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I.—ZOOLOGY.

ART. I.—*Descriptions of New Zealand Micro-Lepidoptera.*

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THE present paper is the first of a series, which I hope to publish from time to time, describing the whole of the *Micro-Lepidoptera* of New Zealand; including under that term the *Pyralidina*, *Pterophorina*, *Tortricina* and *Tineina*. My intention is to take a family at a time, and monograph it as completely as is at present possible, prefacing each with some general remarks on its classification and affinities, and the inferences which may be drawn from its distribution with relation to New Zealand. For the sake of convenience and expedition, I shall not take the families in their natural order, but according as for various reasons they are easiest treated.

The most essential character for classification is the neuration, and it is absolutely necessary that this should be investigated for the accurate determination of genera. It is not, however, by any means always necessary that a specimen should be denuded of scales for the purpose; with the aid of a lens the veins can generally be made out by inspection of the under-surface of the wing, where they are more prominent, especially if one has previously examined types of the principal groups and learnt what to look for. The terminology employed hereafter is that generally in use on the Continent of Europe, and from its simplicity and adaptability is far superior to the awkward and confusing nomenclature sometimes adopted. The veins are all numbered, starting from the one nearest the inner margin, and ending with the one nearest the costa. Typically, there are in the forewings twelve veins, 1 and 12 being free, and the other ten springing from the margins of a central cell, consisting of an upper, lower and hind-margin, often called the sub-costal, median (or upper and lower median), and transverse veins; sometimes there is a partition-vein in the upper part

of the cell, forming a secondary cell; there are, also, two free false veins, often obsolete, one on each side of vein 1, known as 1a and 1b. The structure of the hindwings is the same, except that there are only six veins rising from the cell, or eight altogether. Any two veins may coincide partially, when they appear to rise from a common stalk; or wholly, when their number appears diminished. In the lowest groups of the *Tineina* the venation is commonly very incomplete, without any distinct cell. The other points of structure to be especially noted are the form of the labial palpi, the absence or development of the maxillary palpi, the antennæ, the scaling of the head (in the *Tineina*), and some minor details. The legs and abdomen very rarely afford any characters worthy of notice. It must, also, be especially borne in mind that the form of the wings is in general almost valueless for generic distinction and should never be relied on; but exception may be made in the hindwings of some of the *Tineina*, which from their great diversity often furnish serviceable points of distinction. The measurements in the following descriptions are given in millimetres (for practical purposes, 25 = 1 inch), which have the advantage of being comprehensible without confusion in all countries, and are now very commonly adopted.

Little need be said of what has been hitherto done in the investigation of the *Micro-Lepidoptera* of New Zealand. Doubleday and Zeller have incidentally described a very few, only about a dozen altogether; their descriptions are excellent and all easily recognizable. I am indebted to Prof. Zeller for sending me his original figures of the New Zealand species of *Crambus* described by him, to ensure their accurate determination. Felder has figured a small number of species, but as his figures are commonly poor and hard to identify, and his classification wholly conjectural, it would have been better if he had left them alone. Walker, in his British Museum Catalogue, has described a good many; but his work, as I have elsewhere sufficiently pointed out, is useless for scientific purposes. His descriptions are strictly, almost always quite, unidentifiable; but I have adopted his specific names from a comparison of the types, when it appeared that the specimens standing as types are really those intended by the description, and when the types are, also, themselves recognizable, which is by no means always the case. But as genera are not realities but abstractions, I have conceived it to be impossible to adopt his generic titles, unless the characters given really indicate the distinctive points of the genus, which hardly ever happens. Latterly Mr. A. G. Butler, of the British Museum, has turned his attention to these groups, but, I grieve to say, with most unsatisfactory results. For example, as I have pointed out hereafter, he has described three typical species of

Crambus and referred them separately to the *Galleridæ*, *Phycidæ*, and *Chilonidæ*, three groups which do not even, so far as is known, occur in New Zealand at all. In the same paper he has described the sexes of one of the *Tortricina* as two distinct species, and placed them in two distinct genera in different families, when in fact the species was not in the least allied to either of those genera, and the sexes, though slightly differing in appearance, are precisely identical in structure. I could multiply instances, but they will be referred to in their proper place, and I desire now only to point out clearly that Mr. Butler's authority on these groups is as unreliable as that of Walker.

The *Crambidæ*, which form the subject of the present paper, are represented in New Zealand, so far as is at present known, by 29 species, of which 16 are here described for the first time. The character of this fauna is very interesting. Seventeen species, or more than half, belong to the genus *Crambus*; this cosmopolitan genus is nearly equally plentiful throughout the world, but it is very remarkable that it is almost entirely absent from Australia, whence are known only two species, of which certainly one, and perhaps both, do not belong to the indigenous fauna, and neither is related to the New Zealand species. These latter form a single connected group, diverging from a common centre, which appears to be *C. vittellus*, the commonest and most variable species of the group, and very similar to some European forms. From the unity of the group, and its connection with the rest of the genus at one point only, it is natural to infer its common origin; but it seems hardly probable that this origin should have been by way of Australia, or representatives would have been found there, as they are universally elsewhere. Nine species belong to the peculiar and very distinct genus *Diptychophora*; besides these there are as yet only four other species of the genus known, three being from South America, and the fourth from Australia. The South American species are nearly allied to most of those inhabiting New Zealand, so that we have here another very clear illustration of the affinity between the fauna of South America and that of New Zealand, which is indicated in several other groups of animals and plants. Not much stress can be laid on the single Australian species, though it is of a rather peculiar type, differing markedly from any other. The remaining three species of the family are referable to three different genera, one of these being *Thinasotia*, very largely represented in Australia; the New Zealand species is very distinct, yet perceptibly allied to a Tasmanian species. The other two genera are endemic, and apparently form transitional links between *Thinasotia* and *Diptychophora*, so that they may perhaps be regarded as approaching in character the common progenitors of these two very distinct genera. In connection with the above may be noticed the entire absence of the large nearly-allied family of the *Phycidæ*, which occur

in tolerable plenty throughout the whole world, the Australian species being numerous and in the main very similar to those found elsewhere. The *Galleridæ*, a small family of world-wide distribution, are also not found, and the cosmopolitan genera *Schænobius*, *Scirpophaga*, *Chilo*, and *Prionopteryx*, are similarly remarkable by their absence.

The above remarks are not intended to express final conclusions, but only to call attention to inferences which seem fairly deducible from the facts known, as a means to the rational classification of the group.

I desire to acknowledge my great indebtedness in the preparation of these papers to Mr. Fereday, whose very valuable and extensive collection has been freely placed at my disposal in the interests of science; without his assistance it would have been impossible for me to have treated the subject with any degree of completeness.

CRAMBIDÆ.

Labial palpi porrected, generally long. Maxillary palpi triangular, porrected, conspicuous. Forewings with 12 veins (rarely fewer, but not in New Zealand genera), vein 1 simple, 8 and 9 stalked, 7 sometimes from same stalk. Hindwings with 8 veins (rarely 7, but not in New Zealand genera), 4 and 5 often stalked, 7 and 8 stalked, lower median vein pectinated at base.

In the absence of the *Phycidæ*, this family is not likely to be confused with any other in New Zealand, except with the group of *Scoparia* and its allies; some of these latter approach nearly to *Crambus* in superficial appearance, but may be invariably recognised by the absence of the basal pecten, or fringe of hairs, on the upper surface of the lower median vein of the hindwings. Care must be taken to note the right vein, as the other veins often bear basal pectinations which are not of the same importance.

Five genera are represented in New Zealand, which may be thus distinguished:

- A. vein 7 of forewings separate.
 - I. vein 11 of forewings coalescing with 12 before costa 4. *Diptychophora*.
 - II. " " " separate.
 - a. forewings with raised tufts of scales on surface 2. *Cryptomima*.
 - b. " smooth.
 - 1. female with abbreviated wings 3. *Scenoplaca*.
 - 2. " fully developed 1. *Thinastotia*.
- B. " " " rising out of stalk of 8 and 9 5. *Crambus*.

1. THINASTOTIA, Hb.

Antennæ of male finely ciliated. Labial palpi long, attenuated. Forewings with 12 veins, 8 and 9 stalked. Hindwings with 8 veins, 4 and 5 stalked or from a point, 6 widely remote at origin from 7, 7 and 8 stalked, cell closed.

This genus is largely represented in Australia, but very little elsewhere; I have only one New Zealand species. None of the larvæ are known, but from the habits of the imago there can be no doubt that they feed on grasses, probably amongst the roots. The imagos are commonly large and handsomely marked, but the New Zealand species is one of the dullest in colouring.

1. *Thin. leucophthalma*, n. sp.

Male, female.—19–23 mm. Head light greyish-ochreous, sometimes fuscous-tinged. Palpi light greyish-ochreous, strongly mixed with blackish-fuscous, labial palpi very long. Antennæ greyish-fuscous. Thorax light greyish-ochreous, more or less strongly mixed with blackish-fuscous. Abdomen whitish-ochreous, suffusedly irrorated with dark fuscous. Legs whitish-ochreous, irrorated with dark fuscous; anterior and middle tibiæ and tarsi suffused with blackish except at apex of joints, posterior tarsi dark fuscous towards base of joints. Forewings moderately broad, triangular, costa very slightly arched, somewhat bent before apex, apex obtusely pointed, hindmargin moderately oblique, rather strongly sinuate below apex; ochreous-whitish, when fresh slightly pinkish or purplish-tinged, thickly and coarsely irrorated with dark fuscous, towards inner margin slightly more ochreous-tinged, and towards disc more or less strongly suffused with light ochreous-fuscous; a small irregular black spot on inner margin almost at base, and a similar one below costa almost at base; an irregular sinuate longitudinal black streak, attenuated at extremities, extending almost from base along submedian fold to $\frac{1}{3}$ from base; an elongate-ovate black spot in disc rather above and beyond posterior extremity of the sinuate streak, anterior end rather acute; a rather ill-defined dark fuscous transverse line, preceded by a pale line, from costa at $\frac{2}{5}$ to middle of inner margin, most distinct on costal half, twice dentate beneath costa, bent round posterior extremity of the black spot, and again twice dentate above inner margin; a short suffused inwardly oblique dark fuscous mark on costa beyond middle; a sharply-defined obliquely transverse elongate white black-margined spot in disc at $\frac{3}{5}$, upper part slightly greyish-tinged; a double indistinctly dentate dark fuscous transverse line, enclosing a pale line, from about $\frac{4}{5}$ of costa to inner margin a little before anal angle, upper third rather inwardly oblique, lower two-thirds strongly outwards-curved, forming indistinct spots on costa and in middle: cilia ochreous-whitish, with two ill-defined dark grey lines. Hindwings whitish-fuscous-grey, with an indistinct darker band along hindmargin, not extending to anal angle, closely preceded by an indistinct suffused dark line; cilia ochreous-whitish, with a broad fuscous-grey line near base, and a much fainter one posteriorly.

Nearest to *T. impletella*, Walk., and *T. longipalpella*, Meyr., and somewhat intermediate between these two species, but not capable of confusion with them or any other; the black markings towards base are a sufficient distinction.

I have only met with this species in one place on the grassy volcanic hills near Christchurch, where it was sufficiently common in March.

2. CRYPTOMMA, n. g.

Antennæ of male shortly ciliated. Labial palpi long, attenuated. Forewings broad, surface with tufts of raised scales; with 12 veins, 8 and 9 stalked. Hindwings with 8 veins, 4 and 5 stalked, 6 widely remote at origin from 7, 7 and 8 stalked, cell closed.

Nearly allied to *Thinasotia*, from which it can only be distinguished by the tufts of scales on the forewings, though in superficial appearance and habit very dissimilar; in these respects it approaches *Diptychophora*, but differs considerably in venation. The larva probably feeds on moss or lichens. The genus is probably confined to New Zealand; I have only one species.

1. *Crypt. acerella*, Walk.

(*Gadira acerella*, Walk., Brit. Mus. Cat. Suppl., 1742; *Botys mahanga*, Feld., Reise der Novara, Pl. CXXXVII., 27.)

Male, female.—17–18½ mm. Head light greyish-ochreous, mixed with white on crown, with a white stripe along anterior margin of eyes. Maxillary palpi pale greyish-ochreous, with a dark fuscous band, apex white. Labial palpi pale greyish-ochreous, mixed on side with dark fuscous, and above and internally with white. Antennæ pale greyish-ochreous. Thorax pale ochreous mixed with dark fuscous, and on back with white. Abdomen ochreous-whitish, suffused with ochreous-fuscous except at apex of segments. Legs dark ochreous-fuscous, middle and posterior tibiæ banded with ochreous-whitish, all tarsi with ochreous-whitish rings at apex of joints. Forewings broad, triangular, costa at first straight, slightly sinuate in middle, strongly arched towards apex, apex obtuse, hindmargin sinuate above and again below middle, moderately oblique; dull ochreous-fuscous, with scattered black scales; veins on basal half of wing marked by white lines; some whitish scales towards basal third of costa; a short suffused white streak along costa beyond middle; a very inwardly oblique white line from costa at $\frac{3}{8}$ to submedian fold near base, obliterated on veins, only distinct at extremities; a straight double white line from middle of costa to before middle of inner margin; a blackish 8-shaped mark in disc beyond middle, upper half containing a spot of ground-colour, lower half a clear white spot; a ridge-like tuft of raised scales below middle of disc; a strongly outwards-curved double white line from $\frac{1}{4}$ of costa to $\frac{3}{4}$ of inner margin, inner edge

preceded by an obscure whitish suffusion; an irregular dented suffused white mark at apex; an irregular white line along hindmargin, tending to form a spot in middle, and two confluent spots below middle; hind-marginal edge blackish: cilia greyish-ochreous, more whitish at anal angle, with two suffused darker fuscous lines, and with a white spot above apex. Hindwings whitish-fuscous-grey, with a dark grey spot before middle, a narrow irregular well-defined grey band close before hindmargin, and a sinuate grey line closely preceding band; an interrupted blackish-grey hind-marginal line; cilia grey-whitish, with a grey line near base.

Peculiar in facies, readily known by the two double white transverse lines.

Tolerably common at Christchurch on fences and old walls in January, and I have also taken it at light; occurs also at Dunedin. Mr. R. W. Fereday informs me that the imago has the same habits as *Dipt. elaina*, whence it is probable that the larva feeds in the same way.

3. SCENOPLOCA, n. g.

Antennæ of male crenulate, ciliated. Labial palpi moderately long, terminal joint slender, exposed, hairs of second joint produced beneath into an obliquely projecting tuft. Wings in female much abbreviated, incapable of flight. Forewings with 12 veins, 8 and 9 stalked. Hindwings with 8 veins, 4 and 5 from a point, 6 widely remote at origin from 7, 7 and 8 stalked, cell closed.

This genus is nearly allied in venation and other respects to the two preceding, but is distinguished from all by the abbreviated wings of the female; the palpi also afford a noticeable character, for the long projecting hairs of the second joint, instead of being appressed to the terminal joint, are sufficiently depressed to form a very distinct oblique tuft, but some species of *Thinasotia* show traces, though less marked, of a similar structure. The larva is of the normal type, and feeds on lichens. Only one species is as yet known to me.

1. *Scen. petraula*, n. sp.

Male.— $16\frac{1}{2}$ –20 mm. Head grey-whitish, forehead blackish. Palpi blackish, apex of maxillary palpi, and of second and terminal joints of labial palpi, grey-whitish. Antennæ dark fuscous. Thorax grey-whitish, shoulders mixed with blackish, back wholly suffused with blackish. Abdomen ochreous-grey-whitish. Anterior and middle legs black, tarsi with a white ring at base of first three joints, middle tibiæ with a suffused whitish median band; posterior tibiæ grey towards base and at apex whitish, tarsi ochreous-white with a dark grey band on each joint. Forewings triangular, moderate or rather narrow, costa very slightly arched, somewhat more before apex, apex rounded, hindmargin regularly rounded, oblique; white,

more or less slightly greyish-tinged, closely but irregularly irrorated with blackish; a suffused curved blackish spot extending from inner margin near base to base of costa; an irregular oblique blackish patch in disc at $\frac{1}{3}$ from base, extending suffusedly to costa, and suffusedly connected beneath with a small blackish spot on inner margin at $\frac{1}{4}$, its posterior edge bordered by a pale oblique outwardly curved line from $\frac{1}{3}$ of costa to before middle of inner margin, shortly dentate at $\frac{1}{3}$ from costa, posteriorly margined by a blackish line, forming a small spot on costa and a rather larger one on inner margin; a small oblique transverse clear white spot in disc beyond middle, surrounded by a blackish suffusion, forming a black spot below middle, and a black spot on costa at $\frac{3}{5}$; an indistinct obscurely-dentate pale line, margined on each side indistinctly with blackish, from costa at $\frac{4}{5}$ to inner margin before anal angle, somewhat angulated inwards below costa, thence gently curved, anterior black line forming two small confluent black spots towards inner margin, posterior line forming a blackish wedge-shaped spot on costa: cilia ochreous-white, with a regularly-interrupted blackish-grey line towards base, and another towards extremities, costal cilia white, with a blackish-grey spot above last transverse line. Hindwings grey, rather darker posteriorly, with a faintly indicated pale line a little before hindmargin; cilia ochreous-grey-whitish, with two light grey lines.

Female.— $9\frac{1}{2}$ – $11\frac{1}{2}$ mm. Forewings very narrow, oblong; hindwings proportionately shorter, rounded; markings as in male, but cramped and obscured.

Superficially the male of this species rather suggests a small dark *Thin. leucophthalma*, especially by the similarity of the white discal spot, but the black basal markings of the latter species afford a ready distinction.

I found this species plentifully, sitting on the face of the bare volcanic rock which projects in many places from the soil of the hills near Christchurch; it was reluctant to take wing, perhaps owing to the prevalence of high winds. The female, when disturbed, ran with considerable activity, but was quite incapable of flying.

Larva moderately stout, cylindrical, wrinkled, very sluggish; rather dark greyish-fuscous on back, much lighter on sides; spots minute, blackish, obscure; head fuscous. Feeds beneath a light shelter of silk on lichen-dust on rocks, living in a crevice, and issuing forth beneath its shelter to feed. I found the imago in fresh condition in March, and at the same time I discovered the larva in all stages, so that there is probably a succession of broods.

4. DIPTYCHOPHORA, Z.

Antennæ of male very finely ciliated. Labial palpi rather short, somewhat triangular. Forewings with hindmargin twice indented on upper half;

with 12 veins, 8 and 9 stalked, 11 coalescing with 12 before costa. Hindwings with 8 veins, 5 from above angle of cell, 6 moderately approximated to 7, 7 and 8 stalked, cell closed.

A very distinctly characterized genus, of the general type of *Thinastota*, but with vein 11 of the forewings running into 12 before reaching costa, vein 5 of the hindwings rising from the transverse vein above the angle of cell, and the hindmargin of forewings twice indented above middle. The venation of all the New Zealand species is perfectly constant. Three species have been described from South America, and one from Australia; nine are here given, so that the genus apparently reaches its maximum of development in New Zealand. The species are all rather small insects, with broadly triangular forewings, generally rather elegantly marked, the markings consisting typically of two slender transverse lines, a white or metallic discal spot, and generally three black spots on lower part of hind margin. The larva feeds in moss. The imagos are often overlooked, and probably many more will be discovered.

The species here described may be thus distinguished:—

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|--|----|----|----|----|----|----|----|----------------------------|
| A. Discal spot obsolete | .. | .. | .. | .. | .. | .. | .. | 1. <i>pyrsophanes</i> . |
| B. „ „ distinct | | | | | | | | |
| 1. Discal spot black | .. | .. | .. | .. | .. | .. | .. | 9. <i>elaina</i> . |
| 2. „ „ wholly white | | | | | | | | |
| a. Hindwings dark fuscous | .. | .. | .. | .. | .. | .. | .. | 8. <i>helioclypa</i> . |
| b. „ „ grey or white | | | | | | | | |
| i. Discal spot with three projecting teeth | .. | .. | .. | .. | .. | .. | .. | 3. <i>astrosema</i> . |
| ii. „ „ „ one projecting tooth | | | | | | | | |
| * Hindwings grey | .. | .. | .. | .. | .. | .. | .. | 4. <i>lepidella</i> . |
| ** „ clear white | .. | .. | .. | .. | .. | .. | .. | 5. <i>leucoxantha</i> . |
| 3. Discal spot more or less leaden-metallic | | | | | | | | |
| a. Hindwings white | .. | .. | .. | .. | .. | .. | .. | 6. <i>metallifera</i> . |
| b. „ „ grey | | | | | | | | |
| i. First transverse line strongly dentate above inner margin | .. | .. | .. | .. | .. | .. | .. | 2. <i>chrysochyta</i> . |
| ii. „ „ „ regularly curved | .. | .. | .. | .. | .. | .. | .. | 7. <i>auriscriptella</i> . |

1. *Dipt. pyrsophanes*, n. sp.

