pale-yellow. Thorax dark-yellow, covered with long dark-brown hairs and shorter yellow hairs. Scutellum dark-yellow, fringed with long black hairs. Metathorax and pleuræ dark-yellow. Halteres yellow, small, covered with short pubescence. Abdomen greatly compressed, yellow, but darker on the posterior portion of each segment; terminal segment nearly black; all segments covered sparingly with short black hairs. Legs moderately long, rather slender; coxæ pale-yellow, with a few setæ near the end; femora yellow, rather robust, covered with short black hairs; tibiæ straw-colour, with longitudinal rows of short black

hairs and a few slender short spines; spurs nearly black, being covered with dense black pubescence; tarsi nearly black, with dense covering of short black hairs. Wings rather shorter than abdomen, pellucid, microscopically pubescent. Veins pale straw-colour; costa and first two longitudinals darker, owing to presence of row of black hairs; slight interruption in second longitudinal, just before marginal cross-vein; fork of third longitudinal long, branches nearly parallel for the greater part of their course; fork of fourth longitudinal long, apex situated just before origin of third longitudinal; posterior branch of third longitudinal disappears before reaching margin; posterior branch of fourth longitudinal slightly wavy, not quite reaching the margin; fifth longitudinal just reaching apex of fork of fourth; sixth longitudinal very rudimentary. Forceps of the male rather long and slender, bright-yellow in colour, and densely covered with rather stout short hairs. Abdomen darker than in the female. Lamellæ of the female slender, light at the base but dark-brown at the tip, covered with short soft hairs.

I have only two specimens of this insect, one male and one female, taken in *Fagus* bush at the foot of Mount Torlesse in March.

Brevicornu fragilis, sp. nov. Plate XII., fig. 1.

Length of antennæ, 0·014; size of body, 0·110 × 0·006; expanse of wing, 0·086 × 0·033.

Antennæ longer than in the last species; scapus yellow, both joints cyathiform, the first longer than the second, both with a fringe of black hairs; flagellum dark-brown, slender, about four times the length of the scapus, covered with a fine pubescence. Front black, covered with a greyish pubescence. Thorax greatly curved, black, but covered with greyish hairs; a few long black hairs on the lateral and posterior margins. Scutellum rather long, with a long black hair on each side of the posterior margin. Metathorax dark-brown. Pleuræ black. Halteres with a slender yellow pedicel ending in a white club. Abdomen greatly compressed, laterally black, and covered with hairs; the posterior margins of each segment dark-brown. Legs rather slender; coxæ yellow; femora rather compressed, yellow, with short black hairs; tibiæ rather long, with short spines on the intermediate and posterior pairs; spurs long, nearly black; tarsi long and slender. Wings yellowish. Basal portion of second longitudinal vein continuous; marginal cross-vein short; sixth longitudinal vein longer, but not reaching the margin.

I have several specimens, taken at Lincoln throughout the summer. The figure is rather incorrectly drawn.

EXPLANATION OF PLATES.

PLATE VIII.

- Fig. 1. *Nervijuncta nigrescens*: a, palpus; b, antenna; c, end of abdomen.
 Fig. 2. *Huttonia tridens*: a, palpus; b, end of abdomen; c, base of antenna.
 Fig. 3. *Macrocera montana*.

PLATE IX.

- Fig. 1. *Macrocera scoparia*.
 Fig. 2. *Bolitophila luminosa*.
 Fig. 3. *Ceroplastus dendyi*.
 Fig. 4. *Platyura ordinaria*.
 Fig. 5. *Sciophila hirta*.

PLATE X.

- Fig. 1. *Sciophila fagi*.
 Fig. 2. *Parvicellula triangula*.
 Fig. 3. *Tetragoneura novae-zealandiae*.
 Fig. 4. *Cyrtoneura hudsoni*.
 Fig. 5. *Aneura boletinoides*.

PLATE XI.

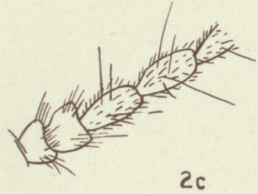
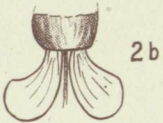
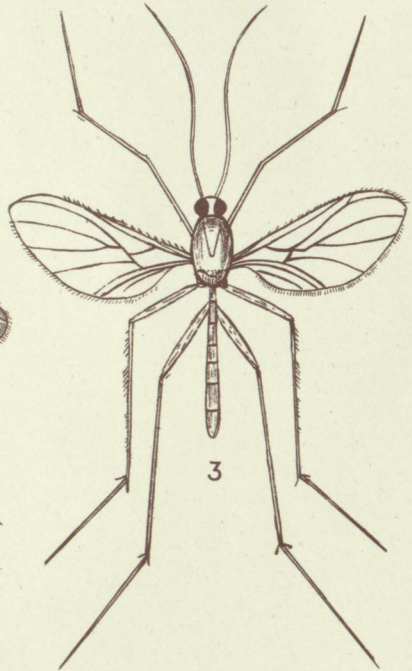
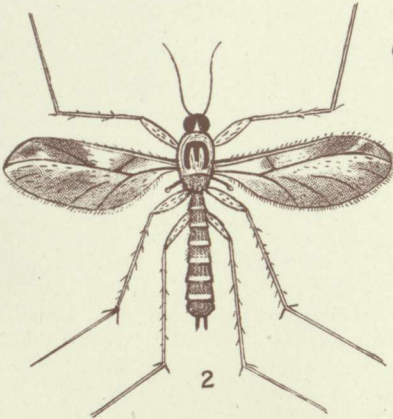
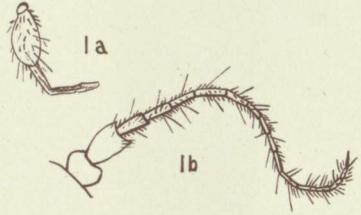
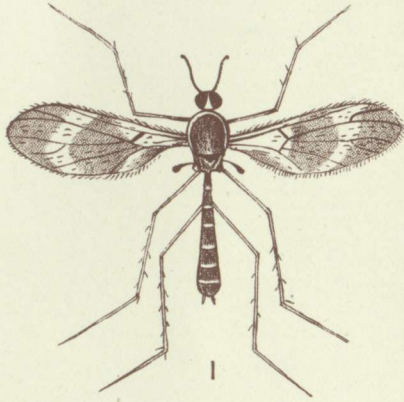
- Fig. 1. *Euryceras anaclinoides*.
 Fig. 2. *Brachydicrania hiemalis*.
 Fig. 3. *Anomala guttata*.
 Fig. 4. *Aphelomera skusei*.
 Fig. 5. *Cycloneura flava*.
 Fig. 6. *Zygomya flavicoxa*.

PLATE XII.

- Fig. 1. *Brevicornu fragilis*.
 Fig. 2. *Mycetophila maculata*.
 Fig. 3. *Mycetophila variabilis*.
 Fig. 4. *Brevicornu flava*.
 Fig. 5. *Paradoxa fusca*.

PLATE XIII.