Male, female.—13½–16 mm. Head ochreous or brownish-ochreous. Palpi light yellowish-ochreous, externally more brownish. Antennæ dark fuscous. Thorax rather dark purplish-fuscous. Abdomen dark purplish-fuscous, with a light yellowish ring near base. Legs clear whitish-ochreous. Forewings triangular, very broad posteriorly, costa very gently arched, apex rounded, hindmargin oblique, indentations moderately deep; ochreous-brown, almost wholly suffused with dark purplish-fuscous except narrowly along hindmargin and more broadly at apex and anal angle, and finely irrorated with grey, especially towards costa and disc beyond middle; a

very small triangular yellow spot on inner margin at $\frac{1}{4}$; an equally small rather subquadrate yellow spot on inner margin at $\frac{3}{4}$, with a pale yellow dot rather above and beyond its apex; a very faintly perceptible darker transverse line from costa at $\frac{1}{2}$ to first dorsal spot, sharply angulated outwards beneath costa; a suffused darker spot in disc above and beyond middle; a small outwardly oblique triangular pale yellow spot on costa at $\frac{3}{4}$, sometimes closely preceded by a faint oblique yellowish costal mark; a very small suffused pale yellowish spot on costa before apex; a dark fuscous dot in apex, preceded by a clear white dot; sometimes a white dot on hindmargin in upper indentation; a slender dark fuscous hindmarginal line: cilia whitish ochreous, with a dark grey line near base, on indentations wholly clear white, a dark grey spot at apex, another between indentations, a third above anal angle, a fourth on anal angle. Hindwings fuscous-grey, with a very indistinct darker line posteriorly; a dark fuscous hindmarginal line; cilia grey-whitish, with a grey line near base.

Very distinct through the dark purplish-fuscous suffusion of the forewings, causing the discal spot to be obsolete, and throwing the yellow marginal spots into sharp relief; the spotted cilia also afford a good character.

Common at Wellington in January amongst scrub, and also at Lake Wakatipu; probably widely distributed.

2. *Dipt. chrysochyta*, n. sp.

Male.— $11\frac{1}{2}$ –12 mm. Head and thorax pale ochreous. Palpi ochreous-yellow, with a dark fuscous spot at base and apical half dark fuscous, internally whitish-ochreous. Antennæ whitish-ochreous. Abdomen whitish-ochreous-grey. Legs pale whitish-ochreous. Forewings triangular, very broad posteriorly, costa very gently arched, apex rounded, hindmargin oblique, sinuations moderately deep; light yellowish-ochreous, apex and hindmargin narrowly suffused with brownish, in one specimen basal half wholly suffused irregularly with brownish; a well-defined double dark fuscous transverse line from costa near base to inner margin before middle, very strongly curved outwards, dentate inwardly a little above inner margin, enclosing a pale line becoming almost clear white on inner margin; an oblique dark fuscous mark on costa beyond middle, giving rise to an indistinctly dentate suffused brown transverse line to middle of inner margin, which it hardly reaches; this line bounds the brown suffusion in the darker specimen; on it, rather above middle, is a small transverse 8-shaped spot, upper half leaden-metallic, lower half clear white; a slender rather irregular dark fuscous transverse line from costa at $\frac{2}{3}$ to inner margin at $\frac{3}{4}$, upper two-thirds very strongly curved outwards, lower half nearly followed by a similar line, diverging a little on inner margin; this line is preceded and

followed on costa by a pale yellowish spot, and the space between it and the suffused median line is more distinctly yellow, especially below discal spot; an oblique pale yellowish mark on costa before apex, terminating in a rather metallic white dot; three slender longitudinal leaden-metallic streaks extending from discal spot to hindmargin, lowest one not reaching discal spot; a leaden metallic line within the second double transverse line from below middle almost to inner margin; three small quadrate black spots on hindmargin near together below middle: cilia violet-metallic-grey, with a deeper basal line. Hindwings grey, with a dark fuscous hindmarginal line: cilia grey-whitish, with an indistinct darker line.

The smaller species of the genus; it is a rather brightly-marked insect, with considerable affinity to *D. auriscriptella*, but darker, and with the first line strongly dentate beneath.

Two specimens taken at Auckland amongst scrub in January.

3. *Dipt. astrosema*, n. sp.

Male.—15–16 mm. Head white, ochreous-tinged behind. Palpi dark fuscous, internally and beneath white; apex of maxillary palpi white. Antennæ whitish-ochreous. Thorax light ochreous, with a few white scales. Abdomen and legs whitish. Forewings triangular, broad, costa almost straight, somewhat arched towards apex, apex rounded, hindmargin oblique, sinuations moderate; light rather bright ochreous-brown, mixed with darker in disc and towards apex; a small very suffused white spot beneath base of costa; a triangular snow-white blotch in disc towards base, its apex touching base of wing, its sides parallel to costa and inner margin, its base resting on first transverse line; first transverse line slender, dark fuscous, from costa at $\frac{1}{3}$ obliquely outwards to upper angle of white blotch, thence sharply bent inwards and continued to inner margin at $\frac{1}{3}$; a moderately large oblong snow-white dark-margined spot in disc beyond middle, parallel to hindmargin, its upper extremity sending a rather long sharp tooth towards costa and another towards hindmargin, its lower extremity sending a third towards anal angle; second transverse line from $\frac{4}{5}$ of costa to $\frac{4}{5}$ of inner margin, slender, almost obsolete, followed on costa by a suffused white triangular spot, beneath which is a small white suffusion on anterior side of line; a small white spot in apex, and a whitish suffusion in anal angle; four rather indistinct leaden-metallic longitudinal lines between discal spot and hindmargin; three small subquadrate black spots near together on hindmargin below middle: cilia shining white, with a blackish-grey line. Hindwings dull whitish, slightly greyish-tinged, with a dark grey hind-marginal line; cilia whitish, with an indistinct grey line near base.

Very distinct through the peculiar three-toothed discal spot and the white blotch towards base; allied to *D. lepidella* and *D. leucoxantha*, and in respect of the hindwings intermediate.

Three specimens taken by Mr. R. W. Fereday at Christchurch, Nelson, and Akaroa respectively, in January.

4. *Dipt. lepidella*, Walk.

(*Eromene lepidella*, Walk., Brit. Mus. Cat. Suppl. ; *Crambus gracilis*, Feld., Reise der Novara, Pl. CXXXVII., 26.)

Male, female.— $19\frac{1}{2}$ – $20\frac{1}{2}$ mm. Head, antennæ and thorax pale ochreous. Palpi dark fuscous, at base white beneath. Abdomen whitish-grey-ochreous. Legs whitish-ochreous. Forewings triangular, broad, costa slightly arched, apex rounded, hindmargin oblique, sinuations moderate; pale yellowish-ochreous; costa somewhat suffused with brownish towards base; a very slender sometimes indistinct dark fuscous transverse line from costa at $\frac{1}{3}$ to inner margin before middle, costal third straight, outwardly oblique, thence irregular, rather strongly bent inwards a little above inner margin; a small longitudinally-placed semicircular silvery-white spot in disc beyond middle, its anterior angle shortly and narrowly produced upwards; a short linear dark fuscous mark along middle of costa; a very slender sometimes indistinct dark fuscous transverse line from costa at $\frac{4}{5}$ to inner margin at $\frac{4}{5}$, suddenly bent outwards beneath costa, thence moderately outwards-curved, lower third sinuate; sometimes a triangular brown patch on costa immediately beyond first transverse line, extending suffusedly to beneath discal spot; a small suffused brown spot on costa a little beyond second transverse line, sometimes giving rise to a brown suffusion extending to beneath discal spot where it meets the first suffusion, but both these are sometimes wholly obsolete; three short linear longitudinal leaden-metallic streaks crossing second transverse line above middle, and three very short similar streaks below middle; a dark fuscous hindmarginal line; three small roundish black spots close together on hindmargin below middle: cilia shining grey, with a dark metallic-grey basal line. Hindwings fuscous-grey, with an indistinct darker posterior line, and a dark fuscous hindmarginal line; cilia grey with a faint darker line.

Most allied to *D. leucoxantha*, which it resembles in the character of the discal spot, but is immediately known by the duller ground-colour and grey hindwings; in superficial colouring it is very similar to *D. auriscriptella*, but is considerably larger, and the discal spot is wholly different. The brownish suffusion in this species is very variable, as in *D. chrysochyta*.

I took four specimens at Dunedin at light in January; Mr. R. W. Fereday has met with it at Christchurch and Lake Wakatipu in the same month.

5. *Dipt. leucoxantha*, n. sp.

Female.—19 mm. Head and thorax light orange-ochreous. Palpi ochreous-orange, base, apex and upper surface mixed with dark fuscous. Antennæ whitish-ochreous. Abdomen ochreous-whitish, posteriorly suffused with grey. Legs whitish-ochreous. Forewings triangular, very broad posteriorly, costa very gently arched, apex rounded, hindmargin oblique, sinuations moderate; light ochreous-orange, becoming deeper orange posteriorly, especially towards apex; transverse lines obsolete, second faintly perceptible, slightly darker, sinuate and outwards-curved, from about $\frac{3}{4}$ of costa to $\frac{1}{4}$ of inner margin; a comparatively rather large oval snow-white spot in disc beyond middle, suffusedly margined with dark fuscous, anterior extremity produced upwards into a blunt tooth; a transverse series of eight very short slender longitudinal leaden-metallic streaks on second line, second and third from costa considerably longer than the rest: cilia ochreous-white, with a dark grey spot at apex and another at anal angle, and a deep grey brassy-metallic basal line. Hindwings white, towards hindmargin faintly yellowish-tinged; cilia white.

A very beautiful and distinct species, resembling *D. lepidella* in the character of the discal spot, but differing from all in the orange forewings; the clear white hindwings, and absence of the black hindmarginal spots are also reliable points; the obsolescence of the transverse lines is perhaps not constant.

One perfect specimen taken by Mr. R. W. Fereday near Lake Wakatipu in January.

6. *Dipt. metallifera*, Butl.

(*Eromene metallifera*, Butl., Proc. Zool. Soc., Lond., 1877, 401, Pl. XLIII, 11.)

“19 mm. Allied to *D. auriscriptella*, but forewings rather brighter in colour, the transverse lines only half as wide apart, the silver discal spot less curved and edged with brown; a series of longitudinal discal silver lines between the veins; hindwings white.”

I saw Butler's type in the British Museum and noted it as a distinct species, but have been unable to obtain a specimen for description. The above is the only description that Butler gives, (I have taken the liberty of altering his terminology), and I consider it hardly accurate. The transverse lines are represented in the figure as in their usual position, and it may be conjectured that Butler has mistaken a central suffused line, which is also represented on dorsal half, for one of the usual two transverse

lines; the discal spot is edged with brown in *D. auriscriptella* also, and is not curved at all in that species, though the posterior edge is concave, and the anterior as well; the series of longitudinal metallic lines is also present in *D. auriscriptella*; and I believe the size given is too large. However, the white hindwings and the almost wholly leaden-metallic discal spot constitute in themselves a sufficient distinction.

The specimen is stated to be from Dr. Hector's collection; which I understand to have been mainly taken by Mr. J. D. Enys in the neighbourhood of Mount Hutt.

7. *Dipt. auriscriptella*, Walk.

(*Eromene auriscriptella*, Walk., Brit. Mus. Cat., 976.)

Male, female.—14–15 mm. Head and thorax light yellowish-ochreous. Palpi rather long, ochreous-orange, base and apical third dark fuscous. Antennæ whitish-ochreous. Abdomen pale ochreous-grey. Legs ochreous-grey-whitish. Forewings triangular, very broad posteriorly, costa gently arched, apex rounded, hindmargin oblique, second sinuation slight; pale yellowish-ochreous, deeper ochreous on disc, and towards apex and hind margin; costa dark fuscous towards base; a slender double dark fuscous transverse line from costa at $\frac{1}{3}$ to middle of inner margin, strongly and regularly curved outwards, inner line obsolete on upper half, diverging somewhat on inner margin, enclosing on lower two-thirds a leaden-metallic line, becoming shining whitish on inner margin; a very small dark fuscous spot on middle of costa; a small elongate transverse spot in disc beyond middle, narrowed in middle, upper half leaden-metallic, lower half white; a slender double dark fuscous transverse line from costa at $\frac{2}{3}$ to inner margin a little before anal angle, rather obsolete on disc, upper two-thirds strongly outward-curved, lower third sinuate, included space indistinctly shining whitish; two longitudinal leaden-metallic streaks between discal spot and hindmargin, nearly reaching both, a much shorter streak below them, and rest of second transverse line spotted with leaden-metallic on intersection of veins; a leaden-metallic dot in apex; three small subquadrate black spots near together on hindmargin below middle: cilia rather dark grey, with a deep grey brassy-metallic basal line. Hindwings grey, with a dark grey hind-marginal line; cilia grey.

Distinguishable from all but *D. chrysochyta* by the discal spot, which has the upper half leaden-metallic and the lower white; it is a duller and paler insect than *D. chrysochyta*, without indentation on the first transverse line. *Crambus gracilis*, Feld., is not a synonym of this species, as stated by Butler, but of *D. lepidella*.

Several specimens taken at Wellington and Port Lyttelton in January amongst scrub.

8. *Dipt. helioctypa*, n. sp.

Male, female.—14–15 mm. Head, palpi, and thorax rather dark greyish-fuscous mixed with whitish-ochreous, palpi white at base beneath. Antennæ dark fuscous. Abdomen fuscous-grey, irrorated with ochreous towards base, apex whitish-ochreous. Legs grey, posterior pair whitish-grey. Forewings triangular, moderate, not very strongly dilated, costa nearly straight, slightly sinuate in middle, apex rounded, hindmargin oblique, both sinuations slight; very pale whitish-ochreous, almost wholly irregularly suffused with ochreous-fuscous, except an ill-defined patch in disc before first line, another on costa beyond middle, and a third extending along lower two-thirds of hindmargin; a well-defined slender dark fuscous transverse line from costa at $\frac{2}{5}$ to inner margin before middle, hardly curved outwards, thrice rather strongly and irregularly dentate; a second dark fuscous transverse line from costa at $\frac{3}{4}$ to inner margin a little before anal angle, followed by a pale line of the ground-colour, margined posteriorly by the ochreous-fuscous suffusion, upper half irregularly curved outwards, lower half curved inwards, slightly sinuate above inner margin; a small irregularly oval clear white spot in disc beyond middle, suffusedly connected above with the pale costal patch; three small dark ochreous-fuscous spots near together on hindmargin below middle: cilia ochreous-grey-whitish, with a fuscous line near base, and an ill-defined white spot in each sinuation. Hindwings dark fuscous-grey; cilia grey-whitish, with a dark grey line near base.

A very distinct species, not particularly allied to any other, differing from all in the dark fuscous-grey hindwings, and the slightness of both hindmarginal sinuations; there are no metallic markings.

Taken commonly by Mr. R. W. Fereday, near Lake Wakatipu, in January.

9. *Dipt. elaina*, n. sp.

Male, female.—12–14 mm. Head, palpi, and thorax ochreous-grey-whitish, irregularly mixed with dark fuscous. Antennæ whitish-grey. Abdomen whitish-grey, apex more whitish. Legs grey-whitish. Forewings triangular, broad, costa very slightly arched, apex rounded, hindmargin rather strongly oblique, second sinuation slight; ochreous-grey-whitish, rather closely irrorated with dark fuscous, and with a slight irregular pale yellowish suffusion, causing a faint greenish tinge; the fuscous irroration is closest and darkest near base, along hindmargin, and on an indistinct median band; a dark fuscous transverse line from $\frac{1}{3}$ of costa to $\frac{2}{5}$ of inner margin, very slightly outwards-curved, thrice irregularly dentate, preceded by an indistinct pale line; a small black linear transverse spot in disc above and slightly beyond middle, above which is a suffused dark fuscous

spot on costa; an irregularly dentate dark fuscous transverse line from costa at $\frac{2}{3}$ to inner margin at $\frac{4}{5}$, followed by a pale line, suddenly bent outwards beneath costa, upper two-thirds rather strongly outwards-curved; a pale oblique mark on costa before apex, and a pale mark on anal angle: cilia grey-whitish, with two dark fuscous lines. Hindwings grey, with a dark grey hindmarginal line; cilia grey-whitish, with a dark grey line towards base.

Very distinct by its small size, grey colouring, and black linear discal spot.

I met with this species at Dunedin, Wellington, and Cambridge, amongst scrub in January. Mr. R. W. Fereday has taken it commonly at Christchurch at rest on old walls, and has furnished me with the following notes on the larva, which he finds in the same position. They are specially interesting, as this is the first larva of the genus which has been discovered.

“The full-grown larva about 9 lines in length, slender, rather flattened, wrinkled, of nearly uniform width, much contracted at the segmental divisions; the ground-colour varying from pale stone to ash-colour; down the middle of the back, on the fifth to the ninth segment inclusive, a series of dark purplish-brown or maroon marks, wedge-shaped, with the point of each wedge cleft, and somewhat resembling a W with the internal space filled up, and having the base of the wedge abutting on the anterior and the cleft end on the posterior extremity of the segment; a cream-coloured tubercular dot at the point of the cleft, and on the base of each dark mark a pair of similar but rather smaller dots; head dark, with a pale longitudinal stripe.

“Feeds on moss on damp walls; when at rest lies stretched out flat on the moss, and entirely exposed; forms in the moss a cocoon covered with dust and moss, hardly distinguishable.”

CRAMBUS, F.

Antennæ of male finely ciliated, rarely pectinated (not in New Zealand species). Labial palpi very long, attenuated. Forewings with 12 veins (rarely 11 through obsolescence of vein 9), 8 and 9 stalked, rising out of 7 (rarely 6 also rising out of 7). Hindwings with 8 veins, 4 and 5 usually stalked or from a point, 6 approximated at base to 7, 7 and 8 stalked, cell open.

Distinguished from all the other New Zealand genera of the family by the origin of the stalk of 8 and 9 out of 7, the close basal approximation of 6 and 7 in the hindwings, and the open cell. The genus is a very large one, being plentifully represented all over the world except in Australia, where it is almost absent. The larvæ feed amongst the roots of grass, and the perfect insects frequent dry grassy situations, and when met with are often very abundant.

I am acquainted with seventeen New Zealand species, which may be thus separated :—

- I. Forewings with a sharply-defined white longitudinal streak from base to hindmargin.
- A. Streak above middle; costal area dark fuscous 12. *flexuosellus*.
- B. ,, central; costal not darker than ground-colour
1. Forewings blotched with dark fuscous 2. *corruptus*.
2. ,, not blotched
- a. Hindwings dark fuscous 1. *athonellus*.
- b. ,, light grey or whitish
- * Head light ochreous
- † Hindmargin dotted with black 6. *haplotomus*.
- †† ,, not dotted 8. *simplex*.
- ** Head white
- † Cilia grey barred with white 11. *vittellus*.
- †† ,, wholly white or whitish
- i. Costa with a rather broad white streak throughout 9. *siriellus*.
- ii. ,, ,, a slender white streak throughout .. 7. *callirrhois*.
- iii. ,, ,, a slender white streak from near base, posteriorly dilated 5. *dicrenellus*.
- iv. ,, ,, a curved white streak from before middle to before apex 10. *apicellus*.
- II. Forewings with no well-defined white longitudinal streak reaching hindmargin.
- A. With two slender longitudinal ferruginous streaks 17. *xanthogrammus*.
- B. Without ferruginous streaks
1. With a blackish or dark fuscous streak from base
- a. Forewings pale ochreous or whitish 3. *ramosellus*.
- b. ,, grey
- * White basal-streak hooked downwards in middle of disc 15. *harpophorus*.
- ** White basal streak straight beneath 16. *strigosus*.
2. Without blackish basal streak
- a. Forewings whitish with a pale ochreous submedian streak 4. *angustipennis*.
- b. ,, greyish 14. *cyclopicus*.
- c. ,, brownish, with white and dark fuscous markings 13. *tuhualis*.