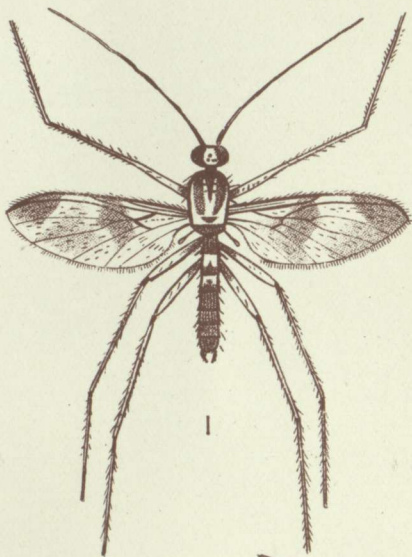
- Fig. 1. Proboscis and palpi of *Cyrtoneura hudsoni*.
 Fig. 2. Base of antenna of *Cyrtoneura hudsoni*.
 Fig. 3. Antenna of *Ceroplastus leucoceras*.
 Fig. 4. Scapus and basal joint of flagellum of antenna of *Bolitophila luminosa*.
 Fig. 5. Scapus and basal joints of flagellum of *Platyura magna*.
 Fig. 6. Palpus of *Platyura magna*.
 Fig. 7. Forceps of male of *Platyura magna*.
 Fig. 8. Palpus of *Parvicellula triangula*.
 Fig. 9. Scapus and basal joints of flagellum of *Parvicellula triangula*.
 Fig. 10. Palpus of *Tetragoneura nigra*.
 Fig. 11. Scapus and basal joints of flagellum of *Tetragoneura nigra*.
 Fig. 12. Palpus of *Aneura boletinoides*.
 Fig. 13. Scapus and basal joints of flagellum of *Aneura boletinoides*.
 Fig. 14. Palpus of *Euryceras anaclinoides*.
 Fig. 15. Scapus and basal joints of flagellum of *Euryceras anaclinoides*.
 Fig. 16. Palpus of *Anomala guttata*.
 Fig. 17. Scapus and basal joints of flagellum of *Anomala guttata*.
 Fig. 18. Palpus of *Brachydicrania hiemalis*.
 Fig. 19. Scapus and basal joints of flagellum of *Brachydicrania hiemalis*.
 Fig. 20. Scapus and basal joints of flagellum of *Brevicornu flava*.



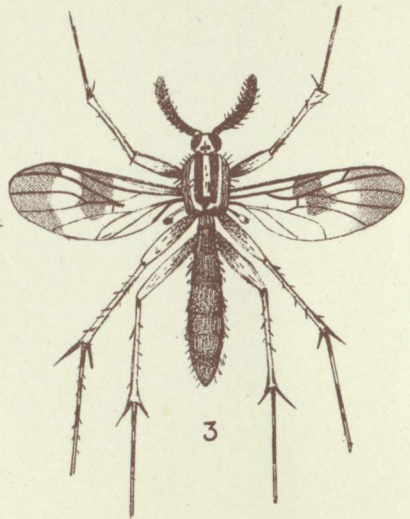
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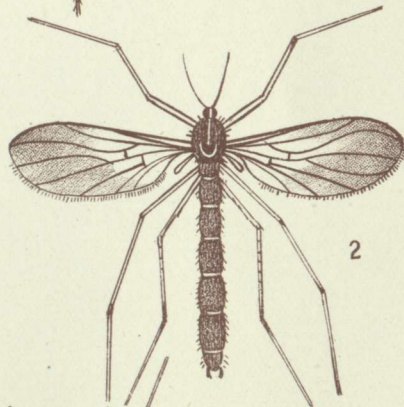
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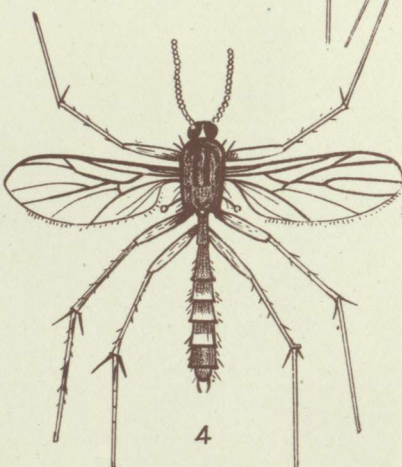
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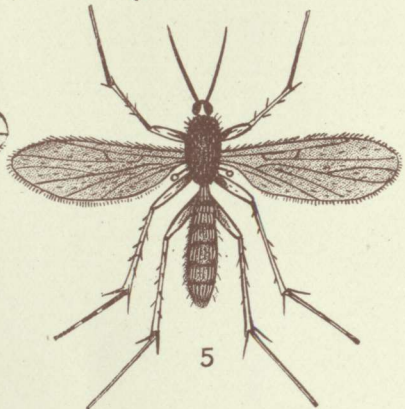
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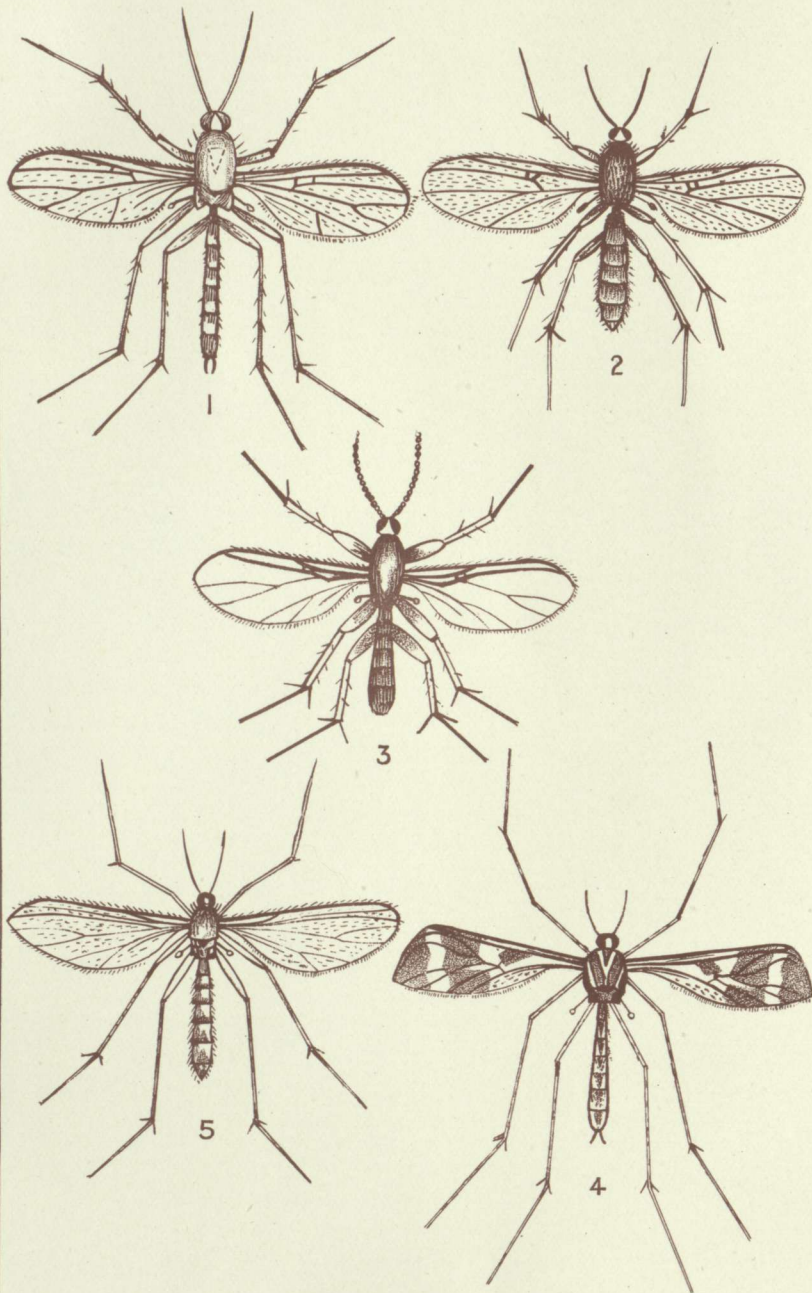