1. *Cr. athonellus*, n. sp.

Male.—18–19 mm. Head, palpi, and thorax deep ochreous-brown, shoulders with a small yellowish-white spot; palpi rather short, beneath ochreous-white towards base. Antennæ dark fuscous. Abdomen dark fuscous, gradually suffused with pale ochreous posteriorly. Anterior and middle legs dark fuscous; posterior legs whitish-ochreous, apex of tarsi infuscated. Forewings short, moderately broad, costa almost straight, apex almost acute, hindmargin very slightly sinuate, nearly straight, moderately oblique; rather bright deep ochreous-brown; costal edge narrowly ochreous-

whitish, becoming gradually more ochreous towards base; inner marginal edge sometimes very narrowly ochreous-whitish; a straight moderately broad central longitudinal ochreous-white streak from base to hindmargin, attenuated on basal third and before hindmargin, more or less distinctly margined with dark fuscous: cilia pale whitish-ochreous, on basal third light grey, with a distinct ochreous-white spot on central streak. Hindwings dark fuscous; cilia ochreous-white or whitish-ochreous, with a grey basal line.

Easily distinguished from all the other New Zealand species by the nearly uniform dark fuscous hindwings with whitish-ochreous cilia. In form and general characteristics it is closely allied to *C. corruptus*, but differs widely in the deep ochreous-brown colouring, and the absence of the dark fuscous blotches. These two species are shorter-winged, more stoutly built, and more densely scaled than usual, but the venation is typical.

A mountain species; taken commonly by Mr. R. W. Fereday about Porter's Pass and Mount Hutt in January.

2. *Cr. corruptus*, Butl.

(*Hypochalcia corrupta*, Butl., Proc. Zool. Soc. Lond., 1877, 399, Pl. XLIII., 9)

Male.—18–19 mm. Head dark fuscous, face and back of crown ochreous-whitish. Palpi moderate, dark fuscous mixed with greyish-ochreous, beneath whitish towards base. Antennæ dark fuscous. Thorax dark fuscous, sides more ochreous-fuscous, shoulders with a few ochreous-whitish scales. Abdomen dark fuscous, suffused with pale greyish-ochreous posteriorly. Legs whitish-ochreous, anterior and middle pair suffused with greyish-fuscous. Forewing short, moderately broad, costa almost straight, slightly sinuate in middle, apex almost acute, hindmargin very slightly rounded, rather strongly oblique; ochreous-brown; extreme costal edge suffusedly ochreous-whitish, towards base and apex dark fuscous; a slender very ill-defined white streak beneath costa from middle to apex; inner margin rather narrowly suffused with dull ochreous-grey-whitish, towards base very narrowly and margined above by a short dark fuscous streak; a straight rather narrow central longitudinal white streak from base to hindmargin, considerably attenuated towards both ends, lower edge indented beyond middle; a broad dark fuscous streak along each margin of central streak from near base to middle, attenuated anteriorly; a dark fuscous blotch on each margin of central streak about $\frac{2}{3}$, extending above to the subcostal white streak, and beneath to the dorsal whitish suffusion; a rather narrow dark fuscous band along hindmargin, interrupted by central streak, dilated towards costa: cilia grey, tips paler, with a rather darker grey basal line, on upper half of hindmargin more or less scaled with ochreous-white. Hindwings fuscous-grey, with a narrow dark fuscous hindmarginal band; cilia grey-whitish, with a grey basal line.

Very distinct through the combination of the dark fuscous blotches and white median streak. It has not the slightest affinity to *Hypochoalcia*, which belongs to another family.

Taken commonly by Mr. R. W. Fereday on Mount Hutt in January. Butler's note would give the erroneous idea that the species was generally common. His figure is not good.

3. *Cr. ramosellus*, Dbl.

(*Crambus ramosellus*, Dbl., Dieff. New Zeal., Vol. II., 288; *Crambus rangona*, Feld., Reise der Novara, Pl. CXXXVII., 25.)

Male, female.—23–27 mm. Head white, with an ochreous-brown spot behind eye. Maxillary palpi white, at base ochreous-brown. Labial palpi long, white, externally and towards apex beneath ochreous-brown. Antennæ dark fuscous. Thorax brownish-ochreous, with a broad central longitudinal white stripe. Abdomen whitish-ochreous. Legs whitish-ochreous, anterior and middle pair brownish-tinged. Forewings elongate, moderately broad, in female rather narrower, costa moderately arched, apex acute, hind margin strongly sinuate, rather strongly oblique; pale brownish-ochreous, more ochreous-brown towards base; a very slender white line immediately beneath costa from base to middle, sometimes obsolete; an ill-defined white central longitudinal streak from base to hindmargin, attenuated towards base, lower margin indented beyond middle, basal two-thirds margined beneath by a suffused dark fuscous streak, upper margin often suffused into ground-colour; between this streak and costa on posterior half of wing the veins are suffusedly marked with white, and sometimes whole costal half of wing suffused with white except margins; a broad ill-defined white or whitish suffusion along inner margin; in female sometimes whole wing suffused with whitish, except the dark fuscous submedian streak; two transverse series of dark fuscous dots, acutely angulated outwards above middle, intersecting median streak, often obsolete, first from middle of costa to below middle of median streak, not reaching inner margin, second from costa at $\frac{3}{4}$ to before anal angle, rather sinuate beneath; a hindmarginal row of dark fuscous dots: cilia whitish-grey, slightly shining, with a darker ochreous-grey line near base. Hindwings grey-whitish or whitish-grey, towards hindmargin and especially apex darker grey; cilia whitish or whitish-ochreous, with a very faint darker line near base.

The dark fuscous submedian streak, together with the ochreous or whitish ground-colour, sufficiently distinguishes this species from all others; it, however, varies considerably in depth of colouring, in the extent of the whitish suffusion, and the distinctness of the transverse series of dots. In general northern specimens seem to be smaller, darker, and more distinctly marked than southern.

A very common and generally distributed species; taken at Hamilton, Wellington, Nelson, Mount Hutt, Akaroa, Christchurch, and Dunedin; probably universally common; in December, January, February, and April.

Doubleday's description is very clear and unmistakeable. Zeller, not being aware of this description, later described a totally different species of the genus from Europe under the same name, which cannot stand.

4. *Cr. angustipennis*, Z.

(*Chilo angustipennis*, Z., Hor. Ross, 1877, 15, Pl. I., 3; *Chilo leucanialis*, Butl., Proc. Zool. Soc. Lond., 1877, 401.)

Male, female.—29–44 mm. Head white, sides of crown pale brownish-ochreous. Maxillary palpi white, towards base light brownish-ochreous. Labial palpi very long, white, externally light brownish-ochreous. Antennæ whitish-fuscous. Thorax pale brownish-ochreous, with a broad white central longitudinal stripe, and margins of shoulders very narrowly white. Abdomen and legs ochreous-whitish. Forewings elongate, narrow, in female very narrow, not dilated posteriorly, costa in male moderately, in female slightly arched, apex in male very strongly, in female moderately produced, acute, hindmargin sinuate, very oblique; very pale dull ochreous; all veins on upper half of wing broadly suffused with white, nearly confluent, so that the whole costal half appears whitish; a rather broad white streak along inner margin from base to anal angle, suffusedly margined above at base with dark fuscous, and bordered on inner marginal edge by a slender fuscous streak from $\frac{1}{3}$ to anal angle, strongest in middle: cilia white. Hindwings white, sometimes slightly ochreous-tinged; cilia white.

Very distinct by its large size, narrow forewings, produced apex, and the white suffusion of the forewings leaving only a narrow longitudinal submedian band of the ochreous ground-colour. Zeller is certainly wrong in referring this species to *Chilo* on superficial grounds, since in venation it is a true *Crambus*, and its peculiarities of appearance are only exaggerations of essentially similar points in *C. ramosellus*, which is its nearest ally.

Not uncommon in the neighbourhood of Christchurch in December, January, and March, frequenting undoubtedly the toi-grass (*Arundo conspicua*).

Zeller's name has the priority, having been published 1st April, 1877, whilst Butler's does not appear to have been read until 1st May in the same year.

5. *Cr. dicrenellus*, n. sp.

Male, female.—28–32 mm. Head white, sides of crown and anterior margin of eyes brownish-ochreous. Maxillary palpi white, towards base ochreous-fuscous. Labial palpi moderately long, rather dark ochreous-fuscous, white internally and beneath at base. Antennæ dark fuscous.

Thorax ochreous-brown, with a suffused white central longitudinal stripe. Abdomen pale whitish-ochreous. Anterior and middle legs dark ochreous-fuscous; posterior legs ochreous-whitish. Forewings moderate, posteriorly dilated, costa very slightly arched, somewhat sinuate before middle, apex almost rectangular, hindmargin rather oblique, very faintly sinuate; rather light greyish-ochreous-brown, with a marked brassy-yellowish reflection; extreme costal edge very narrowly white throughout except at base, dilating into a broader ill-defined white suffusion at about $\frac{3}{4}$; a rather narrow sharply-defined white central longitudinal streak from base to hindmargin, rather attenuated towards base, very slightly curved near hindmargin, lower edge very indistinctly split a little before hindmargin; hindmarginal edge generally very narrowly white between central streak and costa; inner margin very narrowly and indistinctly suffused with whitish throughout more or less of its length: cilia whitish, base clear white. Hindwings pale whitish-fuscous-grey, hindmargin ochreous-tinged; cilia whitish.

Most allied to *C. vittellus* and *C. simplex*, resembling them in form of wing; from the former it differs by the costal edge being white nearly throughout, more brassy tint, larger size, and absence of distinct blackish hind-marginal dots, as well as by the whitish cilia; from the latter by the much darker colouring, more sharply-defined white markings, and absence of white suffusion on veins.

Taken plentifully by Mr. R. W. Fereday on Mount Hutt in January.

6. *Cr. haplotomus*, n. sp.

Male, female.—29–33 mm. Head light brownish-ochreous, with a narrow ill-defined whitish longitudinal stripe on each side above eyes, meeting above palpi. Maxillary palpi brownish-ochreous, apex whitish. Labial palpi moderate, brownish-ochreous, internally and at base beneath white. Antennæ dark fuscous. Thorax light brownish-ochreous. Abdomen pale ochreous. Anterior and middle legs greyish-fuscous; posterior legs grey-whitish. Forewings rather narrow, posteriorly dilated, costa at first very gently arched, more strongly on posterior half, faintly sinuate in middle, apex nearly rectangular, hindmargin moderately oblique, rather strongly rounded; greyish-ochreous, somewhat deeper on disc, with a slight brassy tinge; extreme costal edge very slenderly white from near base to apex; a very slender white line close beneath costa from base, merged in costal edge before middle; three or four slender indistinct short white streaks on veins towards posterior half of costa and apex; a narrow tolerably well-defined central longitudinal white streak from base to hindmargin, very slightly sinuate in middle and very slightly curved posteriorly, attenuated towards base; seven minute black dots on hindmargin: cilia whitish-grey. Hindwings pale grey, somewhat darker towards hindmargin; cilia whitish.

This species and *C. callirrhöis* differ somewhat in form of wing from those most nearly allied to them, the forewings being somewhat less dilated and the hindmargin less perceptibly sinuate and more strongly rounded. *C. haplotomus* differs from all its nearest allies in the absence of the broad white thoracic stripe (only in the much paler *C. simplex* is this occasionally obsolete), and in the presence of a complete hindmarginal row of minute black dots.

Several specimens taken by Mr. R. W. Fereday near Lake Wakatipu in January.

7. *Cr. callirrhöis*, n. sp.

Male.—24–27 mm. Head white, with a pale brownish longitudinal spot on face, and posterior margin of eyes ochreous-brown. Maxillary palpi white, towards base externally ochreous-brown. Labial palpi long, white, externally ochreous-brown. Antennæ dark fuscous. Thorax brownish-ochreous, a broad central longitudinal stripe and margins of shoulders white. Abdomen ochreous-whitish, more ochreous towards base. Anterior and middle legs greyish-fuscous, posterior legs white. Forewings moderate or rather narrow, costa at first very gently arched, more strongly on posterior half, distinctly sinuate in middle, apex nearly rectangular, hind margin moderately oblique, slightly sinuate below apex, strongly rounded beneath; greyish-ochreous, rather deeper on disc, with a more or less distinct brassy-yellowish tinge; a slender white streak along costa throughout; veins on posterior two-thirds of wing above median streak indicated by slender white lines, partially suffused and confluent on costa about $\frac{3}{4}$; a slender almost straight central longitudinal white streak from base to hindmargin, slightly sinuate in middle; sometimes a slender white streak along vein 2 towards hindmargin; a narrow white streak, very slender at extremities, along inner margin from base, leaving inner margin at about $\frac{1}{4}$ and continued very near it to anal angle, posteriorly suffused: cilia shining whitish. Hindwings whitish-grey, somewhat darker posteriorly, hindmargin slightly ochreous-tinged; cilia white.

Distinguished from all its allies by the distinctness of the slender white streaks on the veins; from *C. haplotomus*, which it most nearly resembles, also by the smaller size, and broad white stripe on thorax.

I have met with this elegant species only on sandhills near Christchurch; in February and March; Mr. R. W. Fereday has taken it, with other species usually frequenting coast sandhills, at Lake Guyon.

8. *Cr. simplex*, Butl.

(*Chilo simplex*, Butl., Proc. Zool. Soc. Lond., 1877, 400, Pl. XLIII., 12.)

Male, female.—27–32 mm. Head pale ochreous, anterior margin of eyes and a spot on crown more or less whitish. Maxillary palpi white, towards

base externally brownish-ochreous. Labial palpi long, white, externally greyish-ochreous, more fuscous towards apex. Antennæ dark fuscous. Thorax light ochreous, with a more or less distinct suffused white central longitudinal stripe, sometimes obsolete. Abdomen ochreous-whitish, more ochreous towards base, apex white. Anterior and middle legs whitish-ochreous, suffused beneath with dark fuscous; posterior legs whitish. Forewings moderate, in female narrow, costa moderately arched, less strongly in female, slightly sinuate in middle, apex acute, in female rather produced, hindmargin rather strongly oblique, slightly rounded; pale ochreous; a very slender white streak from base close beneath costa to apex, on posterior half broader and more suffused, in female broader and extending to costa; veins towards hindmargin between median streak and costa more or less suffused with white, more strongly in female; a rather narrow central longitudinal white streak from base to hindmargin, rather attenuated towards base, very slightly curved towards hindmargin; sometimes a slender white streak along vein 1 towards anal angle; in female, veins somewhat suffused with white towards hindmargin beneath median streak; a very slender white streak along inner margin from base to beyond middle, posteriorly suffused: cilia shining white. Hindwings very pale whitish-grey, in female white, hindmargin faintly ochreous-tinged; cilia white.

Differs from all the allied species by the clear pale ochreous ground-colour; the white markings (except the central streak) are more suffused, the cilia clear white, and the hindwings paler, being quite white in female. In this and the allied species the central streak appears dark-margined in part, but the effect is illusory, and due to the presence of deep folds.

Very common round Christchurch in November, December, February and March, seemingly attached to the tussock-grass.

9. *Cr. siriellus*, n. sp.

Female.—26–30 mm. Head white, sides of crown dark brown. Maxillary palpi white, towards base externally brown. Labial palpi moderate, white, externally brown. Antennæ dark fuscous. Thorax dark ochreous-brown, on sides posteriorly paler and whitish-tinged, with a broad white central longitudinal stripe. Abdomen ochreous-whitish. Anterior and middle legs whitish-ochreous, beneath suffused with dark fuscous; posterior legs whitish. Forewings moderate, somewhat dilated, costa moderately arched, apex acute, hindmargin nearly straight, moderately oblique; dark brown, becoming ochreous towards the inner and hindmargins; a narrow silvery-white costal streak from base to apex, attenuated on basal half, posteriorly suffused, extreme costal edge sometimes brown about $\frac{2}{3}$; a moderate nearly straight

central longitudinal silvery-white streak from base to hindmargin, rather narrower towards base, lower edge slightly indented beyond middle; faint indications of whitish lines on veins towards hindmargin; a whitish suffusion along inner margin from base to anal angle, very narrow at base, posteriorly indistinct or obsolete: cilia white. Hindwings whitish-grey, towards apex and hindmargin fuscous-grey; cilia white.

A distinct species, immediately known by the dark brown ground-colour, and narrow silvery-white costal streak extending from base to apex. It is perhaps this species which Butler speaks of (Proc. Zool. Soc. Lond., 1877, 400) as *lativittalis*, Walk.; the true *lativittalis* (which is a species of *Thinasotia*, and most certainly does not occur in New Zealand) is superficially somewhat similar, but has the thorax wholly brown, and many other points of distinction.

Two specimens taken in a swamp near Hamilton in January.

10. *Cr. apicellus*, Z.

(*Crambus apicellus*, Z., Mon. Cr., 31.)

Male.—24–25 mm. Head snow-white, sides of crown ochreous-brown. Maxillary palpi white, towards base externally reddish-ochreous-brown. Labial palpi moderate, white, externally reddish-ochreous-brown. Antennæ dark fuscous. Thorax ochreous-brown, posteriorly on sides paler and whitish-tinged, with a broad central longitudinal white stripe. Abdomen whitish-ochreous. Legs whitish-ochreous, suffused with dark fuscous beneath. Forewings moderate, posteriorly dilated, costa gently-arched, apex rounded-acute, hindmargin rather oblique, distinctly sinuate; reddish-ochreous-brown, much lighter towards inner margin; a slightly curved narrow white streak from costa before middle to costa a little before apex, enclosing a slender brownish-ochreous costal streak; a small triangular white spot on hindmargin above median streak; a moderate central longitudinal snow-white streak from base to hindmargin, rather attenuated at base, slightly sinuate in middle, and very slightly curved towards hind margin, lower edge somewhat irregular beyond middle; a whitish suffusion along inner margin from base to beyond middle, very narrow at base, posteriorly indistinct; three elongate ill-defined black dots on hindmargin beneath median streak; a fuscous hind-marginal line, bordering the white markings: cilia shining grey-whitish, at base white. Hindwings fuscous-grey, towards base suffused with whitish-ochreous; cilia whitish-ochreous.

A handsome species, very distinct by the peculiar form of the costal streak, and the sharply-defined small white triangular spot on hindmargin.

Occurs at Hamilton, Christchurch, and at the foot of Mount Hutt, frequenting swampy places in January.

11. *Cr. vittellus*, Dbl.

(*Crambus vittellus*, Dbl., Dieff. New Zeal., Vol. II., 289; *Crambus nexalis*, Walk., Brit. Mus. Cat., 178; *Crambus transcissalis*, ibid., 178; *Crambus sublicellus*, Z., Mon. Cr., 31; *Crambus bisectellus*, ibid., 32; *Crambus incrassatellus*, ibid., 32; *Crambus vapidus*, Butl., Proc. Zool. Soc. Lond., 1877, 399.)

Male, female.—20–25 mm. Head white, a spot on face and posterior margins of eyes very pale greyish-ochreous. Maxillary palpi white, towards base externally greyish-ochreous. Labial palpi moderately long, white, externally greyish-ochreous or brownish-ochreous. Antennæ dark fuscous. Thorax white, more or less ochreous on sides. Abdomen ochreous-whitish, more ochreous towards base. Legs whitish, beneath suffused with dark fuscous. Forewings moderate, in female rather narrow, costa gently arched, apex rounded-acute, hindmargin nearly straight or very slightly sinuate, moderately oblique; greyish-ochreous or brown, darkest on costal half; sometimes irrorated with whitish scales towards inner margin and posterior half of costa; often a more or less distinct suffused white streak extending along more or less of posterior half of costa, broadest at $\frac{3}{4}$; a moderate nearly straight central longitudinal white streak, rather attenuated at base, extending to hindmargin, sometimes attenuated posteriorly, margins often irregular on posterior half, sometimes suffusedly margined with dark fuscous on basal half beneath and on posterior half above, often irregularly interrupted by the transverse lines; extremity of median streak produced upwards into a narrow white projection along hindmargin nearly to apex; sometimes two transverse darker lines or series of spots, more or less distinctly cutting median streak, first from middle of costa to $\frac{1}{3}$ of inner margin, very acutely angulated above streak, second from $\frac{3}{4}$ of costa to before anal angle, less acutely angulated; inner margin sometimes white towards base; three or four tolerably distinct black dots on hindmargin below middle; a tolerably distinct slender dark fuscous hindmarginal line: cilia shining-grey or whitish-grey, with a somewhat darker basal line, three or four slender white bars on upper half, sometimes confluent at base, and another above anal angle. Hindwings whitish-fuscous-grey, paler towards base, darker at apex; cilia ochreous-grey-whitish.

This very common and very variable species, which may be regarded as the type of the New Zealand representatives of the genus, may in all its forms be sufficiently well distinguished from those with which it is most likely to be confused, by the white bars of the cilia, and the black hind marginal dots below median streak. It most approaches *C. dicrenellus* and *C. flexuosellus*, differing further from the former in the white costal suffusion not extending towards base, and from the latter in the central position of the white streak, and the paler costal area.

Occurs at Hamilton, Cambridge, Christchurch, Ashburton, and at the foot of Mount Hutt, from January to March, generally in abundance; it is probably universally distributed.

Prof. Zeller kindly forwarded to me his unpublished figures of the specimens from which his descriptions quoted above were taken, enabling me to decide that they were all truly referable to varieties of this species.

12. *Cr. flexuosellus*, Dbl.

(*Crambus flexuosellus*, Dbl., Dieff. New Zealand, Vol. II., 289; Feld., Reise der Novara, Pl. CXXXVII., 32.)

Male, Female.—20–24 mm. Head and palpi rather dark ochreous-fuscous; labial palpi moderate, white beneath. Antennæ fuscous-grey. Thorax ochreous grey or light greyish-fuscous. Abdomen whitish-grey-ochreous. Legs whitish-ochreous, more or less wholly suffused with dark fuscous. Forewings moderate, somewhat dilated posteriorly, costa gently arched, very slightly sinuate in middle, apex obtuse, hindmargin little oblique, slightly sinuate; rather light greyish-fuscous, sprinkled with dark fuscous, costal space above white streak dark fuscous; a well-defined straight moderately broad longitudinal white streak above middle from base to hindmargin immediately beneath apex, upper edge very near costa on basal $\frac{2}{5}$, thence twice sinuate to apex, lower edge twice irregularly dentate beyond middle; an indistinct dark spot on lower edge before middle, and a dark fuscous spot in first indentation, indicating first transverse line; second transverse line tolerably distinct, dark fuscous, closely but indistinctly dentate, from costa at $\frac{3}{4}$ to inner margin at $\frac{4}{5}$, angulated outwards on lower edge of white streak, obsolete on costa, where it is often followed by a suffused ochreous mark; a slender dark fuscous hindmarginal line; three or four minute black dots on hindmargin below middle: cilia shining-grey, with a dark-grey line near base, and a white basal line on upper half, produced into a white bar at apex. Hindwings dull whitish-ochreous, apex fuscous-grey; hindmargin more or less suffused with light fuscous-grey; cilia whitish-ochreous, with two faint grey lines.

Very distinct by the ochreous-fuscous head and palpi, the position of the white streak above middle, and the dark fuscous costal space.

Occurs at Hamilton, Wellington, Christchurch, Dunedin, and probably everywhere, abundantly from December to April.

13. *Cr. tuhualis*, Feld.

(*Crambus tuhualis*, Feld., Reise der Novara, Pl. CXXXVII., 18; *Crambus vulgaris*, Butl., Proc. Zool. Soc. Lond., 1877, 400, Pl. XLIII., 7.)

Male, female.—20–25 mm. Head brownish-ochreous or fuscous. Palpi greyish fuscous or dark fuscous, labial palpi moderate, beneath whitish.

Antennæ fuscous-grey. Thorax greyish-fuscous. Abdomen whitish-ochreous. Legs whitish-ochreous, anterior and middle pair suffused with greyish-fuscous. Forewings moderate, somewhat dilated posteriorly, costa moderately arched, hardly sinuate, apex rounded-acute, hindmargin oblique, straight or slightly sinuate; rather light ochreous-grey-brown, costal half suffused with dark fuscous; more or less irregularly irrorated with white on costal half, and towards base and hindmargin; a narrow irregular suffused white streak above middle from base to disc before middle, posteriorly obliquely truncate, sometimes almost interrupted at $\frac{1}{4}$; a rather broad irregular suffused often nearly obsolete white transverse line from middle of costa to before middle of inner margin, passing through extremity of streak from base; an elongate-oval longitudinal white spot in middle of disc, almost connected with basal streak; above and rather beyond this the obsolescence of the white irroration causes a dark blotch on costa; a broad suffused white closely dentate transverse line from costa at $\frac{3}{4}$ to inner margin at $\frac{4}{5}$, anteriorly finely edged with dark fuscous, somewhat bent inwards beneath costa and angulated outwards above middle; a suffused white somewhat triangular blotch on hindmargin immediately beneath apex, margined above by a dark spot, and suffusedly and indistinctly produced downwards towards anal angle; lower veins towards hindmargin indistinctly dark fuscous; four minute black dots on lower part of hindmargin; a slender dark fuscous hindmarginal line: cilia whitish-grey, somewhat mixed or very indistinctly barred with white, with a slender white basal line on upper half, produced into an apical bar. Hindwings whitish-grey-ochreous, hindmargin narrowly suffused with light fuscous-grey; cilia whitish-ochreous, with a faint grey line near base.

Allied to *C. flexuosellus*, but differing widely in the white irroration and transverse lines, and the absence of a complete white longitudinal streak.

Common on the hills near Christchurch; also taken at Wellington, on the Kaikoura range, and in the Rakaia district; in February and March.

Felder's and Butler's figures are about equally poor, but can hardly refer to any other insect.

14. *Cr. cyclopicus*, n. sp.

Male, female.—20–25 mm. Head, palpi, and thorax whitish, coarsely irrorated with fuscous-grey; labial palpi long. Antennæ dark fuscous. Abdomen whitish-ochreous. Legs dark grey, middle tibiæ with some white scales and a white apical ring, posterior tibiæ white with a few grey scales, middle and posterior tarsi with white rings at apex of joints. Forewings rather narrow, more or less distinctly dilated posteriorly, costa gently arched, apex almost acute, hindmargin gently rounded, rather strongly

oblique; white, closely and finely irrorated with dark grey; generally a slight brownish or ochreous tinge along basal two-thirds of costa, sometimes extending over whole wing; sometimes a dark grey suffusion on middle of costa; a small dark fuscous elongate mark on inner margin close to base; a double indistinct dentate dark grey line from costa before middle to inner margin at $\frac{2}{5}$, often wholly absent or obsolete; a dark grey circular ring in disc slightly beyond middle, in centre of which is a dark grey elongate dot, both often absent, or the dot only visible; a double often well-defined dentate dark grey line from costa at $\frac{4}{5}$ to inner margin before anal angle, shortly angulated inwards immediately beneath costa, and outwards above middle, often wholly absent; a dark fuscous hindmarginal line; a row of from six to eight small black dots on hindmargin: cilia light shining-grey, more or less distinctly narrowly barred with white, with a darker grey line near base, and extreme base white. Hindwings ochreous-grey-whitish, hindmargin narrowly suffused with light fuscous-grey; cilia ochreous-whitish.

Very variable, but very distinct by the narrow wings, grey colouring, and entire absence of white markings or longitudinal streak.

Abundant on the hills round Christchurch in March; I have also seen specimens from Lake Guyon, which were somewhat larger, with the dark markings more intense.

15. *Cr. harpophorus*, n. sp.

Male.—26–27 mm. Head whitish, with a faint ochreous spot in middle of face, and posterior margin of eyes greyish-ochreous. Maxillary palpi white, towards base externally dark fuscous mixed with ochreous. Labial palpi moderate, fuscous-grey, internally and at base beneath snow-white. Antennæ dark fuscous. Thorax grey, with a whitish spot in middle of anterior margin. Abdomen grey-whitish, posteriorly suffused with pale ochreous. Legs light fuscous-grey, posterior pair more whitish. Forewings rather narrow, posteriorly dilated, costa slightly sinuate in middle, gently arched posteriorly, apex rounded, hindmargin moderately oblique, rounded; grey, very slightly brownish-tinged; a slender ill-defined central streak of white scales from base to beyond middle of disc, its extremity bent downwards and then sharply turned inwards to form a strong hook; upper edge of this streak margined by a very slender dark grey line, forming an abrupt spot on extremity, lower edge margined by a dark fuscous-grey streak, filling up the hook; a slender ill-defined sinuate longitudinal streak of white scales in disc from $\frac{1}{3}$ to $\frac{2}{3}$, its anterior extremity resting on upper margin of basal streak, its lower edge broadly and suffusedly margined with dark fuscous-grey until it touches basal streak, its upper edge marked with a dark fuscous dot before extremity, surrounded with a few whitish scales;

a transverse series of tolerably distinct elongate dark fuscous dots crossing wing from $\frac{3}{4}$ of costa to inner margin before anal angle, strongly angulated outwards in middle; veins posteriorly indistinctly marked with lines of whitish scales; a very fine dark grey hindmarginal line: cilia grey, indistinctly barred with whitish, and with extreme base whitish. Hindwings grey-whitish; cilia whitish, with a faint grey line.

Easily known from *C. strigosus* by the hook on the lower margin of the central streak, and the much narrower forewings.

Mr. R. W. Fereday took several specimens near Lake Wakatipu in January.

16. *Cr. strigosus*, Butl.

(*Aphomia strigosa*, Butl., Proc. Zool. Soc. Lond., 1877, 398, Pl. XLIII., 10.)

Male.—27–30 mm. Head, palpi, and thorax light greyish-ochreous, thorax sometimes mixed with blackish-fuscous; anterior margin of eyes very slenderly whitish; labial palpi moderately long, mixed with dark fuscous externally, beneath whitish at base. Antennæ fuscous-grey. Abdomen ochreous-whitish, apex more ochreous. Legs ochreous-grey-whitish, anterior and middle pair suffused above with dark fuscous. Forewings rather broad, considerably dilated posteriorly, costa gently arched, very faintly sinuate before middle, apex rounded, hindmargin oblique, strongly rounded; rather light brownish-grey, more brownish in disc, irregularly irrorated with black and white scales; veins posteriorly indistinctly lined with white scales; a short slender suffused blackish streak beneath costa at base; a straight thick longitudinal black streak beneath middle from base to middle of disc, much attenuated at base, lower edge suffused towards extremity; a short thick very oblique black streak in disc above extremity of basal streak, uniting with it to form a pointed hook; basal streak generally margined above by an ill-defined ochreous-white streak filling up the hook, sometimes suffusedly extending towards base almost to costa, sometimes almost obsolete; a very elongate-elliptical slender blackish ring in disc above middle, often partially obsolete; a blackish suffusion between branches of submedian vein at base; a strongly and regularly dentate outwards-curved slender blackish transverse line from $\frac{4}{5}$ of costa to $\frac{4}{5}$ of inner margin, sinuate beneath, posteriorly margined by a whitish suffusion; a row of distinct black dots on hindmargin: cilia whitish mixed with light grey, faintly barred. Hindwings grey-whitish, slightly suffused posteriorly with fuscous-grey; a cloudy grey line towards hindmargin below apex; hindmargin narrowly and suffusedly darker fuscous-grey; cilia grey-whitish.

A very distinct species, with the forewings broader than usual; allied to the preceding.

Not uncommon at light in Christchurch during March; Mr. R. W. Fereday has also taken it commonly at Mount Hutt in January.

The species does not bear the slightest affinity or resemblance to *Aphomia*, which differs widely in venation, belonging as it does to another family, and further has entirely different, very short, ascending palpi in the male, a character of which Butler, though describing a male, was evidently unaware.

17. *Cr. xanthogrammus*, n. sp.

Male.—22–24 mm. Head reddish-ochreous, mixed with grey on face; anterior margin of eyes, lower part of face, and a small spot on crown whitish. Maxillary palpi whitish, towards base externally reddish-ochreous. Labial palpi rather long, reddish-ochreous, internally whitish, beneath white at base. Antennæ dark fuscous. Thorax light grey, somewhat mixed with whitish, with a spot on each shoulder and centre of back reddish-ochreous. Abdomen grey-whitish, suffused with light ochreous. Anterior and middle legs dark grey, apex of middle tibiæ and of first joint of tarsi whitish; posterior legs whitish, tarsal joints suffused with dark grey except towards apex. Forewings moderate, posteriorly dilated, costa slightly arched, somewhat sinuate before middle, apex rounded, hindmargin rather oblique, strongly rounded; whitish, becoming clearer white towards costa, and grey towards inner margin posteriorly; a short dark brownish-grey mark on inner margin at base; an oblique irregularly oval dark brownish-grey blotch in disc towards base, its anterior extremity connected with base by a short streak, its posterior extremity almost touching inner margin at $\frac{1}{3}$; a slender dark brownish-grey transverse fascia from middle of costa to middle of inner margin, becoming much thicker on lower half, suffused on costa, upper half irregularly dentate above middle, sending a sharp tooth inwards in middle; a second slender dark brownish-grey transverse fascia from costa at $\frac{3}{4}$ to inner margin at $\frac{4}{5}$, strongly and abruptly dilated on lower third, upper two-thirds twice curved inwards, sending a sharp tooth outwards between the curves, anterior edge below middle emitting two or three slender lines along veins to centre of disc; this fascia is margined posteriorly by a suffused white fascia, beyond which is a brownish-grey hind-marginal band irrorated with whitish; a straight slender bright ferruginous streak along submedian vein from base to second fascia, indistinct towards base; a more conspicuous straight slender bright ferruginous streak from base to anal angle; both these streaks intersect all the dark markings they meet; lower half of hindmargin tinged with ferruginous: cilia grey, with a white basal line on upper half of hindmargin. Hindwings grey-whitish, with a faint cloudy grey line a little before hindmargin, and a grey hind-marginal line; cilia whitish, with a faint grey line near base.

A peculiar and very elegant species, not nearly allied to any other, and immediately recognizable by the ferruginous longitudinal streaks; it has more the general appearance of some of the *Phycidæ*, but it is a true *Crambus*.

Two specimens taken by Mr. R. W. Fereday in March near Lake Coleridge.

NOTE.—*Crambus sabulosellus*, Walk., *C. trivirgatus*, Feld., and *C. rotuellus*, Feld., do not belong to this family at all, and are therefore not referred to above.

[Read before the Philosophical Institute of Canterbury, 7th September, 1882.]

II.—TORTRICINA.

The *Tortricina* of New Zealand are less numerous than at first sight they appear to be, or than would be inferred from a study of authors. Walker described 40 species, but after the removal of synonyms, and unidentifiable descriptions of which the types have been lost, these are reducible to 12. Zeller has added one new species. Felder has described 9, out of which (excluding *Pædisca mahiana*, which is unknown to me, but perhaps not a New Zealand species) only one is new. Butler has, also, described 7, of which only two are new. I have previously described 9 others, and now give descriptions of 11 additional species, which, with two naturalized European insects, bring up the entire number to only 38.

I have been led by a fuller acquaintance with the New Zealand species, which are presumably in the main of old types, to modify the views expressed in my paper on the Australian *Tortricina* (Proc. Linn. Soc. of New South Wales, 1881) as to the process of development of the *Tortricidæ*. The genus *Harmologa* and the additional species of *Proselena* furnish so strong a connecting link between their own group (or that of *Acropolitis*), and that of *Tortrix* and *Cacoecia*, that I see no other way of accounting for it, except on the supposition that this group is the oldest of the three principal ones, and that the groups of *Dichelia*, on the one hand, and of *Tortrix*, on the other, both sprang from it in diverging lines. The genus *Prothelymna* further supplies the nearest approach known to me in these regions towards the type from which this oldest group must have arisen. It is impossible to arrange a linear order so as to clearly show these relations, but I think them quite apparent. The history of the special distinguishing character of the *Acropolitis* group, the separation at origin of veins 3 and 4 of the hindwings, is thus satisfactorily made out; the group originates from the *Chimabacchidæ*, a small family specially characterized by this same structure, but in the *Depressaridæ* and *Æcophoridæ*, which are very extensive families, and the parents of the *Chimabacchidæ*, this character is entirely absent; the tendency to reversion in this particular has evidently been very strong, since in all three families of the *Tortricina* the character has disappeared from all but the oldest types. So marked is this result,

that out of about 650 European *Tortricina* only about a dozen, or two per cent. possess this structure; though in Australia the proportion is sixteen per cent. and in New Zealand thirty-six per cent.

The New Zealand *Tortricina* are of a very fragmentary sort; even those that are congeneric are very rarely at all closely allied specifically. The fauna certainly strikes one as not having been developed on the spot from a few types, but as being the broken remains of a much more extensive one; though it might possibly have been derived by scanty immigration from different sides. Unfortunately there is practically little or nothing known of the South American *Tortricina*, nor of those of the South Pacific Islands. The affinity with Australia is, however, clear.

The *Tortricidæ* are represented by 11 genera; of these 4 are cosmopolitan, 4 Australian, and 3 (so far as known) endemic. Of the cosmopolitan genera, the single species of *Capua*, and three species of *Tortrix*, are closely allied to Australian forms. Two, however, of the endemic genera, viz., *Prothelymna* and *Eurythecta*, are widely remote from any known Australian genera. The entire absence of *Teras* and *Sciaphila*, a marked characteristic of Australia, is here equally noticeable. Eight genera of *Grapholithidæ* occur; but of these, two are not indigenous; and a third, *Strepsicerus*, is represented only by two species, which both also occur in Australia, being the only two *Tortricina* apparently native to both countries. As this genus is considerably developed in Australia, of which it is peculiarly characteristic, and as there are no known species peculiar to New Zealand, I am disposed to think that both of these must have been in some way artificially introduced.* Of the remaining five genera, four are isolated and endemic, containing each a single species, three of them having some apparent affinity with *Strepsicerus*; the fifth, *Pædisca*, is the solitary representative of the large group of genera closely allied to *Grapholitha*, dominant in Europe and North America, but absent from Australia, so that this species is locally quite isolated. The *Conchylidæ* are represented by only one genus, found also in Australia, and of a group characteristically Australian; there are structural reasons for supposing this genus to be one of the oldest types of its family. On the whole, therefore, it will be seen that the fauna is distinctly Australian in character, with some few curious and at present inexplicable exceptions.

* With regard to the introduction of the two species of *Strepsicerus* here mentioned, I may suggest that it is sometimes stated, (I know not with what truth), that the leaves of the *Leptospermum*, on which the larvæ of both feed, were used by the sailors of Captain Cook as a substitute for tea; and it is therefore conceivable that, when leaving Port Jackson, where the plant and both the insects in question are found, they, being ignorant that the plant was equally common in New Zealand, might have brought a supply of branches with them. *S. ejectana* is so abundant near Sydney, that a small consignment of these could hardly fail to introduce it successfully.

A striking feature is the extreme variability of most of the species. Of those of which I possess sufficiently extensive series to form any judgment, two-thirds are highly inconstant in colouring, and frequently also in size. By a careful selection of types, and exclusion of intermediate forms, some of these, such as *Adox. conditana* and *Pæd. obliquana*, could easily be made to do duty as a dozen species in the estimation of those who had not observed them at large, and, in fact, to this variability is due in part the large number of synonyms attached to them. It would seem from this, (in conjunction with the fact that such larvæ as are known are mostly polyphagous, and have readily adapted themselves to introduced European plants), that there have been no sufficient causes in operation to fix special types; it is possible that this may be in some measure due to the broken character of the fauna, and absence of closely allied species. It has also occurred to me, that, considering the very large number of new stations available for these insects on European plants, which have very rarely introduced any of their own *Lepidoptera* with them, and considering also the great pliability of character evidenced by the variability of colouring and larval habit, we have here every natural facility offered for the production of new species. It is very desirable that attention should be directed to this at once, since the process could only be detected by careful and continuous observation.

Some species were wrongly classified in my paper cited above, owing in most instances to the want of material for a proper examination, my New Zealand specimens there described having been all obtained in a month's tour. I have given descriptions here of all the species, in order to afford a sufficient base of operations for the New Zealand student, without other works; but in the case of species which I have already described elsewhere, I have not given quite the amount of detail which is necessary in a first description.

TORTRICINA.