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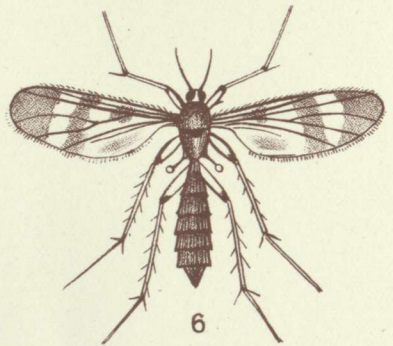
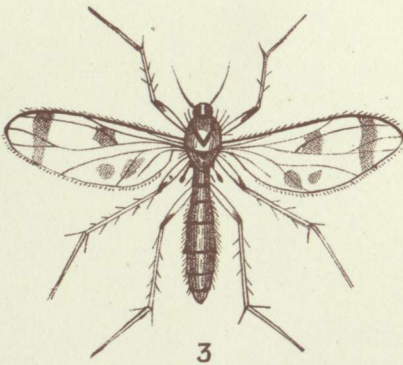
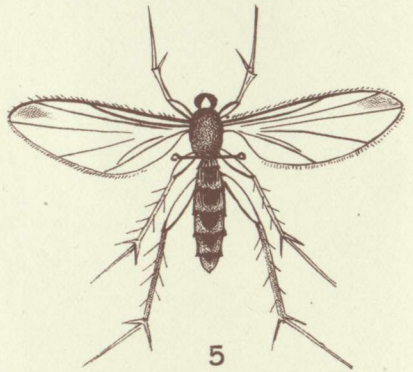
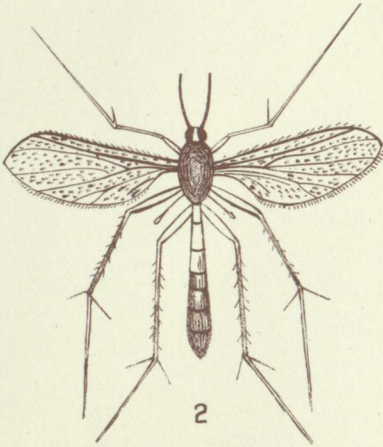
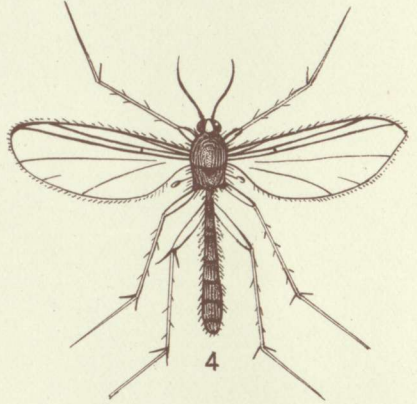