Head rather rough; ocelli present; tongue short (rarely obsolete). Antennæ short. Maxillary palpi absent. Labial palpi rather stout, more or less porrected. Wings usually broad. Forewings with 12 veins (rarely 11 or 10, by coalescence of 7 and 8, and further of 3 and 4), 7 and 8 sometimes stalked, rest separate, vein 1 furcate at base (rarely one fork obsolete). Hindwings with 8 veins (sometimes 7 by coalescence of 3 and 4), 3 and 4 often stalked, sometimes separate, 6 and 7 often stalked.

Fam 1.—TORTRICIDÆ.

Lower median vein of hindwings without basal pectination; vein 2 of forewings rising before posterior third of lower margin of cell.

The following is a tabulation of the New Zealand genera:—

- I. Forewings with 12 veins.
- A. Veins 7 and 8 of forewings stalked.
1. Forewings with costal fold in male.
- a. Veins 3 and 4 of hindwings separate.
- i. Thorax crested 3. *Pyrgotis*.
- ii. „ smooth 4. *Adoxophyes*.
- b. Veins 3 and 4 of hindwings from a point 2. *Capua*.
2. Forewings simple 1. *Dichelia*.
- B. Veins 7 and 8 of forewings separate.
1. Forewings with costal fold in male.
- a. Veins 3 and 4 of hindwings separate.. .. . 6. *Harmologa*.
- b. „ „ „ from a point 7. *Cacoecia*.
2. Forewings simple.
- a. Veins 3 and 4 of hindwings separate.
- i. Antennæ shortly and simply ciliated 5. *Proselena*.
- ii. „ biciliated with long cilia 11. *Prothelymna*.
- b. Veins 3 and 4 of hindwings from a point.
- i. Veins 6 and 7 of hindwings separate 8. *Tortrix*.
- ii. „ „ „ stalked 9. *Dipterina*.
- II. Forewings with 10 veins 10. *Eurythecta*.

1. DICHELIA, Gn.

Thorax smooth (rarely crested). Antennæ shortly ciliated in male. Palpi rather short, porrected, densely rough-scaled above and generally beneath, often tufted beneath. Forewings with costa simple in male. Hindwings hardly broader than forewings. Forewings with 12 veins, 7 and 8 stalked, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 from a point or stalked, 5 approximated to 4 at base, 6 and 7 stalked.

Immediately distinguished from the other genera with veins 7 and 8 of the forewings stalked, by the absence of the costal fold in male. Only one New Zealand species is known, but the genus is well represented in Australia.

1. *Dich. lucioplana*, Walk.

(*Pædisca lucioplana*, Walk., Brit. Mus. Cat., 381; (*Dichelia*), Meyr., Proc. Linn. Soc. N.S.W., 1881, 470.)

Media, alis ant. dilutissime ochreis, triangulo costæ magno saturate fusco, spatio incluso semiovali sæpius albo, macula marginis postici elongata ciliisque saturate fuscis; post. albidis, apice leviter ochreo.

Male, female.—18–19½ mm. Head and thorax whitish-ochreous. Forewings moderate, posteriorly dilated, costa arched towards base, faintly sinuate in middle, hindmargin sinuate, oblique; whitish-ochreous, finely strigulated and sometimes suffused with darker; a moderately broad dark reddish-fuscous outwardly oblique streak from costa at $\frac{1}{3}$, and a similar inwardly oblique streak from costa at $\frac{2}{3}$, uniting on disc below middle so as to form a triangle enclosing a semi-oval white or pale ochreous patch; a

cloudy elongate semi-oval fuscous blotch along hindmargin from apex to anal angle; all these markings sometimes very faint: cilia dark fuscous, mixed with paler towards anal angle. Hindwings whitish, towards apex faintly ochreous-tinged, towards inner margin coarsely spotted with grey; cilia whitish.

A very distinct species, apparently allied to the Australian *D. isoscelana*, Meyr.

Tolerably common at Blenheim, Christchurch, and Dunedin, in January and February.

2. CAPUA, Stph.

Thorax smooth or slightly crested. Antennæ ciliated in male. Palpi moderate, porrected, second joint triangularly scaled. Forewings in male with strong costal fold, often concealing an expansible tuft of hairs. Hindwings somewhat broader than forewings. Forewings with 12 veins, 7 and 8 stalked, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 from a point or stalked, 5 somewhat approximated to 4 at base, 6 and 7 stalked.

Differs essentially from *Dichelia* only by the costal fold. Rather numerous in Australia, but there is only one New Zealand species.

2. *Cap. semifera*na, Walk.

(*Teras semifera*na, Walk., Brit. Mus. Cat., 306, (*Capua*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 453; *Sciaphila detritana*, Walk., Brit. Mus. Cat., 356; *Tinea admotella*, ibid., 485; *Grapholita abnegatana*, ibid., 991.)

Parva, alis ant. griseo-ochreis rufisve; striga disci obliqua prope basim nigrescente, fascia media angusta perobliqua saturate fusca, strigam disci nigram includente, macula costæ ante apicem triangulari fusca cum fascia sæpius conjuncta, omnibus interdum obsoletis; post. griseis.

Male, female.—11–15 mm. Head and thorax greyish-ochreous or fuscous, face and palpi internally pale-ochreous. Forewings moderate, in male dilated, costa moderately arched, hardly bent, hindmargin nearly straight, oblique; varying from light greyish irrorated with fuscous, to reddish-ochreous or reddish fuscous, often closely and irregularly strigulated with dark fuscous; costa and inner margin coarsely strigulated with blackish; outer edge of basal patch often represented by an irregular inwardly oblique blackish mark in disc near base; often an ill-defined dark spot on inner margin before middle; central fascia moderate, irregular, nearly evenly broad, from before middle of costa to before anal angle, dark fuscous, containing a blackish longitudinal mark above middle, lower half often wholly obsolete, upper half often confluent posteriorly with a dark fuscous elongate-triangular patch on costa towards apex, so as to form a larger triangular blotch; an irregular dark fuscous streak near hindmargin, often absent; sometimes all markings absent, or the wing streaked

longitudinally with dark fuscous; a blackish interrupted hindmarginal line: cilia pale ochreous or reddish-ochreous, mixed with blackish round apex, often with a blackish line towards base, towards anal angle whitish-tinged. Hindwings grey; cilia pale grey, with a darker basal line.

A very variable species, in size, colour, and irregular intensity of markings, in some of its forms closely approaching the Australian *C. chimerinana*, Meyr.

Probably everywhere abundant; occurs at Hamilton, Wellington, Christchurch, Akaroa, and Dunedin, either in bush, on open grassy places, or on coast sandhills, from November to April. I have also found worn specimens in August, probably hybernated.

3. PYRGOTIS, Meyr.

Thorax crested. Antennæ in male ciliated. Palpi moderate, porrected, second joint triangularly scaled. Forewings in male with strong costal fold. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 stalked, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 separate at origin, 5 closely approximated to 4 at base, 6 and 7 stalked.

Separated from *Capua* by the distinct origin of veins 3 and 4 of the hindwings, and from *Adoxophyes* by the thoracic crest. There are two New Zealand species, besides which there is only one other known, from Australia.

3. *Pyrg. plagiata*, Walk.

(*Conchylis plagiata*, Walk., Brit. Mus. Cat., 370, (*Pyrgotis*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 441; *Conchylis recusana*, Walk., Brit. Mus. Cat., 371; *Grapholitha punana*, Feld., Reis. Nov., pl. CXXXVII, 43; ? *G. xylinana*, ibid., 44.)

Minor, alis ant. ochreo-albidis, ochreo-strigulatis, fascia angusta angulata prope basim, altera obliqua ante medium, tertia a costa ante apicem in alteram inferius percurrente, maculaque marginis postici inferiori ochreo-fuscis, triangulo costæ medio incluso pallidiore; post. albidis, apice leviter ochreo.

Male, female.—15–19 mm. Head and thorax whitish-ochreous. Forewings triangular, costa slightly arched, apex produced, hindmargin sinuate, oblique; whitish, more or less suffused with pale ochreous-yellowish, and coarsely strigulated with darker ochreous; markings ochreous-fuscous or dark fuscous, irregularly variable in intensity; a sharply angulated fascia near base, upper half often nearly obsolete; inner margin sometimes suffused with dark fuscous; central fascia straight, narrow, from $\frac{1}{3}$ of costa to $\frac{2}{3}$ of inner margin; an inwardly oblique narrow streak from costa before apex, dilated and enclosing a pale spot on costa, uniting with central fascia near inner margin, so as to enclose a large pale costal triangle, sometimes white; a large irregular roundish blotch on lower half of hindmargin, sometimes confluent above with the streak from costa; a subapical streak

before hindmargin: cilia pale ochreous, with a darker line near base, tips at apex blackish. Hindwings whitish, at apex ochreous-tinged, coarsely spotted with grey; cilia whitish.

Variable in intensity of colouring, the female apparently darker than the male; easily known from the next species by its larger size and much lighter ground-colour.

Larva moderate, cylindrical, slightly tapering at each end; pale whitish-grey-greenish, becoming darker smoky-grey on back; head and plate of second segment, when young, black, when full-grown greenish-ochreous. Feeds between joined leaves of oak (*Quercus robur*), gnawing numerous holes, and forming a loose silken gallery for shelter. Pupa in a thin silken cocoon in same position. I found these larvæ plentiful in April, and bred a female indoors in June. The food-plant being imported, the larva is probably polyphagous.

Common at Dunedin, Christchurch, and Wellington, probably very generally distributed; in January, and again in April and May.

4. *Pyrg. zygiana*, n. sp.

Minor, alis ant. brunneis, plumbeo-strigulatis, partim nigro-suffusis, striga obscura albida posteriori in apicem pereurrente; post. griseis.

Male, 14 mm.—Head, palpi, and thorax reddish-fuscous mixed with dark fuscous. Antennæ grey, annulated with blackish. Abdomen grey. Legs grey-whitish, anterior and middle tibiæ and tarsi and apical joints of posterior tarsi suffused with dark fuscous, except at apex of joints. Forewings moderate, posteriorly dilated, costa moderately arched, hindmargin sinuate, oblique; rather dark reddish-ochreous-fuscous, mixed with dark fuscous, and coarsely strigulated throughout with leaden-grey; costa and inner margin shortly strigulated with blackish; an indistinct blackish suffusion in disc near base, and another in disc towards apex; an indistinct slender streak of grey-whitish scales from near inner margin before anal angle to apex, where it is suffusedly dilated: cilia reddish-fuscous mixed with dark fuscous. Hindwings grey; cilia whitish-grey, with two indistinct darker lines.

Differing widely from the preceding in the fuscous ground-colour, leaden strigulations, grey hindwings, and small size.

One specimen taken amongst bush near Christchurch in March.

4. ADOXOPHYES, Meyr.

Thorax smooth. Antennæ in male ciliated. Palpi moderate or rather long, porrected, second joint triangularly scaled. Forewings in male with strong costal fold. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 stalked, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 separate at origin, 5 approximated to 4 at base, 6 and 7 stalked.

Differs from *Pyrgotis* in the absence of the thoracic crest. Of the three known species, one is Australian, and the other two belong to New Zealand, not closely approaching the Australian species. In all the sexes differ more or less conspicuously.

5. *Adox. lotinana*, n. sp.

Media, alis ant. dilute ochreis, costæ dimidio anteriori dorsoque anguste fuscis, margine postico late fusco-suffuso, plumbeo-strigulato, fascia media perobliqua fusca dimidium non superante, ciliis albis; post. griseis.

Male, 17 mm.; *female*, 21 mm.—Head and thorax light ochreous. Palpi elongate, light ochreous, externally suffused with dark fuscous. Antennæ light ochreous, sharply annulated with dark fuscous. Abdomen whitish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused with dark fuscous, except at apex of joints. Forewings moderate, in male triangular, in female more oblong, costa gently arched, hindmargin straight, rather oblique, rounded beneath; light ochreous; inner margin and anterior half of costa narrow suffused with dark fuscous, mixed with reddish-fuscous; hindmargin broadly suffused with reddish-fuscous, indistinctly strigulated with leaden-grey, the veins remaining pale-ochreous: posterior half of costa strigulated with dark fuscous; a very oblique moderately broad ill-defined reddish-fuscous streak from costa before middle, hardly reaching half across wing: cilia white, with a dark fuscous basal line. Hindwings grey, lighter in female; cilia whitish, with a grey basal line.

Separable from the next species by the darker hindwings, almost wholly white cilia of forewings, and larger size.

The larva feeds on *Arundo conspicua* ("toi grass"), but I do not know in what manner. Mr. R. W. Fereday informs me that he bred the species from conspicuous firm white cocoons, attached openly to the surface of the leaves.

Mr. Fereday obtained several specimens in this manner near Christchurch, and I am indebted to him for my types.

6. *Adox. conditana*, Walk.

(*Teras conditana*, Walk., Brit. Mus. Cat., 306; *Pandemis gavisana*, *ibid.*, 312; *Conchylis marginana*, *ibid.*, 371; ? *Rhacodia rureana*, Feld., Reis. Nov., pl. CXXXVII., 47; *Teras flavescens*, Butl., Proc. Z. L. S., 1877, 402; *Pyrgotis porphyreana*, Meyr., Proc. Linn. Soc. N.S.W., 1881, 443; *Capua aoristana*, *ibid.*, 446.)

Minor, alis ant. dilute vel saturate ochreis griseisve, interdum fusco-suffusis, linea transversa angulata prope basim, fascia media obliqua, maculaque costali saturatioribus, ciliorum dimidio basali nigrescente; post. M. griseis, F. albis.

Male, 12–15 mm ; *female*, 15–16 mm.—Head, palpi, and thorax in male whitish-ochreous, ochreous, fuscous, or grey, in female whitish-ochreous ; palpi elongate. Antennæ whitish-ochreous or greyish, in male sharply annulated with dark fuscous. Abdomen whitish-ochreous or grey. Legs varying from whitish to dark fuscous. Forewings in male triangular, moderate, costa moderately arched, somewhat bent in middle, hindmargin almost straight, rather oblique ; in female rather oblong, dilated posteriorly, costa strongly arched towards base, sinuate beyond middle, apex somewhat produced, hindmargin somewhat sinuate, rather oblique ; in male pale whitish-ochreous, whitish-grey, ochreous, fuscous, or dark fuscous-grey, more or less distinctly strigulated or reticulated with darker ; in female whitish-ochreous, reticulated with darker ochreous ; one whitish-grey male has posterior half of wing reddish-fuscous, and one grey male has whole wing except basal patch suffused with blackish-grey ; outer edge of basal patch, central fascia, and costal spot generally ochreous-fuscous or fuscous, more or less distinctly darker than ground-colour, but sometimes wholly obsolete in male ; outer edge of basal patch in male from $\frac{1}{4}$ of costa to $\frac{1}{4}$ of inner margin, sharply angulated above middle, in female irregular, from $\frac{1}{4}$ of costa obliquely outwards, angulated above middle, thence irregularly concave, ending in middle of inner margin ; central fascia rather narrow, straight, from middle of costa to inner margin before anal angle, generally obsolete beneath, posterior edge dilated outwards into an abrupt suffused projection above middle ; costal spot in male roundish, sometimes produced as a fascia to anal angle, in female flattened semi-oval, often confluent with projection of central fascia ; costal space between central fascia and costal spot often conspicuously paler than ground-colour : cilia in male whitish or whitish-ochreous, basal half blackish-grey, sometimes almost wholly blackish-grey, in female whitish-ochreous, towards base dark ochreous-fuscous. Hindwings in male varying from grey-whitish to dark grey, when light spotted with darker, cilia paler, with a darker basal line ; in female white, apex very faintly ochreous-tinged, cilia white.

The variability of this species is extraordinary, the sexes being also very different, and the various forms can hardly be included in a single description. From the preceding species the female is immediately distinguishable by the white hindwings and different form, the male by the conspicuous dark basal half of the cilia of forewings, the usually perceptible basal patch and costal spot, and the much smaller size.

Larva moderate, cylindrical, slightly tapering at both ends ; pale greyish-green, spots concolorous ; head pale greyish-ochreous, lateral margins dark fuscous, mouth spotted with dark fuscous ; second segment greenish-whitish, with an ochreous-tinged dorsal plate ; anal segment greenish-whitish, with a

small ochreous-tinged plate. Feeds in a light silken tube amongst spun-together leaves of *Genista* in garden hedges. Pupa in a thin firm white silken cocoon in same place. Probably the larva is polyphagous, the food-plant not being native.

Occurs commonly at Christchurch, Nelson, Dunedin, Wellington, and Auckland, in January, and again in March and April; during the latter months I also found the larvæ feeding, from which imagos emerged in April. The species flies abundantly over its food-plant for a short time about sunset, and I have also taken it at light. It is to be regretted that I should have fallen into the error of adding to the already too numerous synonyms of the species, misled by its extreme variability. I was also wrong in imagining the existence of a thoracic crest, often a difficult character to observe; the species is therefore not referable to *Pyrgotis*.

5. PROSELENA, Meyr.

Thorax smooth. Antennæ in male shortly ciliated. Palpi moderate, porrected, second joint triangularly scaled. Forewings in male with costa simple. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 separate at origin, 5 parallel or approximated at base to 4, 6 and 7 stalked.

Differs from the preceding genera by the separation of veins 7 and 8 of the forewings, from *Harmologa* by the absence of the costal fold, from *Tortrix* by the separation of veins 3 and 4 of the hindwings. I have thought it best to widen the original definition of this genus, (founded on a single species), by not insisting on the parallelism of veins 3, 4, 5 of the hindwings; these differ much in relative direction, but the differences are probably incapable of definition, and insufficient for generic distinction. As thus established the genus includes two described Australian species, (I have a third unpublished), and three are now added to it from New Zealand, of which number one was formerly erroneously referred to *Tortrix*.

These three species may be thus tabulated:—

A. Forewings whitish-grey	7. <i>aspistana</i> .
B. „ ochreous.	
1. Forewings unicolorous	9. <i>siriana</i> .
2. „ with basal third much paler than remainder	8. <i>hemionana</i> .

7. *Pros. aspistana*, n. sp.

Parva, alis ant. albido-griseis, macula basali trianguloque costæ magno castaneis, fusco-marginatis; post. griseis.

Male.—13 mm. Head, palpi, and thorax whitish-grey, somewhat mixed with fuscous (but damaged). Antennæ whitish-grey (?). Abdomen whitish-grey. Legs whitish-grey, anterior and middle pair suffused with dark fuscous except at apex of joints. Forewings oblong, rather narrow,

slightly dilated posteriorly, costa moderately arched near base, thence nearly straight, somewhat sinuate beyond middle, hindmargin rather strongly oblique, nearly straight, very slightly sinuate; whitish-grey, with some scattered spots of dark fuscous scales; basal patch reddish-brown, exterior edge sharply marked, broadly dark fuscous, from $\frac{1}{5}$ of costa to $\frac{1}{5}$ of inner margin, irregular, hardly angulated; a large reddish-brown triangular costal patch, extending on costa from $\frac{1}{3}$ to near apex, reaching rather more than half across wing, apex broken and partially suffused, anterior and posterior edges sharply marked, broadly margined with dark fuscous, costal edge marked with three small dark fuscous spots; a similar small dark fuscous spot on costa before apex: cilia grey-whitish, with a dark grey basal line. Hindwings grey, with a pencil of long whitish-yellowish hairs on costa at base; cilia pale grey.

Immediately known by the whitish-grey forewings, with reddish-brown basal and costal patches.

Two specimens, in poor condition, taken by Mr. J. D. Enys, at Porter's Pass.

8. *Pros. hemionana*, n. sp.

Parva, alis ant. dilute ochreis, plusquam dimidio posteriore post-lineam obliquam fusco, antice saturatiore; post. griseis.

Male.— $12\frac{1}{2}$ – $13\frac{1}{2}$ mm. Head, palpi, and thorax whitish-ochreous; palpi rather elongate, externally fuscous. Antennæ whitish-ochreous, annulated with dark fuscous. Abdomen light grey. Legs grey-whitish, anterior and middle pair suffused with dark fuscous except at apex of joints. Forewings moderate, posteriorly somewhat dilated, costa rather strongly arched near base, thence nearly straight, hindmargin nearly straight, oblique; pale whitish-ochreous, with scattered obscure ochreous-fuscous strigulæ; base indistinctly suffused with ochreous-brownish; posterior $\frac{2}{5}$, beyond a straight sharply-defined line from $\frac{2}{5}$ of costa to slightly beyond middle of inner margin, fuscous, strigulated with dark reddish-fuscous, and becoming dark fuscous towards anterior edge, more broadly towards costa, and on a small very ill-defined costal spot towards apex: cilia whitish-ochreous or light brownish-ochreous, with a broad dark fuscous basal line. Hindwings grey; cilia grey-whitish, with a darker basal line.

Rendered conspicuous by the contrast of the pale basal and dark posterior areas.

Six specimens taken by Mr. R. W. Fereday near Lake Guyon in March.

9. *Pros. siriana*, Meyr.

(*Tortrix siriana*, Meyr., Proc. Linn. Soc. N.S.W., 1881, 521.)

Parva, alis ant. M. ochreo-brunneis, fusco-sparsis, F. saturate ochreis, puncto disci nigro; post. M. nigrescentibus, F. albidis.

Male, 10½–12 mm.; *female*, 14 mm.—Head and thorax in male deep brownish-ochreous, in female reddish-ochreous. Forewings narrow, costa moderately arched, hindmargin almost straight, rather strongly oblique; in male deep brownish-ochreous, mixed with dark fuscous, especially posteriorly, in female reddish-ochreous, with a few dark fuscous scales; a tolerably distinct dark fuscous dot in disc beyond middle: cilia ochreous, towards anal angle in male greyish, in female whitish. Hindwings and cilia in male blackish, in female whitish.

Markedly distinct by its unicolorous forewings, and the strongly-contrasted hindwings.

Taken in plenty in January amongst long grass near Hamilton, on the skirts of the forest. This, as well as the other species, appears to be very local.

6. HARMOLOGA, n. g.

Thorax smooth or rarely crested. Antennæ in male ciliated. Palpi moderate or rather long, porrected, second joint triangularly scaled. Forewings in male with strong costal fold. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 separate at origin, 5 approximated at base to 4, 6 and 7 stalked or separate.

Separated from *Proselena* by the costal fold, from *Cacoecia* by the separation of veins 3 and 4 of hindwings. To this genus belong some of the species formerly referred provisionally to *Cacoecia*; I have at present five New Zealand species, but have not observed the genus as occurring elsewhere. These species, which are very various in superficial appearance, may be separated as follows:—

A. Forewings whitish in ground-colour.

- | | |
|---------------------------------------|------------------------|
| 1. Hindwings ochreous-whitish | 14. <i>amplexana</i> . |
| 2. „ grey | 10. <i>sisyrana</i> . |

B. Forewings fuscous or grey.

- | | |
|---|-------------------------|
| 1. Hindwings ferruginous-yellow or whitish-yellow | 13. <i>anea</i> . |
| 2. „ grey. | |
| a. Forewings with a whitish hind-marginal blotch.. .. . | 12. <i>zatrophana</i> . |
| b. „ without whitish blotch.. .. . | 11. <i>oblongana</i> . |

10. *Harm. sisyrana*, n. sp.

Media, alis ant. dilute griseis, nigro-strigulatis, area basali obscura, fascia media obliqua, maculisque costæ posterioribus quatuor parvis saturatoribus; post. griseis.

Male, 17½ mm; *female*, 20 mm.—Head, palpi, and thorax grey-whitish, mixed with fuscous-grey and blackish; palpi rather short; thorax crested. Antennæ grey. Abdomen whitish-grey. Legs grey-whitish, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous. Forewings

moderate, in female more elongate, costa moderately arched, hindmargin obliquely rounded, in female very faintly sinuate; whitish, mixed with grey, with fine scattered irregular blackish strigulæ throughout; basal patch greyer, ill-defined, outer edge irregularly angulated in middle, marked by a somewhat stronger black strigula; central fascia moderate, ill-defined, fuscous-grey, running from before middle of costa to $\frac{2}{3}$ of inner margin, edges very irregular, anterior edge rather deeply emarginate above and below middle, towards inner margin partially obsolete; four small subquadrate fuscous-grey spots on costa towards apex, in female giving rise to confused very irregularly reticulated fuscous-grey lines proceeding obliquely to hindmargin: cilia grey-whitish, basal third within a dark grey line whitish barred with dark grey. Hindwings grey, paler in female, spotted with darker; cilia whitish, with a grey basal line.

This species appears to be the only one with a crested thorax, but it does not seem necessary at present to separate it on that account; it cannot be confused with any other.

A pair taken on sandhills near Christchurch, in March; I have seen several others from the same locality, taken in November and December.

11. *Harm. oblongana*, Walk.

(*Teras oblongana*, Walk., Brit. Mus. Cat., 303, (*Cacoecia*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 489; *Teras inaptana*, Walk., Brit. Mus. Cat., 304; *Teras cuneigera*, Butl., Cist. Ent., II., 559.)

Minor, alis ant. griseis, interdum ochreo-suffusis, area basali, fascia media abbreviata cum macula costæ triangulari confluenta, macula anguli analis, alteraque marginis postici parva saturatoribus, striga disci nigra; post. griseis.

Male, female.—15–19 mm. Head and thorax greyish-fuscous or grey; palpi rather elongate. Forewings moderately broad, posteriorly dilated in male, costa moderately arched, hindmargin sinuate, slightly or not oblique; grey or ochreous-grey, with indistinct darker strigulæ; basal patch somewhat darker, outer edge marked by a dark strigula, very irregularly angulated above middle; central fascia moderate, varying from grey to dark reddish-fuscous, running from before middle of costa to $\frac{2}{3}$ of inner margin, generally obsolete on lower half, anterior edge well-defined on upper half, posterior edge suffused; an ill-defined grey or fuscous-grey blotch on costa about $\frac{2}{3}$, often uniting with upper half of central fascia to form a large triangular blotch; often a slender blackish longitudinal line in disc on central fascia, and in female the central fascia sometimes mixed with brownish-ochreous, especially above this line; a very indistinct blotch on anal angle, sometimes confluent with the costal blotch; a small dark spot on hind

margin above middle: cilia grey or greyish-ochreous, with a darker line. Hindwings light grey, sometimes partially ochreous-tinged, spotted and often suffused with darker grey; cilia whitish-grey, with a darker basal line.

Rather variable in colour and considerably in intensity of marking; but easily separated from all the other species of the genus by its dull grey hue.

Occurs rather commonly at Christchurch, Dunedin and Blenheim, in December, January and March, seeming attached to *Leptospermum*. Butler's *cuneigera* is founded on a light-coloured specimen with strongly-marked costal blotch, received from Blenheim; I have seen two similar specimens from the same locality, but can find no reliable point of distinction and have no doubt of their identity.

12. *Harm. zatrophana*, n. sp.

Minor, alis ant. rufis, griseo-mixtis, macula magna posteriori albida ochreo-mixta; post. saturate griseis.

Female.—14 mm. Head, palpi and thorax reddish-ochreous-brown, mixed with whitish-grey; palpi moderate, grey-whitish internally and beneath. Antennæ grey, annulated with black. Abdomen dark grey. Legs grey, anterior and middle tibiæ and all tarsi suffused with dark fuscous, except at apex of joints. Forewings rather narrow, oblong, costa gently arched, apex nearly rectangular, hindmargin sinuate, not oblique; reddish-ochreous-brown, thickly mixed with dark fuscous-grey; a tolerably well-defined large whitish blotch on hindmargin, almost reaching costa and anal angle, extending in disc to $\frac{2}{3}$ from base, containing two small pale ochreous spots mixed with grey scales, one on its upper and the other on its lower margin, almost uniting in middle, so as to bisect the blotch: cilia reddish-ochreous-brown mixed with grey. Hindwings dark grey, apex blackish-grey; cilia whitish-grey, with a dark grey basal line.

Very distinct by its deep colouring and the posterior whitish blotch.

One fine specimen taken at light at Christchurch in March. The male being unknown, the generic location is not absolutely assured, but I have little doubt the species is correctly placed.

13. *Harm. ænea*, Butl.

(*Teras ænea*, Butl., Proc. Z.L.S., 1877, 402.)

Major, alis ant. fuscis, M. flavo, F. ochreo-suffusis, costa F. alba; post. M. saturate flavis, posterius nigro-mixtis, F. albis, posterius dilute flavis.

Male, 27 mm.; *female*, 30 mm.—Head, palpi and thorax in male brownish-ochreous mixed with fuscous, in female ochreous-whitish suffused with pale ochreous; palpi rather long. Antennæ in male fuscous, in female whitish-ochreous. Abdomen in male yellowish-ochreous mixed with fuscous, in female ochreous-whitish. Legs ochreous-whitish, anterior and middle pair more or less suffused with fuscous-grey, posterior tibiæ in male

suffused with yellowish. Forewings oblong, hardly dilated, in male moderately broad, in female narrower, costa moderately arched, hindmargin not oblique, in male gently rounded, in female sinuate beneath apex; dull greyish-fuscous, irregularly suffused in male with golden-ochreous-yellow, in female with light yellowish-ochreous; in male extreme costal edge whitish except near base, in female costa narrowly white throughout: cilia in male ochreous-grey-whitish, basal half suffused with yellowish, in female white, base ochreous-tinged. Hindwings in male deep ferruginous-yellow mixed with dark grey, especially posteriorly, so as sometimes to form a broad dark hindmarginal band, and an obscure discal spot beyond middle, costa towards middle broadly paler, cilia whitish-yellow, at base and on anal angle ferruginous-yellow; in female dull white, becoming broadly pale yellow posteriorly, cilia white, at base pale yellow.

Conspicuous by its large size and distinctly coloured hindwings.

Common at Porter's Pass and Mount Hutt, in January, but probably confined to the mountain districts. I owe my specimens to the kindness of Mr. J. D. Enys, who also furnished Butler's original type.

14. *Harm. amplexana*, Z.

(*Idiographis* (?) *amplexana*, Z., z.b.V., 1875, 222, (*Cacoecia*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 494; *Cacoecia vilis*, Butl., Proc. Z.S.L., 1877, 402, pl. XLIII., 15.)

Minor, alis ant. albidis, angulo revolucrum amplectente, fascia media obliqua, M. superius obsoleta, maculaque costæ triangulari saturate fuscis; post. albidis, apicem versus leviter ochreis.

Male, female.—15–17 mm. Head and thorax whitish; palpi elongate, externally mixed with dark fuscous. Forewings moderate, oblong, hardly dilated, costa in male slightly arched, bent before middle, in female strongly arched towards base, slightly sinuate beyond middle, hindmargin not oblique, rather strongly sinuate beneath apex; whitish, indistinctly strigulated with fuscous; basal patch represented in male by a sharply-marked blackish-fuscous narrow fascia proceeding from costa at $\frac{1}{4}$ obliquely inwards to disc, thence abruptly to base beneath costa, in female by a dark fuscous fascia from costa before $\frac{1}{5}$, irregularly angulated below costa, bent inwards in disc as in male, but less defined; central fascia rather narrow, dark fuscous, from costa before middle to inner margin beyond middle, in male obsolete towards costa, in female distinct throughout, anterior edge dark-margined, posterior edge suffused; a rather ill-defined fuscous triangular patch extending on costa from middle to before apex, its lower extremity usually connected with central fascia and anal angle by two irregularly curved cloudy lines; a cloudy fuscous spot on middle of hindmargin, its anterior edge marked with from two to four blackish dots; hindmargin sometimes dotted with black: cilia grey-whitish, becoming dark fuscous

towards base, especially round apex. Hindwings whitish, faintly yellowish-tinged posteriorly, and spotted with grey; cilia whitish, with a grey basal line.

Remote from all its congeners in superficial appearance; the peculiar angulated subcostal mark at base, (differing in the sexes), is unique in its way, but only conspicuous in the male.

Common at Christchurch, Wellington, and Dunedin, generally in gardens, in January, February, March, and August.

7. CACOECIA, Hb.

Thorax smooth. Antennæ in male ciliated. Palpi moderate or rather long, porrected, second joint triangularly scaled. Forewings in male with strong costal fold. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 from a point, 5 approximated at base to 4, 6 and 7 separate (rarely stalked).

Distinguished from *Harmologa* by the origin of veins 3 and 4 of the hindwings from the same point, from *Tortrix* by the costal fold of male. Of the species which I originally referred here, four have been satisfactorily determined to be mere varieties, three have been transferred to the neighbouring *Harmologa*, one (of which the male had been unknown) to *Tortrix*, and one is removed to the *Grapholithidæ*, the basal pectination of the hindwings having been overlooked. I have now only two true species of *Cacoecia* from New Zealand; the genus is numerously represented in Australia.

15. *Cac. excessana*, Walk.

(*Teras excessana*, Walk., Brit. Mus. Cat., 303, (*Cacoecia*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 491; *Teras biguttana*, Walk., Brit. Mus. Cat., 305; *Tortrix taipana*, Feld., Reis. Nov., pl. CXXXVII., 46; *Cacoecia inana*, Butl., Proc. Z. S. L., 1877, 403, pl. XLIII., 13.)

Media, alis ant. ochreis fuscisve, interdum purpureo-suffusis, area basali, fascia media obliqua inferius dilatata, macula costæ triangulari alteraque marginis postici parva vix saturatioribus, sæpe obsoletis; post. albido-griseis.

Var. *a*. Alis ant. macula disci ante medium parva albida.

Male, female.—19–28 mm. Head and thorax varying from ochreous to dark fuscous or purple-fuscous (sometimes discolorous); palpi rather long. Forewings moderately broad, posteriorly dilated, less in female, costa moderately arched, in female straighter posteriorly, hindmargin sinuate, not oblique; varying from ochreous to dark ochreous-fuscous, finely strigulated with darker, sometimes wholly suffused with purple; markings very ill-defined, hardly darker than ground-colour, often wholly obsolete; outer

edge of basal patch strongly angulated above middle, beneath connected with a spot on inner margin before middle; central fascia from before middle of costa to inner margin at $\frac{3}{4}$, narrow above, strongly dilated on lower half, margins very irregular; a triangular patch on costa about $\frac{3}{4}$; a small spot before middle of hindmargin (sometimes conspicuously darker): cilia ochreous or ochreous-fuscous, with a darker basal line. Hindwings whitish-grey or almost whitish, more or less spotted with darker grey, towards apex sometimes ochreous-tinged; cilia grey-whitish or ochreous-whitish, with two darker lines.

Var. *a*. Forewings with a small round whitish or whitish-ochreous spot in disc between basal patch and central fascia.

A very variable species, but always characterized by extreme indefiniteness of marking, and broader-winged than the following. The var. *a* (described by Walker as distinct under the name of *biguttana*) I also supposed at first to be a good species, but have since seen transitional forms, which leave little doubt that it is merely a varietal development. The purple variety is also very striking and handsome.

Larva rather stout, cylindrical, somewhat tapering behind, with scattered short whitish hairs; whitish-green, spots hardly darker; dorsal very distinct, slender, dark green; head very pale greenish-ochreous. Feeds between joined leaves of *Panax arboreum* (*Araliaceæ*) in April; pupa free in same position. This larva produced a specimen of the purple variety in June (indoors). The larva is certainly not confined to this food-plant, and is probably more or less polyphagous.

Common at Auckland, Wellington, Nelson, Christchurch, and Dunedin, and probably generally, from January to May, and even in July.

16. *Cac. enoplana*, n. sp.

Media, alis ant. dilute fuscis, costa, linea antica transversa, fascia obliqua lata superius coarctata, trianguloque costæ saturate fuscis; post. albidis.

Male.—20 mm. Head, antennæ, thorax, abdomen, and legs whitish-brown; (palpi broken); anterior and middle tibiæ and tarsi suffused with dark fuscous except at apex of joints. Forewings moderate, posteriorly dilated, costa moderately arched, hindmargin sinuate, hardly oblique; light dull brown; costal edge and fold dark fuscous; outer edge of basal patch indicated by an irregular dark fuscous line from $\frac{1}{4}$ of costa to $\frac{1}{3}$ of inner margin; central fascia dark fuscous towards costa, towards inner margin hardly darker than ground-colour, but margined by dark fuscous lines, running from before middle of costa to before anal angle, very narrow on costa, gradually dilating to middle, very broad on lower half, margins rather irregular; a flattened-triangular dark fuscous spot on costa about $\frac{3}{4}$; cilia

light brown, with a darker basal line. Hindwings grey-whitish, very slightly ochreous-tinged, thinly spotted with grey; cilia whitish, spotted with grey at base.

Characterized by the clear well-defined markings; superficially rather resembling the Australian *C. mnemosynana*, Meyr., but removed from it by the strong costal fold.

One specimen taken at Wellington in February.

8. TORTRIX, Tr.

Thorax smooth. Antennæ in male ciliated. Palpi moderate, porrected, second joint triangularly scaled. Forewings in male simple. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 from a point, 5 approximated at base to 4, 6 and 7 separate.

Separated from *Cacoecia* by the absence of costal fold in male, from *Proselena* by the origin of veins 3 and 4 of the hindwings from a point, from *Dipterina* by the simply and shortly ciliated antennæ of the male. Well represented in Australia; there are six known species from New Zealand, thus distinguishable:—

- | | |
|---|---------------------------|
| A. Head and thorax white | 17. <i>characterana</i> . |
| B. " " " grey | |
| 1. Forewings moderately broad | 18. <i>demiana</i> . |
| 2. " narrow | 22. <i>aërodana</i> . |
| C. Head and thorax ochreous | |
| 1. Central fascia wholly absent | 21. <i>leucaniana</i> . |
| 2. " " partly indicated or entire | |
| a. Posterior costal spot distinct | 20. <i>philopoana</i> . |
| b. " " " absent | 19. <i>pictoriana</i> . |

17. *Tort. characterana*, Meyr.

(*Cacoecia characterana*, Meyr., Proc. Linn. Soc. N.S.W., 1881, 492.)

Minor, alis ant. albis, fasciæ mediæ dimidio superiore angusto nigrescente; post. albis, raro albido-griseis.

Male, female.—14–18½ mm. Head and thorax dull white; palpi rather elongate, externally mixed with dark fuscous. Forewings moderate, slightly dilated posteriorly, costa moderately arched towards base, thence nearly straight, faintly sinuate beyond middle, hindmargin slightly sinuate, not oblique; dull white, faintly strigulated with pale ochreous-grey, and with a few scattered blackish scales; outer edge of basal patch irregular, angulated above middle, partially indicated by blackish scales or obsolete; in female an indistinct grey spot on inner margin before middle, shading into edge of basal patch; central fascia from before middle of costa to inner margin before anal angle, upper third very narrow, blackish, or ochreous-fuscous mixed with black, lower two-thirds strongly and irregularly dilated, almost

wholly obsolete and faintly outlined; two or three small blackish dots before middle of hindmargin; sometimes a faint greyish triangular costal patch before apex, containing two or three blackish costal dots: cilia whitish, base dotted with black, on upper half dark fuscous towards base. Hindwings white (in one female whitish-grey), spotted with grey; cilia white, base dotted with grey, round apex greyish.

Conspicuously distinct through the white ground-colour; in form of wing resembling a *Cacoecia*, but the male has not the slightest trace of a fold.

Originally described from one specimen taken near Auckland in January. I lately obtained five fine specimens near Christchurch in April, and have seen four others from the same place; the species is very distinct, and has no affinity with *obliquana*, Walk., as suggested.

18. *Tort. demiana*, n. sp.

Minor, alis ant. saturate griseo-fuscis, albido-irroratis; post. griseis.

Male.— $17\frac{1}{2}$ mm. Head, palpi, and thorax dark fuscous-grey, mixed with whitish-ochreous; palpi rather elongate, internally whitish-ochreous. Antennæ dark fuscous. Abdomen ochreous-grey, anal tuft pale greyish-ochreous. Legs ochreous-whitish, anterior and middle pair suffused with dark fuscous except at apex of joints. Forewings moderate, hardly dilated, costa moderately arched towards base, posteriorly nearly straight, hindmargin slightly sinuate, somewhat oblique; dark fuscous, densely mixed with whitish scales, and very obsoletely ochreous-tinged on small spots: cilia whitish mixed with dark fuscous. Hindwings fuscous-grey; cilia grey-whitish, with two very suffused fuscous-grey lines.

A very obscure-looking, yet very distinct species, in form approaching the preceding.

One fine specimen, kindly presented to me by Dr. W. H. Gaze, who took it near South Rakaia in March, amongst rough herbage.

19. *Tort. pictoriana*, Feld.

(*Grapholitha pictoriana*, Feld., Reis. Nov., pl. CXXXVII, 55.)