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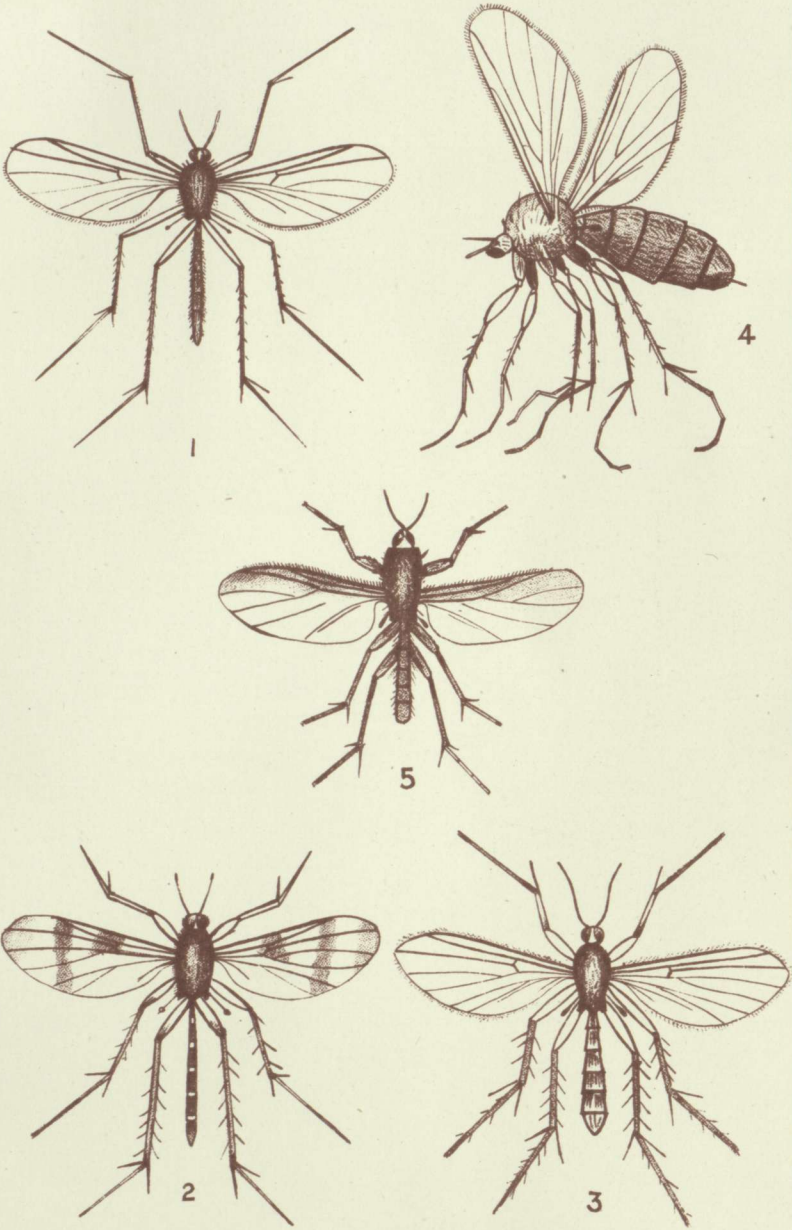
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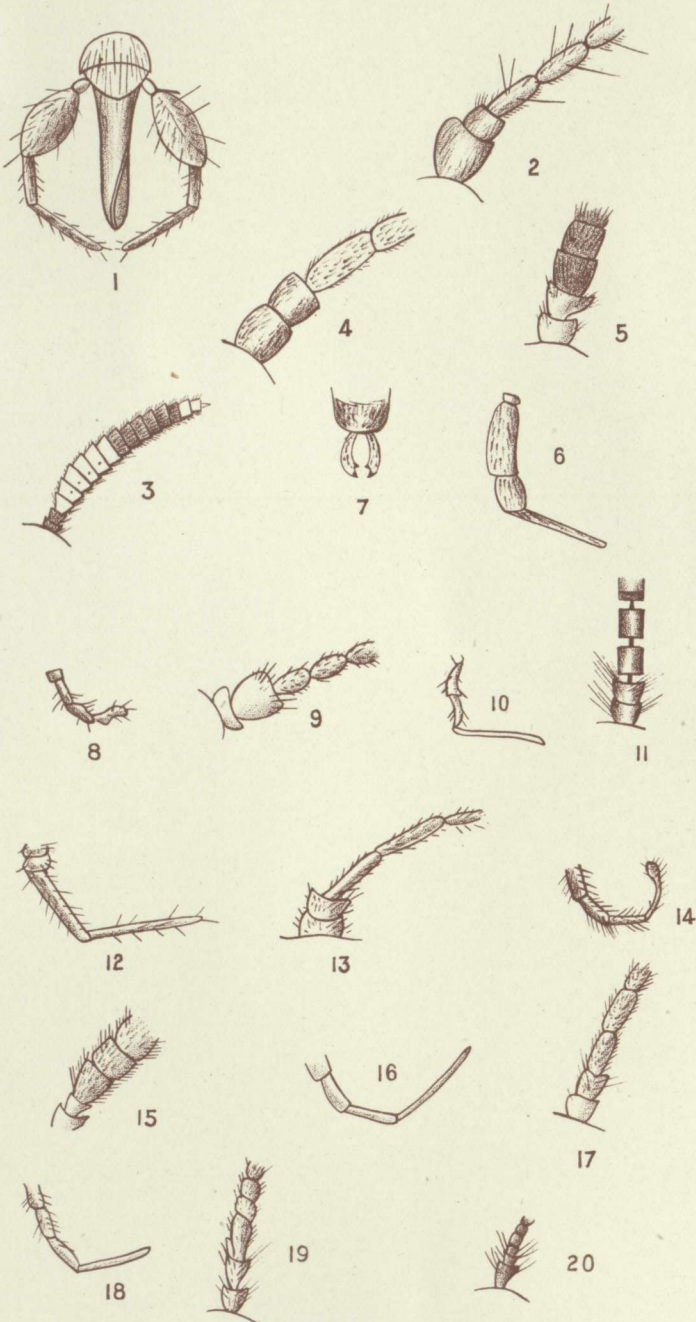
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