Media, alis ant. ochreis, interdum fusco-suffusis, costa flava, triangulo ad basim magno saturate fusco vel etiam subviridi, fascia obliqua nigrescente, his sæpe obsoletis; post. albidis.

Male, female.—20–24 mm. Head, palpi, and thorax varying from pale ochreous to reddish-ochreous-brown; palpi moderate. Antennæ whitish-grey. Abdomen whitish-ochreous or whitish. Legs whitish, anterior pair suffused with dark fuscous except at apex of joints, middle tibiæ more or less suffused with reddish-fuscous. Forewings moderate, posteriorly rather dilated, narrowed towards base, costa gently arched, somewhat sinuate in middle, hindmargin indented beneath apex, not oblique; varying from very

pale whitish-ochreous to reddish-ochreous, sometimes finely strigulated posteriorly with dark fuscous; sometimes wholly suffused, except towards costa, with smoky-grey or light greenish-grey; costal edge orange-yellow or ochreous-orange; basal patch represented by a large triangular dark fuscous, dark reddish-fuscous, or sometimes dull green blotch, varying from very sharply defined to wholly obsolete, base near and parallel to inner margin, anterior side near and parallel to costa, posterior side outwardly oblique, anterior angle resting on base of wing, posterior angle connected with inner margin, apex confluent with central fascia; central fascia moderate or rather narrow, nearly evenly broad, margins slightly irregular, running from before middle of costa to $\frac{2}{3}$ of inner margin, blackish-fuscous or dark reddish-fuscous, sharply defined throughout, or partially or wholly obsolete except anterior edge towards inner margin: cilia whitish-ochreous, with an ochreous-orange basal line, tips becoming dark fuscous round apex. Hindwings whitish, slightly tinged with greyish towards base and with reddish-ochreous posteriorly, spotted with grey; in male with a pencil of long whitish hairs at base of costa; cilia white.

A handsome and exceedingly variable species, very distinct from any other. The pencil of hairs in the male is similar to that of *Pros. aspistana*, but I attach no generic importance to this character.

An autumnal insect, occurring commonly at Porter's Pass, Lake Guyon, South Rakaia, and Christchurch, in March and April.

20. *Tort. philopoana*, Meyr.

(*Tortrix philopoana*, Meyr., Proc. Linn. Soc. N.S.W., 1881, 515.)

Minor, alis ant. dilute ochreis, area basali, fascia obliqua inferius dilatata, trianguloque costæ posticæ parvo ochreo-fuscis; post. M. albido-griseis, F. albis.

Male, female.—14–17 mm. Head and thorax pale ochreous; palpi moderate. Forewings moderate, in female more elongate and narrower, costa moderately arched, hindmargin slightly sinuate, oblique, in female more oblique; pale ochreous, with a few scattered blackish scales; basal patch ochreous-fuscous, rather ill-defined, especially in female, outer edge from $\frac{1}{5}$ of costa to $\frac{1}{4}$ of inner margin, angulated above middle; central fascia ochreous-fuscous, from before middle of costa to anal angle, narrow towards costa, lower $\frac{2}{3}$ rather dilated, margins slightly irregular, generally with a blackish dot on posterior margin below middle; a rather small triangular ochreous-fuscous spot on costa midway between central fascia and apex; sometimes a small ill-defined ochreous-fuscous spot on middle of hindmargin; markings in female usually more reddish-ochreous and less well-defined: cilia whitish-ochreous. Hindwings whitish-grey, in female often whitish; cilia whitish, with a faint grey basal line.

Allied to the Australian *T. glaphyrana*, Meyr., but not to be confused with any other New Zealand species.

Taken abundantly at Hamilton amongst long grass on the skirts of the forest, in January.

21. *Tort. leucaniana*, Walk.

(*Conchylis leucaniana*, Walk., Brit. Mus. Cat., 370, (*Tortrix*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 517; *Gelechia intactella*, Walk., Brit. Mus. Cat., 652; *Teras pauculana*, ibid., Suppl., 1781.)

Minor, alis ant. dilute ochreis, squamis paucis conspersis punctoque disci nigris, sæpius striga disci brevi longitudinali grisea; post. albis.

Male, female.—14–18 mm. Head and thorax pale ochreous; palpi moderate. Forewings moderate, in female more elongate and narrower, costa moderately arched, hindmargin slightly sinuate, oblique, in female more oblique; pale ochreous, sometimes deeper in female, often rather darker between the veins posteriorly; some irregularly scattered blackish scales; generally a rather more conspicuous black dot in disc beyond middle, usually preceded by a short longitudinal cloudy greyish streak above middle: cilia whitish-ochreous. Hindwings white, posteriorly sometimes faintly greyish; cilia white.

Allied to the preceding, which it resembles in form of wing, but entirely devoid of the usual transverse markings.

Very common and widely distributed, occurring in grassy places at Auckland, Hamilton, Cambridge, Wellington, Nelson, and Christchurch, in January, February, September, and October.

22. *Tort. aërodana*, Meyr.

(*Tortrix aërodana*, Meyr., Proc. Linn. Soc. N.S.W., 1881, 520.)

Parva, alis ant. griseis, albido nigroque conspersis, M. interdum fascia angusta obliqua maculaque costæ ochreis; post. M. saturate griseis, F. albidis.

Male—10–11 mm.; *female*—14–14½ mm. Head and thorax grey; palpi moderate. Forewings narrow, costa moderately arched, hindmargin slightly rounded, very oblique; rather dark grey, irrorated with grey-whitish, and with scattered blackish scales, in female paler; in male sometimes a distinct slender ochreous fascia from before middle of costa to before anal angle, and an ochreous costal spot, but these are often imperceptible: cilia grey-whitish, darker towards base. Hindwings in male dark grey, in female whitish, posteriorly whitish-grey; cilia in male grey, in female whitish, with a darker basal line.

Immediately known by its small size, grey colouring, and narrow wings.

Eight specimens taken amongst heathy scrub at Hamilton in January.

9. DIPTERINA, Meyr.

Thorax generally with a very small crest, or smooth. Antennæ in male biciliated with fine long cilia. Palpi moderate, porrected, second joint triangularly scaled. Forewings with costa simple in male. Hindwings not broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 from a point, 5 slightly (or rarely strongly) approximated at base to 4, 6 and 7 stalked (rarely separate).

Distinguished from *Tortrix* by the long fine biciliations of the antennæ, and usually by the stalking of veins 6 and 7 of the hindwings. There are several Australian species. Of the three given hereafter, *D. imbriferana* is a typical species of the genus. *D. incessana* differs in some respects, having veins 6 and 7 of hindwings separate, and more elongate palpi, for which reasons I formerly referred it to *Arotrophora*, but it is without the characteristic antennal dentations of that genus, and the antennæ appear here to furnish the most reliable characters. *D. jactatana* also diverges in respect of the separation of veins 6 and 7 of hindwings, and in having vein 5 closely approximated to 4 at base; acquaintance with the male shows its former conjectural position to have been erroneous. The three species are very dissimilar and easily distinguished:—

- | | | |
|-----------------------------------|---------|--------------------------|
| A. Forewings whitish | | 25. <i>imbriferana</i> . |
| B. „ ochreous or fuscous. | | |
| 1. A sinuate black streak in disc | | 23. <i>jactatana</i> . |
| 2. No black streak | | 24. <i>incessana</i> . |

23. *Dipt. jactatana*, Walk.

(*Batodes jactatana*, Walk., Brit. Mus. Cat., 317; *Sciaphila flexivittana*, ibid., 353; *Pædisca privatana*, ibid., 382; *Grapholitha voluta*, Feld., Reis. Nov., Pl. CXXXVII., 39.)

Minor, alis ant. ochreis, sæpe fusco-suffusis, postice fusco-maculatis, striga disci antica sinuata nigra; post. griseis.

Male, female.—18–19 mm. Head, palpi, antennæ, and thorax brownish-ochreous or fuscous; palpi rather elongate, externally dark fuscous. Abdomen ochreous-grey. Legs whitish-ochreous, anterior and middle pair suffused with dark fuscous, except towards apex of joints. Forewings moderate, somewhat dilated posteriorly, costa moderately arched, hindmargin slightly sinuate, not oblique; varying from light brownish-ochreous to fuscous, paler towards anterior half of costa; a sinuate blackish streak in disc, reaching from near base to middle, anterior extremity obscurely bent downwards to inner margin; five or six small dark fuscous spots on costa, the two last coalescing below costa; a small dark fuscous spot in disc beyond middle, another on middle of hindmargin, and a third on anal angle; all these spots obsolete in darker specimens: cilia light ochreous, with a fuscous line near base. Hindwings grey; cilia whitish-grey, with a grey basal line.

Peculiarly characterized by the strong sinuate black discal streak.

Three specimens taken near Dunedin.

24. *Dipt. incessana*, Walk.

(*Teras incessana*, Walk., Brit. Mus. Cat., 304, (*Arotrophora*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 529.)

Minor, alis ant. fuscis, fascia media directa, macula costæ triangulari, alteraque anguli analis angusta erecta saturationibus; post. griseis.

Male, female.—13–16 mm. Head and thorax dark fuscous; palpi rather long. Forewings moderately broad, subtriangular, costa moderately arched, hindmargin sinuate, oblique; dull reddish-fuscous, strigulated with darker, with dark reddish-fuscous markings; outer edge of basal patch indicated by an indistinct rather irregular line; central fascia moderately broad, not oblique, from middle of costa to middle of inner margin, anterior edge straight, well-defined, posterior edge suffused, connected with a cloudy spot in disc beyond middle; a triangular spot on costa at $\frac{3}{4}$; a short erect streak from anal angle, reaching nearly half across wing: cilia pale reddish-fuscous, with a strong blackish basal line. Hindwings grey, indistinctly spotted with darker; cilia pale grey, with a darker basal line.

Considerably broader-winged than the following species, and widely distinct by the fuscous colouring and straight perpendicular central fascia.

I took one specimen at Auckland in January; Mr. R. W. Fereday has two others, taken at Christchurch in November and December.

25. *Dipt. imbriferana*, Meyr.

(*Dipterina imbriferana*, Meyr., Proc. Linn. Soc. N.S.W., 1881, 527.)

Parva, alis ant. albidis, area basali, fascia media angulata, macula costæ, alteraque anguli analis griseis; post. griseis.

Male, female.—9 $\frac{1}{2}$ –12 mm. Head and thorax whitish; palpi moderate. Forewings rather narrow, not dilated, costa moderately arched, hindmargin obliquely rounded; whitish, sometimes faintly clouded with grey, obscurely strigulated with fuscous-grey; basal patch more or less fuscous-grey, outer edge irregularly angulated in middle; central fascia suffusedly fuscous-grey, obscurely margined with dark-fuscous, moderate, rather narrower towards costa, running from middle of costa to middle of inner margin, angulated in middle; apical portion of wing more distinctly strigulated with fuscous-grey, strigulæ generally coalescing to form a spot on costa at $\frac{3}{4}$, a smaller spot on anal angle, and sometimes one on middle of hindmargin: cilia whitish, with a grey basal line. Hindwings grey, darker posteriorly; cilia grey, with a darker basal line.

An inconspicuous species, yet not like any other.

Taken at Auckland and Wellington in January.

10. EURYTRECTA, n. g.

Thorax smooth. Antennæ in male shortly ciliated. Palpi moderate, porrected, second joint triangularly scaled. Forewings with costa simple in male. Hindwings broader than forewings, cilia long. Forewings with 10 separate veins, vein 6 to costa, (normal veins 3 and 4, 7 and 8 being probably coincident). Hindwings with 7 veins, 2, 3, 4 remote at origin, short and nearly parallel, 5 and 6 rising near together, 7 free, cell long, transverse vein bent, rather outwardly oblique, (normal veins 3 and 4 coincident).

The only known genus of the group possessing only 10 veins in the forewings; and the venation of the hindwings is also peculiar. The type does not, however, appear ancestral, but rather as an eccentric development from *Tortrix*.

26. *Eur. robusta*, Butl.

(*Zelotheres robusta*, Butl., Proc. Z.S.L., 1877, 403, Pl. XLIII., 17; *Steganoptycha negligens*, ibid., 404, Pl. XLIII., 18.)

Parva, alis ant. albis, ochreis, vel rufis, fasciis duabus obliquis perfractis, maculis costæ marginisque postici septem nigrescentibus; post. griseis.

Male, female.— $9\frac{1}{2}$ –10 mm. Head white, often suffused with ochreous or reddish-ochreous, face and a longitudinal line on crown generally remaining white. Palpi white, externally generally suffused with ochreous. Thorax varying from white to reddish-ochreous, back sometimes dark fuscous. Antennæ grey. Abdomen elongate, stout, whitish-grey or whitish. Legs white, anterior and middle pair suffused with dark fuscous except at apex of joints. Forewings very narrow, costa in male almost straight, in female slightly arched, hindmargin very oblique, nearly straight; white, grey-whitish, ochreous, or reddish-ochreous-brown, the white specimens often partially suffused with pale ochreous; markings sharply defined, dark fuscous or blackish; a narrow very oblique fascia from near base of costa to inner margin before middle, rather widely interrupted immediately below costa, broadly dilated towards inner margin; a moderate oblique fascia from before middle of costa to inner margin at $\frac{2}{3}$, evenly broad, generally interrupted beneath costa, margins sometimes irregular; three small subquadrate equidistant inwardly oblique spots on costa between central fascia and apex, often separated by white scales, a fourth at apex, and three others on hindmargin: cilia whitish, whitish-ochreous, or grey, base barred with black and white. Hindwings fuscous-grey, darker posteriorly, thinly scaled towards base; cilia whitish or grey, with a darker basal line.

A rather handsome and very distinctly marked species, extremely variable in colour.

Mr. R. W. Fereday formerly took this species in abundance amongst grass near Christchurch, whence it seems now to have disappeared, probably owing to the extermination of native by English grasses.

11. PROTHELYMNA, n. g.

Thorax smooth. Antennæ in male biciliated with fascicles of long fine ciliations. Palpi moderate, porrected, second joint roughly scaled above and beneath. Forewings with costa simple in male. Hindwings as broad as forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 widely remote at origin, nearly parallel, 5 slightly approximated to 4 at base, 6 and 7 long-stalked, transverse vein very oblique.

Differs from *Proselena* especially by the peculiar ciliations of the antennæ. An interesting genus, approaching more nearly to the common ancestral type of the *Tortricina*, than any other native to New Zealand. It has considerable affinity both with *Proselena* and *Dipterina*, the very oblique transverse vein of the hindwings being found in some species of both those genera (as *Pros. annosana* and *Dipt. imbriferana*).

27. *Proth. nephelotana*, n. sp.

Minor, alis ant. dilute griseo-ochreis, fusco-nebulosis, area basali fasciaque media subobliqua obsoletis vix saturatoribus; post. dilute griseis.

Male.—18 mm. Head, palpi, and thorax brownish-ochreous sprinkled with dark fuscous. Antennæ grey. Abdomen whitish-grey-ochreous. Legs whitish, anterior and middle pair suffused with dark fuscous except at apex of joints. Forewings moderate, costa moderately and evenly arched, hindmargin obliquely rounded; pale greyish-ochreous, mixed with fuscous, and strigulated with dark fuscous; basal patch and central fascia fuscous, more ochreous towards disc, very ill-defined; outer edge of basal patch nearly straight, rather oblique; inner edge of central fascia running from before middle of costa to middle of inner margin, rather irregular, outer edge wholly suffused and obsolete; a longitudinal slender blackish line in central fascia below middle, above which is an ochreous patch; faint traces of a cloudy fuscous costal spot about $\frac{3}{4}$: cilia ochreous-whitish, with an indistinct grey line near base. Hindwings rather light grey, apex darker; cilia whitish, with traces of two grey lines.

A very obscurely marked insect, yet very different in appearance from any other.

One fine specimen taken amongst bush near Christchurch in March.

Fam. 2. GRAPHOLITHIDÆ.

Lower median vein of hindwings pectinated with hairs towards base; vein 2 of forewings rising before posterior third of lower margin of cell.

The genera occurring in New Zealand may be thus tabulated:—

- I. Forewings with 12 veins.
- A. Veins 3 and 4 of hindwings from a point.
1. Thorax crested 12. *Epalxiphora*.
 2. „ smooth.
 - a. Forewings in male with costal fold 14. *Pædisca*.
 - b. „ „ „ simple 13. *Aphelia*.
- B. Veins 3 and 4 of hindwings stalked or coincident.
1. Forewings in male with costal fold.
 - a. Antennæ of male notched above basal joint 17. *Strepsiceros*.
 - b. „ „ „ entire 16. *Protithona*.
 2. Forewings in male simple.
 - a. Hindwings in male with discal groove and ridge near base 15. *Carpocapsa*.
 - b. „ „ „ simple 19. *Exoria*.
- II. Forewings with 11 veins. 18. *Hendecasticha*.

12. EPALXIPHORA, MEYR.

Thorax with a very large erect crest on each side of back, and a small double crest behind. Antennæ in male thinly ciliated. Palpi moderate, straight, porrected, second joint with appressed scales. Forewings with costa in male simple, apex falcate. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 from a point, 5 moderately approximated to 4 at base, 6 and 7 stalked.

A very peculiar genus, remote from any other known to me; it contains only one species.

28. *Epalx. axenana*, MEYR.

(*Epalxiphora axenana*, MEYR., Proc. Linn. Soc. N.S.W., 1881, 648.)

Media, alis ant. ochreo-albidis, dilute rufo-nebulosis, fascia angusta dentata antica, duabus aliis ad costam confluentibus, signo disci trirami, macula costæ triangulari, strigaeque postica sinuata saturate rufis; post. griseo-albidis.

Male.—26 mm. Head and thorax whitish-ochreous, mixed with ochreous and dark fuscous. Forewings oblong, moderately broad, costa rather strongly arched, dilated before middle, apex falcate, hindmargin obliquely sinuate; whitish-ochreous, irregularly mixed and clouded with brownish-ochreous; veins posteriorly slenderly dark fuscous; markings ochreous-fuscous, becoming darker reddish-fuscous on costa and inner margin; outer edge of basal patch represented by a slender irregular, twice deeply dentate, fascia from $\frac{1}{5}$ of costa to $\frac{2}{5}$ of inner margin; margins of central fascia represented by similar slender irregular fasciæ, both starting together from $\frac{2}{5}$ of costa, separating immediately below costa, anterior one proceeding nearly directly to inner margin beyond middle, posterior one sharply angulated

below middle, terminating immediately before anal angle; an elongate spot in middle of disc, interrupting anterior edge of central fascia, its upper edge emitting a sharp inwardly oblique tooth in middle; a very flattened-triangular spot on costa, extending from near middle to a little before apex; a sinuate longitudinal streak before middle of hindmargin: cilia ochreous-white, with a dark fuscous basal line, and barred with reddish-fuscous. Hindwings whitish, posteriorly suffusedly mottled with grey; cilia white, with a basal row of grey spots.

A curious and rather elegant species, perhaps of South American affinity.

I took one specimen at rest on a tree-trunk at Wellington in January, and Mr. R. W. Fereday has a second from the same locality, taken in February.

13. APHELIA, Stph.

Thorax smooth. Antennæ in male shortly ciliated. Palpi moderate or elongate, porrected, roughly scaled. Forewings with costa simple in male. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 from a point, 5 very closely approximated to 4 at base, 6 and 7 stalked.

This genus cannot be considered truly indigenous to New Zealand, but I am not aware whether it could have been artificially introduced. The larva is believed to feed in the stems of *Juncus*, but is hardly known. The species here described is now cosmopolitan in range.

29. *Aph. lanceolana*, Hb.

Minor, alis ant. ochreis fuscisve, sæpius vitta media saturate fusca, interdum perfracta vel obsoleta; post. griseo-albidis.

Male, female.—14–20 mm. Head and thorax varying from whitish-ochreous to ochreous-brown; palpi variable in length, sometimes very long. Forewings narrow, not dilated, costa gently arched, hindmargin nearly straight, oblique; pale ochreous, often suffused with fuscous, sometimes wholly fuscous mixed with reddish-ochreous; costa generally with numerous very fine oblique darker strigulæ; sometimes a straight ill-defined dark fuscous central streak from base to apex, entire or interrupted so as to form two or three irregular spots, or visible at apex only, or wholly absent: cilia varying from whitish-ochreous to fuscous. Hindwings grey-whitish, apex sometimes darker; cilia grey-whitish, sometimes with a darker line.

Very variable, some of the varieties tending to be localized.

Taken near Hamilton in January.

14. PÆDISCA, Ld.

Thorax smooth. Antennæ in male shortly ciliated. Palpi moderate, porrected, second joint roughly scaled. Forewings with strong costal fold

in male. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 separate or stalked.

This genus belongs to a group very extensively represented in the northern hemisphere, but practically absent from Australia. The single New Zealand species stands quite alone; I at first erroneously referred it to *Cacoecia*, which it closely resembles in most respects, but the basal pectination, which I had overlooked, is strongly marked, and I have now no doubt of its true position.

30. *Pad. obliquana*, Walk.

(*Teras obliquana*, Walk., Brit. Mus. Cat., 302; *Teras spurcatana*, *ibid.*, 305, (*Cacoecia*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 487; *Sciaphila transtrigana*, Walk., Brit. Mus. Cat., 354; *Sciaphila turbulentana*, *ibid.*, 355; *Teras cuneiferana*, *ibid.*, Suppl., 1780; *Tortrix ropeana*, Feld., Reis. Nov., pl. CXXXVII., 45; *Tortrix herana*, *ibid.*, 52; ? *Teras congestana*, Walk., Brit. Mus. Cat., 308.)

Media, alis ant. griseo-ochreis albidisve, fusco-strigulatis vel suffusis, linea angulata prope basim, fasciæ obliquæ marginibus ac parte superiore, macula costæ alteraque marginis postici saturate fuscis; post. griseo-albidis.

Male, female.—16–22 mm. Head and thorax pale ochreous or almost whitish, often suffused with fuscous; palpi elongate. Forewings moderately broad, in male posteriorly dilated, costa moderately arched, hindmargin sinuate, not oblique; pale greyish-ochreous or sometimes whitish, generally strigulated, and more or less irregularly suffused with fuscous or dark fuscous, sometimes wholly fuscous; costa shortly strigulated with dark fuscous; markings fuscous or dark fuscous, darkest in the paler specimens, nearly obsolete in the darker; outer edge of basal patch indicated by a darker line, sharply angulated above middle, lower $\frac{2}{3}$ in male thick, generally conspicuously blackish-fuscous; central fascia from before middle of costa to before anal angle, costal third generally conspicuously darker fuscous or blackish-fuscous, moderate in male, very narrow in female, lower two-thirds strongly dilated, not darker than ground-colour except on edges, anterior edge more distinct, very irregular, posterior edge angulated near inner margin; a very ill-defined triangular costal spot about $\frac{2}{3}$, and a small spot towards middle of hindmargin, often connected by an oblique strigula; the large triangular space between basal patch and central fascia in male often conspicuously paler than rest of wing: cilia whitish-ochreous, with a fuscous-grey basal line. Hindwings grey-whitish or light grey, spotted with grey; cilia whitish, with two grey lines.

An exceedingly variable species, but always dull-coloured; some varieties of the female in colour and form approach the female of *Cacoecia excessana*, and are only separated with ease by the family characters,

Larva rather stout, cylindrical, attenuated at both ends; rather light dull green, bluish-tinged towards back, yellowish-tinged on sides and on segmental divisions; spots hardly lighter; head (when full-grown) pale dull ochreous, spotted with brownish-ochreous on crown. When younger (until last moult), head small, black, deeply incised behind, second segment greenish-whitish, transparent, hindmargin and posterior angles suffused with blackish. Feeds amongst spun-together shoots and leaves of *Veronica*, *Lonicera*, *Rumex*, etc.; probably very polyphagous. Pupa in same position, without cocoon. Larvæ were found plentifully in February and March, from which moths emerged in April, but probably they are feeding during most of the year. The species is very liable to the attacks of a large solitary dipterous parasite, which destroys nine-tenths of the larvæ.

Very common, and probably universally distributed, occurring at Auckland, Hamilton, Wellington, Christchurch and Dunedin, from November to April, and occasionally in June and July.

15. CARPOCAPSA, Tr.

Thorax smooth. Antennæ in male simple. Palpi moderate, ascending, appressed to face, second joint shortly rough-scaled beneath. Forewings with costa simple in male. Hindwings broader than forewings, in male with a short membranous ridge on lower median near base, and a grooved channel below it. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins, 3 and 4 stalked, 5 nearly parallel to 4, 6 and 7 separate,

Very distinct from any indigenous genus; represented only by one species, imported from Europe with the apple tree, on the fruit of which the larva feeds.

31. *Carp. pomonella*, L.

Minor, alis ant. griseis, strigulis transversis saturatoribus, macula magna postica fusco-cuprea, metallico-cincta, antice nigro-marginata; post. fuscis.

Male, female.—16–18 mm. Head and thorax dark fuscous-grey, sprinkled with whitish. Forewings moderate, posteriorly dilated, costa hardly arched, hindmargin oblique, sinuate; ashy-grey (scales dark grey with white tips), with numerous irregular transverse greyish-fuscous lines, coalescing to form a rather narrow transverse band at $\frac{1}{3}$ from base; a moderately broad elongate-ovate coppery-fuscous patch on anal angle, extending along hindmargin nearly to apex, preceded and followed by a metallic line, and containing two small metallic spots on anal angle; the anterior metallic line is preceded by a blackish streak, extending from inner margin half across wing: cilia grey, rather metallic, paler towards

base, with a strong blackish line. Hindwings fuscous-grey, apex rather darker; cilia grey-whitish, with a dark fuscous line near base; discal groove in male furnished with a pencil of hairs.

The hindmarginal coppery patch makes this species immediately recognizable.

Taken at Wellington, but probably widely spread, though hitherto little noticed.

16. PROTITHONA, n. g.

Thorax smooth. Antennæ in male shortly ciliated. Palpi moderate, porrected, second joint roughly scaled. Forewings with strong costal fold in male. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 7 veins (normal veins 3 and 4 coincident), 4 somewhat approximated to 3 at base, 5 and 6 separate.

Intermediate between *Holocola* and *Strepsiceros*, agreeing with the former in the entire antennæ of male, with the latter in the separation of veins 7 and 8 of the forewings, in other characters harmonizing with both. The single species has the superficial appearance of a small *Holocola*.

32. *Prot. fugitivana*, n. sp.

Minima, alis ant. griseo-ochreis, macula disci, duabus etiam dorsi divergentibus nigris, spatio intermedio ochreo-albido; post. griseis.

Male.—8 mm. Head, palpi, thorax, and abdomen pale greyish-ochreous, mixed with fuscous. Antennæ dark fuscous. Legs whitish-grey-ochreous, anterior and middle tibiæ and all tarsi suffused with dark fuscous, except at apex of joints. Forewings narrow, costa moderately arched, hindmargin very obliquely rounded; light greyish-ochreous; a suffused elongate blackish patch in disc above middle; an inwardly oblique suffused blackish mark on inner margin before middle, before which the ground-colour is somewhat mixed with blackish; an outwardly oblique slightly curved broad blackish spot from inner margin before anal angle, extending suffusedly to apex; the space between these three blackish marks is ochreous-whitish, which colour is suffusedly produced along submedian fold to base; three small suffused dark fuscous spots on costa towards apex: cilia ochreous-whitish, mixed with dark fuscous towards base. Hindwings fuscous-grey; cilia ochreous-grey-whitish.

One of the smallest and most insignificant-looking of the *Tortricina*, in markings somewhat recalling *Hol. thalassinana*, Meyr.

One specimen taken near Lake Coleridge in March.

17. STREPSICEROS, Meyr.

Thorax smooth. Antennæ in male ciliated, with an excavated notch a little above basal joint. Palpi moderate, porrected, second joint roughly

haired, sometimes tufted beneath. Forewings with strong costal fold in male. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 8 veins (or 7 by coincidence of 3 and 4), 3 and 4 long-stalked or coincident, 5 closely approximated at base to 4, 6 and 7 separate.

A characteristic Australian genus; both the New Zealand species are found in Australia, whence it seems probable they may have been introduced.

33. *Streps. ejectana*, Walk.

(*Sciaphila ejectana*, Walk., Brit. Mus. Cat., 350, (*Strepsiceros*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 681; ? *Sciaphila absconditana*, Walk., Brit. Mus. Cat., 351; *Sciaphila servilisana*, *ibid.*, 356; *Sciaphila saxana*, *ibid.*, 357; *Conchylis ligniferana*, *ibid.*, 363.)

Minor, alis ant. griseis, albido-sparsis, vitta longitudinali post medium deflexa, trianguloque marginis postici saturatoribus, nigro ochreoque mixtis; post. saturate griseis.

Male, female.— $12\frac{1}{2}$ –15 mm. Head and thorax grey mixed with ashy-whitish, shoulders ochreous-tinged. Antennæ of male notched at $\frac{1}{5}$ from basal joint. Forewings moderate, slightly dilated posteriorly, costa gently arched, hindmargin nearly straight, oblique; light-grey, more or less sprinkled irregularly with whitish, and mixed with darker grey, disc in female sometimes longitudinally whitish; costa strigulated with blackish; in male a tuft of raised scales on submedian fold before middle; a cloudy irregular somewhat sinuate broad dark fuscous longitudinal streak in disc, mixed with ochreous and blackish, extending from near base to beyond middle, thence bent downwards to inner margin before anal angle; an ill-defined triangular dark fuscous blotch on upper half of hindmargin, sometimes ochreous-tinged, its apex extending inwards to disc at $\frac{3}{4}$, generally containing two or three longitudinal black streaks; in male these markings are lighter, less defined, and more or less obscured by a general grey mottling: cilia grey, mixed with whitish points, irregularly and indistinctly barred with blackish. Hindwings dark grey; cilia grey, with a dark-grey line near base; veins 3 and 4 long-stalked.

Easily known from the following by the broader wings, only partial coincidence of veins 3 and 4, and greater remoteness of the antennal notch from the basal joint; the markings are usually very different, but both species vary so much, and are sometimes so obscurely marked, that the structural points furnish the readiest means of distinction.

Larva active, cylindrical; dull green, more yellowish-tinged on sides and towards extremities, spots paler; head black; second segment, or posterior half only, black. Feeds in September in spun-together shoots, or in a loose tubular web amongst leaves, of *Leptospermum scoparium*; in Australia on other *Myrtaceæ*.

Common at Hamilton, Wellington, and Christchurch, in January and March.

34. *Streps. zopherana*, Meyr.

(*Strepsiceros zopherana*, Meyr., Proc. Linn. Soc. N.S.W., 1881, 688.)

Parva, alis ant. griseis, albido-sparsis, vitta subcostali nebulosa interrupta nivea, subtus partim nigro-marginata, macula parva supra angulum analem nigra; post. griseis.

Male, female.—11–12½ mm. Head and thorax grey irrorated with white, head sometimes almost wholly white. Antennæ of male notched at ⅓ from basal joint. Forewings very narrow, costa slightly arched, apex produced, hindmargin sinuate, very oblique; dark grey, irrorated with whitish, sometimes strigulated with dark fuscous; costa very obliquely strigulated with blackish-grey; a rather broad ill-defined white streak beneath costa from base to apex, crossed by an oblique dark grey fascia-like streak before middle, and three or four slender dark grey very oblique strigulæ between that and apex; middle of disc somewhat suffused with blackish; an ill-defined black spot above anal angle; a short black line bordering subcostal streak beneath towards apex; generally a row of about three ill-defined black dots above anal angle towards hindmargin, preceded and followed by an obscure silvery-metallic line: cilia dark grey, paler towards anal angle, with a blackish apical spot, costal cilia white. Hindwings thinly scaled, grey, darker at apex; cilia pale grey, with an indistinct darker line near base; veins 3 and 4 coincident.

Variable in distinctness and intensity of marking.

Generally abundant amongst *Leptospermum scoparium*, on which the larva doubtless feeds; at Hamilton, Wellington, Christchurch, and Dunedin, in August, September, January, and March.

18. *HENDECASTICHA*, Meyr.

Thorax smooth. Antennæ in male ciliated, with an excavated notch near base. Palpi moderate, porrected, second joint densely rough-haired above and below. Forewings with strong costal fold in male. Hindwings broader than forewings. Forewings with 11 separate veins (normal veins 7 and 8 probably coincident), 7 to costa. Hindwings with 7 veins (normal veins 3 and 4 coincident), 4 approximated to 3 at base, 5 and 6 stalked.

Nearly allied to *Strepsiceros*, but differing in only possessing 11 veins in the forewings. The genus contains only the one New Zealand species.

35. *Hend. æthaliana*, Meyr.

(*Hendecasticha æthaliana*, Meyr., Proc. Linn. Soc. N.S.W., 1881, 692.)

Parva, alis ant. saturate fuscis, strigulis transversis albidis obsoletis; post. saturate fuscis.

Male, female.—9–10½ mm. Head and thorax dark fuscous, sprinkled with ashy-whitish. Forewings narrow, costa hardly arched, hindmargin sinuate, very oblique; dark fuscous, irrorated with grey and ashy-whitish scales, especially on basal half and before apex, tending to form irregular transverse lines; sometimes an indistinct ochreous suffusion towards inner margin before middle, and above anal angle: cilia dark fuscous, extreme tips and base ashy-whitish. Hindwings dark fuscous; cilia dark fuscous, with a darker basal line.

Taken rather commonly amongst rough herbage near a swamp at Hamilton, in January.

19. EXORIA, n. g.

Thorax smooth. Antennæ in male ciliated. Palpi moderate, porrected, second joint roughly haired. Forewings with costa in male simple. Hindwings broader than forewings. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 7 veins (normal veins 3 and 4 coincident), 4 parallel to 3, 5 and 6 separate.

I cannot affirm for certain that this genus is correctly located; it is impossible to make out on the single specimen whether the lower median is truly pectinated or not, but in other respects it seems to have some affinity with the group of *Strepsiceros*, though the antennæ are not notched.

36. *Exor. mochlophorana*, n. sp.

Parva, alis ant. dilute griseo-ochreis, fascia antica subcurva, altera postica inferius dilatata, tertia subapicali, macula costæ media alteraque apicis saturate fuscis; post. griseis.

Male.—10½ mm. Head, thorax, and abdomen fuscous, mixed with pale greyish-ochreous. Palpi grey-whitish, externally suffused with fuscous. Antennæ dark fuscous. Legs dark fuscous, posterior tibiæ grey-whitish, apex of joints obscurely pale. Forewings very narrow, costa hardly arched, hindmargin nearly straight, extremely oblique; pale greyish-ochreous, obscurely strigulated with grey, and with scattered dark fuscous scales; base mixed with dark fuscous; two small dark fuscous spots on costa near base; a moderately broad slightly curved dark fuscous fascia from $\frac{1}{3}$ of costa to $\frac{2}{5}$ of inner margin; a small dark fuscous spot on middle of costa; a dark fuscous fascia from $\frac{2}{3}$ of costa to anal angle, upper half narrow, lower half very broadly dilated; a narrow somewhat irregular dark fuscous fascia from $\frac{5}{8}$ of costa to middle of hindmargin; a small dark fuscous apical spot: cilia ochreous-whitish mixed with grey. Hindwings rather dark grey; cilia grey, tips paler.

A very distinct species, in form and marking somewhat resembling *Eurythecta robusta*.

One fine specimen, kindly presented to me by Dr. W. H. Gaze, who informs me that he took it, with a second, at South Rakaia amongst rough herbage in March.

Fam. 3. CONCHYLIDÆ.

Lower median vein of hindwings without (rarely with) basal pectination; vein 2 of forewings rising from posterior fourth of lower margin of cell.

20. HETEROCROSSA, Meyr.

Thorax smooth. Antennæ in male with long fine cilia. Palpi moderate or long, second joint roughly haired above and towards apex beneath. Forewings with costa in male simple, surface with raised tufts of scales. Hindwings broader than forewings, lower median pectinated towards base. Forewings with 12 veins, 7 and 8 separate, 7 to hindmargin. Hindwings with 6 veins, 3 and 4 stalked from posterior angle of cell, 5 from upper angle of cell to slightly above apex, 6 free.

Remarkable as being the only known genus of the family possessing the basal pectination of the median vein, probably an ancestral character. The group to which it belongs, characterized by the peculiar neuration of the 6-veined hindwings, is almost confined to Australia.

37. *Het. adreptella*, Walk.

(*Gelechia adreptella*, Walk., Brit. Mus. Cat., 654, (*Paramorpha*) Meyr., Proc. Linn. Soc. N.S.W., 1881, 698.)

Minor, alis ant. griseo-ochreis, saturate griseo-sparsis, punctis plerisque, macula disci postica parva, serieque punctorum postica transversa nigris; post. albidis.

Male, female.—14–17 mm. Head and thorax grey, more or less irrorated with whitish; palpi in male moderate, in female very long, lower half dark fuscous; antennæ in male whitish-ochreous. Forewings very narrow, costa moderately arched, slightly bent before middle, hindmargin straight, very oblique; greyish-ochreous or grey, sometimes mixed with whitish, especially towards base of costa, and more or less densely irrorated with blackish-grey; costa with about seven small suffused blackish-grey spots; a suffused blackish-grey spot in disc at $\frac{2}{3}$ from base; between this and base are about eight black dots in upper half of wing, irregularly arranged, tending to be followed by raised scales; a large raised tuft on the discal spot, and another on submedian fold at $\frac{1}{3}$ from base; an angulated transverse row of blackish dots from $\frac{3}{4}$ of costa to anal angle; a hindmarginal row of similar dots: cilia dark grey, with whitish points. Hindwings whitish, apex sometimes greyish; cilia whitish.

Narrower-winged than the following, with dark grey and ochreous colouring, and otherwise very distinct.

Rather common amongst bush at Christchurch, and at Hamilton and Cambridge, in September, January, February, and March.

38. *Het. gonosemana*, Meyr.

(*Heterocrossa gonosemana*, Meyr., Proc. Linn. Soc. N.S.W., 1882.)

Minor, alis ant. albis, costæ basi, macula disci antica cum altera costæ pæne confluenta, punctisque costæ quinque nigris, punctis disci quinque ochreis nigro-marginatis, serie punctorum postica transversa nigra; post. albidis.

Male, female.—17–19 mm. Head and thorax white; palpi in male moderate, in female elongate, lower half dark fuscous. Forewings narrow, costa gently arched, somewhat bent before middle, hindmargin straight, oblique; white, with scattered grey scales; a short thick black streak along base of costa, followed by a black dot; a small oblique blackish spot in disc at $\frac{1}{3}$, preceded by a small fuscous-grey suffusion, and followed by two raised tufts, half black and half white; a small rather inwardly oblique blackish spot on costa at $\frac{1}{3}$, almost connected with discal spot; these black markings are somewhat mixed on edges with whitish-ochreous; some raised scales towards inner margin at base and $\frac{1}{3}$; five equidistant short blackish marks on costa between $\frac{1}{3}$ and apex, rather oblique inwardly; five small spots of raised whitish-ochreous scales arranged in an oval in disc, each with a few black scales on margins; between these, and above posterior ones, is an ill-defined grey suffusion; a very ill-defined cloudy grey irregular dentate transverse line from second of the five costal marks to inner margin at $\frac{4}{5}$, angulated above middle; a more distinct similar line from third costal mark to inner margin before anal angle, containing a series of blackish dots; a hindmarginal row of blackish dots: cilia white, mixed with grey. Hindwings and cilia whitish.

Three specimens taken at Dunedin in February.

The remaining descriptions of Walker, not quoted here, are all unidentifiable in themselves, and unrecognizable from the loss or original bad condition of the types. It is probable, however, that all are merely synonyms of species given above. A list of them is given in my paper cited above.

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<i>imbriferana</i> , Meyr. 25.	<i>turbulentana</i> , Walk. 30.
<i>inana</i> , Butl. 15.	<i>vilis</i> , Butl. 14.
<i>inaptana</i> , Walk. 11.	<i>voluta</i> , Feld. 23.
<i>incessana</i> , Walk. 24.	<i>xylinana</i> , Feld. 3.
<i>intactella</i> , Walk. 21.	<i>zatrophana</i> , n. sp. 12.
<i>jactatana</i> , Walk. 23.	<i>zopherana</i> , Meyr. 34.
<i>lanceolana</i> , Hb. 29.	<i>zygiana</i> , n. p. 4.
<i>leucaniana</i> , Walk. 21.		